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ABSTRACT

The National Institute of Education (NIE) suggests a plan for national leadership and support of more comprehensive research and development (R. & D.) in the field of career education. The draft plan relies heavily upon suggestions from study teams in the development of a conceptual framework for career education, and in outlining strategies for strengthening programmatic efforts. The initial emphasis for the NIE career education R. & D. program will be the responsiveness of career education to the problems people experience in finding the right jobs and advancing within them. In defining career education as the development of knowledge and of special and general abilities to help individuals and groups interact with the economic sector, NIE emphasizes that both economic and psychological incomes from employment comprise the long-term outcomes which will be studied. The limited R. & D. resources available will be directed at two target groups most affected by problems of career entry and progression: youth and mid-career adults, particularly women. The four present career education models are examined for current and projected integration into the overall NIE program, and examples are given of suggested projects for research, policy analyses, program development, experimentation, dissemination, evaluation and/or field studies in career education. (DE)

DRAFT FOR DISCUSSION
APRIL 1973

FORWARD PLAN FOR CAREER EDUCATION RESEARCH AND DEVELOPMENT

PREPARED BY THE CAREER EDUCATION DEVELOPMENT TASK FORCE, NATIONAL INSTITUTE OF EDUCATION, EDUCATION DIVISION, DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
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Dear Colleague:

Ever since the National Institute of Education came into being with the mandate to improve education through research and development, there has been much interest regarding Institute plans for career education.

The following is a draft of the career education forward plan, prepared by the Institute's Task Force on Career Education, with the help of documents prepared by the Rand Corporation and the Education Research Center of the Syracuse University Research Corporation.

Let me stress that this document is a draft, and as such is for discussion purposes only. Final policy determinations will have to be made by the National Council on Educational Research, the Institute's policy making body.

We consider interaction with the field a major factor in attempting to chart a plan for career education research and development. We at the Institute would appreciate your criticisms, comments, and suggestions as to how the draft of the forward plan can be improved.

Sincerely,

Corinne H. Rieder
Director
Career Education Task Force

DRAFT

FOR DISCUSSION

FORWARD PLAN FOR CAREER EDUCATION RESEARCH AND DEVELOPMENT

Prepared by the

Career Education Development Task Force
National Institute of Education
Education Division
Department of Health, Education, and Welfare

April 1973

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ACKNOWLEDGEMENTS

So many have contributed to this Forward Plan that the provenance of some ideas can no longer be distinguished. In other instances, our debt is clear.

Several sections of the Plan are quoted directly from two papers prepared for the National Institute of Education (NIE) in November and December 1972 by the Rand Corporation and the Educational Policy Research Center, Syracuse University.

The Rand study team, led by Ms. Senta Raizen, was asked to suggest a conceptual framework for career education, identify research and development (R&D) alternatives and develop appropriate strategies of implementing suggested activities. The Syracuse team, led by Dr. Larry DeWitt, was commissioned to define the policy implications of career education--particularly "best guesses" about potential payoffs and pitfalls that the concept may encounter in its further development.

These reports--and other resources--were relied upon extensively during two two-day planning workshops held in November and January. Contractor project staff in the field provided valuable input from their perspectives on the firing line. Within NIE, Spencer Ward, Harry Silberman, Beverly Kooi and Cornelius Butler served both as critics and as contributors. Additionally, we have been privileged to read a variety of reports still in progress.

We acknowledge all contributions to this Plan while retaining responsibility for its deficiencies. These we hope will be corrected by the continued participation of all who share our belief that career education deserves serious and careful attention.

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FORWARD PLAN

FOR

CAREER EDUCATION

RESEARCH AND DEVELOPMENT

Executive Summary

Prepared by the
Career Education Development Task Force
National Institute of Education
Education Division
Department of Health, Education, and Welfare

April, 1973

As they are available, complete copies of the Forward Plan may be requested from Dr. Corinne Rieder, Director, Career Education Development Task Force, Code 600, Room 612, Washington, D. C. 20202 Phone: (202) 755-7533

EXECUTIVE SUMMARY

With career education now becoming a high priority item in most educational forums, one fact remains obvious: the responsibility for its growth must be shared.

As a participant in this process, the National Institute of Education (NIE) has prepared a Forward Plan for Career Education Research and Development which suggests a strategy for national leadership and support for career education. The Plan provides a conceptual framework for research and development (R&D) in career education and examines ongoing NIE Career Education Development Task Force (CEDTF) activities as they relate to that framework. Based on this foundation, activities are suggested with strategies for implementation during FY 73 and FY 74.

The NIE role in career education will have several facets. While there may be other dimensions, it seems appropriate that the Institute should:

- Provide national leadership in defining and describing career education
- Serve as a clearinghouse for information on career education
- Report overall development of career education programs and the findings from studies related to career education
- Develop and test a limited number of curriculum materials and approaches as options for local and State educational authorities
- Initiate research studies directed at the most basic and controversial issues in career education

- Analyze policy implications of basic career education issues
- Identify second generation research questions
- Support research emerging from existing program development
- Expand current models by helping initiate new program development activities and by supplementing the evaluation and documentation components of field-initiated projects
- Maintain a bank of ideas from small scale, exploratory level studies
- Stimulate career-related research in human learning, needs, educational goals and objectives, "life skills" and related concerns
- Assess the capacity of career education to support educational reform.

FOCUS AND DEFINITION

A fundamental premise for the career education program has been that programmatic research and development must be undertaken within the framework of a definite problem focus. The initial emphasis for the NIE career education R&D program will be the responsiveness of career education to the problems people experience in finding the right jobs and advancing within them. As more is understood about this fundamental element and its impact on other aspects of life development, additional factors can receive R&D attention.

More specifically, career education is defined as the development of knowledge and of special and general abilities to help individuals and groups interact with the economic sector. Economic and psychological incomes from employment comprise the long term outcomes which are proper

questions for research and development. In other words, NIE will begin its career education efforts by concentrating on how people earn their living: do they earn enough to maintain a decent standard of living, and do they like what they are doing? This focus has been chosen because:

- Resources are limited and must be concentrated on priority issues. A world without work may be imminent and persons may seek career education that will address their "nonwork life." Yet, there is also sizeable evidence that persons expect educational systems to prepare them and others for gainful employment.

- How people earn a living (Do they earn enough? Do they like what they are doing?) is of primary concern with reference to the well-being of individuals and Nation as a whole.

- Data about the economic sector of society, and the development of individual careers within that context, are more accessible than the knowledge base for other aspects of societal or individual activity--e.g., use of leisure time, citizenship responsibility, homemaking, aesthetic development, spiritual growth. While these aspects of life are important, the research and development community is faced with a considerably smaller and less accessible bank of information.

A CONCEPTUAL FRAMEWORK

The first step in developing a program plan is to analyze the problem and its history. With these data planners are better able to trace connections between perceived problems and possible research and demonstration activities.

The NIE-CEDTF intends to examine the assumptions that people often are educationally and vocationally unsuited to enter and successfully navigate a technologically oriented labor market. Many are concerned about maintaining their ability to earn a living. Others are concerned with

finding and holding a satisfactory job. Education in this context is viewed as a comprehensive delivery system composed of both formal and informal resources (schools. colleges, broadcast media. business-industry-commerce. labor, youth organizations and the like).

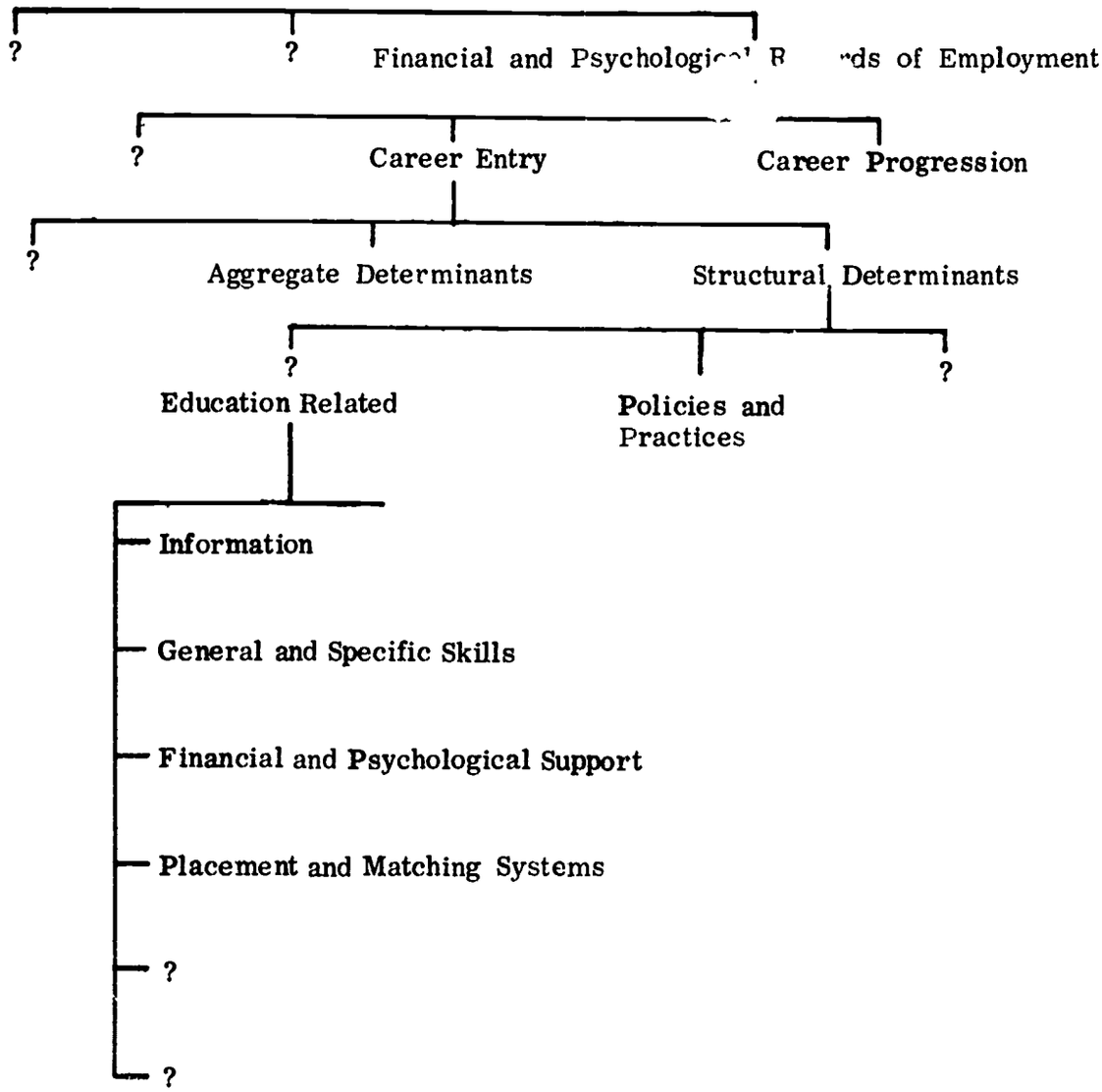
A conceptual model for career education (page ES-5) is offered as a way of exploring how educational and other processes affect the labor market and, eventually, the financial and psychological rewards of employment. There are at least two elements affecting this latter aspect of one's life work: career entry and career progression.

When examining the problem of career entry there appear to be at least two impinging forces that must be dealt with: (1) aggregate employment factors--that is, situations in the economic life of society over which individuals have little control (e.g., Federal monetary and fiscal policies that affect inflation, minimum wages, supply and demand) and (2) structural problems--e.g., no workers with skills to fill available jobs, unrealistic job requirements, discrimination, the extent to which people know about jobs.

In choosing structural problems for analysis, there are probably several tacks that could be taken. One approach would be to alter policies and adjust existing practice in the private sector. A reasonable course for education in ameliorating the structural problems associated with career entry and progression is the provision of the following, among others:

A CONCEPTUAL MODEL FOR CAREER EDUCATION

Career Education Objectives



1. Information, primarily guidance and counseling about careers and the job market.

2. Specific and General Skills, which are either minimal requirements or influences on job entry and advancement.

3. Rewards for career development and recurrent education, including financial support (e.g., entitlements, scholarships, continuing free public education, worker sabbaticals) and social/psychological support (e.g., acceptability and rewards for career exploration, occupational and educational discontinuities and midcareer change).

4. Matching and Placement Systems which relate individuals and local or regional employment resources and opportunities.

However, to address these kinds of problems for all persons would be unrealistic. Limited R&D resources will be directed at two target groups most affected by problems of career entry and progression: youth and midcareer adults, particularly women. For youth, emphasis will be on employment access and entry; for adults, emphasis will be on distribution of employment and career progression.

THE CAREER EDUCATION MODELS

The present career education models are examined:

- To suggest how these projects might be integrated coherently into the overall program and
- To match the current projects with the conceptual analysis to facilitate additional high priority research and development initiatives.

During the period since mid-1971, four career education "models"--actually a series of projects based on common themes and assumptions--have attracted considerable attention and resources:

Model I: School-Based Comprehensive Career Education Model (CCEM)

The Center for Vocational and Technical Education at The Ohio State University is the prime Model I contractor. Associated with the Center are six local school district sites that serve as focal points for the development and field testing of career education materials--curriculum units, guidance units, teacher training manuals, public information and administrative guidelines. The major problem focus of the project is youth's alleged lack of preparedness for employment, further study and adult life. The project attempts to reform the curriculum of the established public school system by infusing career development concepts into the entire K-12 curriculum. In grades K through six career awareness is emphasized; in grades seven through nine, career exploration and in grades 10 through 13, career preparation. By the end of 1973, 98 curriculum units are to be completed; all will have been tried out in the various cooperating school systems. They will be ready for dissemination in FY 75, following more rigorous field testing. A staff development package to accompany the completed units, a guidance and counseling package and a placement component also will be ready for dissemination.

Model II: Employer-Based Career Education

There are four Model II contractors: Appalachia Educational Laboratory, Far West Laboratory for Research and Development, Northwest Regional Educational Laboratory and Research for Better Schools, Inc.

As with Model I, the major problem focus is the unpreparedness of youth for employment, further study and adult life.

Model II projects are designing a comprehensive alternative to the public secondary school. The education setting is shifted from the existing school system to an adult, employer-based and action learning environment. Special emphasis is placed on the development of career planning, guidance and learning resources outside the school and close to employers.

When fully developed, this model will provide comprehensive data on the benefits and limitations of utilizing educational opportunities within economic institutions. Analyses will be given of the readiness of employers to involve themselves in comprehensive education programs, the necessity and/or potential of various incentives to employers, the learning potential of specific economic institutions, and jobs and methods of high school equivalency certification.

Model III: Home-Based Career Education

The Education Development Center, Inc. (EDC) conducts the only Model III project. EDC is working in Providence, Rhode Island, with the problems of adults and adolescents who are neither employed nor in school. Unlike the other models, this Model III project is not attempting to teach skills and attitudes directly. Rather, the project is designed to inform individuals about existing work and training opportunities in the community and to apply mass communication media to the outreach and assessment of the career interests of selected home-bound populations.

Model IV: Rural-Residential Career Education

Model IV is being developed by the Mountain-Plains Education and Economic Development Program, Inc. The project focuses on chronically underemployed multi-problem rural families. It represents a "total" intervention in that it attempts to influence all significant activities of the family, not only education-related activities. The major goal is to make the family unit economically viable through career counseling, training, remedial education and guidance for the children, homemaking and family development skills for the parents, and placement.

During these early months of operation most projects have successfully created a variety of program activities which give promise of reaching each model's objectives. The programs also have developed effective strategies for solving the many problems of implementation. Reviews of the models reveal some major difficulties, however. Foremost of these is an imbalance toward development, particularly day-by-day operations. The portfolio is typified by little emphasis on documentation, research and analysis, absence of common variables and planned variations, insufficient concern with implementation strategies, a narrow range of contractor types and lack of a systematic plan for summative as well as formative evaluation. Also, assessed against the conceptual framework, current contracts appear to address systematically only a few of the career entry and advancement problems outlined in the conceptual framework.

THE FY 73 AND FY 74 PROGRAM PLAN

The NIE career education program will test the conceptual framework and develop knowledge, techniques and delivery systems consistent with its aims. A program plan including research and development activities derived from the conceptual analysis and suggestions for improving the models programs is proposed. During FY 74, the Task Force will follow that conceptual framework in managing existing programs. It also will test the validity of the framework by spearheading a variety of new activities.

A. Management of Current Models

The current models will continue to be a central element of program development activities.

According to earlier workplans, initial products from Models I, II, III and IV will be available by the end of FY 73. In FY 74, NIE proposes to support program revision and a second round of development, during which the Career Education Development Task Force will test the effectiveness of materials developed in FY 73. The second round of program development and testing will be conducted primarily through internal evaluations.

Planning to test whether the program is transportable and cost effective will begin in FY 74. In FY 75, implementation of tests to determine if programs can be reproduced and if they are cost effective

will be conducted via external evaluations and experiments. Results from these studies will be available by the end of FY 75 and mid-FY 76.

B. New Activities

New funds are requested in FY 73 and 74 for research, policy analyses, program development, experimentation, dissemination, evaluation and field-initiated studies directed at questions related to career education for youth, and midcareer adults, particularly women. Listed below, as examples, are some of the projects that are tentatively slated under each activity for both target groups.

1. Research: Activities undertaken to gain understanding of cause/effect relationships and to increase basic knowledge in career education

Youth
Adult

a. Field-initiated studies:

Ideas that spring from the field in response to a prospectus broadly defining career education concerns.

Recognizing that there are many factors that CEDTF may have overlooked in its Plan, proposals might conceivably be offered for:

- Surveys to measure characteristics and identify needs of target populations
- Studies of current practice that point the way to promising improvement
- Studies of manpower system simulation models to identify and understand their essential elements
- Cross-cultural studies to understand career education strategies in other countries
- Studies related to access of target populations to employment.

Youth
Adult

b. Studies developed from current projects:

Research that grows out of ongoing developmental work in the NIE models and other contracts.

As local project staff conduct their day-to-day activities, they uncover new problem areas that may not have been foreseen or that are natural spinoffs from products completed. For example, a comparison of approaches to assessing the learning potential of student work experience might be a logical cross-model study.

Adult

c. Studies relating to job satisfaction:

How much is career satisfaction really worth?
When and for whom is job satisfaction an economically effective substitute for, or a complement to, financial rewards form work?

Work in America suggests that job alienation and dissatisfaction extract a high cost in alcoholism, absenteeism, sabotage, careless work and reduced productivity among workers in all occupations. Since many of these dissatisfied employees are receiving high incomes and extensive fringe benefits, their dissatisfaction presumably would not be remedied by more money and more benefits, even if it were unanimous that employers should and could afford to provide them. Speculatively, job satisfaction includes financial rewards. But above a certain point, job satisfaction may depend on the worker's sense of autonomy of independence and a participation in decisions.

Adult

d. Implications for career education of differing adult learning patterns and styles:

The development of basic learning processes and their changes between youth and the midcareer period may have implications for policies and practices in career education for midcareer adults. For example, if there are changes in learning processes during the midcareer period, guidelines for counselors might identify which careers capitalize on the most prominent abilities of the adult and which occupations place high demands on skills that are declining. Learning through experience versus other techniques may be differentially valuable for youth and adults, depending on the learning processes engaged. Approaches to career education for youth and adults may require different pacing of experiences to adapt to the changing learning processes.

2. Policy analyses: Research to generate and compare ways of making program decisions

Youth

a. Studies relating to legislative and other barriers to career education:

The possible barriers to career education and its intended outcomes deserve close R&D attention. Some will argue that unnecessarily high general and specific skill requirements are primary barriers for youth. Others say "chance" factors--e.g., being in the right place at the right time--and certain discriminatory practices in the world of work are more important barriers. Further, there may be any number of statutory and regulatory considerations that must be dealt with. Issues surrounding staff certification and problems associated with using paraprofessionals all must be considered in planning and implementing career education programs.

Youth
Adult

b. Studies of alternative financing and governance patterns for career education:

Sources and uses of public tax funds for educational services are being studied both within and outside NIE. Extending career education to youth and adults in new and creative ways suggests that financial policy making and management systems will require close attention.

Youth
Adult

c. Studies directed at the development and refinement of the conceptual framework as it affects target groups:

Continuous reexamination of career education definitions and assumptions should result in (1) improvement of the conceptual framework by identifying inconsistencies and exposing gaps in both theory and practice and (2) identification of priorities among objectives and variations in career education projects that would increase their significance.

Adult

d. Studies of the nature and effect of job redistribution as a worthwhile mechanism for improving employment opportunities and work satisfaction:

Several recent articles and books have termed income and job redistribution (without changing levels of unemployment) a goal worth striving for. In what ways will individuals and groups be better off, if, with the help of career education and other changes, incomes and

jobs were more equitably arranged? What unfavorable consequences could be expected and in what ways would the means by which changes in job distribution were effected (education, credentialing, job quotas, etc.) influence expected consequences for individuals and the Nation?

3. Planning and Program Development: Invention of educational products that can be used by practitioners or as a component of a large scale experiment

Youth

a. Development of programs related to the roles and functions of postsecondary institutions in extending educational and career opportunities:

Community colleges, proprietary schools, continuing education programs and 4-year colleges have been expanding rapidly in the last decade. Course credits and credentialing systems remain much the same, however. Many issues require careful study as postsecondary institutions shoulder their responsibilities in the career education system. Career education should not contribute to the deterioration of academic standards as feared by some educators, and the consequences of ideas like open enrollment programs ought to be examined critically.

Youth

b. Studies focused on the unique problem of hard-to-reach youth whom the schools may have failed to serve adequately:

For some youths, a numerically small but deeply troubling minority, the schools have failed. Upward Mobility, Job Corps and other programs may be too little and too late for those who often are turned off as early as the sixth grade. The costs of keeping reluctant youth in school are high. How early do such youth show dissatisfaction? What changes in the minimum age of school exit and in the hours required to be spent in school daily, could be made to create a more effective mix of work, recreation and education for youth? Would education be more productive with a more flexible approach to the locus of education (traditional and nontraditional) and the sequencing of education (phasing out of traditional schooling from sixth grade on) versus the abrupt cessation of required and publicly supported education at 16 years or 12th grade?

Youth

c. Planning studies leading to program development in the area of counseling, guidance and placement:

Investments in guidance for high school students have increased markedly over the past decade; commensurate increases in student benefits do not seem to have occurred. Career education programs may be more vulnerable to inadequate counseling and guidance than other educational services.

Existing resources (e.g., computer-based guidance, adults and older youths willing to advise students in their area, telephone counseling and guidance techniques, self-instructional materials) and innovative efforts being tried in the Model programs might well be adapted to emerging career education programs.

Youth
Adult

d. Development of new and/or synthesized career education models based on research findings and policy analyses:

There appear to be distinct advantages in combining various elements of the ongoing career education models. For instance, it might be very useful to explore a truly comprehensive model that would combine a core school-based instructional program, emphasizing basic skills; involvement of employers and other non-school adults for the provision of both work and "adult life" experience and contracts and the utilization of multimedia techniques and approaches in order to involve those who might not otherwise be reached as well as to reinforce "regular" learning experiences in schools and other settings.

Adult

e. Studies centered on the development of the potential of cable TV and other media for the delivery of career education into the home and other settings:

It is predicted that by the year 2000, 80 percent of instruction beyond the secondary schools will be delivered by cable TV, video cassettes, computer assisted instruction and learning kits to be used with audiovisual independent study units. Off campus instruction of adults may become the most rapidly changing segment of postsecondary education.

The feasibility and value of using cable TV and other media as well as strategies developed in a variety of other contexts need to be examined.

4. Experimentation: Large scale intercession into a real-world setting to answer with considerable certainty a question of major policy significance

Youth

a. Studies relating to the transportability of remedial basic skills programs available in the non-school domain for delivery of entry level foundation education:

Concentrated remedial skill-building programs developed for educational, military and industrial use are reported to be inexpensive and reliably successful. Support is being requested for an experimental test of selected programs in conjunction with ongoing career education projects. The experiment will first test the cost effectiveness of the programs and then assess (a) if youths can meet entry requirements through these accelerated foundation programs and (b) the value of these skills for successful participation in career education projects.

Youth

b. Studies focused on the strategy of "infusing" career education into ongoing school curricula:

Many State and local career education programs call for "infusion" of career development concepts into the K-12 curriculum. This strategy involves preparation of materials and guidelines relating to career education to be used by regular teachers and counselors in their daily programs.

Not only is this approach supposed to be less expensive, since no additional staff would be required except for preparing guidelines, but some believe infusion to be a more durable form of educational change than adding new staff, courses or special activities.

A review of existing evidence, surveys of current infusion-based programs and development of alternative, presumably more effective and equally feasible approaches, is proposed. An experimental test of cost effectiveness of the infusion strategy may be possible by FY 75.

5. Dissemination: Provision of information and guidelines for career education planning and research utilization

Youth

a. Development of a "whole earth catalog" on career education, containing material, activities and resources for teachers, counselors and administrators is suggested:

Those who are responsible for implementing career education programs have few tested resources that they can rely on for planning daily activities.

Such a catalog or directory would provide reliable, field-tested ideas that would give practitioners confidence in building their own unique versions.

Youth

b. Studies resulting in suggestions for media developers to guide their presentation of careers in the world of work, with particular references to sex and ethnic stereotypes, are proposed:

That subtle and blatant career stereotyping occurs is hardly debatable. Special attention needs to be given to the effects on youth of sexist and racist "messages" that are transmitted--particularly via television and textbooks.

Adults

c. To draw on existing resources of other governmental subdivisions, an interagency group on adult learning is proposed, similar to present interagency activities on early childhood and adolescents:

When planning new studies, the Task Force will meet with agencies in the Education Division and other Federal agencies. If studies underway meet CEDTF needs (or could be altered to do so) funds would be transferred to the ongoing project. If other agencies are interested in Task Force ideas and would like to support these new projects, interagency funding would be encouraged.

C. Evaluation

1. High priority is given to strengthening project evaluation. Consultants are reviewing currently funded formative and summative evaluation efforts. Initial recommendations for strengthening the overall evaluation component are due in April 1973.

2. Methodological studies of procedures for program development and product testing are needed. (Standards appear extremely variable and the term "fully field tested" often reflects little more than the first round of developmental activity.)

3. Development of intermediate and long term criteria for career education is underway. Measurement problems have been reported in almost all areas including job preparedness, ability to plan and make career decisions and career information.

4. Funds are requested for support of high opportunity situations such as evaluations of career education programs not supported by NIE (e.g., Cleveland placement service, California alternatives to the 12th grade).

5. Development of a National, State and regional reporting system for career education indicators, using existing data systems and possibly additional surveys.

D. Other Projects

A variety of educational projects which lend themselves to educational research and development are currently being monitored by the NIE Task Force on Career Education. These include:

1. Career education related programs at regional laboratories and research and development centers

2. Use of community aides and development of specially targeted curriculum in Washington, D. C.

3. Operation of a Child Study Center providing intramural research opportunities for general child development in terms of the overall NIE mission

4. Special workshops and activities deemed necessary to support and advance the field of career education.

IMPLEMENTING THE PROGRAM PLAN

The career education program's success depends on the policies that guide its organization and management.

- The program will strive to support balanced activities involving a variety of disciplines and institutions.

- The program will provide limited and carefully controlled institutional support but also will strive for continuity in project support, given adequate performance.

- The program will provide some support to short term projects with a high probability of success.

- The program will fund projects directed by skilled program developers who can achieve success in career education and let invention lead research by investigating the determinants of such success.

- The project will not assume responsibility for widespread implementation of career education discoveries but will work with Federal, State and local agencies to plan ahead for product utilization.

INTRODUCTION

This report presents the National Institute of Education's (NIE) plan for career education research and development (R&D) during Fiscal Years 1973 and 1974.

The planning task, carried out over the past six months, focused on developing a conceptual framework for the career education program, identifying R&D alternatives, and preparing research strategies appropriate for achieving those aims.

Two important analyses were necessary prerequisites for the plan. Section I considers educational and social needs in this decade and beyond; Section II follows with a conceptual framework for career education in light of these developments.

Section III examines current activities for both coherence and systematic relationships among the major projects and for compatibility between the projects and the conceptual analysis.

Sections IV, V, and VI describe projected research, development and evaluation activities for which FY 73 and FY 74 funds are requested. Section VII deals with some aspects of managing and implementing the program plan.

Three factors have had particular influence on NIE's career education planning. First, the relationship between social needs and public educational responsibility is changing. An educational R&D strategy that brings a number of projects to the exploratory development stage seems

sounder than one that invests heavily in only a few projects that limit themselves to the "most probable" future.

Second, ongoing projects presently in the NIE career education portfolio were intended to produce curriculum resources and delivery systems rapidly. Rather than evolving from a theoretical framework such as the one presented in this paper, their value was assumed. Building on the strengths of these ongoing activities, a significant portion of proposed new research will evolve from questions arising during the course of actual program development.

Third, career education is not a new idea whose progress can be guided systematically from basic research through systems installation. It has been a national educational priority for over three years. The concept of career education is spreading rapidly throughout the country, with millions already being spent on career curriculum development, state planning, and other career education activities.

Given the scope of career education, it would seem that NIE's role in career education should be to:

- Provide national leadership in defining and describing career education
- Serve as a clearinghouse for information on career education
- Report overall development of career education programs and the findings from studies related to career education
- Develop, test and assess a limited number of well-tested curriculum materials and approaches as options for local and state educational authorities

- Initiate research studies directed at the most basic and controversial issues in career education
- Analyze policy implications of basic career education issues
- Identify second-generation research emerging from field-initiated and other studies
- Support research emerging from existing programs
- Expand current models by helping initiate new programs and by supplementing the evaluation and documentation components of field-initiated projects
- Maintain a bank of ideas from small scale, exploratory level studies
- Stimulate career-related research in human learning, needs, educational goals and objectives, "life skills" and related concerns
- Assess the capacity of career education to support educational reform

SECTION I

EDUCATIONAL AND SOCIAL FUTURES: THIS DECADE AND BEYOND

Change is often the result of dissatisfaction with things as they are. Career education, which came into prominence in the early 1970's, is one of many responses to problems that are not really new or different.

Although certain problems have increased in magnitude and should not be ignored, many people apparently live productive and happy lives. Such a reminder may help keep reform and development in perspective. A watchful eye is necessary to prevent faddish, quick solutions to problems that turn out to be imprecisely defined and self-corrective. Educational reform should begin by conserving traditional approaches that can serve new generations as well as, or better than, "overly responsive" innovations.

BACKGROUND

Millions of youth, adults and older citizens, were productive and probably reasonably happy in the 1960's. Millions of others were not. Vandalism and absenteeism, particularly among youth, spread widely. Use of illegal drugs spread from colleges to high schools and from high schools to primary schools. The sixth grade and 12th grade were becoming educational wastelands. The number of high school and college dropouts increased. Hundreds of draftees failed to demonstrate minimal reading competence. Illegitimate births, alcoholism and drug abuse increased

rapidly. The 1960's also saw campus riots, with loss of life and destruction of property. The casualties of the last decade among youth may not be known fully for years; among the most affected may have been the most able intellectually and those most sensitive to injustice and destructiveness.

Interpretations of these events have varied. Some--like Reich--have placed the blame on institutions and see youth protest as a wave of emergent Consciousness III. Other summarize the problem as inadequate transition of youth to adulthood caused by age segregation, segregation of education and employment, and loss of an economically and socially meaningful role for youth, whose bodies are now maturing at 11 and 12 years of age.

If one assumes that the emergence of a new social order or consciousness most correctly describes the situation, then educational change probably will come about through native forces in American life as youth assumes increasing legislative and administrative control.

Suppose, on the other hand, one accepts the Coleman-Bronfenbrenner-Mead et al. analysis of a dysfunctional institutionalization of age segregation and too-rigid separation of educational, employment, and recreational roles to be a more accurate diagnosis. Then educational reform focused on (1) the transition from youth to adulthood, (2) increasing age integration and (3) the responsibility of youth for meaningful participation in the larger world would help shape a better future and should contribute to reducing the problems inherited from the 1960's.

The extent to which career education is a solution to social problems has not been assessed yet. Many papers on career education begin (as this one does) by listing problems but stop short of stating that career education will have a substantial effect on any of them, except perhaps the high rate of youth unemployment. Even here we are advised that fiscal and hiring policies most likely will have a more direct effect than education. Other analysts, however, either imply or anticipate that career education can contribute substantially to youth and adult employment and career satisfaction.

Partially in response to these issues, the White House Conference on Youth called for career education programs integrating academic and vocational training to prepare youth for working and further study:

> We further endorse an expansion of service learning and work study opportunities in high schools and colleges. Specifically, we call for programs of part-time or temporary service which have precise learning objectives and for which appropriate academic credit can be given.
>
> The general education curriculum which typically prepares students for neither jobs nor college should be phased out, and systems should be developed for integrating academic and vocational curricula.

Career Education and Youth

To help identify the effect of career education on improving the interaction of youth with the economic sector, and of improving the transition of youth to adult roles, it seems essential to:

- Commission policy analyses that assess the relationship between career education and measurable economic and career satisfaction outcomes, assessing what is and is not likely to change if career education is effective and identifying economic, social and psychological causes as a guide to new programs

- Develop indicators of current and predicted economic success and career satisfaction and

- Conduct experimental studies testing the effects on these indicators of various approaches to career education versus fiscal or policy changes.

It should be recognized that career education is one among many responses to social problems. However, few if any of these responses are the result of policy studies that (1) define the problems, (2) identify alternate solutions, (3) project cost/feasibility/benefits of the alternatives and (4) systematically test the effects of what are thought to be the most beneficial approaches both individually and in concert with other approaches. Consequently, for each specific problem relating to youth, there seems to be a "specific solution program" that may have ripple benefits in reducing other problems. For example, education for parenthood, sex education and family planning programs may reduce out-of-wedlock births. Career education for youth may reduce youth unemployment due to lack of preparation and youth alienation. In addition, each may have ripple effects that will benefit other targeted programs.

Such benefits remain hypothetical. They can be tested, however, after program development through social experimentation and during program development by comparing rate of change among common social indicators such as number of youth who are multi-problem "losers" and those who feel competent and able.

NIE must avoid the dangers of taking on the problems of youth singlehanded and conducting studies safely remote from social accountability. We will need policy analyses and research that assess the extent to which education, singly and in concert with other solutions, can reduce career-related problems.

There are many unanswered questions about career education: Will career education be a new tracking system to cool out minorities from college? Will career education fuel revolution if kids are told "the truth" about our economic system and how the labor market operates? Will expectations be raised about employment in jobs that don't, and can't, exist, as manpower training programs allegedly have done?

Equally, there are many unrealized hopes for career education: Will career education legitimize learning in nontraditional settings? Will career education provide a newer, more solid ground for public support of education? Will career education be the means of uniting new understanding of human development with new approaches to humanizing our economic and political system?

The fears and hopes are becoming even more clearly articulated; a large part of NIE's R&D programs will be examining these questions either to suggest how to avoid the pitfalls while realizing the hopes or, having shared in the worrying, to let the public know which of its concerns and expectations are justified.

Career Education and Adults

Many problems of the 1960's affecting adults also have created a readiness for career education. Among the concerns are unemployment of highly trained professionals, widespread job dissatisfaction a. ng white and blue collar workers, increases in absenteeism, defects in the quality and reliability of U. S. products, depersonalization of services, rising welfare costs associated with Aid for Families with Dependent Children (AFDC), increases in marginal or sporadic unemployment, the rising divorce rate and the breakdown of traditional family ties of responsibility and authority.

Again, interpretations of these events differ. To some observers, these trends are evidence of a social revitalization. They see traditional restrictions on self-actualization and an unhealthy emphasis on material success, consumerism, work for its own sake, and getting ahead at all being replaced with an ethic that puts as much value on human relationships and nonwork interests as on economic gain. And when they look upon this, they regard it as good. To other observers, Americans are caught up in

a technological society that places high value on novelty and little value on traditional forms. To still other observers, a decade of overemphasis on freedom and underemphasis on responsibility has run its course, and the country needs a reassertion of traditional values that base life satisfaction in work and the family.

Most of these analysts probably would agree, however, that technological advances and increased entry into job markets by women require changes in the educational system. They would like to see increased institutional support for "multiple careers" and more flexibility in matching job market needs with the supply of potential employees already trained or capable of being trained in these new fields.

At the same time, the economic value of education and training is being challenged now as rarely before. Assessments of conclusions of these challenges and specific needs for further data are just appearing. Reports already available give rise to questions such as the following:

- Does education primarily certify trainability and thus have value in ensuring one's place on a job queue and one's competitive status for an internal employment market? Or, are specific skills already acquired the determinants of one's place in line?
- Will entry into the job market of middle-class women willing to work for lower wages displace low-income males substantially increasing family disruption and the welfare budget?
- Are entry requirements in many jobs unnecessarily high?

- Are success on the job and vertical and horizontal career development more determined by prior education and competencies gained on the job, by employee "attitude" and personality, or by being in the right place at the right time with the right friends?

- To what extent can counseling for career development increase career satisfaction for adults without creating unrealistic expectations or flooding the job market?

- How economically undesirable would such flooding be? Would it act as a more effective brake on inflation than wage/price controls or would it be economically regressive?

Some research is under way on these issues. Public demand has created technical institutes and continuing education programs, as well as more targeted programs (e.g., alcoholism prevention and treatment), to respond to adult problems of the 1960's. It seems likely that as the average age of the population increases and technology reduces the demand for labor, adult problems will increase and educational institutions will be delegated a central role in their resolution.

Career Education and the Older Adult

The problems of another group in our society may receive substantial attention in the near future. If the problem of youth is the transition to adulthood, and the problem of adults is inability to gain career satisfaction as economic stability is attained, the problem of the older adult seems to be a sense of worthlessness.

This loss of meaningful social function, apparently similar in its nature and historical genesis to that of youth, is compounded by poverty which often falls more cruelly on the old than on the young. Increases in

Medicare, Social Security benefits, and liberalization of regulations on retention of earned income may reduce widespread poverty among older adults. It has also been suggested that career education can help increase a sense of meaningfulness and purpose in older adults and improve their economic status.

Minorities

The 1950's and 1960's saw an increasing concern for improving the economic status of minorities, both in the sense of reducing the disparity between high and low income groups and in providing equal opportunity for education and employment. Marked advances in the legal status of minorities have been achieved since 1956. In economic terms, however, the income gap is as large as ever. Reading achievement scores are decreasing in inner city areas, and minorities remain most vulnerable to unemployment. The extent to which education can remedy this situation is regarded by some as more limited than the beneficial effects of changes in hiring policies and practices, income redistribution measures, and welfare reform. Education, among other institutions, is viewed with both passionate hope and distrust by many minority groups and individuals. NIE has a clear responsibility to anticipate ways in which career education could be viewed as an attempted "rip-off" by a majority establishment. NIE should also share responsibility for helping career education realize its potential as a better deal for minorities. Improving

minority preparation for employment and diversifying occupations now sought by minorities are examples of the contributions career education can and should make.

Women

Even though they are numerically a majority group controlling more economic resources than any other, the employment status of women is as unequal as that of youth and minorities. Between 1960 and 1970, the percent of women in the labor force rose from 35 to 43. Changes in the percent of women in occupations offering greater financial and psychological income were negligible. Education has been identified as among the most repressive institutions in limiting women's educational and occupational aspirations and preparation attainments. Hiring policies and promotion practices are alleged to keep women with the same education and experience as men from earning as much as their male counterparts and from filling managerial positions.

Career education R&D has a responsibility to investigate cause and effect relationships affecting the status of women and to develop prototype programs to sever education-related links in the chain.

Constituencies for Career Education Research and Development

The problems described above define reasonable constituencies for: youth in transition to adulthood, adults seeking greater stability of employment and career satisfaction, older adults in need of a meaningful

role in society, minorities looking for greater economic opportunities, and women seeking greater equity in employment.

The future problems of education also should be considered in R&D planning. According to Harman and associates, some youngsters probably will continue to need basic education in the 1980's and 1990's (reading, writing, comprehension and quantitative skills). Many others will learn these skills easily through television programs, at-home teaching and some primary level training. Job markets will be changing more rapidly in the 1980's and 1990's and service occupations will be the growth industry. A child of that period will need to learn how to learn, to get along with others, interpersonal skills, perceptiveness and social responsibility even more than a child growing up now.

SUMMARY AND IMPLICATIONS

Looking back on educational R&D there seems to be an age progression of research and program emphases. In the 1950's, research and research analyses in early childhood development led the way to program operation and development projects in the 1960's. Research analyses in the 1960's focusing on adolescents and age segregation led the way to similar youth-related program operation and program development efforts in the 1970's. Neugarten's work on maturity and the reports on the aging of Birren et al. may indicate that research in the late 1970's increasingly will focus on the needs of adults, both as a return to a basic skills

emphasis for those who have not achieved literacy and as a new theoretical initiative in the area of career satisfaction, job restructuring and the need for multiple career lifestyles. From this research may spring the programs of the 1980's.

There is a parallel shift in emphasis from cognitive to motivational interests. The research of the 1950's stimulated programmatic emphasis in the 1960's on the environmental determinants of IQ and on the acquisition of basic cognitive processes. The analyses of the 1970's, both in early childhood and adolescence, are emphasizing motivational factors, cooperation, coping, and competency. This reflects first an age shift, since IQ test performance and basic cognitive processes usually are stabilized by youth. Second, there is a shift from emphasis on the economically deprived child to concern also with the needs of youth from middle and upper economic sectors, who typically are not characterized by low IQ test performance and apparent deficiencies in basic cognitive processes. Third, the shift reflects an emerging belief that IQ and basic cognitive processes are but little influenced by environment and that education must motivate children to use their adequate IQ/cognitive base to achieve the basic skills required for life satisfaction.

Following this argument, the slow time frame of research and development is such that basic R&D projects begun now should focus on the anticipated problems of the 1980's. Programs already underway for youth in the 1970's, particularly career education, may have been

mounted on too large and too visible a scale for first generation research and development to catch up. Existent career education R&D may have re-created in essence the premature national stimulation of early childhood programs in the 1960's--with solutions first, and analyses, problem definition, and doubts next. If justified, this is a bitter conclusion, but one that must be faced. New projects selected in winter 1972-73 will not be initiated until fall 1973. Allowing an adequate period for start-up, test and report (at least four years in most cases) it will be 1977 before the exploratory and development phases are complete. If experience of the past two decades holds true, (1) much of the youth crisis instigating the career education movement will have corrected itself, (2) some field-initiated career educational changes will have become institutionalized and (3) there will be a number of myth-challenging reviews of the career education literature and policy analyses similar to the 1971-72 studies of compensatory and early childhood education. By 1977-78, emphasis may have shifted back to basic education for children and to solving, through institutional change and education, the needs of adults.

The appropriate NIE investment in youth-related projects, therefore, should be in (1) institutional change studies capitalizing on the variations and approaches now being developed, (2) development projects selected for their innovative nature, (3) second generation research emerging from current individual development projects and (4) focusing existing program development projects on specific populations and outcomes.

These projects or models were initiated on a wide spread scale. Basic definitional issues emerged as project costs and objectives were scrutinized. Some of the program ideas, examined a year later, seem remarkably good. However, sounder management would have resulted in small scale investment in many of the ideas now cascading from the commissioned studies and in the selection of the most promising or adaptive approaches after a year or so of pilot work.

If there were few other activities nationally in career education, radical changes in existing projects would seem more feasible. But given the rapid expansion of career education nationally and the fact that programs are almost three years old, radical restructuring of existing programs to fit an ideal R&D model of sequenced development--a model that no longer seems possible--appears unjustified.

SECTION II

CONCEPTUAL FRAMEWORK

Designing an R&D plan in any field is difficult. It is particularly difficult when the area is career education, which still is not defined in a manner that makes it amenable to scientific inquiry.

Problems such as economic socialization of the young, youth in transition, adults in mid-career, inequitable distribution of income and desirable jobs for women and minorities and older adults in search of more meaningful roles in society have given rise to a number of programs, including those frequently described as career education. There is little agreement in career education literature as to how career education should be defined, or what goals, objectives, and approaches are unique to career education. For some, career education and education are synonymous in their goals and should be synonymous in approach. For others, definitions of career education are closely allied to the goals and objectives of vocational education, which advocate broadening and improving only the means by which vocational objectives are reached.

Many definition issues center around (a) the comprehensiveness of the target population (youth, adults, aged, handicapped, low income, women, minorities, etc.), (b) the facet of life to be addressed--economic man, social-political-personal man, or both and (c) the status of career education as a system, an approach, a program, a context, or an emphasis. Three groups (Rand, Syracuse, and NIE career education staff) have

examined these issues during the past two months. They have considered, for example, whether to focus the career education R&D program on limited or broad themes and how to select and order the most significant problems from hundreds of possible R&D recommendations.

This selection should be based as much as possible on the relative importance of various problems that might be investigated. Assessing problem importance involves answering questions, such as: Who thinks the problem is important and why? How many individuals does it affect?

Selection of a focus also must be based on a consideration of constraints such as the ability of the educational sector to deliver possible solutions and the components of the problem that are amenable to an R&D approach.

Conceptual analysis is the necessary first step in designing any R&D plan. Such a framework is useful for understanding the relationships among subproblems, recognizing the significance of new ideas when they occur and indicating where R&D effort should be concentrated.

Two initial analyses of important questions and relationships in career education have been prepared by Rand and Syracuse. These are presented below as excerpts from more lengthy reports that may be available from the contractors directly. The positions taken by these excerpts are those of Rand and Syracuse, not necessarily NIE.

Drawing in part on the insights from these two reports then, the Task Force proposes its own definition and theoretical structure for shaping an R&D plan.

CONCEPTUAL ANALYSIS: RAND[1]

Overview

The focus of the Rand analysis is on the economic and social aspects of work. Nonwork-related, continuing education for the self-development and leisure-time satisfaction of adults is separated out for further analysis at some later time. The present analysis assumes that there are three major objectives of career education related to employment:

1. Reduce unemployment--ensure proper education and training so that individuals are able to qualify for the types of jobs they seek

2. Reduce low-income employment--provide education, training, and placement services individuals need to avoid, or progress from, jobs with little opportunity for growth in income

3. Reduce alienation in employment--assist workers who are dissatisfied with their employment experiences but have few opportunities for change or growth.

Each of the three work-related objectives above can be divided into two basic concerns: (1) the level of achievement and (2) the distribution of achievement. For example, in dealing with unemployment, one subobjective of career education is to help reduce the overall level of unemployment in the Nation. A separate and distinct subobjective is to help reduce disproportionate percentages of unemployed among subpopulations such as blacks, women, and youth. A similar division into subobjectives can apply to the two other objectives.

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1. The following section is quoted with minor editing from Raizen et al., pp. 8-28.

Focusing on work-related career education objectives requires that an examination of the labor market within which career education programs directed toward work-related objectives must operate. There are two alternative views of the nature of the labor market. One is the notion of a free labor market. This is the classical economic approach holding that all workers can compete freely for all jobs, and all employers can compete freely for workers. The second conceptualization is the structured labor market. This approach is based on the view that the labor market is more or less rigidly structured so that each job has constraints limiting the workers who can compete for it.

At a more detailed level of analysis, career education problems can be divided into two different domains: entry problems (problems of entry into the work force) and career progression problems (problems regarding career progress or advancement within the work force). Both domains relate to all three career education objectives listed above although entry may relate more directly to unemployment, and career progress may relate more directly to low-income employment and alienation in employment.

Problems of entry into the work force have at least six distinct causes. Each potential cause serves either as a hypothesis to be tested by R&D activity or as the focus for testing alternative education delivery

systems or techniques to overcome each particular problem. The hypotheses regarding causes of entry problems are:

- Lack of specific, saleable occupational skills
- Lack of the general skills and attitudes required for successful entry into the work force
- Lack of credentials for entry
- Personal constraints prohibiting entry and breakdowns in the process of matching individuals seeking jobs with available job opportunities
- Conflicts between job aspirations and the realities of employment

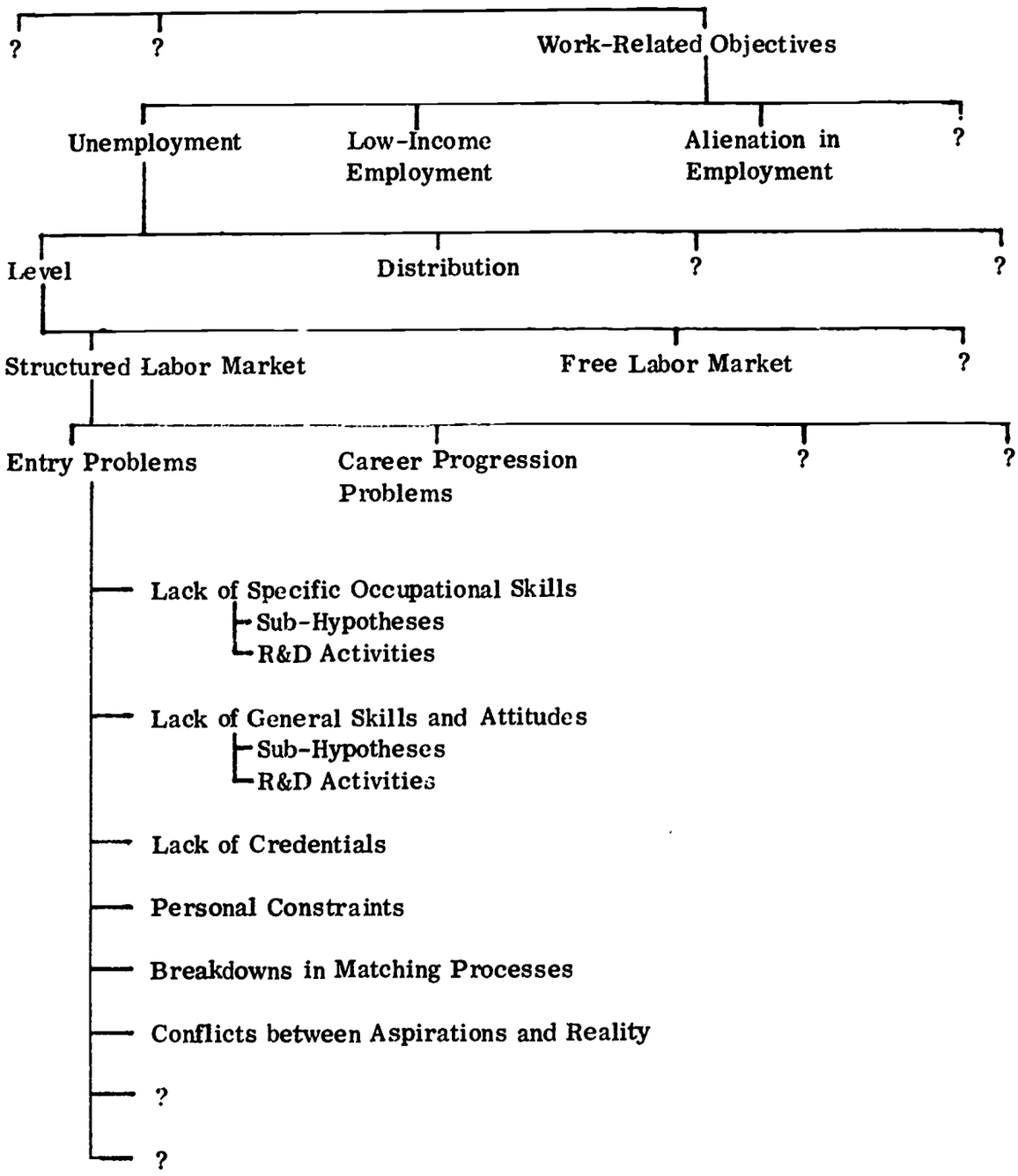
Problems concerning career progress and advancement can be broken down similarly. For each hypothesis regarding entry and career progression problems there also are subhypotheses.

The framework for our analysis is shown in Fig. 1. Career education program objectives are divided into broad categories (e.g., work-related objectives). Specific operational problem objectives within the broad category (e.g., unemployment) are then stated. The next step is to examine the dimensions of each objective (e.g., the level of unemployment) and the alternative contexts within which career education programs will have to operate as they attempt to achieve those objectives (e.g., a structured labor market). Problems are then analyzed (e.g., entry problems) and hypotheses are examined (e.g., lack of specific occupational skills) to determine why those problems exist. These broad hypotheses are further subdivided into specific subhypotheses. The final step is to outline the R&D activities that address these subhypotheses.

Fig. 1

A CONCEPTUAL MODEL FOR CAREER EDUCATION

Career Education Objectives



Before proceeding to fill in details, some general observations on the conceptual structure are in order.

First, there is a temptation to ask whether this conceptual structure is "optimal" or even "correct." Such questions are meaningless. A conceptual structure is used to organize our thoughts about problems and the interrelationships among problems and to direct our attention to potentially profitable lines of inquiry. The structure outlined above is only one of many and there are no theorems that permit us to decide which is best. If it helps to define issues and highlight planning possibilities, the conceptual structure serves its purpose for the present.

In connection with this consideration, a second important point must be raised. The structure is abstract. It undoubtedly is true that variations in the present structure will be required as more is learned about the problems and processes that are represented. The value of the structure lies in the extent to which it is useful. Some research should examine continually what can be done to the structure to enhance its usefulness.

Third, the structure portrayed in Fig. 1 is fragmentary and incomplete. Subsequent discussion should help to fill in some of the blanks, many of which represent gaps in our current knowledge and understanding of the issues and problems confronting career education. The reader will note in Fig. 1 the presence of question marks at every level. These indicate that currently there is insufficient knowledge to elaborate the structure in full detail. It is known, for example, that

unemployment, low-income employment, and alienation in employment are all contemporary problems career education should try to reduce. But there are questions about the structure that remain unanswered: Are there other work-related objectives of career education? If so, what are they? Can they be operationally specified? Again, further research on the structure itself is needed, and this research should be directed toward issues at all levels of the structure.

A Conceptual Structure

Objectives. Although a variety of goals and objectives often are ascribed to career education, only some of them are directly related to work. However, the work-related objectives are distinct from the others in a number of ways. First, they are reasonably well defined. Problems such as unemployment or low-income employment have been matters of concern for a considerable period of time. Consequently a rough consensus as to the nature of the problem has been reached. This, in turn, means there is considerable agreement on the measures of the magnitude and distribution of the problem. In short, an operational definition is readily available.

This is not to say that there are no disputes about concepts such as unemployment. But, compared with some of the nonwork-related objectives of career education (e.g., encouraging individuals to develop the ability to make satisfying use of leisure time), career education objectives in the work domain appear remarkably clear-cut.

Second, because these issues have arisen in the past, extensive information on which to base further activities is accessible. Data on numbers and types of persons who suffer unemployment or low-income employment are available in considerable detail. (Note: This is not the case with respect to alienation in employment.) Thus, the data required to identify potential target populations for career education programs are largely available at the outset.

We can compare this state of affairs with nonwork-related objectives of career education. How many persons currently lack the ability to make satisfying use of their leisure time? Are there disparities by race, income, sex, age and so on as to individuals' abilities to engage in satisfying leisure time activities? Do urban conditions exacerbate the problem?

Third, we have at hand considerable knowledge as to why people may encounter these problems and what might be the obstacles to solving them. This knowledge provides a foundation for further R&D efforts; such a foundation is absent when one turns to career education problems outside the work domain. It also should be noted that the existence of this knowledge implies the existence of researchers who are trained and experienced in the area. This is no small point since the success of an R&D program depends upon whether or not the research community is adequately prepared to carry it out.

This report does not support a premise that R&D in career education should focus exclusively on work-related problems. Rather, our concern here is with matters of research emphasis and level. We suggest that there now exists sufficient knowledge, understanding, and data to support research directed toward the achievement of work-related career education objectives. With respect to career education objectives other than those relating to work, our current level of understanding is not sufficient to support such specific, operational R&D activities. Instead, research in this area must focus on conceptual issues--such as the generation of operational definitions of problems and objectives--and attempts to build the knowledge base upon which operational, programmatic R&D efforts depend.

Further, a career education R&D program with a narrow focus on well-defined problems is more likely to attain some measure of success. The work-related objectives provide such a focus. Nonwork-related objectives, on the other hand, are diffuse, vague, and lack general agreement as to their nature.

In summary, Rand recommends that for the present, R&D activities in the NIE Career Education Program be directed toward the achievement of work-related career education objectives. Some research should be directed toward the nonwork-related objectives of career education but such research efforts should focus on broad conceptual issues rather than on operational programs.

Further research on the conceptual level will uncover other areas of concern to career education where the knowledge base is sufficient to support programmatic research. In time research on the nonwork-related objectives of career education should build the required knowledge bases in other areas. However, at this point, present understanding of nonwork-related objectives does not appear to warrant extensive efforts in that direction.

In accordance with these conclusions, the remainder of our analysis is focused on unemployment, low-income employment, and alienation in employment.

Dimensions of the Objectives. There are at least two dimensions to each of the three problem objectives listed above. On one hand, career education could focus on the level or overall extent to which any of the objectives is achieved. Thus, programs could be designed to help reduce the overall level of unemployment, the overall level of low-income employment, the overall level of alienation in employment. On the other hand, the distribution of these problems among various population subgroups could be the focus of career education activities. Thus, programs could focus on reducing unemployment among blacks or reducing the extent to which women are constrained to low-income employment, and so on.

At first glance, these do not appear to be different objectives. If a career education program succeeds in reducing the level of alienation in employment among blacks, for example, doesn't it also reduce the overall level of alienation in employment? Not necessarily. There is considerable

room for disparity between distribution goals and overall level goals. Unemployment, for example, is not distributed equally between blacks and whites. A program that succeeds in enhancing the employment opportunities of program participants may reduce the overall level of unemployment; but if the participants happened to be disproportionately white, the overall reduction in employment would be accompanied by an increase in the disparity between unemployment rates by race.

The distinction between distributional and overall level goals becomes particularly apparent in the debate over "creaming." During the past few years many social action programs have been accused of focusing on individuals who least need help and devoting little or no attention to those whose needs are greatest. It is probably true, at least for most programs, that creaming is conducive to a more substantial overall impact, but the problem is that creaming exacerbates the disparities between those passed over by the program and the rest of the world. In short, creaming is "bad" if distributional goals are paramount. But creaming is not "bad" and may even be desirable if overall level goals are ranked above distributional goals.

In essence, this issue reduces to the choice of target populations. Career education programs cannot hope to be all things to all people, even within the limited sphere of work-related objectives. Attempts to cover too wide a range of problems will lead to scattered resources and fragmentated programs. Rather, choices must be made as to which kinds of individuals (e.g., individuals having certain kinds of problems) will be the focus of career education programs.

One possible choice is to help those who can be helped. This choice is often implicitly made when program R&D activities yield a program that is workable. A natural tendency at this point is to reproduce the successful program in other locations. What happens then, of course, is that those individuals who encounter the problems the successful program manages to overcome are the individuals who receive help. Thus, although no conscious choices are made, an implicit decision as to the target population results. Moreover, since minor obstacles to successful careers are likely to be more easily overcome than are major barriers, programs that aim at removing minor obstacles are more likely to prove successful. Hence, persons who encounter only minor obstacles are more likely to be the beneficiaries of programs. Consequently, though no one intended to "cream," it occurs. This is not necessarily undesirable, but it is undesirable to make such important decisions without prior analysis.

R&D activities have an important role to play at this point. There are questions that R&D activity must address. Who are the unemployed? The alienated employed? What are the distributions of such persons? What obstacles do they encounter? What knowledge is now available about what can be done to reduce or remove those obstacles?

As noted earlier, one reason for the focus on work-related objectives of career education is that much of the information needed to answer such questions is already available. But this information is scattered and incomplete.

Accordingly, Rand recommends that some research be directed toward the analysis and synthesis of what is now known about the barriers (particularly those of an educational nature) that preclude or hinder individuals' career success, the characteristics of the persons who encounter each kind of barrier, the distributions of such persons in terms of the kinds of problems they face in trying to overcome obstacles to career success, and what can be done to remove or reduce those barriers.

Changes in the labor force and the nature of productive activity occur over time. The economy fluctuates. Moreover, an analysis of what is now known about unemployment and low-income employment problems undoubtedly will reveal gaps in the data base. Particularly glaring is the lack of information about alienation in employment and its distribution among workers and jobs.

In sum, this "problem-discovering" aspect of career education should be an ongoing activity, updating old knowledge and filling in the gaps.

One aspect of this point is worth emphasizing. Career education policymakers will need continuing data to guide their decisions for the future and to evaluate their progress. They will depend for much of this data on outside agencies such as the National Center for Educational Statistics, the Bureau of Labor Statistics, and the Census Bureau. These agencies on their own are not likely to procure precisely the information career education decisionmakers will need. Accordingly, the NIE Career

Education Program should undertake an analysis of ongoing data-gathering activities, institute a program to derive the data relevant to career education concerns, identify data gaps, and fill those gaps. The annual Manpower Report of the President accomplishes many of these objectives and may even suffice for the present. But Rand recommends examination of this report with a specific view toward career education data needs.

The Context of Career Education. As previously noted, in seeking to achieve work-related objectives, career education programs must operate in the context of the national economic system. The achievement of radical changes in that system lies outside the domain of career education. Hence, career education programs must take these constraints into account.

From a career education perspective, the most important aspect of the economic system is the degree of structure in the labor market. Consider, for example, the extreme case of a free labor market. In such a market, all workers could compete for all jobs and all employers could compete for all workers. In short, there are no constraints on an individual's ability to enter the work force and move from job to job in the market. All workers receive a wage equal to their marginal product. Unemployment is limited to frictional levels. Career progression is based on the individual's ability. Persons unhappy with their job are free to move. In general, this type of labor market places virtually no restrictions on career education activities. Anything that career

education does to enhance an individual's productivity will improve that person's employment circumstances. The total result, however, is considerably divergent from "loose" labor markets where persons compete for jobs on the basis of their characteristics and those who fail in the competition remain unemployed.

On the other hand, consider the highly structured labor market. This market is characterized by criteria associated with each job so that only persons who satisfy criteria may compete for that job. Criteria include (1) the skill requirements of jobs--e.g., persons who lack the ability to drive cannot compete for jobs as truck drivers; (2) the formal and informal credentials requirements--e.g., persons who lack a license or a certificate cannot compete for jobs requiring them; (3) various forms of discrimination that limit job competition on the basis of sex, race, age, and so on; (4) the existence of internal labor markets that constrain competition for one job to persons who have had other specific jobs (for example, a person who has all the skills required to be an excellent foreman can compete fo. a foreman's job in a company that promotes from within only if he happens to be working for that company); and (5) formal and informal pressures on employers that may preclude their adjusting the requirements of a job to meet labor market conditions. For example, minimum wage laws, union contracts or social pressures may operate at levels higher than would prevail in a free market, keeping employers from adjusting to labor market conditions by reducing wages and expanding employment.

The important point is that there are a variety of constraints on job competition. We do not have an estimate of the number or the proportion of jobs in the economy that are constrained in any of the ways listed above, but casual observation suggests that they would be in the large majority. This, in turn, has two implications for career education programs. First, these constraints are the potential targets of career education activities. Unemployment, low-income employment, and alienation in employment all stem from constraints such as these, which hinder the individual's ability to pursue a successful career.

At the same time, these constraints limit career education, because reduction or elimination of some of these constraints is apt to be beyond career education's scope. It is wasteful to enhance an individual's productivity in a job for which he is not allowed to compete. For example, a person is likely to find training in one of the construction trades to be of little value unless some mechanism for gaining entry into the trade union is available to him.

Labor markets are never perfectly free and few are tightly structured. Rather, what currently exists is a variety of markets: some are highly structured, some are relatively unstructured. It is unlikely that any conceivable career education program can be equally effective in all cases. Rather, programs must be suited to the particular problems of the various markets.

In summary, we recommend that research be directed toward obtaining detailed information on the structural barriers individuals encounter as they attempt to enter and advance in various labor markets. First steps should attempt to integrate existing research results into a career education focus.

Problems of Career Entry and Progression

At a more specific level of analysis, career education programs may be divided into two distinct but interrelated domains: (1) programs directed toward the problems individuals encounter as they attempt to enter, or reenter, the work force, and (2) programs concerned with progress within the work force. The relationship between entry problems and career progression problems is suggested by some of the structural issues mentioned above; in particular, career ladders limit advancement into certain jobs to persons holding certain other jobs. Such relationships suggest that one problem encountered by persons who lack advancement opportunities is that they entered at the wrong point. Both domains--entry problems and career progression problems--relate to all three general objectives listed earlier, though the domain of entry may relate more directly to the problem of general unemployment, and the domain of work progression may relate more directly to the problems of low-income employment and alienated employment.

At this level of analysis, more immediate R&D activity should focus on the extent of these two domains and their relationship to one another. Of particular importance is identifying the career progression opportunities associated with various entry-level jobs.

There apparently has been considerable research into these issues. Hence, analysis and syntheses of previous research would again be the starting point for this effort. Because at this level the analysis becomes very complex, some of the specific problems of entry and progression are presented in outline form.

I. Problems of Entry into the Work Force[2]

A. Lack of specific saleable occupational skills

1. Lack of exposure to training programs

a. Openings not available

(1) Public provision of spaces in training programs

(a) Public programs of skill training

(b) Public schools to provide skill training

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2. Key: I. Main Problem
A. Suggested cause for main problem
1. Suggested subcause for cause
a. Hypothesis for subcause
(1) Suggested intervention
(a) Alternative programs

Alternative interventions and programs are not listed when they follow directly from the suggested hypothesis.

(2) Public encouragement of private provision of spaces

(a) Training vouchers for participation in programs

(b) Agents to place unemployed in programs

(c) Subsidies or tax incentives for programs

b. Openings available but individuals not qualified

(1) Remedial programs to meet qualifications

(2) New programs with less ambitious objectives and qualifications

(3) Changes in standards of qualifications for programs

c. Openings available but individuals lack funds to participate

(1) Subsidies to individuals

(2) Programs provided at convenient times and places for employed persons

(3) Simultaneous work-training programs

d. Openings available but individuals not interested

(1) Role model programs

(2) Special curriculum programs

(3) School guidance and counseling

e. Openings available but individuals unaware of them

(1) Programs to inform individuals of training opportunities

2. Lack of skill acquisition within training programs

a. Lack of ability to learn

(1) Better placement in training programs

(2) Remedial programs to aid in skill acquisition

(3) Changes in curriculums to simplify skill acquisition

b. Lack of motivation to learn

(1) Individualized instruction

(2) Improved career motivation programs

c. Ineffective instruction or poor curriculums

d. External factors inhibiting learning

(1) Research identifying the nature of these external factors

3. Acquisition of skills that are not marketable

a. Skills not wanted by labor market

(1) Updated program content and instruction

(2) Programs to provide more generalized skills

b. Job placement skills lacking

B. Lack of general skills and proper work attitudes

1. Dropped out of general education system

a. Individuals lacked funds to continue

(1) Voucher programs

(2) Correspondence courses and other general education alternatives

b. Individuals disenchanted with general education system

(1) Career motivation programs

(2) Alternatives to the general education system

(3) Counseling and guidance programs

c. Individuals expelled from general education system

(1) Role models and other career motivation programs to encourage reentry

(2) Alternatives to the general education system

(3) Counseling and guidance programs

2. Remained in education system but did not acquire marketable skills

a. Individuals lacking ability to learn

(1) Remedial programs for acquisition of general skills

(2) Individualized instruction

(3) Improved placement policies

b. Individuals disenchanted with education system

c. Ineffective instruction or poor curriculums

3. Poor work-related attitudes

a. Lack of exposure to work experiences

(1) Role model programs

(2) Work-study programs

(3) Increasing relevance of school work to work experiences

(4) Onsite programs to improve work habits

b. Discouraging work experiences

(1) School guidance and placement into work-study programs

(2) School controlled work-study programs

(3) Improved matching services

c. Unrealistic expectations of work opportunities

(1) Exposure to role models

(2) Early exposure to work experiences

(3) General guidance and counseling

C. Lack of credentials for work entry

1. Lack of skills to gain credentials[3]

2. Lack of alternative sources of credentials

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3. If individuals cannot obtain credentials because they lack the skills to acquire them, all those career education hypotheses listed above that are relevant to skill acquisition may pertain.

a. New credential granting programs

b. Programs to modify or eliminate credential requirements

c. Programs to provide alternative means to meet credential requirements

D. Personal constraints prohibiting work entry

1. Care of dependents

a. Public care of dependents

b. Vouchers for private care of dependents

c. Government of community cooperatives for care of dependents

d. Wage subsidies to supplement work at home and dependent care

e. Incentives for employers to provide work at home

f. Provision of dependent care at places of employment

2. Poor health or disability

a. Therapeutic programs for rapid recovery

b. Physical compensation programs

c. Incentives to employers for hiring the disabled

E. Breakdowns in the matching of people and job opportunities

1. Inadequate information regarding job opportunities

a. Lack of knowledge concerning information services

(1) Government-sponsored job banks

(2) Government-funded dissemination agents

(3) Public or private dissemination systems

b. Lack of funds to use information services

(1) Financing toll-free call number to job banks or employment agencies

2. Lack of mobility

a. Limitations to geographic movement

(1) Financial limitations

(a) Moving vouchers

(b) Tax remissions based on moving to new job sites

(2) Psychological limitations (personal ties or uncertainty regarding new locations)

(a) Programs to guarantee jobs in new areas

(b) Agencies to provide housing assistance, etc.

b. Limitations to occupational movement

(1) Information programs on alternative occupational opportunities

(2) Programs of exposure and orientation to alternative occupations

F. Conflicts between aspirations and reality

1. Lack of desirable opportunities

a. Programs to increase occupational alternatives[4]

4. All skill acquisition programs mentioned earlier may apply here.

b. Education of employers to eliminate undesirable characteristics of jobs

(1) Improved work environments

(2) Programs to eliminate discrimination, both in hiring and on the job

(3) Improved advancement opportunities

2. Unrealistic expectations of entry applicants

a. Role model programs

b. Counseling and guidance

c. Work-study programs

II. Career Progression Problems

A. Lack of opportunity for advancement

1. Programs to improve skills and attitudes for career advancement

2. Programs to encourage employers to redefine jobs to provide advancement possibilities

3. Improved job placement

B. Lack of skills for advancement

1. Lack of exposure to training required for advancement

a. Lack of openings in training programs

b. Lack of knowledge of training opportunities

c. Lack of funds

2. Exposure to training, but lack of skills for advancement[5]

5. Career education possibilities suggested in the discussion on entry problems may apply in section B1 and B2.

C. Lack of credentials required for advancement

1. Programs to encourage employers to eliminate credential requirements for advancement
2. Redefinition of employment positions and establishment of paraprofessional positions that do not require credentials
3. Programs to provide information on acquisition of needed credentials
4. Programs to encourage acquisition of credentials in alternative ways--i.e., government-accredited credentialing programs

Alienation in Employment. In addition to the problems outlined above, a third domain for R&D in career education concerns the individual who is dissatisfied with his job, even though he has no specific entry or advancement problems. Both inside and outside the employment environment, contributions to society and productive use of individual time must not be permitted to degenerate because of dissatisfaction with employment opportunities and environment available to the Nation's citizens. Compared to the two domains described above, however, the role of career education in permitting greater opportunities for fulfilling work experiences and nonwork-related career paths is relatively unclear. Most of the educational objectives and program possibilities mentioned earlier may be applicable if content is related more directly to fulfilling life experiences and less related to employment positions. Furthermore, programs and objectives

aimed at removing personal barriers to fulfillment (for example. lack of dependent care or information services) may apply to an even greater degree within the domain described here. Considering the current absence of any firm knowledge, however, we would recommend that for the present time the NIE Career Education Program, if it wishes to address alienation problems, concentrate its R&D efforts on identifying affected individuals (numbers, specific population groups, types of jobs held, etc.) and defining the nature of their problems before launching into costly experiments or development efforts.

CONCEPTUAL ANALYSIS: SYRACUSE[6]

In this section we will examine briefly some of the major economic issues and problems that seem to be addressed, either directly or indirectly, by proposals for career education. These problems are, in order of presentation: (1) employment and unemployment, (2) the distribution of income, (3) consumer problems, (4) job satisfaction, (5) poverty, (6) economic justice and (7) financial problems of the schools themselves. We will treat each problem separately, first by stating the problem, then by relating that problem to education, then examining the possibilities for career education, and finally by proposing a research strategy to deal with the study of each issue.

6. This section is quoted with minor editing from Burke et al., pages 3-15.

Employment and Unemployment

In 1971 the overall U. S. unemployment rate stood at 5.9 percent. This means that about five million persons were without jobs and actively seeking work. However, official unemployment figures often overlook a vast number of unemployed persons. Either these people have given up looking for a job, have reluctantly retired early, or have returned to school as a preferable alternative to idleness. In a recent article in Social Policy (September/October 1972), Bertram Gross and Stanley Moses estimated "real" unemployment (defined as the number of individuals not presently working who would accept a job if one were available) as including nearly 21 million people, for a real unemployment rate of 24.6 percent.

While the unemployment situation was bad for the work force at large, youth fared even worse. The official unemployment rate for youths 16 and 17 was 18.8 percent in 1971, while the jobless rate for those 18 and 19 was 15.5 percent. This problem is not particularly recent. Since 1954, the official unemployment rate for workers under 20 never has dropped below 11 percent.

Career education, or any other kind of education for that matter, could not guarantee a job to everyone because far and away the largest portion of unemployment is due to monetary and fiscal policy. The only kind of education directly creating a job for the graduate of that type of education is teaching, and the current teachers' surplus should convince even the most ardent supporter of career education that such an

innovation, in and of itself, could not cure unemployment. Education works on the characteristics of the student. If he is unskilled, education can give him a skill. But unless there is an unfilled job requiring that skill, the student is not helped.

There are two causes of unemployment: (1) structural unemployment, meaning no workers exist to fill certain job openings, and (2) unemployment due to inadequate demand, meaning economic activity is not vigorous enough to support the wages necessary to employ people. Presumably a better job of identifying, predicting and preparing people to fill unfilled job openings could help cure structural unemployment. However, it is doubtful that more than one unemployed person out of 10 owes his or her unemployment to structural causes. The precise estimate of the structural component of unemployment is a major research gap that should be corrected if the role of education in solving (or at least lessening) unemployment is to be determined.

One suggested long term goal for career education is the provision of a more realistic picture of the employment situation. Once a reasonable estimate of the extent of structural unemployment has been made, a lower limit to the unemployment rate could be set. If current monetary and fiscal policies cause an official unemployment rate of, say, 4 percent, then the educational system might respond by making this fact, as well as its consequences for the current student population, known. How to cope with such an economic reality presents a major challenge to career education. Several strategies could be suggested.

First, the public could be educated to the reality of aggregate unemployment, so that unemployment would not be considered the fault of the individual. Given society's demand for stable prices and the trade-off between unemployment and inflation, the unemployed could thus be seen as performing a social service in holding down price increases.

Second, the educational system could adopt a strategy of providing job skills in such a way as to increase competition for jobs and hence spread unemployment over a larger portion of the population. In this way, unemployment could act merely as a brief interruption in the employment of most workers at some point in their life, rather than as a way of life for a relative few. However, it is doubtful that education could accomplish such a goal without basic changes in the nature of labor unions, seniority arrangements and hiring practices.

Third, certain legal changes could be instituted to ease the level of aggregate unemployment. One reform, suggested by A. Dale Tussing and others, is that the minimum wage for teenagers be set at a lower rate than that for older workers with family responsibilities.[5] However, this step must be taken with great care lest lower paid young workers "bump out" higher paid older ones whose family responsibilities and income needs make them less able to afford unemployment.

Fourth, as mentioned below under the heading of job satisfaction, a greater use might be made of recurrent adult and postcompulsory education. In this context, any unemployed individual might be given

the option of attending an educational institution (either a government sponsored MDTA program or a more conventional institution, such as a community college, or a 4-year college or university). Such educational activity could be considered to be a job, and pay could be earned accordingly, as is now the case with military officers who periodically attend school and continue to draw full pay and benefits. This strategy would have two effects. It would actually lower the unemployment rate by giving unemployed workers a temporary job and it would provide a further check on structural unemployment by "retooling" labor skills to keep pace with the changing complexion of economic activity.

A research strategy of career education's role in attacking unemployment problems should include:

1. A major effort to identify the precise size of structural unemployment

2. The gathering of more information on early work experience of those who leave school (both graduates and nongraduates)

3. An effort to identify the educational requirements for different jobs and compare these requirements with the capabilities of recent secondary school (and even college) graduates

4. The effect of education on unemployment (if monetary and fiscal policy will predetermine an unemployment rate of say 4 percent, does educational background influence who will make up this 4 percent?) and the implications of this for career education policy

5. A determination of those jobs held by a high concentration of workers under 21. (Study the impact of a lowering of the minimum wage for these jobs. Determine the feasibility of a program to place workers holding these jobs in higher paying positions when they reach a certain age.)

6. A study concerning the nature and success of various "sabbatical leave" programs, especially for military officers and business executives. (Determine the feasibility of extending such a program to the unemployed and its impact on employability, worker satisfaction, and future employment security.)

Education and the Distribution of Income

It is obvious that some jobs pay much better than others. Jobs associated with a college and especially a postgraduate education--jobs such as medicine, law, college teaching, engineering and the military officer corps--pay quite well. An individual such as the hospital worker, policeman, custodian, assembly line worker and military enlisted man, who take jobs requiring less education, receive on the average a smaller salary. While Christopher Jencks and his colleagues claim that income is not perfectly related to cognitive ability (the presumed product of education) the role of educational institutions in certifying people for high paying occupations (jobs that very often cannot be held without such a certificate) is obvious. Below the college level, educational activity also seems to have an effect on the types of jobs people obtain. Herbert Gintis of Harvard University maintains that school achievement (grades, teacher recommendations, test scores) actually act as surrogates for employee characteristics, such as punctuality, responsibility and honesty, that employers desire. Lester Thurow of MIT, argues in a similar vein that educational achievement is taken as evidence of a potential worker's ability to learn on the job and to adapt to new situations.

Economists Peter Doeringer and Michael Piore point to the "internal labor market" in explaining the relationship between jobs and income. According to this theory, employers often promote their own workers before going outside the company to fill slots. Hence, a hiring decision is made not just on the basis of skills at the entry level, but also on the basis of promotability. The experience of the economically disadvantaged (who tend to have low educational attainment) seems relevant here. John Iacobelli noted, "Employers feared the long range consequences of hiring and training disadvantaged labor, which they saw as decreasing the pool of employees with high potential for later promotions. According to Thurow, competition in the labor market has switched from competition for wages (the normal economic argument of supply and demand) to competition for jobs. Thus, argues Thurow, the best jobs go to workers whom employers see as the best "risks" for promotion. Often educational attainment and performance is used to "identify the best risks."

But not all jobs are characterized by an internal labor market, relatively high income and employment security. Some workers, those who "lose" in the competition for good jobs, enter what Dean Morse calls the peripheral labor force, in which jobs are characterized by low pay, part-time work, and intermittant unemployment.

Just as there is at best a limited role for career education in solving the problem of unemployment, it is not to be expected that career education, or any educational innovation, can overcome the problems

caused by unequal income, even if it can be traced to education. As long as some workers must be consigned to the peripheral labor force, education alone cannot guarantee everyone a high paying and secure job. (Morse in his book The Peripheral Worker lists some compelling reasons why such a labor pool is required for economic flexibility.) Furthermore, if the Thurow job competition is correct, even an increase in the supply of workers qualified to fill positions in the internal labor market would not guarantee that they would all fill such positions. In all likelihood, employers would just increase their standards for hiring. Even if career education was more effective in preparing people for college, it is possible that in the short run colleges and universities would increase their entry requirements. It is also possible that professional organizations such as the American Bar Association and the American Medical Association--the labor unions of the elite--might tighten the restrictions on entry into their professions rather than face the possibility of declining wages.

This is not to say that education does not have a role in equalizing the distribution of income, but only that education by itself does not determine the number of high and low income jobs. It only determines who fills them. As such, the role of career education could be a dangerous one, especially if job placement becomes a reward or punishment for educational conformity. Instead of reducing the relationship between education and inequality, career education could actually strengthen it.

A research strategy would address the following points:

1. A review of Coleman, Jencks et al. to determine the relationship between education and income, as well as the consequences of a strategy designed to bring more equal distribution of income

2. The development of a better theoretical model of education and the distribution of income

3. A determination of other social reforms necessary to develop more equal salaries for different types of jobs

4. A determination of the likely effect of a "successful" career education system on the distribution of income between employee wages and employer profits, including

    a. The effect of career education on unionism and collective bargaining;

    b. The effect of career education on the job training costs for employers.

Consumer Problems

Education not only impacts how people earn their income or how much income they earn, but also may influence how income is spent. The power of income is determined not only by how much it buys but also by what it buys and how it is obtained. The tale of perpetual debt which traps some consumers into buying shoddy or unwanted products is both tragic and common. The U. S. economy is based on the belief that consumer demand is the source of economic value and--as an ideal--this belief has great merit. Yet the consumer is pressured from all sides to buy without reflection. Impulse buying often is the logical outcome of high pressure advertising. All too often promises far exceed performance and the consumer, in his ignorance, feels helpless.

Certainly there is a need to educate people as consumers, but the question is whether "career education" is the proper framework. Not many will disagree that a person is more than he does. Either career education will be just one component of education or career education must transcend what a person does and concentrate more on what he or she is. If the latter is the case, then the following points should be considered further:

1. What is the present scope of consumer education occurring in school?

2. How might such programs be improved? What social pressures would be brought against them?

3. To what extent do consumption patterns differ for various educational and occupational groups? What explains the difference? What do such dissimilarities indicate for the differences in "real" income?

Job Satisfaction

As working time decreases, leisure time increases. For people like doctors, lawyers, college teachers and military officers, work and leisure overlap. Because certain jobs are considered enjoyable in themselves, what is done "off the job" closely resembles what is done "on the job." Other workers see their jobs only as means to another end, namely the consumption of the necessities and amenities their incomes provide. One of the paradoxes of our economy is that those people with the jobs that carry the largest prestige and highest intrinsic rewards also seem to provide the larger incomes. Those who hold jobs where income must compensate for drudgery earn less.

This situation can be generalized in the following terms. Society seems to reward success with prestige. Success often is equated with income, and income often correlates with high educational success or performance. The circle is complete if education (at least for some) is enjoyable and if the jobs requiring high educational attainment provide activities much like the educational activities that lead to them (think of medicine, law, college teaching and research). How can the educational system correct the job dissatisfaction of the lower paid, while still recognizing that in the general scheme of things, not all jobs are equally enjoyable?

Once again, the role for education by itself is limited. A dirty job with low pay and low prestige cannot be changed by education alone. It has been suggested that students should be taught to like whatever kind of work they do. But such a strategy, if carried to the extreme, would probably do more to create alienation than to cure it. Another suggestion is that education should prepare students to fill different jobs in their lives. This strategy is more promising, but it is limited by several labor market realities. First, devices like seniority and pension programs tie workers to one company, sometimes for their whole working lives. Second, the dichotomy between the internal and peripheral labor forces is often strong enough to keep members of an internal labor force with the same company, thus keeping members of the peripheral labor force in their place.

Another strategy might be to change the way society sees different jobs. This would be implemented partly by a more equal distribution of job income. But it already has been mentioned that there is probably little that education (career or otherwise) can do to change the rewards to different jobs. It would be possible to change the way students see different jobs by including studies of the nature and contribution of different types of jobs in elementary and secondary curriculums. Further, it should be emphasized again that every person is more than what he does for a living. This is an important caution for any career education program--in emphasizing the world of work in the school curriculum, it must not be forgotten that life includes other aspects as well.

Finally, education past the compulsory level has great potential as a leisure time activity. The increasing growth of adult education already testifies to this

Suggested research strategy is:

1. Determine the extent of worker alienation and if possible, its causes

2. See how much of this dissatisfaction, if any, is directly attributable to education. This would permit an examination of education's role in causing alienation even if its role as a cure is uncertain.

Poverty

To a large extent this section overlaps the sections on unemployment and the distribution of income. However, since the major attack on poverty has been through education, the impact of a change in the educational system (such as a movement towards career education) should be discussed.

The emphasis by Assistant Secretary for Education Sidney P. Marland Jr. that career education will guarantee each secondary student a saleable skill (rather than an actual job) or a chance to go on to higher education implies (intentionally or unintentionally) that the spirit of career education is equal opportunity, not equal outcomes. Does this mean the poor will continue to be poor and the function of the social system is completed as long as fairness is guaranteed? If so, what will happen to the compensatory nature of educational antipoverty programs? In the job competition model, is there no room for handicapping?

This question can be answered more effectively by those who implement career education than by those who study its nature, which is vague at best. However, the following questions should be addressed as part of a research strategy:

1. How can career education avoid tracking if it must identify certain students who need remedial aid?

2. What is the exact relationship between family background and educational attainment? How could career education overcome a disadvantaged background better than antipoverty programs already tested?

3. If career education takes place in the "neighborhood school," how can the school overcome the debilitating effects of a poverty neighborhood?

Economic Justice

The issues of employment, income and the misery of poverty surround a more basic problem for current society--unequal treatment various demographic groups receive from the economic system. Movements

for civil rights and women's liberation testify to the ever-growing awareness that economic and political life are not as fair as they ought to be. Because of the crucial role that school desegregation played in the civil rights struggle, it seems a foregone conclusion that the schools will be involved in the quest for greater economic justice.

What would be career education's role in such a struggle? The section on income distribution noted that employers often use education as a device for allocating scarce slots in the internal labor market. What happens when skin color, sex or age are used to allocate such positions? The 1964 Civil Rights Act and the Equal Rights Amendment make the more blatant forms of racial and sexual discrimination illegal. If the educational system is to be made over along the lines of career education, it is imperative that educational policy be based on equality between the races and sexes. That women and blacks currently hold a disadvantaged position in the labor market as compared with white males does not appear to be a sufficient excuse to tailor the education of women and non-whites to less desirable, low paying jobs. It must be decided quite early in the implementation of career education programs whether education will address the economic system as it is or as it ought to be.

As mentioned with respect to education and poverty, "equal educational opportunity" may not be enough. If career education includes a job placement component, how are the best jobs to be allocated? On the basis of merit? But what if the selected "merit" test (such

criteria have been known to vary) results in a gross over-representation of white males in the best jobs? How can one proclaim that some demographic groups are more deserving than others?

On the other hand, one possible outcome of greater equality in job opportunities for women is that family incomes may be even less equal than they are now, resulting in a greater concentration of poverty among non-whites, the less-educated and females who are heads of households. This especially will be the case if men and women choose their marriage partners on the basis of education and occupational interests. In this case, unequal incomes due to differential educational attainment would double for families compared to individuals. It is still the family that makes up the basic spending unit in the economy and is a better indicator of economic well-being.

Here are some of the major research questions that should be addressed concerning career education and economic justice:

1. What is the income distribution at present among families? How does this relate to the educational attainment of either or both parents?

2. What is the relationship between educational attainment, labor force participation, and income for women of different ages? Also, how do these factors relate to the educational attainment and income of their husbands?

3. What is the current relationship between black youths in secondary school and their guidance counselors? Does it make a difference whether the high school is integrated or segregated? Are there geographical distinctions? Between North and South, inner city and suburb?

4. What is the relationship between women high school students and their guidance counselors? Does it make a difference whether that counselor is a man or a woman?

5. How does income compare for similar "sex typed" occupations such as beauticians and barbers, cooks and chefs? Does income inequality between the sexes increase or decrease with educational attainment?

Fiscal Effects

The following questions are presented without introduction to round out the economic questions surrounding career education:

1. The "taxpayer revolt" seems in part a response to the tax system used to finance education, and in part a reaction to the problems of the schools themselves. Will career education change taxpayers' attitudes? If so, in what way?

2. How will career education affect school costs, teacher salaries, and fringe benefits?

3. Who will pay for employer cooperation with career education? Will students receive pay for work experience? If so, how much? Will they replace older, higher paid workers? If they are not paid, will employers use them as free labor? At whose expense?

4. How will revenue sharing affect the Federal government's ability to finance specific projects such as career education?

Social Problems

There are three primary social problems involved in working:

The desire to work. Some have speculated recently that fewer people want to fill jobs. They see career education as the moral counter-force to a possible collapse of the "work ethic."

The ability to get a job. Some of those who want to work do not understand how to get jobs. They don't know how to "sell" themselves in the labor market, nor do they see their labor as a saleable commodity.

This is a problem in economic socialization. A related problem is choosing a job. A common and justified assumption is that proper career development will help people more effectively choose jobs that match their abilities and attitudes. The task of education is to foster both socialization and career development at the same time that it provides basic skills necessary for acquiring jobs.

Achievement and satisfaction in a particular job. Even if a person has a general willingness to work, he or she may find a particular job highly dissatisfying. Others may not achieve to the extent they are able. Often the character of the job determines these problems. The task is finding those variables that education can influence to alleviate the problems.

Research Summary

The following summary sketches some implications of the research on work and career development.[7]

In general, Americans still want to work, although the nature of that desire is changing. The National Advisory Council on Vocational Education suggests that more young people want to plan their careers for social service now than ever before.

Recent studies of worker alienation also indicate that younger workers are more anti-authoritarian than older ones (Sheppard and Herric, 1973). From this it appears that they prefer those jobs where they have greater responsibility, autonomy, and variety of work.

7. A more complete statement of available research appears in "Career Choice and Work-Related Education" by Ross Burke, which is attached in an appendix to the Syracuse report.

Professionals and managers tend to want to work more than those with lesser skills. According to a 1955 study (Morse and Weiss, 1955), for male workers, an average of 80 percent wanted to work even if they were well off otherwise. The average probably has dropped since then, but similar figures are unavailable.

Nevertheless, jobs remain an indicator of social status for most people (for instance, see Twiner in Tumin, 1970). "Counterculture" values may have changed this for some youth, but the likelihood is that most youth still seek status in their jobs and therefore will continue to want to work.

Getting a job presents another problem. Job structures are changing rapidly. Information about economic and occupational trends must be an important facet of career choice. From 1949 to 1966, the number of occupational titles increased from 22,000 to 30,000.

In addition, some groups of people--primarily those in rural agricultural areas--do not understand fully the idea of labor as a market commodity. Mechanization of farming will continue to force such people to seek jobs elsewhere (Oaklief, 1971). Since there is a historical movement from the farm to the city, the probability is high that many people from rural areas have clustered together in urban pockets with little idea of how to seek jobs in a city.

There is no single pattern to the way people choose jobs. Some go directly from school into a career job. Others switch jobs until they find one they like (or one in which they become trapped). Some never stop switching. There is no evidence that one pattern is more appropriate than any other. There is also no evidence that schools mold such patterns (for instance, see Ginzberg. 1971, and Super, 1957).

The psychological process of choosing a career roughly starts with occupational awareness followed by a choice through training. The process is not at all straightforward. People may change their minds many times, going from awareness to implementation and back to awareness if the first choice seems inappropriate (Tiedeman and O'Hara, 1963).

Two factors have a strong influence on career choice: suggestions from others and job information.

At least one study shows that a person who has a low preference for a job but is told he or she has a high aptitude, whether or not that is true, tends to reverse the preference. The same is true for those with high preferences who are told that they have low aptitudes (Vroom, 1964). Occupational counseling therefore may have an extremely high influence on career choice. This represents a very real opportunity coupled with a serious danger of misuse.

Other research shows that those persons who have realistic and comprehensive information about jobs tend to find more satisfying employment that those who don't (Parnes, et al., 1971). This suggests the importance of open access to job information for students.

The variables in worker satisfaction are only indirectly educational variables.

The studies on worker alienation mentioned previously suggest that schools foster anti-authoritarian attitudes that later lead to worker dissatisfaction, particularly in dull jobs with little autonomy. Making the schools more authoritarian might make people more willing to take such work.

However, the most favorable work attitudes develop when workers influence decisions and control their environment (Vroom, 1964). For work-related education, this suggests that schools may instill the most favorable work attitudes through a non-authoritarian approach.

A difficulty is that the first alternative may be less plausible than redesigning jobs, while the second may misrepresent the nature of many present jobs.

Changing jobs is an effective way to increase satisfaction (Tiedeman and O'Hara, 1963; Parnes et al., 1971). Those who change the most immediately after schooling tend to be more satisfied. Hence, forcing job stability right after schooling may encourage dissatisfaction. On the other hand, sizeable turnover indicates an educational failure to give students adequate job information. Career education represents an opportunity for the student to explore alternatives before joining the labor force.

There is little to suggest how job achievement is related to education, except for evidence that those who tend to be dissatisfied also tend to achieve less on their jobs.

Probable Consequences of Career Education

In the minds of many, career education appears to be aimed at strengthening the work ethic. This implication permeates all career education programs and literature. Curiously, we find youth still are willing to work, despite current anecdotes and stereotypes. Career education will not need to persuade many people to pursue careers.

The difficulty will be with those who feel destined to go into low-level jobs. They most likely will reject the suggestion that they should want to do this type of work. They may reject the rest of career education at the same time.

Career education also attempts to institutionalize a career development process of awareness, exploration and implementation as one progresses through school. This paradigm closely matches the psychological process. It is important to build career education programs that allow students to reverse choices and reexplore possibilities.

The elements of career counseling and job information in career education may be strongly beneficial. Counseling holds a great potential for disaster, though, if counselors cannot or will not properly advise students of their aptitudes and true job potential.

The job placement component in career education projects also will be beneficial if it acts as a link between school and work and does not force job stability. It may particularly help to socialize students economically if it helps them to develop job-seeking skills.

Research Needs

A number of research gaps have come to light in doing the above work. They are listed in general order of importance.

Morality, Work, and Education. There are definite and different moral orientations that people hold during schooling, job-seeking, and working. Some may value hard work and success. Others may value self-fulfillment. Within the last decade, radical changes in these orientations may have occurred, but the changes are poorly understood. Since work has acted as a focal point for many moral values, career education risks complete rejection if it goes against those moral, economic, social, political, and educational values people hold dear. Research, therefore, is crucial. Issues and problems warranting such attention include:

- Present youth attitudes toward work, by socio-economic, rural-urban, regional, and racial or ethnic groupings, the conditions under which they will or will not work; the extent of their desire to work; what they find to be relevant in work-related education

- Different moral patterns in families, by the same groupings as listed above; the parental expectations for children, both in their careers and education; their expectations and desires concerning the public schools as part of their children's moral education; the need for success that different families perceive

- The moral nature of the schools themselves; the tendency for schools to impose moral values on students aside from whatever moral purposes the parents and students use the schools for; the extent to which public, private, parochial, and "free" schools reinforce different moral patterns

- The sorts of characteristics that employers appreciate in employees; this has become important within the last several decades because of economic shifts from manufacturing and agricultural to public, non-profit service employment.

Economic Socialization. Socialization processes may help people assume economic and work roles with a greater understanding and ability to function in those roles. It also may encourage the emergence of other social roles that are contrary to traditional economic and work roles. Investigation is needed of the benefits and costs of such processes, and of the comparative effects of career education and other forms of schooling. The existence of particular groups with unique socialization problems accentuates this conclusion. Career education cannot afford to ignore the particular needs of:

- Women. While the last century has witness much questioning of female social roles, there is little research immediately relevant to the present educational context
- Disadvantaged or poor groups of people, including the economically unsocialized in rural or urban areas, the large body of poor whites, and racial and ethnic groups with their special problems
- Those who might be susceptible to job obsolescence. It is unclear exactly who these groups might be, and the relationship of education to obsolescence also is unclear.

Pathological Behavior and Education. Some kinds of pathological behavior can hinder a person's work or chances for getting a job. But little is known about the relationship between education and behavior that may be detrimental to a person's work life. Some problems are:

- Worker sabotage. This has been on the rise although the patterns of destruction or disrespect for one's job that one may learn in school are not understood clearly

- Mental illness, alcoholism and drug abuse. What is known appears to be the tip of an iceberg, and an inquiry into the educational variables is imperative. For instance, if schools encourage unrealistic career expectations, a disappointed person later may retreat from a poor job into drug use

- Crime and delinquency. Some educational processes may convince some students to work while persuading others that crime pays more

Career Guidance. In June 1972, the National Advisory Council on Vocational Education issued a call for better counseling. Career education also accepts guidance as a major component. Before guidance is relied on too heavily, though, several topics need to be explored, including:

- The effect of professional counselors on career choice, self-image and later educational success and the value of counseling advice for students who already have job aptitudes and preferences

- The ways students actually use counseling

- The effects parents, peers and community people have in counseling and the possiblity of their working with the educational system.

Information on Work Roles. The tendency has been for education to concentrate on specific job skills. Students may need other skills to fill a job adequately, but it is unclear how these relate to an educational process. Research topics include:

- The merits of different approaches to job roles, including courses, on-the-job experience and counseling during job placement

- The leisure patterns that accompany different careers. The different effects of work sabbaticals, vacations, shorter work weeks and after-work education in producing career satisfaction and worker productivity

- The extent to which workers switch consumer roles, skills appropriate to consuming and educational approaches to consumer education.

Career Development. While career guidance has existed for many decades, career education is the only alternative attempting to build the career development process into its structure. This effort may be premature. To integrate career development into school structures, we must know more about the relationship of career development, achievement, self-images and psychological processes to different structures.

Job Information. Having the proper information about different types of jobs is important for later job success and satisfaction. Research should be done on the types of information needed by students, the appropriate presentation of the information, and the access that students can and should have to job information. However, these are not major research chores.

Legal Obstacles. A set of problems that warrant special consideration are the legal obstacles to effective career education programs. The central concepts of career education focus on bridging the gap between what happens in a school and what happens on the job by making real work experiences a part of school programs. To a large extent, this means getting the students into actual work places. As Harry F. Silberman, in his "National Institute for Education School-Work Transition Program" paper

suggests, students are to be taught by being integrated into the "most important activities" of work institutions.

There are many State and Federal laws that present obstacles to good, operational career education programs. Child labor laws could stand in the way of career education programs that are based on paid work experiences in school programs. Minimum wage laws might prohibit an employer from paying a student employee what he is worth to the organization. Rather than pay the minimum wage, the employer might decide not to cooperate in such a program.

Plant safety codes might prohibit underage persons from working in certain production operations or near certain kinds of equipment. Insurance underwriters also would be opposed to having student involvement in many industries and occupations on which they carry liability policies.

State school attendance and school finance laws also provide difficulties. The hours and days students spend in schools is the basis for determining how much State money the schools receive. Taking the student out of the school and into the work organization for the learning experience will necessitate a change in these laws, or the school will suffer a reduction in State revenues.

Other legal restrictions consist of apprenticeship laws, occupational licensing laws and teacher certification laws. The unions have been given the legal right to regulate access to, and exercise control over,

apprenticeships. School-based apprentice programs in certain trades would be seen as an inroad on union prerogatives. Similarly, occupational licensing laws might prescribe access routes to certain occupations that vary from those envisioned by career education program planners.

The kinds of teachers ideally suited to career education programs might not be the same teachers presently meeting State certification requirements. The teachers' credentials issue would have to be reevaluated.

Many of these legal obstacles may be overcome because they result from laws that could be changed by State departments of education desiring to implement career education programs. Others go beyond adjusting legislation.

The most difficult barriers will be erected by the interest groups such as unions and teachers' organizations. They cannot be expected to give up decisionmaking powers and employment security for their members without a struggle. Not all career education programs will encounter these kinds of problems, but some certainly will.

IMPLICATIONS OF THESE CONCEPTUAL ANALYSES FOR THE NIE CAREER EDUCATION PROGRAM

Considering questions such as those raised by Rand and Syracuse has led the Career Education Development Task Force to define career education literally:

Career is an individual's entire or principal work that extends over a lifetime and that provides an accustomed means of livelihood. The term implies productive interaction with the economic sector in a series of jobs that collectively constitute a career.

Education is the acquisition of knowledge and development of special and general abilities in both formal and nonformal situations.

Therefore,

Career Education is the development of knowledge, and of special and general abilities to help individuals interact with the economic sector. Learning in this context would occur in both formal and informal situations which motivate the learner by causing him to experience work directly.

The Task Force believes this is the most reasonable definition for the NIE Career Education Program for the following reasons:

- An individual's career is a large component of his life in terms of time and attainment of life satisfaction. Economic self-sufficiency affects the total life style of the individual, including status, satisfaction of personal desires, association with others and political and social activities.[8]

- The economic sector is a large component of the total national enterprise, and its performance affects every other societal institution.

- Public demand calls for the educational system to deliver the skills necessary for economic self-sufficiency. In a recent Gallup Poll of adults, the following rated first and third in a listing of goals of education: to obtain better jobs--44 percent (highest percentage); to achieve financial success--38 percent (third highest percentage).

- Young people, with some possible exceptions among disaffected urban poor and upper-middle class affluent, look toward their education to furnish them with the ability to obtain good jobs.

8. This is increasingly true for women as well as men. According to the U.S. Census Bureau, 40 percent of the labor force in 1970 was made up of women. Even for those not rewarded in money terms, meaningful productivity (in home and family, as volunteer) tends to be at the core of life satisfaction.

- Educators also are committed to this concept of education noted by endorsements from a host of individuals and groups.

- There is a sizeable data base on the interaction between individuals and the economic sector: how many persons are employed in what job categories receiving what pay, what kinds of difficulties are being faced, how many persons are involved in various "desirable" and "undesirable" job categories, where the greatest manpower needs are, and so on. Further, there is sufficient understanding of this interaction to allow the framing of reasonable hypotheses concerning the nature of problems and possible avenues of improvement.

Using the Framework for R&D

For immediate research and development purposes, then, the NIE Task Force will regard career education as the framework within which an educational delivery system can be assessed in terms of its capacity to improve the interaction of individuals and groups with the economic sector. Interaction with the economic sector is defined as getting, holding and advancing in a job or in a series of jobs that constitute a career.

The long term outcomes for individuals are twofold: financial return and career satisfaction or the economic and psychological income from employment.

The outcomes for groups are changes in the distribution of job access, in career progression, and in the economic and psychological rewards of employment. The influence of education in reducing the level of unemployment seems to be minimal. The influence of education on level of job satisfaction (psychological income) for individuals, and distribution of jobs and career progression, however, may be substantial.

Career education, in this definition, is concerned with how people earn their living: do they earn enough to maintain a decent standard of living, and do they like what they are doing?

The purpose of the R&D program is to determine what influence education does have on this aspect of the world as it is, and can have in a world with changes in both the supply and demand sides of the labor market.

Analyses of the determinants of getting a job (access, entry) and progression (career development) suggest that there are four primary requirements for both youth and adults:

1. Information, guidance and counseling about jobs, careers and the job market

2. Specific and general skills that are minimal requirements or that influence job entry and advancement

3. Financial and psychological support for career education (e.g., support for recurrent education through entitlements, scholarships, worker sabbaticals; and an improving of the psychological acceptability and rewards for career exploration, discontinuities of employment and education, and mid-career changes)

4. Placement systems matching individuals and groups with job markets and educational resources.

Some additional definitions are now in order:

Job: work for pay or hire

Career employment: employment in an occupation and job that is right for the individual, and is part of a coherent life-work

Good job: one that forms part of career employment and provides a sense of self-actualization and worth

Poor job: one that is seen as dead end and provides little self-actualization.

Management of existing contracts will be based on the assumption that emphasis will be placed on developing and testing means of improving information, skills, institutional and financial support and job matching systems for youth and adults.

New activities for the career education program will contest the validity of this analysis. Through the research and demonstration program we will (1) refine our accuracy in identifying problems (e.g., are obstacles to youth employment inadequate numbers of part-time jobs, lack of basic skills, or prejudice against hiring youth for career jobs; and for which youth are these barriers strongest?), (2) test the accuracy of cause-effect relationships posited in the conceptual framework and (3) explore approaches to new problems and possibilities emerging from research and evaluation on current programs and from new analyses, surveys and experiments.

This definition of both career education and the NIE R&D program omits large areas that have been included in other discussions. Career education is not identified with all education or with all educational reform. This in no way implies a lack of appreciation for a liberal education or for the many important and exciting reform movements. After discussing broader definitions of career education, we found the evidence linking problems, barriers, and strategies was too sparse or unsystematized to

to direct a research and development program. Also the "researchable" questions multiplied too enormously for organizing a program.

One of the largest omitted areas is "life satisfaction"--the ability to derive gratification from, and contribute to activities in the noneconomic sector. This is an important domain that education may be able to influence. Data on the determinants of life satisfaction will be collected where possible, but this has been excluded as a focus of the R&D program.

Vocational education is included as a part of career education. Vocational and technical programs are one avenue by which individuals can acquire specific job skills that may meet minimum entry requirements and place one up front in the job queues. However, career education is more than occupational education in that it

- is concerned about the development of an educational delivery system to achieve its aims and
- is directed to career progression, not just to single jobs.

Charges that career education is a new name for deadending youth before college or high school graduation may be aggravated by this conceptual framework. However, the emphasis on careers and career progression may offset this criticism. Career education could open a Pandora's box, but it doesn't have to. Career education is not intended to institutionalize incompetency among disadvantaged youth, undervalue postsecondary education, or establish work as the only criterion of a worthwhile, productive and happy life. Policy analyses and research on these questions will be directed to showing how "cooling out," encouraging

dropouts and racial or sex based tracking might be avoided. This is a first line of defense against possible abuses of career education. A second defense is a consumer information program on the possibilities and limitations of career education as these become known from research studies.

Target Groups

The Task Force has reviewed the evidence regarding those most affected in terms of money and job satisfaction. Youth seem to be among the most affected, although it is recognized that career development and economic socialization constitute only one aspect of the problems they encounter. Second, the problems of midcareer adults are coming to the fore. There are two subproblems in this area. First is the inequity in the distribution of employment which particularly affects minorities and women. Second is the problem of job alienation and dissatisfaction, which appears to cut across sex, age, economic, and ethnic distributions. According to Work in America, (a) job redesign and (b) institutional support for career changes and development are the most promising strategies in reducing job alienation. Job redesign is not a central theme for career education as we have defined it but educational support for career changes and development is.

Therefore, the Task Force has selected two themes for the program. The first is improving interaction between youth and the economic sector, particularly career choice, access and entry. The second is improving

interaction between midcareer adults and the economic sector, particularly with regard to distribution of employment and career progression for women.

In later years, this focus could be expanded to minorities, and that possibly neglected group, the white, middle-class male. Again, the Task Force is aware of the groups excluded as target populations: (1) older adults, (2) younger children, and (3) youth whose interactions with the economic sector may be adequate but whose needs are otherwise not served by the educational system. The target groups selected, however, may be more than sufficiently large for an R&D program.

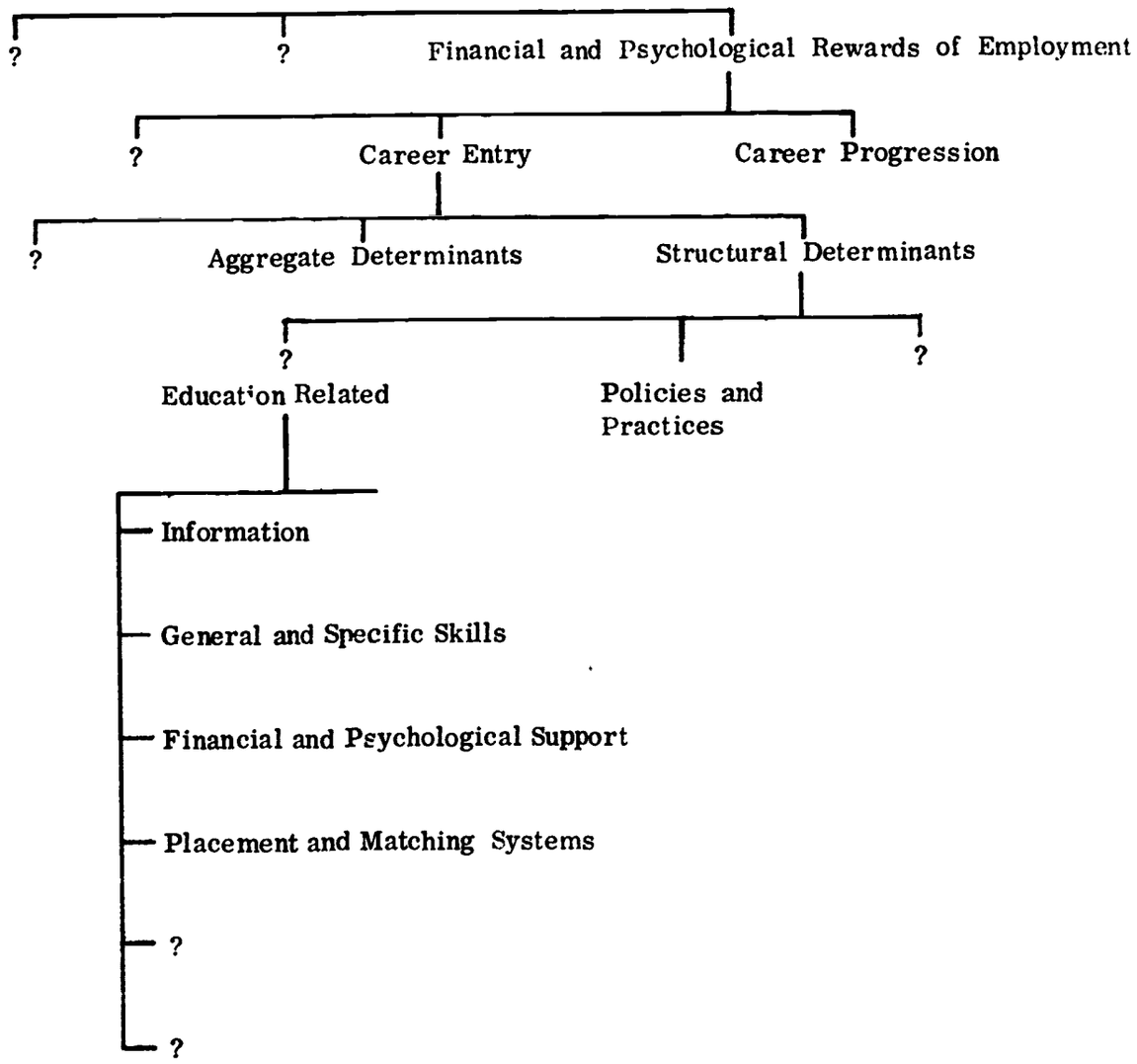
Again, this choice represents only a "first cut" at who is most affected by barriers to career entry and progression--problems that are most likely to be influenced by education. In managing existing programs it will be assumed that the themes are correct. For shaping research programs the themes will be doubled and efforts will focus on assessing the relationship between education and career problems for youth and adults from different ethnic and economic sectors. The conceptual framework that these choices of problems and population yield is schematized in Fig. 2. Fig. 2 draws on, but is different from the Rand (Fig. 1) and Syracuse analyses.

In Section VII, where directions for the management of current programs are defined, the Task Force will assume the general correctness of the model in Fig. 2. In Section IV, which suggests new activities,

Fig. 2

A CONCEPTUAL MODEL FOR CAREER EDUCATION

Career Education Objectives



emphasis will be on doubting the general correctness of the model in Fig. 2. New policy analyses and experiments are intended to define more accurately the possibilities and consequences of educational influences on interactions with the economic sector, etc. Funds also are requested for selected program development and dissemination projects that seem to be targets of opportunity. Research developed around current career education models and unsolicited proposals will also be given careful consideration.

SECTION III

EXAMINATION OF THE MODELS

Salient characteristics of the four career education models are presented in this section.[1] From the beginning, the models have constituted the substantive and financial core of the Federal career education R&D program.[2] Although other projects also are receiving funding at this time, it is evident that regardless of long range program policy, present commitments alone require that the models remain the central focus of the NIE career education program in the immediate future.

OVERVIEW

The models program originally was conceived

- to investigate and test alternative hypotheses about the delivery of career education, and
- to design and develop prototype career education programs congruent with each of the various hypotheses.

As the following analysis indicates, a balance between these two purposes has never been accomplished adequately.[3]

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1. Most of this section is quoted directly from Raizen et al., although quotation marks are not indicated in the text.
2. The four models were initially developed under the auspices of the U. S. Office of Education and were transferred to NIE in August 1972, when most educational R&D responsibilities were assigned to this new agency.
3. See Raizen et al., p. 33-34, who list a "rather lengthy series of analyses and issue papers" on the career education models, and note that "...until now, little has changed in program direction".

The credibility of the models program rests on the following implied assumptions:

- Unemployment and alienation are acute problems that require solution.
- A significant factor is the lack of a link between out-of-school adults and adolescents and existing social opportunities for leading a productive and satisfying life.
- Education can play a major role in improving the latter situation.
- A priority problem is the failure of the present educational system to deliver appropriate training and to provide links between trained individuals and existing employment opportunities.

Initially, the four models were conceived and designed to test alternative systems for dealing with this last assumption. Model I was to work through the established school system; Model II was to develop an employer-based educational alternative; Model III was to develop the technology of mass communication and the learning opportunities in the home; and Model IV was to work with the entire family in a residential setting.

Model I: School-Based Comprehensive Career Education Model (CCEM)

The Center for Vocational and Technical Education at The Ohio State University is the prime Model I contractor. Associated with the Center are six local school district sites that serve as focal points for the development and field testing of career education materials: curriculum

units, guidance units, teacher training manuals, public information, administrative guidelines. The major problem focus of the project is youth's alleged lack of preparedness for employment, further study. and adult life. The project attempts to reform the curriculum of the established [illegible] school system by infusing career development concepts into the entire K-12 curriculum. In kindergarten through grade six career awareness is emphasized; in grades seven to nine, career exploration; and in grades 10-13, career preparation. By the end of FY 73, 98 curriculum units are to be completed. All will have been tried out in the various cooperating school systems. They are to be ready for national dissemination in FY 75 following vigorous field testing. A staff development package to accompany the completed units, a guidance and counseling package and a placement component also will be ready for dissemination.

Underlying the current Model I activities are the assumptions that:

- A major aspect of the problem is the public school system's failure to prepare a large percentage of students for self-sufficiency and entry into adult life.
- An established public school system can be reformed to improve this aspect of the problem.
- The public school's major need for reform is the area of curriculum.
- The infusion model of curriculum change is an effective strategy for the reform required.

A General Critique of Model I. The Model I effort plays a critical role in the NIE program portfolio and in career education in general. Vocational education resources now often carry the career education rubric; sections within state departments of education and local education agencies reflect the career education label or are being reorganized to highlight career education; and state and national funding policies are being rewritten to foster career education.

While the other models represent alternative experiments, with few immediate or necessary implications for established educational authorities, Model I is expressly intended to change educational practice. The model's overall K-12 curriculum structure, which takes the student from career awareness through career exploration to career preparation, illustrates many typical career education concepts. Consequently, it is quite visible and has attached to it high educational and political expectations. The principal difficulty the Model I effort faces is in developing and sustaining a balance among several priorities: (1) participation and leadership in the ongoing "national debate" over career education; (2) design and demonstration of exemplary school-based career education programs; and (3) the undertaking of R&D initiatives to examine priority issues central to the model.

Possibly the most critical factor that endangered this balance was the emergency, during the past year, of greatly expanded curriculum reform requirements. Originally the Model I project was envisioned to be a "capstone" effort that made use of quality career education curriculum

materials assumed to exist in the field. Consequently, the curriculum development responsibilities of the project were to be confined to identifying existing materials, refining them as necessary and packaging them for general dissemination. The anticipated materials were not located, however, and the curriculum efforts of the Model I project expanded to de novo development. Under the "capstone" assumption, a clear definition of career education was perhaps not necessary; in fact it might have tended to restrain healthy diversity in the career education movement by bearing the Federal imprimatur.

Now that the Model I project requires curriculum development, the need for an operational definition becomes imperative. If the ambiguous definitions of the current project (e.g., career education goals range from specialized job skills to self-identity) are taken literally, the implied curriculum development task is of monumental dimensions. The requirements become more staggering when the effort, resources and time constraints are compared, for example, with the far more limited and well-defined National Science Foundation-supported curriculum projects. Under the present expanded conditions, the risk is high that the Model I project will fragment and fail.

Several activities for improving the present Model I effort appear desirable.

1. A review of the assumptions underlying the "infusion strategy." At present, the Model I strategy relies almost exclusively on integrating newly developed career education curriculum materials into the school program. Under circumstances where massive curriculum development is found necessary, this no longer may be the best strategy. For example, the following strategies might support a more limited curriculum development thrust and be worthy of experimental test to compare them to the infusion strategy:

a. Alter staffing patterns to involve career role models directly

b. Make career guidance activities more pervasive in the school--not just the responsibility of specialists

c. Train staff in teaching styles that make personal decisionmaking and exploration a regular part of a student's experience. (However, this may be more difficult than an infusion approach.)

d. Develop stronger links to career training opportunities outside of school.

2. More differentiation in the responsibilities or projects within the Model I framework:

a. Support separate conceptual analysis and technical assistance projects that

(1) Provide intellectual rigor, leadership, and insight to the national career education debate

(2) Provide consultation and training assistance to career education programs at State and local levels

(3) Serve as general clearinghouses for career education innovations.

b. Support exemplary career education programs at experimental sites to foster further research and demonstration

c. Support case study descriptions, collection of information and analyses of alternative programs carried on in the formal educational system

d. Support limited curriculum development efforts with specific aims (including adaptations of successful programs), as well as the development and testing of other well-defined intervention strategies

e. Support the development of methods to evaluate career education programs in schools and community colleges

f. Support studies to evaluate the effect of career education, particularly as it relates to employment and work attitudes. These studies also should assess the economic impact of vocational and nonvocational education programs.

If Model I is an attempt to experiment with and demonstrate methods for improving a present school system's relevance to the social needs underlying the career education movement, it is not being utilized to the fullest. For example, such a model could:

- Make it possible for adults from the community to participate regularly in the student's school life
- Permit local business and industry to use school facilities if they design that use to serve educational ends
- Set up school-based business (e.g., restaurant, beauty shop, print shop) in cooperation with local organizations
- Take advantage of new school buildings at commercial sites.

Program Management: Model I. The public schools are now, and are likely to remain, the single largest education force in our society. NIE should define a more manageable task in materials development for the present contractor through reexamination of the 7 x 13 x 15 matrix of skills and attitudes, grades served (K-12, 13), and career clusters (15) now guiding curriculum activities. This task is already underway.

NIE should strengthen materials review, revision and field-testing procedures. While the demand for products is great, curricula and guides whose value is uncertain and whose reproducibility is little known should not be released except to districts willing to cooperate in testing the materials.

In addition, new reports, recommendations and analyses relating learning and work and concerning youth in transition should be examined. Current Model I activities are a beginning for NIE's support of public school interest in career education. These new reports should help guide selection of potentially cost-effective new approaches worthy of systematic test.

In FY 73-74, the strong national leadership and a more realistic definition of tasks, NIE can expect the current Model I effort to make a valuable substantive and methodological contribution to career education in the public schools. In FY 74, NIE should experimentally test the infusion strategy. Most important, NIE should work with school officials at State and local levels, with employers, and with researchers to develop cost-effective new approaches within public education.

Model II: Employer-Based Career Education

There are four Model II contractors: Appalachia Educational Laboratory, Far West Laboratory for Educational Research and Development, Northwest Regional Educational Laboratory and Research for Better Schools, Inc. As with Model I, the major problem focus is the unpreparedness of youth for employment, further study and adult life.

Background. Model II projects were charged with designing a comprehensive alternative to the public secondary school. The education setting is shifted from the existing school system to a community environment where students interact with adults, primarily in employer settings.

Special emphasis is placed on the development of career planning, guidance and learning resources outside the school and close to employers.

When fully developed, this model will provide comprehensive data on the benefits and limitations of utilizing educational opportunities within economic institutions. Analyses will be given to the readiness of employers to involve themselves in comprehensive educational programs, the necessity and/or potential of various incentives to employers, the learning potential of specific economic institutions, and jobs and methods of high school equivalency certification. These analyses, coupled with the four employer-based model versions are expected by the end of FY 76.

The assumptions underlying these Model II efforts are as follows:

- Major aspects of the problem are the irrelevance of the public school for a significant percentage of youth and the failure of secondary school systems to prepare students for self-sufficiency and adulthood.

- For many students the public school system is inherently incapable of even helping to solve the problem. It appears that many adolescents must learn by experience in natural work environments. Moreover, matching prospective young employees to employers today requires methods for linking students with the employment community during the training period.

- The most appropriate way to prepare many adolescents for their careers is through the employment community.

- There are untapped natural incentives that will induce employers to extend their role to include comprehensive work-centered education for adolescents.

A General Critique of Model II. Model II is based on assumptions considered rather extreme by educators: public high school is of little educational value for many adolescent students, and for these students the local employer and community environment can carry the bulk of the educational burden. One of the primary responsibilities of Model II R&D will be to assess the validity of these assumptions. For example, there is considerable variety among the four Model II project sites regarding the purpose, governance, and use of a "learning center" deemed necessary to supplement the employer experience. Over the next year those differences will be clarified. If possible, experimental tests will be conducted across several program dimensions including such variables as:

1. Relative amount of student time required in learning activities
2. The responsibilities of the learning center:
    a. Peer group experiences
    b. Generalization of job learning to more formal situations
    c. General, liberal education
    d. Monitoring student progress and credentialing
    e. Planning student learning programs
    f. Counseling
    g. Gatekeeping and coordinating student experiences
    h. Administrative details.
3. Differences between learning center activities and school activities
4. Governance of the learning center.

One of the most difficult problems to be addressed is that of scale. Several "Schools without Walls" projects recently have demonstrated that, on a small scale, community-based learning can be a workable alternative to conventional school experience. It is not clear, however, if the strategies that make community-based programs successful in heavily funded experimental programs (such as the Model II projects) will work on a large scale, particularly since the present experiments involve relatively small numbers of volunteer students and highly motivated employers.

For example, information regarding employer opportunities and constraints, community resources, student goals and needs, student progress and current and projected student learning experiences may become unmanageable if the Model II projects expand beyond a few hundred students and a few dozen cooperating employers. A management information system may be necessary to operate an employer-based model for thousands of youngsters. The development of management information systems is a lengthy, complex task, particularly for a system that must permit multiple source inputs from diverse physical settings and must be appropriate for educational planning and assessment purposes. Can individual school districts afford the time and money to develop such systems? This and other issues arising from considerations of scale should continue to be identified and investigated as high priorities in the Model II context.

In addition to problems of scale model reproducibility seems to be constrained by the assumption that community and economic institutions are sufficiently diverse to provide comprehensive career education for the adolescent. While this may be true in major urban and suburban centers, it is not a priori the case. The range of community resources and work environments required for a comprehensive program should be investigated. For example, the projects might study options available for adapting Model II to resource-poor areas.[4] In this regard, comparisons of community resource needs and availability will be valuable.

The early experience of the Model II projects and other related attempts at reform indicate that incentives for employer participation need to be examined. Thus far, goodwill, favorable notice and an obvious desire to participate have been the major incentives but probably are not sufficient if a sizeable number of students are to be served.

Conceivably, another motive could be a more productive work force for the employer. In that case, however, employer-based education may become the narrow skill-training prevalent in Germany and Russia for industry-bound adolescents.

A concerted research and experimentation effort should be supported to deal with the incentive problem. For example, research should be undertaken to:

4. Simulations, linkages to the resources of nearby metropolitan centers, cooperative exchange programs, etc.

1. Determine existing incentives in work environments providing preservice education and training. This analysis will investigate how the natural behavior of employers toward engaging in educational activities is affected by variables such as:

   a. Organizational size

   b. Organizational differentiation (both vertical and horizontal)

   c. Profit versus nonprofit organization

   d. Type of organization (production, service, research, etc.)

   e. Degree of professionalism

   f. Natural job turnover rate

   g. Present growth pattern of organization

   h. Local unemployment situation

   i. Ability of area educational institutions to train students for jobs needed by employer

   j. Promotion policies of employer

   k. Tax structure and government constraints:

      (1) Profit ceilings (training as a way to hide profits)

      (2) Tax incentives [5]

2. Study the characteristics and incentives of organizations which appear to have their own educational components and characteristics

3. Assess alternative employer incentive programs. For example, Model II project sites may compare the following:

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5. Similar analyses concerning likely behavior of unions and of established educational institutions will be carried out, since these organizations may feel their interests threatened by a widely implemented employer-based educational system.

a. No explicit incentive; rely on "goodwill" and value of adolescent worker, or

b. Educational vouchers given to each employer. Possible variations are:

(1) Minimal "honorarium"

(2) Cost reimbursement

(3) Profit-matching (profits for educating match profits for producing)

(4) Profit-extending

c. Support of educational sabbatical program for regular employees in return for taking and training students.

Model II may be a realistic alternative to the public high school or merely a test of an idea with little future impact. If, however, it appears successful for a significant number of students, then careful study of the possible social consequences is necessary.

What kind of society does the dismantling of the public high school system and the transference of educational responsibility to the economic sector imply? For instance, there are pressures inherent in the model that could lead employers to train students in specific skills relevant to the immediate and limited needs of the firm.

There are less strict senses of Model II: as laboratories for identifying the learning potential of jobs, for developing new ways of assessing student competencies, for trying out organizational relationships to involve employers more directly with curriculum and credentialing, for creating new approaches to career planning. These components of an

educational delivery system, developed in Model II and tested through panels of cooperating schools, could be adopted in alternative and "traditional" schools that wish to provide career education without having to create it from the ground up.

In FY 73, and FY 74, models should continue to revise their approaches, working toward a field test of the prototype systems and components in FY 75. Through this period, projects should be reporting on how they solved legal and educational problems such as meeting State requirements for high school graduation and identification with employers of what students really need to know that is different from the usual curriculum.

Model II is closest to what many educational reformers have meant by "increasing meaningful contact with adults," "breaking down the distinction between academic and vocational programs" and "learning in non-traditional situations." Unlike cooperative education, distributive education and work-study programs, Model II focuses on how employers can accommodate and perhaps restructure work so students can learn from a sequence of well-planned experiences. The Model II students are not being paid to learn; they are using the world of work as their school.

In the past year the model has proven viable, at least on a scale of from 25 to 100 students. During FY 74, while current programs are being refined, NIE will study other Model II-like programs, and consider (with the help of those who are solving many of the problems) the conceptual and practical questions raised above.

Model III: Home-Based Career Education

The Education Development Center, Inc. (EDC) conducts the only Model III project. EDC is working in Providence, Rhode Island, with the problems of adults and adolescents who are neither employed nor in school. Unlike the other models, the EDC project is not attempting to teach skills and attitudes directly. Rather, the project is designed to inform individuals about existing work and training opportunities in the community, and to apply mass communication media to outreach and assess the career interests of selected home-bound populations. Several assumptions are implied in Model III:

- A significant number of adults who are not students, employed or actively seeking better employment feel unsatisfied with their present situation and need career assistance.
- Job opportunities and career training resources already exist for adults in the community.
- The career-related problems of home-bound or marginally employed individuals are primarily ones of insufficient guidance and information regarding the existence of these resources.
- Effective ways are lacking to link the career needs of home-bound people with the existing educational and career opportunities of the community.
- Mass communication media and a variety of non-traditional approaches such as telephone guidance services and mobile career information centers can be employed to fill this information and linkage gap.

By the end of FY 74, EDC will have developed, tested and packaged resource survey and technical assistance materials, and made available an evaluation on the cost, feasibility and effectiveness of the program. If results are promising, NIE should consider testing the program in an entire state and/or in an urban area during FY 75, with a planned phaseout of NIE support after the initial years. By the end of FY 78, packages of materials and installation systems field tested extensively are to be available for marketing, and an evaluation report on costs, feasibility, reproducibility and immediate and follow-up effects in a variety of sites should be completed.

A General Critique of Model III. Originally Model III was to provide an alternative, home-based delivery system for career training. Advances in communications and electronics technology, which appear to make home-centered formal learning feasible, were to be coordinated through the model into a comprehensive career education program. The counseling, linkage and informational activities of the EDC Model III project have merit worth pursuing as a first step. But it is recommended that the original notions of educational delivery be explored further.

In contrast to some other model projects, the Model III exhibits an impressive clarity of purpose. It may be the best example of uniting research with a major operational development. In terms of long term career education program policy, however, the problem this project addresses may not be of sufficient priority to warrant continuing its current standing or degree of support. It has not been argued convincingly that "home-based" adults who are unemployed or underemployed are unable to obtain

information on occupational training, employment opportunities or career guidance.

While information linkages between the home and community resources related to careers could stand improvement, this problem must be balanced carefully against other priority career education needs. For example, the current Model III effort could aggravate mismatches between aspirations and job availability in a time of excess unemployment. This is particularly true if a large percentage of the target audience decides, through an aggressive information policy, to enter the job market, not out of need so much as induced preference. Examining various target populations, the career education program must carefully study their need for career-related information, as opposed to their susceptibility to it. It is possible, for example, that an aggressive and sophisticated strategy may be appropriate for adolescent dropouts, lonely and depressed old people, or poor and husbandless mothers. Only limited auxiliary services may be called for to assist young housewives or middle-aged people. In this regard, individual and social benefit measures must be developed to assess the value of alternative career information strategies in relation to their costs.

Model III as a Test of an Educational System. As already noted, Model III was originally an attempt to develop and coordinate the learning potential of home-based education systems such as the University Without Walls in Britain. This poorly understood (and formerly largely unused)

resource has long term educational significance well beyond implications for career education alone. Model III provides the NIE with an opportunity to investigate the educational potential of sophisticated multimedia educational systems. Possible initiatives suggested by this broader view of the model include support of:

1. Comprehensive experiments on the community service potential of cable television

2. Efforts to research, develop and test advanced TV technologies and innovations:

   a. Production innovations such as the Family Game (PBS) could be extended to a Life Careers Game.

   b. Initial work with interactive TV systems could be extended for educational purposes (e.g., commercially produced TV simulation games are already on the market).

   c. Development and testing of career-oriented video cassettes could be supported.

   d. Development of the "Dual Audio Commercial TV" could be supported. Ideas about fostering career awareness in young children and of parent-clued learning at home could be encouraged through such experimentation.

3. Efforts to develop the educational use of home time-sharing computer systems:

   a. A computer system could be developed to distribute career development and in-service training information. For example, an extension in this direction of a career planning system with respect to in-service nurses' training is now in progress at the American Institute of Research.

   b. Computer-based career guidance work funded between 1967-1969 could be revived. (See the work of Tiedeman, Cooley and Messick.)

4. Efforts to integrate computing, problem-solving and educational uses of the computer in the home (possibly leading to a consumer subscriber system):

   a. Data banks could be developed on job, education, cultural and community service needs.

   b. Illich-style learning networks could be developed to informally match up interested learners with skilled "teachers" or to match up groups sharing common interests.

These suggestions are simply illustrative. Mass communication and electronic technology are "breakthrough" fields with considerable educational implications, but leade ship aimed at educational usage needs to be given to these developments. Each of the initiatives suggested above involves expensive multiyear design efforts well beyond the available resources of the career education program but of interest to NIE as a whole. The role of the career education program might be to: (1) support experiments having sizeable potential for delivery of career education, and (2) use cooparative funding to support education research and development on new systems having other private and public support potential.

Any decision extending Model III to include work with advanced home-based instructional systems would require research into the problem of depersonalizing education by isolating the individual from his peers. Special mechanisms may have to be developed to alleviate these pressures, especially for adolescents. In addition, the program should investigate the problems of assessing and credentialing the home-based learner and designing appropriate measures.

The EDC Model III project can be construed as a prototype of a socially important delivery system. Although strictly in terms of immediate career education priorities the project may not be highly useful, it does have considerable potential value. With these extended benefits in mind, a strong argument could be made to support, develop and study an expanded allied services system that delivers resource coordination and information dissemination--a system that extends into health, nutrition, housing and basic government services. If the career education program--or NIE as a whole--takes such a point of view toward the EDC project, it might be possible to develop coordinated domestic funding strategies for it.

During FY 73 and FY 74, the planned development, revision, testing and expansion of the EDC Model III should continue. The State of Rhode Island is actively interested in the model and may cooperate in working with EDC and NIE in examining long term governance and finance for this approach.

In FY 73, planning studies should be initiated to examine the potential (and the problems) of both home-based educational delivery and the allied services recommendations.

Model IV: Rural-Residential Career Education

This model is being developed by the Mountain-Plains Education and Economic Development Program, Inc. The Glasgow, Montana project focuses on chronically low-income, multi-problem families. The project is a "total" intervention in that it attempts to influence all significant

activities of the family, not only education-related activities. The major goal of the model is to make the family unit economically viable, with heavy emphasis placed on career counseling and training and strengthening the homemaking and family development skills of the parents. The assumptions underlying the Glasgow project are as follows:

- Formal schooling alone is not sufficient to help poor families.
- The problems of many poor families go beyond the lack of specific job skills for an adult member. They also include lack of household management skills, lack of health and nutrition knowledge and lack of child care skills. Extensive family counseling also is needed.
- The best way to help poor families is to move them away from their present environment into a controlled residential environment.

A General Critique of Model IV. A major concern with the Glasgow project is that it may not be cost-effective. While there are almost no comparative figures for the costs of residential career training or for rehabilitation at any site of multi-problem families, the Glasgow project looks expensive when start-up costs are included. Operational costs are not yet known. It looks so expensive (although it may prove inexpensive if the families are rehabilitated), questions must be raised about how what is learned can be reproduced elsewhere in its present form.

R&D interest in the Glasgow project may focus on potential research questions and sub-program development in the context of a residential program. The obligation to provide quality services and training to

family residents must be met, but the operational program itself, which has strong elements of social work, should not be confused with the educational R&D interests of NIE. While the dominance of operations over research and development is a problem all the models face, it is particularly acute in this project, which faces particularly complex, severe and acute problems related to operating a residential facility in an isolated locale. If the Glasgow project is to become part of NIE's R&D program, its objectives and potentials must be reassessed and tested.

For example, the Glasgow project provides an ideal opportunity for studying research questions such as the educational effects of multiple programs actually delivered to the same family, the educational problems of the rural family and the interaction of social services in areas such as nutrition, health, sanitation, housing and political participation with educational growth.

A second possibility, in addition to introducing a sizeable research component into the Glasgow site, is development of strategies that can be employed in local communities and do not require relocation of individuals or families. These intervention strategies could be designed for such target families as:

1. Poor families in urban core and rural areas
2. Transient and migrant families
3. Uprooted families who do not have sufficient experience, skills or social ability to prepare for a new environment (for example, southern mountain poor who settle in northern cities).

Model IV as a Test of an Educational Delivery System. The Model IV residential project may not develop an economically sound delivery system for general use. Consequently, its value as an institutional alternative to existing career education and job-training practices maybe questionable. However, it could serve as a laboratory to test assumptions implicit in Model IV to guide future policy for economic rehabilitation of entire families in residential settings. During FY 73, NIE should commission studies comparing the costs and effectiveness of the Glasgow project with (a) other residential, career-oriented sites, (b) other career-oriented programs for the multi-problem rural family, (c) current social welfare educational rehabilitation programs and (d) the social costs of neglecting these families. While the initial outlay is considerable if costed as a $20,000 income for the families, it would be hasty to conclude the residential program was inevitably not cost-effective. The results of these studies should be available by winter 1973.

Second, program management will emphasize the research opportunities of the site and tests of program components in non-residential settings. Much stress has been placed on service coordination for the multi-problem family, but few agencies have achieved this. The Glasgow site may offer a unique opportunity to test the effectiveness of an important goal for both social work and education, conceived broadly. Should this examination of the Glasgow site indicate little research or institutional potential, the multimillion dollar investment would seem unjustified for NIE. On investigation, however, the model may prove to be among the most significant

for career education if it can deal successfully with one of the toughest educational and social problems.

THE COMPATIBILITY BETWEEN THE MODELS AND THE CONCEPTUAL ANALYSIS

The career education program recognizes that in terms of resources, it represents only a modest investment in the career education movement. It represents an even more modest investment in terms of efforts of addressing the problems of education or the interaction of individuals with the economic sector as a whole.

The function of the NIE career education program is to provide intellectual leadership and an R&D base for the larger career education movement. Thus the career education program must deal systematically with fundamental questions, challenge underlying assumptions, confront structural constraints and develop and test innovative designs.

The current model development effort deals with limited areas of the domain mapped out by the conceptual analysis. In addition, the models effort assumes the value of the career education approach and sets as its task finding strategies to improve educational delivery. The models effort should be viewed as part of the career education program, not as the whole. It is the part that logically follows policy analyses and research, where solutions to well-defined problems are developed and tested.

Considering major problem areas in the labor market, the projects are aimed at unemployment, though it is hoped in all models that certain components will help improve the career decisionmaking process. Career satisfaction as a process or outcome measure is not addressed.

The target groups for the projects do not seem to have been chosen in terms of numbers or severity. Model I, Model II and Model III are serving self-selected populations, which may or may not be the groups for which the program was intended. Model IV is being developed using a sample of chronically unemployed and multi-problem rural poor. If career education is seen as an enabling process for all youth, all youth is not represented in the current development programs. If career education is seen as an enabling process for mid-career adults, and concerned with both level and distributional problems, mid-career adults are inadequately represented.

The projects focus almost exclusively on entry problems. The conceptual model outlined in Section II is equally concerned with advancement, progression and career development. The present programs tend to assume that if an individual has requisite entry skills, he will also be able to advance (e.g., Thurow, 1972).

To cope with entry level problems, Models II and IV are attempting to enhance specific occupational skills as well as broader skills; the Model I project expects to do so at a later phase. The activities of all

three models also deal with general skills and information and address the matching and financial support processes with varying degrees of commitment. The current Model III project explicitly addresses only this last problem. None of the models is directed to the demand side of the equation.

Models I and II assume that lack of skills is caused chiefly by the failure of existing training programs. The projects are intended to remedy this failure by creating alternative curriculums or educational experiences. Models III and IV assume the problem is lack of exposure (to guidance and counseling in Model III, and to skill training in Model IV). Neither of these projects pinpoints past reasons for the lack of exposure; they simply attempt to institute a remedy.

The notion is held that the four models are tests of alternative strategies for addressing essentially the same educational problem. Generally, the problem is presented as the failure of public schools to prepare youth and adults adequately for employability and the failure of the labor market to reduce problems of mismatch between youth and adults and career opportunities.

To the extent that this notion is valid, a sufficient number of common variables must be preserved across projects so that assessments can be made of the relative efficacy of a school-oriented strategy (Model I), compared with a work environment strategy (Model II), a media and mass communication strategy (Model III) or a total environment strategy (Model IV).

The current set of projects has been characterized by unplanned variations and the absence of a plan for assessing whether comparative evaluation makes any sense and if it does how to do it.[6]

WHERE DO WE GO FROM HERE: THE IMMEDIATE FUTURE OF THE MODELS

Model I: School-Based Model

The importance of the school-based model has been affirmed repeatedly. Public schools represent the largest single educational institution and NIE's most natural constituency. Schools are exploring career education, among other educational innovations, to see how these ideas, approaches and materials can improve the present structure or contribute to more extensive changes. While the future scope of the Model I program is undetermined, NIE's continued support for R&D related to school-based career education is assured.

NIE management of Model I over the past months has:

- Reduced the Model I budget and has encouraged the streamlining of management staff
- Improved materials development and review procedures and shifted responsibility for field-testing to an external evaluator reporting to the NIE project officer
- Created a system for regular assessment of the timeliness and quality of contractor performance, which changes in the pace of work appropriate to NIE's decision to support vigorous development and associated research rather than massive installation.

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6. The Section VI on Evaluation addresses this question. The Rand critique accurately describes the situation as of November 1972.

During the remainder of FY 73 and in FY 74, NIE will:

- Institute a review of the matrices describing the career education needs of children from kindergarten through grade 12. The purpose of the review will be to guide selection of new program units, examine the need for alternative intellectual frameworks and offer suggestions for possible modification of the present matrix. Of particular interest is the area of coping behaviors to aid the student in career and associated decisionmaking. The result should be a reduction in the total new efforts required to manageable but worthwhile proportions.

- Support revision of curriculum units from the first year's data. It is now anticipated that the revised units will be field tested through panels of cooperating school systems following a more rigorous experimental test of the reproducibility, costs and value of the products.

In addition, NIE will review the school-based program in light of new reports and conceptual analyses. Judging from the interest and response it has already generated, the present Model I effort is an important beginning. Building on the materials and knowledge available and NIE's conceptual framework, the program for research and development in school-based situations may be expanded in FY 74. During FY 73, NIE will not be soliciting or reviewing proposals from school systems seeking funds to support ongoing programs or "seed money" for new ideas in career education. NIE wants to work with school systems but will do so after careful (1) conceptual review, (2) assessment of how the investment can contribute to ongoing State and local efforts and (3) development of an equitable system for informing schools of the opportunity.

Model II: Employer-Based Model

Model II has evolved into a consortium relationship between the four contractors (responsible for program development) and citizens groups (characterized by intensive employer participation). The four Model II variations are not ready for a rigorous test of effectiveness and reproducibility since several program components are not yet well-defined and many processes (recruitment, assessing learning potential of the work situation, etc.) are still under development. While employers--according to reports--are willing, and sometimes eager, to participate in development they are apparently unwilling to assume responsibility for total management, governance or finance, based on their understanding of the Model II program in its current stage of development.

During FY 73 and FY 74, NIE program direction for Model II will first emphasize definition of the components and how they fit together as a system and assessment of overall program effectiveness.

Second, studies and analyses will be conducted to assess the variety of roles employers are willing to play in education and the differences that might emerge from a "truly" employer controlled educational system and those characterized by different forms of participation.

Third, what has been learned during the past months about setting up an employer based program will be presented in a series of reports for students, parents, employers and educators--such as "A Consumer's Guide to Career Education Programs". In these reports, the

distinctions among work-study, cooperative education, distributive education, internships and career education should be clarified. For example, career education involves learning both general and specific skills from the work experience and thus requires more careful analyses of the learning potential of the employer situation (matching student and employer opportunities and assessing development) than is typically the case in other forms of experiential learning. In addition, possible legal problems for youth (e.g., transfer of credits, employer insurance) equally need to be explicated for consumers.

Fourth, during FY 73 and FY 74, the conceptual analyses of the current models in comparison to the proposed framework and the new papers and reports referred to in the discussion of Model I will apply equally to Model II: much of what seems most significant in career education (the transition from youth to adulthood and the progression from early to mature career development) is embodied in Model II. These elements stand out as central issues if education is viewed as a form of enablement selectively available throughout the life cycle and which integrates rich variety of traditional and non-traditional learning opportunities.

Model III: Community Based

The home or community-based model enjoys both clearly stated objectives and a better defined workplan than some of the other projects. Management for FY 73 and FY 74 requires regular reviews of product quality, costs and promptness. Halt-points prior to expansion to review

evidence of effectiveness are part of the workplan. This should not be interpreted as saying there are no problems in the present Model III effort. The problems are, however, the result of "cut and fit" approaches that characterize a program development effort and the first year of a project rather than basic difficulties in the scope of work or program management.

Particular attention will be given to testing strategies for installation, reproduction, governance and finance of the outreach, guidance and matching services that the contractor is developing.

Model IV: Residential Center

The educational needs of thousands of mid-career adults who are chronically underemployed, sub-employed or unemployed is a problem of national significance in terms of numbers affected and severity. The total social costs of chronic employment problems for adults with families have not been assessed. Understanding the causes and effects of the families' problems and their immediate and consequent costs will require the skills of educators, economists, manpower specialists and social workers.

Model IV presents an intersect between (1) programs focused on the labor force rehabilitation of low-educational attainment youth and adults (e.g., Job Corps as a residential center for youth and manpower training programs for adults, which are usually non-residential), and (2) social service programs for multi-problem families, which are usually non-residential.

The whole picture is too big for an NIE R&D program, and it is uncertain what can be learned that isn't already known. During the remainder of FY 73, NIE will assess several possibilities. The "final" decision could be to use Model IV as the site for one or more research and development considerations.

The first order of business is organizing information from labor force and multi-problem family intercession programs and assessing the value of Model IV as a prototype residential center for rehabilitating multi-problem families. Previous experience with residential centers and with multi-problem families suggests that the costs are too high for reproducibility and the benefits would have to be higher than any previously reported for the costs to be justified. That conclusion, however, may be highly premature. If a 6 to 12 months' stay in an intensive intercession site, plus modest support after re-entry into communities, can make a substantial difference in the viability of multi-problem families, the approach may be cost/beneficial.

The NIE attitude will be one of skepticism, but not premature closure. One management action will be to initiate a review of Model IV characteristics in comparison to data and beliefs about intercessions on behalf of (1) adults who demonstrate high risk for unemployment and (2) multi-problem families. The relative merit of investments in extreme measures for rehabilitation versus prevention programs for high-risk groups will be considered, as well as the relative merits of different forms of rehabilitation.

At the same time, NIE will examine the potential of the approaches developed at Glasgow for reproduction in satellite, non-residential centers. The project may be a valuable laboratory for component development (or it may not). During the remaining months of FY 73, the components being developed will be reviewed, and, if suitable, the effectiveness of the components will be field-tested in satellite locations in FY 74.

A third approach will be to assess the research potential of the Glasgow site as a laboratory for increasing understanding of the dynamics of multi-problem families. Maintainance of an almost $5.5 million effort as a research laboratory requires a level of priority for the questions that may be heroic; the potential of the data already available and scheduled to be available during FY 74 will be examined and every effort will be made to extract the fullest research value.

This picture of the Glasgow project may be unduly conservative: it is easy to get alarmed at high costs and the diffuseness of what may be learned. The project overlaps, however, two important areas of intercession and represents a remarkably whole-hearted effort to make a difference through coordinated service delivery. There is much theorizing on the critical mass of effectiveness attainable by coordinated service delivery to multi-problem families but little achievement of this in the real world. The contractor staff have devoted considerable energy and experience to providing truly coordinated services. Few situations offer a "for-once-and-for-all, let's-find-out-if-more-is-really-better, or what-is-enough" opportunity. The Model IV project may.

SECTION IV

NEW RESEARCH AND DEVELOPMENT ACTIVITIES

The conceptual framework described earlier provides a basis for preparing a forward plan to manage existing programs. The framework will be questioned in new research activities, however, because accurate assumptions on the relationships among education, careers and labor market processes are not well established. Policy analyses and research hopefully will provide a clearer understanding of how educational changes affect job distribution and the financial and psychological income individuals derive from work.

Almost any collection of ideas can fit a framework, but if the presentation in earlier sections has been effective, the influence of the framework should show in the proposed R&D activity plan. Comparing this paper to the Rand and Syracuse documents, task force planning papers, reference documents and earlier drafts would show the following changes:

- Increased emphasis on career education research and development for midcareer adults
- Increased emphasis on research and policy analyses in contrast to development and experimentation
- Acceptance of a provisional conceptual framework to manage existing programs while, at the same time, testing it through research in these programs and new studies

- Focus on applied research rather than basic research, (e.g., studies of the value of learning by experience versus studies of the learning process).

Because of time constraints, the Task Force was unable to evaluate each research idea in the Rand, Syracuse and related documents. Task Force members have given greater prominence to some ideas (e.g., home-based education, reading skills as entry barriers, guidance and counseling systems) than the background documents did. There is greater uncertainty in selecting one research idea over another in FY 73 and FY 74 than will be the case in FY 75 and FY 76.

The next sections describe activities planned for FY 73, and as staff time permits, in FY 74.

YOUTH-RELATED PROJECTS

Funds are requested for five types of projects directed at youth in transition: (1) research, (2) policy analyses, (3) planning and program development, (4) experimentation and (5) dissemination.

Research

Field-Initiated Studies. Unsolicited proposals related to career education and youth-in-transition will be reviewed by NIE field initiated studies staff. Proposals recommended for approval will be reviewed by the Task Force staff for relevance to Task Force concerns.

Proposals with the highest joint priority will be recommended for support. Proposals of less interest to the Task Force but recommended for support by the panels could then be funded by the NIE Field Initiated Studies program.

During FY 74, the Task Force will prepare a prospectus describing research questions of particular interest to career education. It is uncertain at this time whether the prospectus will be included among those distributed by the Field Initiated Studies task force or if the distribution list and criteria for review would be so dissimilar that a separate announcement and review procedure would be recommended.

Program-Initiated Studies. Rand (p. 89-90) has urged that NIE let invention lead research. A pure linear model of the R&D process indicates, among other things, that development is based on research and that the quality of development depends greatly on the breadth and depth of the relevant knowledge base. But in a field such as education, still largely based upon empiricism, new practice and alternative systems can be created through intuitive, nonscience-based ability, and these inventions can lead to many hypotheses for research. That significant technical developments can be achieved without being preceded by research has, in fact, been noted. In education, the curriculum packages produced by the National Science Foundation can serve as an example.

Studies of Non-NIE Programs. In career education, one application (noted in Section VI, Evaluation) of the "let invention lead research" principle will be to fund practitioners who apparently already are achieving extraordinary success in creating programs closely related to what the career education R&D program is trying to accomplish. This is the opposite operational procedure from creating a design on paper and then finding a contractor willing to carry it out as in the models program described in Section III.

The purpose of funding these types of interventions would be to use existing sites as natural laboratories for experimentation. Research and evaluation would be applied to the ongoing intervention in an effort to formulate and test hypotheses about why the intervention is working. At the same time, the scale of the intervention might be gradually increased, particularly by trying to duplicate it at new sites. The leadership responsible for the original success would be involved heavily in this expansion activity, helping to invent needed variations, train personnel and so on. The purpose of expanding the scale of the invention is to increase the number of existing variations for analysis (which aids in hypotheses formulation and testing) and simultaneously to begin the process of learning how to spread the intervention. Ultimately, the ideas underlying the intervention may lead to important contributions.

An immediate practical question is how to choose which interventions to support. One criterion already mentioned is to select interventions that are related to the concerns of the career education program. Some simple evaluations might be conducted to identify potential candidates for support, but the primary reason for supporting an intervention should be the staff's judgment that it is of genuine quality and worthy of study.

During FY 74, the feasibility and value of alternate approaches to supporting research and evaluations of "successful" career education programs will be assessed.

Research Developing From NIE-Sponsored Programs. During FY 73, the Task Force will "let invention lead research" in the four models. While the models have received NIE support for planning, curriculum development and evaluation, most have no research program at present.

Supporting new research projects while neglecting the research opportunities in existing models seems short-sighted. The Model staff could apply for a field-initiated studies grant under current procedures. The research opportunities emerging from program development experiences may be realized more fully if project officer interests, the research concerns of many program staff and the perspective of researchers not currently involved in the models can cross-fertilize each other.

During FY 73, the Task Force research specialist will lead a series of workshops and meetings centered around the research potential of each model. Proposals emerging from these meetings could be submitted by model staff independently, by outside researchers independently or as joint

efforts. The proposals will be reviewed by field readers. Those rated high in both scientific merit and interest to the Task Force will be recommended for support through amendments to existing contracts.

Integrating program development, evaluation and research may not be possible in all models. The data base may be sparser, program development demands heavier and research ideas less valuable than now seems likely. On the other hand, the approach may provide a balance between the how and the why of program development that is necessary to attract and retain extraordinarily competent people.

Task Force and Program staff are enthusiastic about the approach. There also has been considerable interest by the few members of the research community with whom the ideas have been discussed. The Task Force recommends that the approach of developing research within NIE-sponsored program development efforts be adopted experimentally for FY 73 and FY 74. The effort involved relative to the quality of research should be assessed in FY 75.

A planning paper describing the purpose and procedures for the model initiated studies is available.

Policy Analyses

Determinants of Access to Jobs and Career Employment for Youth. There are at least three different interpretations of the higher unemployment rates for youth than for the general population. Berg argues that unnecessarily high general and specific skill requirements are the primary

barriers to career entry for youth. A recent Department of Labor analysis of youth employment concludes that employers use age criteria to bar many youths from career employment, leaving them with short term dead end jobs. Vocational educators say youth need (1) specific job skills that reduce an employer's investment in training and (2) open entry into career positions. The Council on Basic Education asserts that deficiencies in basic skills (reading, language arts and computation) are more important barriers to youth employment than motivation, information or attitudes. Still other reports suggest that "chance" factors such as who a job seeker knows, being in the right place at the right time and discriminatory practices by an employer determine if employment can be found, who finds it and the nature of employment secured.

The data on which these conclusions are based are too undifferentiated (some relate to any employment, others only full-time jobs; few differentiate "career" and "dead end" employment; few assess time between jobs, difficulty in access and entry, etc.) and methodologically incompatible to permit identification of the influence of age, region, ethnicity, sex, general and specific skills, occupational information and other factors on youth access to employment.

Policy analyses are needed to identify the relative (and absolute) importance of structural and aggregate, educational and noneducational determinants of youth employment. The studies should analyze the immediate and longer term consequences of different strategies for dealing

with problems (whose nature and magnitude should be better defined than at present) and recommend experimental projects as well as changes in policies and practices for which further research may not be necessary.

Determinants of Career Progression for Youth in Transition. Little appears to be known about career development or what determines a young adult's progression after he enters the world of work. Reanalyses of existing data banks such as Project TALENT and the Parnes longitudinal study may be adequate to distinguish the influences of policies, practices, information, acquired skills, general ability, family background, placement opportunities, etc. on the career history of individuals between 13 and 25. The analyses should identify cause and effect relationships, consider the immediate and longer term consequences of different approaches to reducing problems in career development, and recommend experimental studies and changes in policies and practices that seem justified without additional research.

Experiential Learning. Many of the strategies suggested for career education rely on the value of learning by experience and on learning opportunities in the world of work. At least two reviews of literature related to experiential learning are in progress--one on alternative schools and the other on studies of activity learning. While these reviews may be sufficient for the Task Force's purposes, it now seems likely that additional analysis of learning by experience will be required. These analyses would focus on distinguishing the purposes, procedures, effects and costs of

different forms of experiential learning already available to youth, for example work study programs and the experiential learning provided through employer-based models such as Model II.

The issues to be addressed include:

- Analysis of learning by experience
- When and for whom does experiential learning seem more effective or less costly than learning within the school setting?
- What combination of time in and out of schools seems most effective?
- What criteria are available to distinguish jobs for youth rich in learning experience from those that are not?
- What are thousands of youths already employed part-time not learning from their experiences? Do they need a new system for providing experiential training?
- What would be the costs and consequences of institutionalizing employer-based career education across the country?
- What is the evidence that achievement of career education goals for youth requires experiential learning opportunities?
- How can skills achieved through experiential learning be assessed and reported in a manner acceptable to educators and employers?

Governance and Financial Support. Expansion of employer-based career education programs for youth seems to depend on community resources not widely used in educational delivery systems. Issues of governance (to whom, how and under what circumstances can local and State public funds legally be used for nontraditional education) and of costs and means of support need to be examined:

- What would be the true costs and savings of widespread career education?

- What incentives could be offered to employers to participate?

- Might there be a decrease in national economic productivity if youth career education was widespread?

- Would there be any offsetting savings or benefits?

- What would be the benefits and costs of different ways of financing and governing career education for youth, such as optional 11th and 12th grades, with per-student schooling costs made available to students as vouchers for selecting both formal and nonformal education?

- Can the United States afford career education as "a form of employment selectively available through out life?" How? What policies concerning governance and support of career education can be recommended to State and municipal governments and for Federal legislation?

The Syracuse report[1] notes:

> One of the major problems of career education is that of finance. Quite frankly, career education will cost more than conventional education. Assistant Secretary Marland has estimated that career education will probably cost 20 to 30 percent more initially, but after a startup period will be only slightly more expensive than existing programs. This seems extremely optimistic if the concept is taken seriously.
>
> It is hard to estimate the exact cost of career education until such programs are actually instituted and allowed to operate for a reasonable period of time. But one way to approach the question of costs is to employ current expenditures for similar programs--those for secondary vocational education--as a surrogate for career education.
>
> One of the better studies of the comparative costs of vocational and non-vocational education programs was that completed by Elchanan Cohn, Teh-wei Hu and Jacob J. Kaufman for the Michigan State Advisory Council for

1. Burke et al., pp. 43-44.

Vocational Education ("The Costs of Vocational and Nonvocational Programs: A Study of Michigan Secondary Schools," Institute for Research on Human Resources. The Pennsylvania State University, University Park, Pennsylvania, 1973). Their findings should provide some evidence of the cost implications of career education.

The average cost of vocational education for institutions sampled in this report was $278 per student hour, with a standard deviation of $34. This compared to an average cost of $183 per academic student hour, with a standard deviation of $17. This means that, on the average, the cost of a vocational curriculum is about 52 percent more than that of an academic curriculum. The significance of the relatively small standard deviations for both groups means that there is a very small chance (less than one in ten thousand) that the mean difference in the cost of the two types of education is due to chance or the peculiarities in institutions chosen.

In decomposing these numbers, something more can be learned about the cause for the large cost differential. The average cost of teachers (salaries per student hour) was found to be $131 for the average vocational curriculum (with a standard deviation of $14) as opposed to $116 per student hour for the average academic curriculum (standard deviation of $15). This implies two things. First the average teacher cost per student hour is higher for a vocational curriculum (ranging from $108 for homemaking to $417 for welding) than for an academic curriculum (where the range if between $59 for physical education to $129 for programs like music). Second, teaching costs make up a considerably smaller percentage of the cost of a vocational curriculum (47 percent) than of an academic curriculum (63 percent). So the implementation of a career education program would entail larger outlays for both teachers' salaries (brought about by the need for lower teacher/pupil ratios) and for non-teacher costs (such as capital overhead).

Overall, the data on the comparative costs between vocational (or technical, job oriented) education and academic education are fairly sparse, both at the secondary and at the post-secondary level. However, most evidence seems to point to the fact that technical, vocational and occupationally oriented education usually costs between 50 percent and 150 percent

more than academic evidence on the comprehensive benefit-cost study of academic versus vocational education below the postsecondary level. To be methodologically complete, such a study should include:

(i) a testable hypothesis on the relationship among education, income and employment.

(ii) a measure of benefits and costs for students (including dropouts) rather than just for graduates.

(iii) disaggregated studies with focus on special groups--e.g., blacks, women, the educationally and economically disadvantaged...

Studies of Union Agreement and Staffing Issues Related to Career Education. The Rand and Syracuse papers have raised the question of the need for changing teacher certification as a factor in matching the demands of career education with experiences in the "real world" of work. Studies of the feasibility and value of teachers with outside work experience in a career education program have high priority. The Task Force will work with a consortium of teachers' unions, teacher training departments and State and local education officials to study issues in (a) granting credit for work experience in hiring and promoting teachers, and (b) broadening the requirements for teachers to include prior and ongoing work experience in other than the teaching profession. The Department of Defense has long experience in cycling personnel between training and operational responsibilities. Much may be learned of value to civilian educational systems from military experience in (1) emphasizing subject matter competence and work experience rather than teacher training, (2) closing the distance between teacher and student and (3) understanding the consequences of how well the student learned. Such analyses might lead to guidelines or a test of

recommended training, hiring and promotion policies possibly in an entire State system so that educational training institutions could mesh their programs with the revised requirements.

According to the Syracuse report[2]:

> Staffing a career education program at the K-12 level involves several issues or problems regarding both teachers and the guidance and counseling staff.
>
> Silberman (1972) and Bronfenbrenner (1971) are among those who have called attention to the need for more diverse role models for children. Children are isolated from a wide range of careers. As Silberman notes, this may be especially important for women and minorities. It would seem reasonable that staff must be recruited with backgrounds other than those of teachers who come through the traditional routes of college education curricula and teacher certification. Changing the State teacher certification laws would allow greater flexibility. Another possible source of flexibility would be to encourage schools of education either to accept relevant work experience as credit towards a degree in teaching education, or to encourage postsecondary institutions to modify their teacher training programs. Perhaps the career education advocates ought to lobby for the reduction of Federal funds to aid conventional teacher training in order to reduce the supply of new, academically oriented teachers.
>
> There are several other staff problems that may inhibit the growth of career education. The teacher tenure system certainly reduces the possibility of obtaining the type of staff heterogeneity that would seem to be required by a career education program. There are several possible solutions to this problem:
>
> 1) the abolition of teacher tenure and its replacement by a system of renewable contracts is a very unlikely prospect
>
> 2) the retraining of teachers already on the staff raises several problems: How would such teachers be identified? What incentive would be used to encourage them to undergo retraining? What would be the nature of such retraining and who would pay for it?

2. Burke et al., pp. 39-40.

3) the utilization of non-professionals or paraprofessionals for teaching specific short term courses. How would the regular staff react to these people and who would pay for them?

Planning and Program Development

The Task Force does not recommend large scale investment in new programs until more research findings and policy analysis are available. The planning and feasibility studies that should precede large scale efforts usually require months of work. The Task Force prefers to initiate some planning work in FY 73 and FY 74 in areas which current analyses and the conceptual framework indicate are both worthwhile and currently neglected. Several such planning studies will be initiated as staff availability permits.

Analysis of Program Recommendations in New Books on Youth-in-Transition and Career Education. Two new books, one edited by James S. Coleman and the other a collection of essays with a foreword by Sidney P. Marland, Jr. on career education and youth, are in press. The program recommendations in these and other sources will be evaluated.

A Synthesized Career Education Model. Rand, Syracuse and other planning groups have pointed out the limitations of Models I and II. Yabroff (1972) writes,

> Model I may fail in scope, in that it makes provision for broadening into the universe of employer and community resources available almost everywhere. Indeed, it may be compounding a felony through its more of the same, basically paper and pencil approach to career education...Model II, on the other hand, may be living in a dream world in its expectation that

> employers, groups of employers, trade associations. or any extra school groups will ever assume the considerable funding requirements which must accompany any major educational venture...

The Syracuse report[3] suggests combining components of current employer-based (Model II) and home-based programs (Model III) with school-based programs (Model I). The report offers the following suggestions:

> There appear to be distinct advantages in combining various elements of the ongoing career education models. It might be very useful to explore a truly comprehensive model which would combine a core school-based instructional program, emphasizing basic skills; involvement of employers and other non-school adults for the provision of both work and "adult life" experience and contracts; and the utilization of multi-media techniques and approaches in order to involve those who might not otherwise be reached as well as to reinforce "regular" learning experiences in schools and other settings.
>
> A number of factors presently make the widespread adoption of Models II and III unfeasible.
>
> 1. It would be difficult to disseminate Models II and III to separate educational systems with separate administrative structures. It might be more effective to combine the three models, with the school as the primary base.
>
> 2. Allowing three educational systems to develop will discourage a potentially beneficial flow of students among the three educational processes. For instance, different students at different times may want lectures at school, programs over a home television, or experience at a workplace. Such alternatives will not be available readily if they are separated adminstratively.
>
> 3. Many people expect the schools to act as the locus of education. Trying to change that locus to the workplace or home will go counter to traditional patterns. Models II and III may be suspected of not fitting the traditional concept of education.

3. See Burke et al., pp. 52-55.

4. Employers probably will be able to absorb only a few students in a Model II project, jeopardizing any large-scale effort. However, it would not block the possibility of allowing large numbers of students to go from the school to the workplace for short periods, then allowing other students to take their places.

5. Since most communities already have school facilities, Models II and III must exist alongside a school-based Model I if they are to exist at all. But developing two or three models together is likely to be a financial burden, particularly when existing facilities must be maintained and cannot be used immediately for Models II and III.

Nevertheless, Models II and III have elements unobtainable in school-based education that should not be lost.

1. Experience-based learning has value, particularly in the form of cooperative education. Learning in the workplace helps make academic subjects relevant.

2. The use of television in the home can greatly benefit students who may be unable to come to school. It also may be able to reach those who do not like the school environment but still want to learn.

3. Both Models II and III incorporate suggested reforms outside career education, including the open classroom, cooperative education, and multi-media learning.

4. Model III has a major advantage for dealing with students who have experienced failure in schools; it is able to preserve privacy. P. Cross (1971) argues that the threat of failure is the major barrier to learning for those in the lower half of the achievement distribution. Under specific conditions, Model III could alleviate this threat.

5. Putting students into different educational situations can allow them to synthesize a variety of experiences; schools presently discourage this by feeding students information and allowing little else. Use of other sources of information and experience might encourage school activities aimed at developing social competence, critical skills, and information processing skills, etc.

Synthesizing Models II and III with Model I would involve:

1. A major redesign of the student role so that students may go freely from learning in a school, to cooperative education, to TV learning at home, effectively integrating the three experiences into a single educational thrust.

2. A major redesign of the teacher's role such that the teacher can lecture in a classroom, work over television, oversee cooperative work, and act as a general resource for students with specific learning needs.

3. The increased incorporation of noneducational personnel into the educational process so that parents can help in home-based learning and businessmen may help students working in particular jobs. Teacher aides also could be used to help teachers oversee students in their different environments.

4. A redesign of the school's institutional role within the community so that it becomes more involved with the work and home environment, acting as a community center for education rather than as a babysitter for the children while the parents go off to work.

5. Eventually, the redesign of work roles within a community so that the school may act as an educational center for more groups within a community.

For instance, the jobs of adults may be restructured so that they can further their education as part of their job. This might involve learning through TV in the work place and other innovative efforts.

Such an approach could be initiated most effectively in a community that is planning new school facilities and has few institutional relationships that would impede a synthesized model, such as physical and ideological separation of the business and educational sectors. This suggests several sorts of locations, such as inner city areas rebuilding both the business and residential communities, New Town efforts, and rapidly growing suburbs which need new school facilities and have no set community patterns.

Several advantages in the proposed synthesis are suggested above. Other advantageous consequences may involve:

1. An improved use of school facilities. As the school becomes more central to community life, it may also act in the educational interests of adults, so that more people can use the facilities. It also may be beneficial to put other social services within the same facilities. For example, the employment or health services could be in closer proximity to educational services.

2. An increased awareness among students not only of possible careers, but of the possible roles they may assume within a community. In this way, a model's synthesis would act as a natural process of citizenship education.

3. Increased accountability of the schools to the community that cannot be obtained through legal controls alone. As education goes into the home and workplace, there is apt to be a greater community awareness of education, including more feedback to schools and a greater understanding of educational problems.

During FY 73 and FY 74, the Task Force will study the recommendations in the Syracuse report and in books in press. If evaluation of these ideas and surveys of existing programs and projected needs justify the effort, the Task Force will study the feasibility and value of new approaches to learning and work for youth.

The new approaches may resemble the synthesized model suggested or they may incorporate substantially different features following close examination of ideas in the recent publications and analyses of what features would most likely improve the interaction of youth-in-transition with the economic sector.

Role of Postsecondary Institutions. A second area that has been identified repeatedly as a gap in current career education prototypes is the role of postsecondary education institutions, traditionally the road to

more desirable positions.[4] One concern is that career education is a "cooling out" or deadending procedure, rather than an extension of educational and career opportunity. Community colleges and continuing education programs have been expanding rapidly in the last decade. The course credits and credentialing systems, however, remain much the same as in the 4-year colleges. Many issues require careful study before secondary and postsecondary institutions can form part of a career education system. Career education should not contribute to the deterioration of academic standards reported by some educators, and the consequences of open enrollment programs ought to be examined critically.

During FY 74, NIE will study the feasibility and value of different career education programs in relation to postsecondary institutions, possibly through a planning consortium of university, community college, technical school and other groups to develop recommendations for prototype studies. The idea of working with an entire State, revising the curriculum and credentialing system from K through postsecondary, as described by Evans (1972) has substantial appeal. However, many questions need to be reviewed, such as time, scale, outcome measures and the relation of structure (credentialing systems) to content (training experiences, time patterns, etc.). The planning activity would include surveys of existing career education programs in postsecondary ins itutions such as technical institutes, military training and education, community colleges and universities without walls. Program activity is not likely to be initiated before 1975.

4. See Burke et al., pp. 45-48. Also Evans, 1972.

Hard-to-Reach Youth. For some youth, a numerically small but deeply troubling minority, the schools have failed. Upward Mobility. Job Corps and other programs may be too little and too late for those who often are turned off as early as the sixth grade.

Massimo and Shore have reported the substantial benefits of a career education model using a ratio of one adult to 10 "unreachable" adolescents. This study should be replicated, and other career education approaches aimed at the hard-to-reach adolescent should be examined.

Model IV provides the context for family intervention. Nonresidential family interventions and special, early career education opportunities for students now at high risk for being totally unreached by schools should be examined on a small scale basis.

The costs of keeping reluctant youth in school are high.

Examples of studies include:

- How early do such youth show dissatisfaction?
- What changes in the minimum age of school exit and in the hours required to be spent in school daily, could be made to create a more effective mix of work, recreation and education for children perhaps as young as 11 or 12?
- What would the costs of such a program be?
- Would education be more productive with more flexible approaches to the locus of education (traditional and nontraditional) and the sequencing of education (phasing out of traditional schooling from sixth grade on, versus the abrupt cessation of required, and publicly supported education at 16 years or 12th grade)?
- Given the disappointing results of many programs directed to similar problems, how substantial, durable and widespread will career education's impact be on career satisfaction for hard-to-reach youth?

- What coordination with other programs (e.g., education for parenthood) for high-risk youth would make project success more likely?

- Would the Model III outreach and counseling program, combined with Model II's experiential learning approach, be a promising nucleus?

- Would program auspices (e.g., management by a group with high credibility for inner-city youth or with suburban hard-to-reach youngsters) prove more important than program content?

During FY 74, the Task Force will study issues related to career education for hard-to-reach youth, with possible initiation of prototype studies in 1975.

Counseling, Guidance, Placement. Planning studies leading to program development in the area of counseling, guidance and placement will be initiated in FY 74. Investments in guidance for high school students have increased markedly over the past decade; commensurate increases in student benefits do not seem to have occurred. Career education programs may be more vulnerable to inadequate counseling and guidance than other educational services. Much of Model I involves decreasing the reliance of youth on counselors, since the information they need for career planning and decisions is being provided by curriculum infusion in grades K-12. In Model II, direct involvement of students in employer environments provides current and relevant job and career information.

In the meantime, NIE should foster the development and testing of materials and approaches that use existing resources (e.g., computer-based guidance systems; adults and older youths willing to advise students in their areas, telephone counseling and guidance techniques being developed

in Model III and self-instructional materials) and adapt existing programs (e.g., the Cleveland placement service project).

Experimental Studies

Support is requested for two experimental studies. Many career education programs, including the more successful ones conducted by private technical schools and training programs, select youths with sixth or eighth grade reading skills. Many youths may be excluded from career education programs for deficiencies in basic skills. Concentrated remedial reading programs developed for military and industrial use are reported to be inexpensive and reliably successful. The Task Force will survey these programs and others developed through Job Corps and other programs. If the survey supports current impressions that these programs are effective, support will be requested for an experimental test of their use in conjunction with ongoing career education projects. The experiment will first test the cost effectiveness of the programs and then assess (a) if youths can meet entry requirements through these accelerated foundation programs and (b) whether these skills are valuable for successful participation in career education projects.

The Department of Defense is among the organizations with considerable experience in foundation education for youth adults. During preliminary conversations, Department officials indicated considerable interest in the NIE career education research program. Provisionally, the Department is willing to cooperate with the foundation education study and other efforts to make programs developed by the Department available to civilian populations.

A detailed workplan for the experimental study of foundation education and career education is available.

Many State and local career education programs are based on the infusion strategy. This strategy involves preparation of materials and guidelines relating to career education to be used by regular teachers and counselors throughout their daily programs.

Career education thus is expected to infuse or permeate the entire school program, from K through 12. Not only is this approach less expensive, since no additional staff is required except for preparing guidelines, but some believe infusion to be a more durable form of educational change than adding new staff, courses or special activities.

Expected advantages of the infusion strategy are lower cost (no additional staff is required) and durability after seed money is spent (for example, staff are expected to incorporate career education into their daily planning and texts will be rewritten). How long infusion of career education will take and the possible degree of resistance by teachers and staff are unknown. Further research on infusion and experiments on infusion versus other strategies for delivering career and job market information are needed.

The infusion strategy is central to the Task Force's largest single curriculum development program, Model I. As noted earlier, it is equally central to the career education strategies of many states.

A review of existing evidence, surveys of current infusion-based programs and development of alternative, presumably more effective and equally feasible approaches will be undertaken as staff become available. An experimental test of cost effectiveness of the infusion strategy may be possible by FY 75.

Dissemination

FY 73 support is requested for two dissemination activities, including:

- Development of a "Whole Earth Catalog" on career education. The audience would be teachers, guidance counselors and educational supervisors.
- Studies of career stereotypes in the media, particularly TV and texts, and preparation of guidelines for media on realisti and informative ways of presenting different careers and the orld of work. Special attention will be given to effects on youth of sexist and racist career stereotypes.

ADULT-RELATED PROJECTS

Research

Field Initiated Studies. Unsolicited proposals related to career education and midcareer adults will be reviewed in FY 73 through the same procedures as proposals related to youth. In FY 74, the prospectus describing career education research areas for youth also will include areas of interest in regards to career education and adults.

Model-Initiated Studies. The target populations for Models III and IV are primarily midcareer adults between the ages of 25 and 55. The research opportunities described in the section on youth also will be available to project staff in these models.

Adult Learning Processes. As staff availability permits, the Task Force will commission reviews of the literature and new research on the basic learning processes of adults.

Many models of human development posit complete acquisition of basic cognitive processes by about 14 years of age for the average person. Later changes are believed to involve consolidation of these processes and acquisition of greater information. Losses are postulated to occur over time, primarily in the immediate memory functions, ease of idea retrieval and recombination.

The data on which these models are based derive mostly from studies that confound age-related and society-related changes in opportunities to develop and exercise various cognitive functions. More recent longitudinal data cast doubt on the declines in cognitive functions during the midcareer period. (Kagan has recently concluded, however, that basic cognitive processes emerge through maturational, discontinuous development and are relatively unaffected by cumulative experiences.)

The development of basic learning processes and their changes between youth and the midcareer period may have implications for policies and practices in career education for midcareer adults. For example, if there are changes in learning processes during the midcareer period, guidelines for counselors might identify which careers capitalize on the most prominent abilities of the adult and which occupations place high demands on skills that are declining. Learning through experience versus other

techniques may be differentially valuable for youth and adults, depending on the learning processes engaged. The policies enabling career education for youth and adults may require different pacing of experiences to adapt to the changing learning processes.

Most instructors' manuals on teaching adults have been developed for adult education and recurrent education programs. Often these manuals stress motivational aspects of teaching such as avoiding "talking down" to adult audiences, anticipating the usually greater motivation to attend class regularly and to prepare assignments and responding supportively to often greater adult uncertainty about competence in the student's role.

While these manuals are helpful to the instructor in adult education, a more thorough analysis of learning processes in adults and an examination of the implications of the findings for career education are needed.

Career Satisfaction. How much is career satisfaction worth in terms of income? Work in America suggests that job alienation and dissatisfaction extract a high cost in alcoholism, absenteeism, sabotage, careless work and reduced productivity among workers in all occupations. Since many of these dissatisfied employees are receiving high incomes and extensive fringe benefits, their dissatisfaction presumably would not be remedied by more money and more benefits even it if were agreed that employers should and could afford to provide them. Speculatively, job satisfaction includes financial rewards. But above a certain point, job satisfaction may depend on the worker's sense of autonomy of independence and of participation in decisions.

There are many gaps in the research on job satisfaction:

- What are the regression lines describing how financial and psychological income independently and jointly predict turnover, productivity, etc.?
- For whom do these regressions hold--white midcareer males? women? low-income blacks?
- To what extent is job satisfaction only predictable by long chains of influence from school, peer, home and cultural attitudes? Are the "productivity" criteria only marginally and briefly responsive to changes in job satisfaction?
- Will job satisfaction be substantially and durably affected by job redesign and institutional support for midcareer education, training and career changes?

Some organizations (e.g., the Navy) institutionalize fairly substantial career change by 2-year assignments. What other organizations have adopted similar approaches? On what evidence did they institute and continue the policy? As staff availability permits, research on the determinants and consequences of job satisfaction in midcareer adults will be initiated.

Policy Analyses

Determinants of Structural Unemployment and Educational Rehabilitation. The conceptual framework assumed that education could--and should--affect the distribution (by such factors as age, sex and race) of employment, subemployment and underemployment and the distribution and level of job satisfaction. According to the Syracuse report[5], "The precise estimate of the structural component of unemployment

5. Burke et al.

is one of the major research gaps that should be corrected if an accurate target for the role of education in solving (or at least lessening) unemployment is to be set."

The greater dissimilarity of employment-related problems among adult subgroups than among youth has been suggested as an obstacle to program development. The Task Force plans to initiate research and policy analyses identifying more precisely the extent of employment-related problems in adults and the educational component in these problems. Followup studies of low-income adults who participated in Community Action Program career development programs may be particularly useful.

Determinants of Career Progression. Funds are requested for research on the determinants of career progression for midcareer adults:

- What are the career paths followed by different sexual, social and ethnic groups?
- Has on-the-job training or more formal education improved career progression for recipients?
- How predictable is career progression, based on family background and educational opportunities?
- How valid is the concept of "career progression," and how can it be assessed meaningfully?
- What is career consolidation?
- What factors generate compulsive work habits and constructive work habits in adults?

Competency-based Certification. After exit from formal education, many adults gain new skills and competencies through on-the-job experience. Where these substantially exceed formal certification, the individual may

progress in his own job but be limited in a search for new employment. The Child Development Associate program (CDA) is an important new approach to adult credentialing. It is linked to competency and training programs and fills a social need for certification of competence levels of child care workers. As staff availability permits, the Task Force will initiate policy analyses of means of competency certification for adults that reflect skills gained on the job, as well as through other educational approaches.

Institutional Support. Through international studies, emphasis will be placed on institutional support of career education for midcareer adults. This includes a review of reports on legislation, policies, practices in other countries supporting recurrent education and career development for midcareer adults.

The personal barriers to career education for midcareer adults seem greater than those for youth. For example, family responsibilities are greatest between 30 and about 55. In addition, if young dropouts are viewed with some disfavor, the middle-aged person who drops out of full time employment to change careers often is seen as irresponsible and his midcareer change may reduce subsequent job opportunities. Service personnel returning to civilian life after their 20-year "hitches" or women re-entering the labor force may find fewer barriers to mid-career changes. What effects on families, communities (which depend in many ways on the volunteer services of midcareer adults) and the economy can be projected for different forms of support to career education? Which approaches may be most promising for NIE to support as prototypes in FY 75?

Consequences of Job Redistribution. Policy analyses projecting the consequences of job redistribution are needed. Several recent articles and books have termed income and job redistribution (without changing levels of unemployment) a goal worth striving for. So has NIE.

- Is job distribution worthwhile?
- In what ways would individuals and groups be better off if, with the help of career education and other changes, incomes and jobs were more equitably arranged?
- What unfavorable consequences could be expected, and in what ways would the means by which changes in job distribution were effected (education, credentialing, job quotas, etc.) influence expected consequences for individuals and the Nation?

Program Planning

Expansion of Home-Based Education (Model III). Model III examines one way of matching educational needs and resources for midcareer adults. Expanding this approach by increasing delivery system alternatives for home-based populations would seem an important area of program development.

It is predicted that by the year 2000, 80 percent of instruction beyond the secondary schools will be delivered by cable TV, video cassettes, computer-assisted instruction and learning kits to be used with audiovisual independent study units. Off campus instruction of adults may become the most rapidly changing segment of postsecondary education.

In FY 73, the Task Force staff will study the feasibility and value of using cable TV, other media and Model III-like counseling and outreach components in planned communities and the inner-city. Program development

would utilize the experience of Model III but not be limited to the current contractor.

No other major activities are planned for FY 73 or FY 74 for midcareer adults. As staff become available, reports such as Work in America will be reviewed for ideas worth Task Force development as research, policy analyses, new programs or experiments in career education for midcareer adults.

By the end of FY 73, the Task Force hopes staff will be available (a) to define more precisely the needs and cause-effect relationships of career-related problems for the various midcareer adult populations and (b) to develop a research program centered around the career entry and career progression needs of midcareer women.

Women between 25 and 55 seem particularly likely to make midcareer changes. The larger social consequences of the increasing numbers of women re-entering the job market are as yet uncertain. The Task Force is concerned with promoting extensive career exploration in youth, with provision for enabling forms of career progression for both men and women. It is equally concerned, however, with analyzing the longer term economic and educational sequelae of the trend toward continuity of labor force participation for women.

Dissemination

When planning new studies, the Task Force will meet with agencies in the Education Division and other Federal agencies. If a proposed study already is underway, the Task Force will report that funds previously

set aside are not required. If studies underway meet CEDTF needs (or could be altered to do so), funds would be transferred to the ongoing project. If other agencies are interested in Task Force ideas and would like to support these new projects, interagency funding would be encouraged.

How to keep abreast of what other agencies are supporting, and how NIE can provide leadership through project coordination merit discussion in their own right. The Task Force anticipates a more definite report on where cooperation is and is not indicated on many of the projects for which new funds are requested but cannot say at present how this will affect budget requests or the pace of program development.

MISCELLANEOUS PROJECTS

Non-Model Related Projects in Regional Laboratory and R&D Centers

Over 25 separate projects which directly bear on career education are being conducted at four sites: The Ohio State University, The University of North Carolina, Johns Hopkins University and Appalachia Educational Laboratory. The projects are primarily research efforts loosely clustered around topics such as "guidance and counseling" and "career development patterns." The studies have been well-defined, with particular rationales, measures, methods, plans for reports and the like.

Many of these activities will be up for refunding during the fall of 1973 for FY 74. During the remainder of FY 73, the projects will be reviewed and reorganized (if appropriate) into more conceptually

coherent clusters. Plans will be developed for improving the research and for research utilization. Preliminary reviews indicate that some studies are closely related to the Task Force's objectives, for example a study of Vocational Development and Adjustment Patterns, and studies to develop a framework and procedures for work analysis, description and classification.

D. C. Project. Responsibility for a program in the Anacostia area of the District of Columbia was delegated by Congress to the National Institute of Education in the enabling legislation for NIE. In FY 72, the U. S. Office of Education was authorized to plan a two component effort involving community aides, and development of a variety of curricula and programs intended to improve the education of children in the District. Additional funding is anticipated for FY 74 and FY 75 to implement the plan. Although the program has been delayed in staffing up during the past months, the objectives and activities of these two "components" have been discussed extensively with Task Force researchers. The intent of Congress in supporting better education for children in the district is clear; how the funds potentially available can best be used to achieve this objective is still uncertain.

The program has been reviewed extensively. When the proposal for FY 74 is received, it should be possible to move forward with a clearer set of program objectives and activities and research accountability.

Child Study Center. The Day Care Center operated by the Office of Education was delegated to the National Institute of Education as part of the National Center for Educational Research. Responsibility for the Center was in turn delegated to the Career Education Task Force, in part because of staff experience in child care center operation.

The Center is located in the ground level of the Office of Education building in imaginatively designed quarters. It serves 40 youngsters from 3 to 6 years of age, all children of employees. The National Capital Day Care Association was awarded a contract to operate the Center until May 31st under NIE supervision. Center operation, at the time of transfer, had been controversial. During these past few months, the Task Force has emphasized management of a good general child development program for the children and parents and assessment of the relation of the Center to NIE's mission.

The future of the Center is being reviewed; the budget figures anticipate continuation of the Center as a child study institute.

Other. Special projects include workshops, special analyses and other activities that the Director of the Task Force and other staff members deem necessary to support current activities and to advance the field of career education.

SECTION V

DISTRIBUTION OF RESOURCES

Budget Allocations Among Types of R&D[1]

An important element of R&D strategy is the allocation of resources to research, policy analysis, development, experimentation and evaluation. It is generally accepted that an R&D program such as career education, which is intended to have a direct effect on practice, should support all above R&D activities. Decisions as to appropriate levels of support for the various types involve several factors:

- There is no theory and very little empirical evidence that specifies exactly what the proportions among R&D activities ought to be in the career education program. However, experience has shown that supporting only some of the types of R&D leads to an accumulation of understanding but few useful products or vice-versa.

- The proportions allocated to R&D projects should be influenced by their needs as determined by policy analyses or by difficulties encountered in ongoing projects.

- The proportions allocated to R&D activities should be influenced by the technical quality of the work to be supported. For example, there is no point in supporting research at a fixed percentage of the total budget if the quality of research proposed is low and cannot be improved easily.

- The career education staff will not be able to determine exactly what proportion of the R&D budget is actually spent on each of the types of R&D activity, no matter what the original allocations. Types of R&D activity cannot be defined precisely enough to enable actual projects to be sorted into these categories. However, the career education staff will be able to set the approximate proportion of the budget spent on each type of R&D activity and judge the fit between allocations and actual funding.

1. Quoted with minor editing from Raizen et al., pp. 71-84.

- A number of means can be used to set the proportions, including the orientation of the staff hired, the organizational form adopted, the budget categories utilized and the program objectives established. For example, dividing responsibilities within the Career Education Program by problem would, under most circumstances, tend to drive out research in comparison to dividing responsibility by type of R&D activity.

The type of research activity supported by the Career Education Program is likely to be different from that of most Federal R&D agencies in that much of it would be designed to address questions emerging from developments and experiments. Examples include examinations of the basic hypotheses underlying the models; surveys to assess the size, attitudes and needs of various target groups and analyses of the costs of alternative systems. Research would be viewed as a means of servicing the developments and experiments as well as an investment leading to new ideas for career education. Or, as Cronbach and Suppes (1969) state, research in career education should be as much decision-oriented as conclusion-oriented.

In summary, R&D managers do not decide to support a certain percentage of each type of R&D activity and then implement their decision. The actual proportion of the budget in an R&D program is the consequence of a large number of related decisions tempered by program management's desire to maintain a balance among the types of R&D activity for the longrun benefits to be derived for each program.

The career education program may support five types of R&D activity.

1. Research--activities undertaken to gain basic understanding or information about cause-effect relationships and to increase basic knowledge in career education

Examples include:

- Surveys to measure characteristics and identify needs of target populations
- Detailed studies of current practice to point the way to promising improvements
- Simulation models of manpower systems to identify and gain an understanding of the important factors
- Experiments and inquiry to improve testing methods
- Cross-cultural studies to understand career education strategies in other countries

2. Policy analysis--research to generate and compare ways of making program decisions

Examples include:

- Improving the conceptual framework for career education
- Advising the career education program on priorities among objectives
- Identifying anomalies in current program efforts and results by cross-project comparisons, observations and other means
- Exposing conceptual fallacies in the design of career education projects
- Suggesting variations in career education projects that would increase their significance

3. Development--invention of educational products that can be used either by practitioners or as a component of a large-scale experiment

Examples include:

- Curriculum units for teaching career awareness to elementary school students (Model I)
- Resource centers to link individuals to information about careers and to training opportunities (Model III)

4. Experimentation--large-scale intercession into a real-world setting to answer with considerable certainty a question of major policy significance

   Examples include comparison of the cost effectiveness of infusion of career education through special materials and inservice training as a change strategy with other strategies such as recruiting as teachers individuals with extensive world of work experience.

5. Evaluation--assessment of the effects of an educational product or large-scale intercession

   Examples include:

   - Impact evaluations to assess that a product or intervention is being applied as intended
   - Formative evaluations to discern why a product or intervention is (or is not) working as an aid to program development or revision
   - Summative evaluation to measure the net change caused by product or intervention as an aid to decisions on program expansion, modification or discontinuation.

Implementation purposely has been omitted from this list of types of R&D activities. The Career Education Program should not spend its funds for implementation beyond testing and developing appropriate strategies for dissemination, research utilization and implementation. (These activities will be part of every experimentation and development project.) There are at least three reasons for this: (1) the budget level forecast for next year is much smaller than the amount needed to support implementation

on a nationwide scale, (2) there are not enough proven career education innovations available to warrant an immediate commitment to broad-scale implementation and (3) NIE's mission is development, not program installation.

Demonstrations also do not appear explicitly in the listing above. Some consider demonstrations to be a separate R&D activity but the term is used differently by different authorities. One interpretation of "demonstrations" describes a project for displaying a proven education product or intercession as a means of attracting interests--hopefully leading to dissemination. Most evaluations of demonstrations as a vehicle of dissemination have concluded that practitioners become aware of demonstrated innovations but usually do not adopt them. We should support the first kind of demonstration only for awareness purposes.

In another interpretation, "demonstrations" describes a project undertaken to explore a new idea on a trial basis before making a sizeable commitment to rigorous experimentation. This kind of demonstration is included in the development category.

A third interpretation of "demonstration" applies to projects where someone with an interesting idea is funded to set up his idea in a real-world environment to show others that it is workable. In this kind of demonstration the idea is not rigorously developed and evaluated nor viewed as a trial stage possibly leading to full-scale, disciplined experimentation. The career education program should avoid this kind of demonstration because of the low probability of practical effect.

Meshing R&D with implementation is not a trival problem. First, research-based analyses of the change process in schools are just beginning to appear. Second, analyses of research utilization are so new that for many, research utilization is confused with dissemination ("We've already got a lot of journals"). Little is known about how information affects allocation of educational resources or educational practice. The state of the art in dissemination and utilization appears to be technologically advanced, but conceptually primitive (what works in what way, for whom, at what cost and why).

Third, approaches that facilitate utilization of results take time (e.g., involving those who control resources in the planning and review of research).

Product marketing (e.g., Model I and III packaged materials) presents problems of NIE endorsement and of how to make products available for review without premature claims for their effectiveness.[2]

ACTION IMPLICATIONS

During FY 73 and FY 74, the Career Education Development Task Force will:

- Meet with representatives of Federal and State agencies to see how our projects may contribute to their needs, and vice versa

2. This is discussed in the section on Evaluation.

- Request and review a research utilization plan for each project
- Work with the Educational Communications Task Force to develop a plan for disseminating research findings and products from existing projects
- Form a special review group on research utilization, dissemination and product marketing to review the dissemination components of the new activities.

The proportions allocated among the five types of R&D activities in recent career education project budgets appear to have been around 80 to 90 percent for development and the remainder for the other categories. Judging that these proportions are too high for a balanced R&D program--since very little is left for research, policy analysis and evaluation--a shift in proportions is recommended: 10 percent for research, 5 percent for policy analysis, 40 percent for development, 20 percent for experimentation and 25 percent for evaluation.

Research is funded at a proportionately low level because the Task Force intends to focus much of it on the support of developmental and experimental types of R&D activity. It is reommended that policy analysis receive an even lower porportion, but this does not include the recommended internal Task Force policy analysis staff. Thus, in terms of total R&D effort, policy analysis would be a higher proportion of the whole career education program effort than 5 percent.

These suggestions are aimed at the FY 74 rather than the FY 73 budget. The Task Force considers it very doubtful that a sufficient number of good new development and experimentation projects could be

launched in the remaining months of the current fiscal year. Even if priorities on R&D areas could be determined immediately, developing appropriate guidelines, informing the field, allowing time for development of good proposals and making funding decisions will--and should--take longer than 6 months. At this point, the program might be better advised to extend the deliberation process rather than mount another round of quick experimental projects. For this reason, while new efforts should be initiated as soon as feasible, FY 73 activities should concentrate on further analysis, planning and program development. FY 74 should be the year in which 50 percent of the program funds will go to NIE-initiated projects.

SECTION VI

EVALUATION

Many recommendations from Rand, Syracuse and the NIE staff require evaluation of model effects under conditions of natural and planned variation. Additionally, Rand recommends evaluating progress of the Career Education Development Task Force and NIE as a whole.

The Rand report suggests:

1. Evaluation of individual projects within the models
2. Evaluation of each set of model activities--e.g., counseling or curriculum units
3. Comparative evaluation across models
4. Evaluation of non-NIE interventions and
5. Evaluation of the overall program to see whether supported activities have met the objectives of the NIE Career Education Program by
    a. Broadening the knowledge base
    b. Contributing to policy formulation and
    c. Contributing to the quality of development and testing of educational innovations.

The Task Force concurs with these recommendations. Putting them into action will take time, money and staff.

STRENGTHENING EVALUATIONS OF MODELS I, II, III AND IV

The Function of Evaluation in Program Development

The models are funded to develop programs, materials and systems which will achieve stated goals and be reproducible at a reasonable cost. During the early stages of the project, evaluation support is needed for program revision and development. Rapid feedback of information can help identify which activities are, and are not, effective in accomplishing what developers intended they should achieve. Evaluation should go beyond identifying trouble spots to suggesting alternative strategies for program improvement.

While most internal decisions during the early stages of program development relate to program formation, evaluation during this phase serves a second purpose. Prior to refunding, or at points where scope of activities change, NIE needs evidence that there is a well-conceived program coming together, that the activities are shaping up to reach their objectives and that operational costs are likely to be justified by program benefits.

The level of experimental rigor required to convince NIE or its reviewers that the program developer knows what to do and is doing it well should be appropriate to the cut-and-fit nature of development. It often is foolish to invest in a grand experimental design in the first developmental year when the program may shift both where it is going, as objectives become more accurately defined, and how it is going to get there. On the other hand, evidence cannot be so casual that NIE is left with endorsements and good faith as the only basis for continuing a

program. The proposal for evaluation support of the early phases should anticipate these needs and present the criteria by which the program developers themselves will decide whether or not to continue, in what form and on what scale.

If NIE decides the program is worth continuing, either for further development or for experimental tests of the reliability and reproducibility of the products, evaluation support continues to provide information for program revision. In addition, the evaluators of stabilized programs should document that the overall program is effective and that it is achieving what it has promised to accomplish in a nontrivial and reliable manner. The evaluation design should be adequate for inferring that the intercession was responsible for the outcomes. This responsibility may be shared with external evaluators but remains in part the task of program developers. Again, information should be linked in the proposal and in practice to decisions regarding the nature and future of the program.

These seem to be the minimal requirements for evaluation support of program development:

- How will the data be used to revise the program during its development?
- What evidence will be given of program costs and effectiveness that will permit an NIE decision to continue, modify or discontinue the effort?
- How will products be tested prior to marketing and information on program feasibility made available to the public?

Status of Evaluations

Evaluation was not defined in this manner for the present models. Although all models have some staff assigned to research and evaluation, none have plans that anticipate the decisions outlined above or that relate data collection and analysis to decisions (what information is needed in what form, when and by whom to make what decision).

The cost and the quality of the internal and the few external evaluation components in ongoing projects are uncertain.

A group chaired by Dr. Robert Boruch and including Dr. Edward Palmer of Children's Television Workshop (formative evaluation) and Dr. William Goodwin of the University of Colorado at Boulder (curriculum evaluation) is reviewing all internal and external evaluations. The group is to recommend how to strengthen the formative and summative evaluations for each model and, if it makes conceptual sense, across models.

From early indications, evaluation as information related to program objectives for decisionmaking has guided the language, but not the plans or practices, of the early developmental phases of all models. For FY 73, the evaluation task is to bring some order into this situation, beginning with the formative evaluation.

If one of the distinctive characteristics of NIE's investment in career education program development is the care with which programs are prepared and tested, then improving the quality of evaluation for program development and planning summative tests of program effectiveness demand high priority.

What Is Meant By "Field Tested?": A Methodological Problem

One methodological problem evident in reviewing internal evaluation in the models is lack of agreement on guidelines defining sound practice in field testing programs and curriculums. Few guidelines set forth what seem to be obvious criteria (e.g., develop the program on samples representative of the intended user population) and more problematical criteria (should instructor effects be considered as experimental error in a large field test, or as an interactive variable that could affect recommended program use?).

No reports are available describing the criteria of "field tested" currently used before marketing by private publishers, by NIE and USOE curriculum laboratories, by the Department of Defense and by public schools. Preliminary indications show variations from very extensive tests of reproducibility to the most informal of methods that supposedly assure the buying public that a product is "fully field tested." There are apparently no followup studies indicating whether the more formal (and expensive) program development methods yield any better curricula in practice than do the more informal methods.

Criteria For "Field Tested" Products

Rand (pp. 90-93) has recommended that NIE substitute R&D managerial policy for implementation activity:

One management policy to substitute for implementation would be to require that all innovations be duplicated at least once in a setting that simulates real-world conditions as closely as possible. The duplication would be evaluated unobtrusively to assess whether the effect achieved in the research and experimentation environment can be achieved in a real-world environment at feasible costs. Such a prototyping requirement would simulate in career education the product-testing phase of the R&D process used in many technological fields. While the design of career education innovations cannot be "frozen" and then produced in quantity to the same extent as in technological fields, the requirement to test an innovation in a real-world environment before declaring success probably will achieve many of the same purposes.

The Department of Defense recently has adopted the policy, first proposed by Rand, that several prototype copies of all new weapons systems be built on a semiproduction-line basis and tested to determine that original performance and cost specifications are met before large-quantity production contracts are approved. DOD's purpose for prototyping is to reduce the need for weapons systems to be redesigned and retrofitted during production in order to overcome deficiencies due to incomplete product development.

Prototyping in career education should encourage design teams to produce innovations that can easily be copied in a variety of places, without excessive redesign and adjustment costs. If a career education design team knows from the outset that its results will be subjected to this test, it will have a stronger incentive to produce practical materials and systems.

While prototyping in principle seems like sound advice, adoption of this approach in practice will require considerable Task Force study. Criteria for judging when a program is "developed" enough to be worth a field-testing effort are obscure. Guidelines for field-testing design need to be developed and reviewed.

In addition to the conceptual issues, there are numerous practical considerations that will affect the kinds of research designs CEDTF adopts for curriculum development efforts. For example, consider the pace at which career education is spreading. Some components of career education are part of established educational activities such as work-study programs, vocational and technical education, continuing education, on-the-job training, etc. In many school systems career education is part of present programming and future planning. When products of the current models are ready for impact evaluations (FY 75) the baselines could be gone and systems changes such as those recommended in Work in America initiated.

Finding relatively uncontaminated sites for experimental studies might be difficult. While the Task Force will attempt experimental studies across and within models, it is possible that by FY 75 adequate experimental tests of program costs and effects will be extraordinarily troublesome to design and locate. Experimental evidence on the effects of career education may have to come from the smaller scale research and prototype studies to be funded in FY 73-74 and from followup studies on participants and nonparticipants in early versions of the models.

NEW ACTIVITIES IN EVALUATION

Strengthening Internal and External Evaluations of Programs

Highest priority will be given to strengthening internal and external evaluations of the four models and other Career Education Development Task Force programs. Following recommendations of the evaluation review

group and discussions with program directors and evaluation staff, an evaluation plan will be prepared for each model. Some improvements can be effected through reallocation of existing resources; others will require additional resources for internal evaluation staff and for external evaluations. Four steps are being taken:

1. Present plans call for continuation of the evaluation review group to guide this activity. The evaluation review group has expressed a general willingness to continue working with the career education program. Expansion of this group would be desirable, particularly with evaluation specialists experienced in economics, labor market processes, career development, educational systems and policies and psychological and sociological measurement. Support for reviews, conferences, commissioned papers, etc. would enhance evaluation for NIE and others concerned with career education.

2. Enough senior evaluation specialists to work with Task Force program directors on each project are being recruited. In FY 73, there should be one evaluation specialist for two programs; in FY 74, a one-to-one ratio should be possible. Each model costs at least $2,000,000 a year; most are planned to operate for three years or longer. Availability of high calibre in-house staff to work closely with internal and external evaluations seems a sine qua non if the evidence on--for example--program costs and effectiveness is to be convincing.

3. Through inservice training, workshops and similar means, evaluation staff will strengthen the research competence of CEDTF and contractor program staff. CEDTF project officers have a general familiarity with research and evaluation but at present are eager for inservice training to improve their skills.

4. For all new projects and continuations, the evaluation and research activities will be presented as a separate part of the overall proposals, with detailed functional budgets. Approval of this section will depend on both project officer and evaluation staff review, with the evaluation staff having direct responsibility for the quality of internal and external evaluations on all CEDTF projects.

Specification of Effectiveness Criteria for Career Education Programs

There is little agreement on what criteria should be used to assess the effectiveness of career education programs or the magnitude of change (increment or final level achieved) that will be considered worth the investment in time and money. There are as yet no a priori statements of how much reduction in youth unemployment or how much increment in job satisfaction will be considered worthwhile, given the resources invested. Decisions regarding the effectiveness of career education programs may be like projective tests allowing almost any commentator able to take almost any position on the same set of data.

Even if criteria are better defined, there are few reliable, feasible measures available for the outcomes of greatest concern to the Task Force, such as ability to make good career decisions and the financial and psychological rewards of employment. The questionnaires, tests, surveys and economic indicators used to date may be reasonably satisfactory for heuristic purposes since they have guided career education thus far. That is all they may be good for, however, and policy recommendations should be prepared on the basis of data that are more than heuristic.

The availability of a well-tested set of criteria and indicators could be valuable for studies sponsored by other Federal, State and municipal groups so as to promote comparability across such studies. Many programs that have been reviewed by the Task Force have similar objectives to those presented in this plan; most are searching for better operational definitions

of their objectives, for a conceptual framework in which to understand variables such as "decisionmaking" and "career choice" and for sensitive, reliable and valid ways of measuring these desired outcomes.

The Task Force will bring together researchers within models (e.g., the four Model II evaluation staffs) and across models to plan a concerted approach to defining and measuring immediate and longer term criteria of effectiveness, benefits and costs.

In addition, during FY 73 the Task Force plans to commission reviews of criteria and measures to help identify a reasonably acceptable set of available criteria and measures and to recommend steps to improve the state of the art with regard to measuring career education objectives. Distribution of the report on provisional criteria and measures for career education (e.g., measures of career choice) to State and local agencies could be a service to the field as well as to NIE projects. While criterion-referenced indicators have an important place in evaluation strategy, the combination of such measures with broader tests of behaviors, attitudes and achievements (on the individual level) or employment rates, turnover rates etc. (on the employer level) across NIE-sponsored projects could aid comparability across studies and improve decisionmaking regarding program effectiveness.

At least two papers addressing career education measurement issues for youth are available. Substantial work will be required to develop economic indicators, measures of career satisfaction and "magnitude of change" criteria for defining overall program success.

Methodological Studies of Program Development Practices

High priority will be placed in FY 73 on developing a plan to improve the state of the art of career education program development. Working in concert with NIE-wide and Educational Division-wide groups studying program development methodology, the Task Force will:

- Commission surveys of existing practices
- Develop provisional guidelines or "audits" handbooks so consumers can assess the quality of program development and field-testing procedures reported for the career education materials that are already beginning to flood the market
- Conduct followup studies of the effectiveness of career education programs developed by procedures differing in rigor and costs
- Define and monitor experimental tests of the costs and effectiveness of different methodological procedures for developing and field-testing career education materials.

A planning document in process will describe in greater detail projects to be initiated in FY 73 and those to be deferred until later. A research specialist is completing the planning paper with the help of consultants and other Task Force staff members, some of whom have had considerable experience in curriculum development and field-testing.

Other Evaluation Activities Planned for FY 74

Surveys of Progress. In FY 74, the Task Force will study the feasibility and value of national surveys of progress related to career education. Development of national social indicators is an extensive field in itself and one in which there is considerable activity.

At a minimum, the Task Force would like to identify a basic set of national data--to be collected regularly--relevant to the goals of career education. The data could have value as a baseline from which subsequent developments can be assessed and as a guide for new program development.

Much of the required data may be available routinely through ongoing studies such as those conducted by the Bureau of the Census and the Department of Labor. Other data could be obtained through additions to national studies such as the National Assessment of Educational Progress and the planned national longitudinal study conducted by the Division's Center for Educational Statistics. These data are not at present collated in a readily available form or focused on career education concerns.

Cooperative Approaches. In FY 74, the Task Force will examine the feasibility and value of different approaches to evaluating career education programs now being developed by States, by school districts, by the private sector and by the Department of Defense. Investment of CEDTF resources in research and evaluation of these programs has been recommended by Rand and Syracuse as an important way to increase knowledge about career education without requiring NIE to bear full program development and operational costs. Extracting knowledge from these heterogeneous efforts will require considerable planning and specificity of objectives, measures and procedures.

This activity will also include a feasibility study of ways in which the many school districts who have been contacting the Task Force can participate in career education research, development and evaluation activities.

SECTION VII

STRATEGIES FOR IMPLEMENTATION

The Task Force is considering a number of strategies for implementing its future R&D efforts, as well as managing current projects. At CEDTF request, Rand examined these issues and what follows are their recommendations.[1] Each is under active consideration by the Task Force; many have wider implications for future NIE planning.

OVERVIEW

This section can be grouped loosely into three major areas: (1) strategy (those considerations that can be considered independently of other factors in constructing an R&D agency), (2) policy (those considerations subject to context in determining courses of action) and (3) institutional organization, which is a function of the first two, coupled with larger institutional considerations.

The areas of strategy (for example, balancing the performer community, linkages with a variety of institutions, care support versus project-only funding and building a reservoir of experts) are under serious consideration as stated.

The area related to policy (for example, managerial versus implementation activity, project generation, selection criteria, monitoring)

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1. Section VII is quoted verbatim from the Raizen et al. report, pp. 85-109.

are being considered carefully within the emerging constraints and internal factors (such as staffing and budgets) that always must influence such decisions.

Organizational factors (such as R&D line and staff organization and specific staffing implications) of course are subject to all the others. At this point, therefore, they are the most open to funding, personal allocations and other considerations that Rand could not have anticipated. These sections should be read in this context.

STRATEGIES FOR MANAGING AN R&D PROGRAM

Some Operating Policies

As a way of introducing some specific recommendations about how the NIE Career Education Program's R&D might be organized and managed, Rand discusses a few general policies that seem important to the Program's successful operation.

Balance the Performer Community. The NIE Career Education Program should strive to support a balanced mixture of performers having a variety of institutional affiliations and professional skills. This policy is so critical for the quality both of individual projects and of the overall R&D effort that it is further elaborated in the next several subsections.

Avoid Relying on Captive Institutions. The Career Education Program should rely to the least extent possible on performers in institutions that are totally dependent on the NIE or the Office of Education for support.

In the long run, such captive performers cannot be expected to assert independent judgement on priorities or quality objectives, thus meeting the vital element of criticism that is essential in an R&D program.

Link to a Variety of Institutions. Conscious effort should be made to support performers in a variety of institutional settings as a means of tapping these institutions both for knowledge and skills relevant to the Program and as independent sources of criticism. The pattern of affiliations should be chosen deliberately but include university faculty (some outside schools of education), profit and nonprofit firms, practitioners from elementary or secondary school systems and community colleges, educational development laboratories and education associations and commissions.

Provide Limited Institutional Support. Small amounts of general, nonproject-specific support could be awarded to selected organizations for the purpose of building a continuing capability for career education R&D. However, in order to introduce a broad point of view, these organizations should not be dedicated solely to career education. The policy might be to award these selected organizations an amount of funds equal to no more than 10 percent of all the career education projects performed by the selected organizations in the previous two years. Renewal of the award would not be automatic. This form of support is sometimes called "core" support.

The total amount awarded to all sites should be fixed as an item in the overall Program budget to be divided as the career education staff decides among the selected organizations. The decision would be made biannually and based on a thorough biannual evaluation of each organization's performance. Each year support for some organizations might be discontinued and some started. The mechanisms of evaluation could include both site visits by ad hoc panels of experts and internal evaluations by the career education staff.

The stated purposes of this core support and, therefore, the basis for evaluation could be (1) to support policy analysis studies of career education and (2) to support long term development of a quality staff. The money could be used for acquiring new staff and for carrying over staff from one project to another. The criteria for evaluation would be the quality of the policy analyses conducted, the quality and balance of the Career Education staff developed and the quality of the work produced by the staff supported on carryover status.

Consideration could be given to establishing a 4-year or a 6-year limit on this form of support for any one organization.

Emphasis Continuity of Support. Performers on each career education project must be promised continuity of support for their project over its lifetime, provided that the quality of effort promised is being delivered and the interim objectives agreed upon are being met as assessed by periodic evaluation.

Projects should not be terminated frequently because of changes in the priorities of the Career Education Program. If NIE develops a reputation for canceling projects every time priorities shift, the quality of the performers willing to submit proposals for career education will drop precipitously. This is not to say, however, that all projects, once initiated, must be funded to the end regardless of quality or results.

In order to provide continuity, the Career Education Program will need to adopt certain operational principles. Following the expenditure curve in Fig. 3, one is to "start small" in developing new themes and

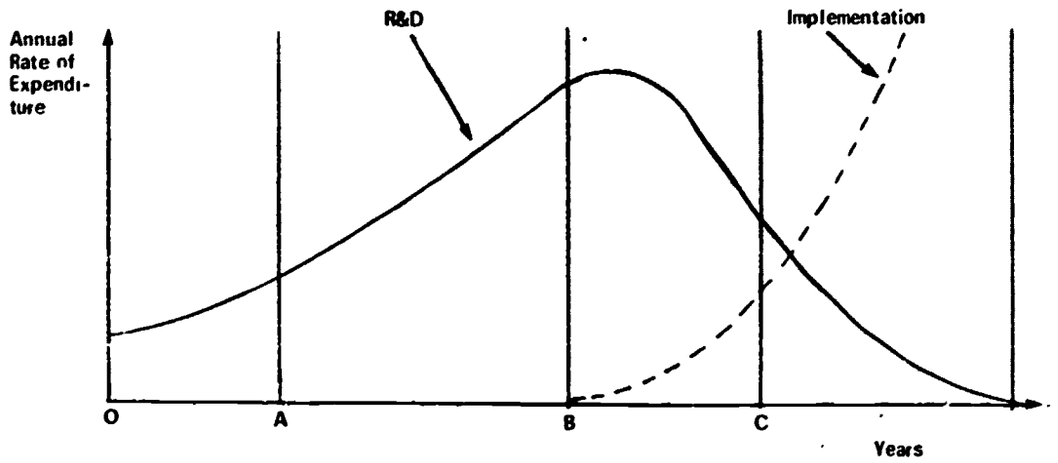


Fig. 3 Desirable distribution of expenditures over time for developing an R & D theme

build only as successes are found. Another is to think ahead as much as possible to predict national needs as they relate to career education. This is a difficult task and will require the best efforts of the policy analysis staff, as aided by the work of outside institutions, independent contractors

and those receiving core support. A third principle is not to make the promise that important problems will be solved quickly. There do not appear to be any career education innovations on the horizon that warrant such a promise. The Career Education Program should set and announce two goals: (1) adding to the relevant knowledge base and (2) developing proven reforms for career education--with the warning that major successes in the latter area will require long and diligent effort.

Develop Some Small Successes. One difficulty with such goals is that the public is very impatient with R&D programs that are not demonstrating visible practical successes. To gain the public's confidence, the Career Education Program should consider allocating some resources to developing a few readily exportable curriculum, staffing or organizational innovations that do not require fundamental institutional changes. These development projects might be spun off from one of the model's projects or funded independently. Some examples might be the matching services being developed in Model III, some good curriculum units on career awareness and exploration that involve such new techniques as gaming and simulation, and some of the other model extensions already noted.

Integrate Training with Research. Although there will undoubtedly be shortages of certain kinds of R&D performers, establishing a separate unit within the Career Education Program to support R&D training projects is not recommended. If there are severe skill shortages that will apparently persist for many years, training might be undertaken as an adjunct to R&D

projects involving these skills. Rand is not aware of evaluative results on either side of this issue, but--based on a number of interviews with R&D managers in Federal agencies--there are two positive results when training is conducted as part of an ongoing R&D project: The quality of the training experience will be higher, and more of the trainees are likely to continue in the field. But not any R&D project will do; it should be located at a university, R&D laboratory or other institution where trainees have ready access to a broad range of educational experiences. In any case, trainees cannot be expected to make a significant contribution to career education for several years.

Build a Reservoir of "Experts". One last element of balancing the performer community is to emphasize the importance of consciously developing a reservoir of career education "experts" who can be called upon ad hoc as advisors and critics. Career education as envisaged here does not have a natural community of experts whose own involvement, depth of knowledge and taste allow them to make judgements about the field or any specific effort in it. Fields such as high-energy physics and most of the basic sciences do and R&D managers in these fields know to whom they can turn to obtain good reliable advice. Building this reservoir of experts may require deliberate effort to support selected individuals on a continuous basis without close regard for their specific project interests.

Dissemination and Installation Strategy

Project Reports. A policy that can be recommended without qualification is that every career education project report, no matter what type of R&D it is, should be required to state: (1) the implications of the results achieved for practice and for R&D and (2) the steps required to implement those results. Where appropriate, the additional requirement should be made that the project be responsible for carrying out the implementation steps. For maximum effect, all projects should be notified of these requirements before proposals are submitted, after projects are awarded and at least once midway during project performance. One program in the National Institute of Mental Health has developed a monitoring system to assure that all contractors are reliably notified of these requirements.

Implementation Planning. All projects where the objective is a practically useful innovation should be required to plan a diffusion strategy in their early stages of development before many product design parameters are fixed. The diffusion strategy may have to be redesigned at the end of the project; however, as research on R&D utilization has indicated, planning for implementation should receive a substantial share of project resources early in a project's lifetime. Of all the implementation policies that have been suggested, this policy is by far the most firmly supported by research results.

Project Generation

One important part of the R&D management process is project generation--generating project ideas. The problem is how to develop project ideas that are innovative but that also serve the Career Education Program's priorities. These two needs are somewhat, but not entirely, in conflict. If the policy of concentrating R&D resources is to be followed, then some "good" ideas that do not serve current priorities will have to be rejected. The exceptions will be those projects supported by research.

Sources of Ideas. One important source of project ideas can be the Career Education staff, especially the policy analysis group that has been recommended. The policy analysis group will not specify projects ideas at a detailed level but should be very specific about the major parameters of some projects and the general methodology that should be used. Having internal staff generate the outlines of project ideas is a major way of concentrating R&D activities on priority problems. Clearly, the quality of these ideas will depend on the quality and knowledge of the internal staff. Subject matter expertise will be required. In most cases, skills in project administration will not be a satisfactory substitute.

The other primary source of project ideas should be the extramural performer community. The Career Education Program staff should spend a great deal of time building the size and quality of this community and disseminating information on career education priorities to it.

One of the primary ways to "maximize" the flow of innovative ideas from the performer community is to cultivate performers in a wide range of institutional settings--one of the reasons for earlier policy suggestions on that topic. Some of these institutional settings are:

- Business and industry
- Social service organizations
- School systems
- Universities
- Profit and nonprofit institutions.

If most career education performers come from only one of these institutional settings, the differing viewpoints and skills of those in the other institutional settings will be lost from the project generation process.

Staff-Field Interaction. A principal means of building the quality of the performer community and disseminating information on career education priorities should be personal interaction between the external community and the Career Education Program staff. The staff must be able to find potential R&D performers of high quality and convince them of the challenge and importance of working on career education problems. This requires especially skilled program managers and other staff. It will not be enough to announce project interests with a Request for Proposal (RFP) and then wait to see who sends in proposals or to tap the current circle of contractors. Most potentially good performers will already be busy and will not apply; always dealing with the same performers will deprive the Program of innovative ideas.

Two devices for building interest in the performer community that are used in other R&D programs are:

- Frequent use of ad hoc groups for planning, evaluation and idea generation purposes
- Visits to action sites by groups of Career Education staff and potential performers.

The National Institute of Child Health and Human Development, in particular, convenes a large number of ad hoc groups each year[2] to advise program managers on priorities, conduct state of the art reviews, organize workshops to discuss important issues, evaluate programs and R&D centers and so on. Over time, the Institute has carefully worked out an optimal structure for each type of group so that its purposes can be met with least wasted energy. The Institute believes that the groups have been a major means of recruiting R&D talent for its programs. Their estimate is that over one-half of their current R&D performers first heard of the Institute by participating in an Institute panel or workshop. One interesting policy that the Institute follows for some types of groups is to ask members to invite one of their graduate students to be present as an observer or, sometimes, as a participant.

RFP Provisions. Most career education projects should be supported on a contract basis. (Exceptions are basic research projects and field-initiated projects.) Different styles of contracts should be written depending on the degree of control desired over the content of the project.

2. Twenty panels for a $66 million program in FY 72.

For each style of contract, there should be a congruent form of RFP. At least three styles can be distinguished:

1. Highly prescriptive--suitable for tasks where extreme control over project content and methodology is needed (for example, survey research or certain kinds of evaluation)

2. Moderately prescriptive--suitable for projects where a specific product is needed but control is not needed over methodology (for example, a project to improve understanding about the importance of peer groups to adolescent learning)

3. Sole-source or unsolicited--suitable for projects not solicited via an RFP.

Other styles should be distinguished as experience is gained. The important point at this time for the Career Education Program is that it is not necessary to establish precise styles that are needed, but rather a range of styles tailored to fit particular conditions.

The Career Education Program should consider developing guidelines for writing RFP's that allow the Program to fund a contract only if proposals are of sufficiently high quality. Establishing this minimum-quality feature would set an important precedent concerning the quality of work expected.

One way of incorporating this feature is to specify that bidders meet minimum standards of experience and accomplishment. Other means can probably be devised, especially in a new organization such as NIE.

One important reason for including minimum quality provisions in the RFP is to reduce the number of bids received and thus lighten the proposal review workload. Program managers and their outside advisors should have more interesting and productive responsibilities than spending time reading poor and mediocre proposals. This has been a serious problem

in some R&D agencies using the RFP mechanism. Brief draft proposals as a first reponse to RFP's, on the basis of which the most attractive could be developed in detail, can also serve as a management mechanism both to attract good performers and to cut down on staff workload.

Another consideration in writing RFP's is the amount of staff time required, which should vary with the style of the RFP. Highly prescriptive RFP's require much more staff time to write than the less prescriptive styles. As an example of the amount of time required to write a good, highly prescriptive RFP, the Office of Economic Opportunity (OEO) typically assigns one or two analysts full time for 6 months to write an RFP for evaluation contracts of one hundred thousand dollars or more. Typically, one of these staff members is a subject matter expert and the other a specialist in evaluation design.

One final consideration about contracting is the importance of establishing a thorough review process for highly specified RFP's, including expert panels and structured procedures. When RFP's are used to solicit projects that have many predetermined parameters and are largely designed by the staff rather than by the proposers (e.g., as in some evaluation tasks), then approval of an RFP for release to bidders is the key program content decision, not proposal selection as in a grant form of procurement system. For this kind of contracting, proposal selection is primarily a quality control decision--to select the best performer for a specified task.

Proposal Evaluation

Another part of the R&D management process is proposal evaluation; two aspects of it will be considered: (1) the procedures used for proposal selection and (2) the criteria appropriate for different types of R&D projects.

Careful consideration should be given to what procedures are used for selecting proposals. One reason why procedures are important is that extramural performers will not respect the judgments of the Career Education staff if the process by which their proposals are judged is ad hoc and hidden from public view. If extramural performers do not respect the judgments of the Program staff, it will be very difficult to obtain the more highly-qualified investigators and developers to submit proposals. Another reason why procedures are important is that different procedures will have different effects on the Career Education Program. Management should tailor the procedures used to meet program objectives, in consideration of the fact that a different set of procedures may be needed for each type of grant or contract awarded.

Selection Procedures. Four different models for proposal selection that are relevant to the Career Education Program are briefly noted here. These procedures are useful for both grants and contracts. The key person in each of these models is the project manager, who has responsibility for managing a number of extramural R&D projects in an assigned problem area. The project manager may serve either full time or part time with the remainder of his time spent on research, policy analysis or project design. The degree of autonomy in decisionmaking available to this staff

member is an important factor in the caliber of staff likely to be recruited to the Program.

1. Project manager with mail review. The first model is for the project manager to decide which proposals to fund at what budget levels using advice solicited by mail from experts in the extramural community. The project manager selects a different set of experts for different proposals. By careful wording of his request letter, he may elicit comments on particularly troublesome points. The experts read the proposals sent to them by the project manager and return their evaluation by mail. The project manager assesses these evaluations in light of his program objectives and then decides which proposals to fund. With the mail review procedure, project managers need to maintain a long list of potential reviewers so that the subject matter expertise of the reviewer can be matched to the subject of the proposal and so that no reviewer receives more than a few proposals each year.

2. Project manager with an advisory group. A second model is for the project manager to decide jointly in session with a group of experts which proposals to fund at what budget levels. A variant of this procedure allows for subsequent reevaluation by program staff and some adjustment of decisions. The committee can be convened ad hoc for specific proposals (particularly when they are for large projects) or convened ad hoc for a number of proposals or the group can be established permanently. In the last case, consultants are replaced periodically after serving for a finite period of time. This method often generates particularly useful suggestions for revision of interesting, but not fully acceptable, proposals.

3. Project manager within an internal group. The third proposal selection model is a variant of the second model. The only difference is that the committee is composed of internal staff. This method is often used when a project fills a very specific program requirement or when time constraints are severe.

4. Continuing experts. A fourth proposal selection model, found in fields with strongly established internal communities, is to have a group of experts decide which proposals to fund. To establish accountability, the panel should be established on a continuing basis and not ad hoc. This method tends to give the program manager minimal autonomy.

These models sketch very briefly some alternative procedures for proposal selection. More careful consideration should be given to specific procedures for project selection including determination of those responsible for making specific decisions and the criteria that should be used.

Selection Criteria. A number of criteria can be listed for consideration:

1. Quality criteria

   a. Are project objectives stated clearly and unambiguously?

   b. Are project objectives reasonable? Is the project feasible?

   c. Is the budget appropriate to the work to be done?

   d. Is the proposed project innovative? Imaginative?

   e. Is the proposed methodology sound? (particularly important for research and policy analysis projects)

   f. Do project plans indicate awareness of concepts and data bases that already exist and are relevant?

   g. Will implementation strategies be thoroughly considered? Early in the project lifetime? (particularly important for developmental and experimental projects)

   h. Is cost-consciousness exhibited--for the project itself? For later implementation? (particularly important for development and experimental projects)

   i. What is the quality of the principal investigators and other project staff?

   j. What is the previous record of performance of the project team? On career education projects?

   k. For continuation proposals: Is the project achieving as anticipated? If not, are there acceptable reasons?

2. Relevance criteria (to career education)

   a. Are the project objectives relevant to career education priorities? To the NIE Program priorities?

   b. Are results likely to be useful to policy or practice in career education?

   c. Can the project results be generalized for widespread application other than in the immediately proposed context? (particularly important for development and experimental projects)

   d. Would the project be likely to continue at its original site after withdrawal of Federal funds? (particularly important for development and experimental projects)

   e. Is the project so idiosyncratic in its leadership, location or subject that replication is unlikely? (particularly important for development and experimental projects).

Project Monitoring

A third important part of the R&D management process is monitoring the progress on projects that have been funded. Project monitoring can include a number of different activities:

- Evaluating progress with respect to project milestones and quality of performance
- Organizing or providing technical assistance and other resources to improve project performance
- Adjusting project objectives and operations to meet changing external conditions
- Coordinating interrelated projects, such as an experiment and an evaluation
- Establishing communications and collaboration among similar projects.

One important point to make about project monitoring is the need to provide project managers with generous contract (or grant) management support. Project managers must be able to concentrate as much time as possible on substantive matters. The National Institute of Child Health and Human Development, for example, has arranged that contract management staff handle all budget, accounting and auditing requirements: almost all incoming inquiries from contractors, whether by telephone or mail and all arrangements for site visits and conferences. The contracts staff takes a question to the project manager only when program substance is importantly involved. In order for such a system of divided responsibilities to work, however, the program manager must have clear authority over the support staff, otherwise accountability is lost. (An example of such a system turned upside down is in the management of some OE programs where the program officer has no control or even knowledge of major contract provisions for a project nominally in his program.)

Another important point to make about project monitoring is that different degrees of monitoring should be applied to different types of R&D projects. The degree of control over the content of a project desired must be matched by the managerial effort devoted to monitoring it. For example, on evaluation projects where typically a great deal of control is needed, OEO uses one project manager full time for each contract of one hundred thousand dollars or more. Large evaluation contracts of $1 million or more typically will require two full-time project managers. On the other hand, most research projects require no monitoring at all unless a fairly specific product is needed.

Organizational Alternatives

The Career Education Program is large enough that a decision will have to be made how to divide it into subunits of organization.

Two alternatives seem most attractive: dividing by R&D themes or dividing by type of R&D.

The major divisions within the Career Education Program for the first alternative could coincide with the major themes being pursued (e.g., the four models). In addition, one other division would be needed: "new programs." For the second alternative, the divisions could coincide with an arrangement of the types of R&D supported. One possible arrangement is policy analysis, evaluation, research and development and career education systems. The career education systems division would manage the major experimental sites being supported. Work on each of the themes would be done in all the divisions.

Alternative 1: R&D Themes. Some advantages and disadvantages of organizing the Career Education Program by R&D themes are as follows:

Advantages

- Coordination of the several types of R&D within each theme would be facilitated by having all types of R&D supported by each organizational unit.
- The Career Education Program's priorities would be more visible to the external community in being identified with a particular organizational unit.

Disadvantages

- Organizational barriers would be created that probably would inhibit the theme elaboration process. Old themes would be difficult to drop and new ones difficult to start.

- The budget curve policy, particularly the phasing in and out of major projects, would be difficult to implement because different themes would be at different stages of development at any one time. This would cause year-to-year changes in the budget for each theme (and hence, organizational unit), introducing variations difficult to control in terms of overall budget balance.

- During the transition to the development and experimentation stages of theme development, the staff of each organizational unit would have to make the difficult transition from an orientation that is predominately research and policy analysis to one that is characterized by development and experimentation orientation, entailing the adoption of quite different managerial styles.

- Development of specialized skills--for example, in evaluation skills or policy analysis--would be inhibited by the homogeneity effects of maintaining a full cross section of all skills in each organizational unit.

Alternative 2: Type of R&D. Organizing by type of R&D produces a converse set of advantages and disadvantages:

Advantages

- Organizational barriers to shifting resources among themes would be minimized.

- Management of desired project phasing and budget proportions would be more feasible.

- Skill specialization would be enhanced.

Disadvantages

- Coordination of different types of R&D activity within individual themes would be more difficult since projects relating to a theme would be located in several different units of organization.

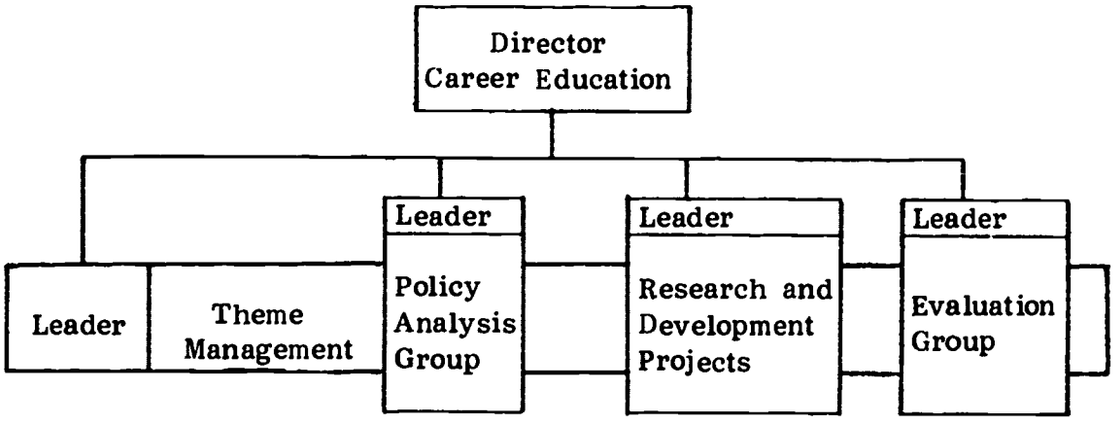
- The Career Education Program's priorities would not be visible in the organizational structure.

Whether one of these two organizational alternatives is chosen, or a combination of the two or another arrangement altogether is a matter of judgment. There is not a great deal of empirical evidence in favor of any particular choice. Rand recommends dividing by type of R&D rather than to dividing by themes since organizational flexibility is more preferable than visibility of priorities. Rand believes that coordination can be achieved best through auxiliary organizational means.

One means of providing the necessary internal coordination would be to divide responsibility by type of R&D and then use a matrix organizational structure for coordination. A matrix organization for career education could have permanent organizational units and one temporary organizational unit, each with an appointed leader. The three permanent units could be an Evaluation Group, a Research and Development Group and a Policy Analysis Group. The temporary unit could be a group of theme managers who would each be responsible for coordinating the development of one of the R&D themes being pursued by the Career Education Program. These theme managers might have a group leader (optional) who would report directly to the Career Education Director. Each theme manager would have a budget to spend on extramural projects, either directly or through one of the three permanent groups. In particular, large experimentation projects would probably be funded directly by the theme managers. The theme manager would draw most of his staff on a part-time basis from the three permanent groups, although a few staff for site management might be permanently assigned to the theme managers group.

Fig. 4

Organizational Structure for Career Education Program



The principal advantages of the matrix organization in this application are: (1) budget flexibility, (2) the quality of the coordination that can be provided and (3) a high degree of expertise in each management style applied to major projects. Budget flexibility exists because, although the theme manager may spend a large amount of money during certain periods, he is not expected to acquire a large, permanent staff. Quality coordination is provided, in effect, by having career education staff work for two work leaders. The disadvantage of the matrix organization is that having the staff work for two work leaders can lead to tensions that would not ordinarily occur among the work leaders, or sometimes between a staff member and his work leaders. The only way to make a matrix organization work is for top management to devote considerable effort to it. The payoff that can be expected from this extra effort is better coordination.

The matrix organization would not need to be highly formalized. The factors that are crucial to achieving a matrix organization for the Career Education Program are that (1) the three permanent group leaders would hire and (possibly) promote their own staff; (2) theme managers would not have higher stature than the permanent group leaders and (3) themes would all be considered to have a temporary lifetime.

Some Staffing Implications

Throughout the discussion above there have been implications for staffing the Career Education Program. For greater clarity, some of these implications are summarized below.

Providing Analytical Capability. One of the more prominent recommendations appearing throughout this report is that the Career Education Program should have its own internal policy analysis capability. Two immediate questions are: how much capability is needed, and how should it be organized?

An estimate on the level of capability needed is between 5 and 10 man-years per year, assuming a $25 million budget for the Program. Less than five would probably be inadequate to deal effectively with the complexities and ambiguities of career education, and more than ten is probably unrealistic in the face of manpower ceilings.

Two organizational possibilities for providing policy analysis have already been discussed: responsibility for conducting policy analysis can be given to a separate group in the Program (or in the NIE in liaison

with the Program), or a share of the responsibility for conducting policy analysis can be given to each group within the Program. With the first alternative, policy analysis is managed somewhat independently of the rest of the Program; with the second, each part of the Program conducts its own policy analysis. The first alternative is strongly preferred over the second, because policy analysis should be done with some independence from the ongoing concerns of the rest of the operation. Another organizational choice must be made in regard to the policy analysis staff: should it work part time, in which case the balance of the time would be spent in project management (proposal selection, project monitoring and so on) or full time? Again, Rand recommends a full-time analytical staff. Doing policy analyses requires a special talent that is difficult to find. The same might be said for project management, and there are few who can do both project management and policy analysis well at the same time. Full-time employment of policy analysts and project managers, therefore, is probably a more efficient use of resources.

The recommended policies of separating policy analysis from the remainder of the organization and assigning policy analysis personnel full time do not conflict with the use of a matrix organization structure, since policy analysts would do policy analysis along both dimensions of organization--for the theme managers and for the policy analysis group leader. Caution should be exercised, however, to relate policy analysis tasks to priority Program concerns in order to avoid the tendency of analysts who are separated from operations to become "ivory tower" isolationists.

It has been recommended that in addition to internal policy analysis, some policy analysis be conducted externally--nominally 5 percent of the total extramural budget. Some of this 5 percent might be invested in the "core" grants recommended earlier; some might be in the form of direct project grants. None of the extramural policy analysis should be managed by the internal policy analysis group, but by another part of the Career Education Program organization. To do otherwise would jeopardize the independence of the extramural policy analysis activity, a principal reason for supporting it.

Staff/Project Dollar Ratios. At several points in this report, recommendations have been made concerning the number of staff needed to manage certain types of R&D. Table I provides a summary of Rand's recommendations, based on management practices that have proved effective in other agencies and that are applicable to the Career Education Program.

Table I

Staff/Project Dollar Ratios Recommended for Career Education
(Based on a $25 Million Budget)

Type of R&D	Recommended Portion of Career Education Budget (%)	Recommended Budget (in $ Millions)	Man-Years Recommended per $1 Million of Projects	Total Man-Years Needed
Research	10	2.50	1.0	2
Policy Analysis				
extramural	5	1.25	1.0	1
intramural	--	--	--	5-10
Development	40	10.00	1.5	15
Experimentation	20	5.00	1.5	7
Evaluation	25	6.25	3.0	18
Total	100	25.00	2.0 (average)	50

There are two essential messages in the table. One is that if more control is desired over the content of an R&D project, more staff time must be allocated to obtain that control. Thus, research projects in which the priorities are set, but the details of the methodology are not controlled, are recommended as requiring one full-time professional staff person per one million dollars of projects. R&D agencies that exercise considerable influence on research priorities typically have at least this level of staffing. Policy analysis projects are recommended at the same level, although the uses intended for extramural policy analysis in the Career Education Program have a bearing on what the staffing ratio should be. A ratio higher or lower than indicated may be warranted. Development and experimentation, which require more detailed management control, are recommended at a level of approximately 2 man-years per three million dollars of projects. Evaluation projects, which typically require the most management attention to ensure that exactly the needed information is obtained, are recommended to have 3 man-years per one million dollars of projects. Assuming these staffing ratios and budget proportions among types of R&D projects, it is estimated that the Career Education Program, if it is to be managed well, will need a minimum of 50 professionals. Adequate support, both in auxiliary staff and in travel and consultant funds, will also be necessary. Where personnel allotments do not permit optimal staffing, it is sometimes possible through astute management to obtain the needed services through outside contracts supported at the expense of program funds.

General Considerations. Another staffing implication that has appeared frequently in this report is the importance of acquiring staff of the highest quality. Not much more can be said concerning this point than to emphasize that the more autonomy provided the easier it will be for the Program to hire quality staff. As already pointed out, management procedures where peer panels decide what to fund and project managers simply implement their decisions or where contract management will acquire all real authority undermine the accountability of program staff, and eventually take their toll in staff caliber and program quality.

One of the important principles of R&D management that has been implicit in most of the discussion in this section is that given a limited number of staff members, the Program will have to make deliberate choices regarding the kinds of staff that are hired and how they are used. Emphasis on any one aspect of the R&D management process (program planning, project generation, project monitoring and so on) necessarily will mean that less attention can be paid to the other aspects. As pointed out, uneven emphases may be very legitimate but should be by design, not be happenstance. The R&D management techniques recommended in this report are tools that should be carefully balanced to achieve the ends of the Career Education Program.

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