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The Experimental Manpower Laboratory as an R&D Capability

Final Report of the
ADVISORY COMMITTEE ON
THE ASSESSMENT OF
EXPERIMENTAL MANPOWER
R&D LABORATORIES

Submitted to
Office of Research and Development
Manpower Administration
Department of Labor

February 1974

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FOREWORD

In order to increase the comprehensiveness and broaden the scope of its manpower research and program development capabilities, the Office of Research and Development of the Department of Labor has been supporting the work of six Experimental Manpower Laboratories. During fiscal 1973 expenditures on these capabilities was in the order of $2.5 million, or almost 15 percent of ORD's total spending on extramural research and development.

The laboratories were established to avoid problems that the Office of Research and Development (ORD) had encountered with earlier experimental and demonstration programs primarily concerned with developing improved manpower service-delivery systems. These programs frequently focused on a single activity at a time, and often lacked the analytical capability required to experiment with various approaches to service-delivery problems. The restricted output of these programs led ORD to seek other, more productive research capabilities. With the laboratories, ORD sought to establish continuing research capabilities engaged in work that would have significant effects upon manpower policies and programs.

The present leadership of the Office of Research and Development assumed responsibility for the laboratories in June 1970, which was subsequent to their development and implementation. In the following year, the Director of ORD concluded that it would be desirable to have these laboratories assessed by an external organization capable of providing guidance with

respect to future program planning. In particular, ORD wished to learn whether the laboratories as they were operating constituted an effective and viable mechanism for meeting the Department of Labor's R&D objectives. It requested assistance and advice from the National Academy of Sciences. This resulted in the establishment, in June 1972, of the Advisory Committee on the Assessment of Experimental Manpower R&D Laboratories, under the auspices of the then Division of Behavioral Sciences (since February 1973, the Assembly of Behavioral and Social Sciences) of the National Research Council.

The Advisory Committee was charged with: (a) developing and applying criteria for assessing the Experimental Manpower Laboratories (EMLs), in terms of how well they satisfy ORD/DOL objectives; (b) advising the Office of Research and Development of results of the assessment of these laboratories; and (c) advising ORD on the ways in which its objectives might be better achieved by either improving EML operations, redesigning them, or replacing them with some alternative capability or institutional arrangement.

Each member of the Advisory Committee contributed to the final version of this report. It should be noted however, that a Subcommittee chaired by Gordon Swanson and consisting of John Campbell, Arthur Kirsch, and myself was formed to prepare the basic text of the Committee's report.

I am pleased to acknowledge, on behalf of the Advisory Committee, its indebtedness to its Executive Secretary, Betty Maxfield, and her Assistant, Carol Austin. Their contributions to our work were varied and indispensable, and we are particularly grateful to Betty Maxfield for the substantial assistance she provided in the preparation of this report. The Advisory Committee was also fortunate in being able to call upon Henry David, Executive

Director of the Assembly of Behavioral and Social Sciences, for advice and guidance during the course of its work, and for assisting with the editing of our report. Paulette Holmes, the Advisory Committee's Administrative Secretary, provided invaluable support not only by typing the successive drafts of our report and the minutes of our meetings but also in many other ways.

Without the full cooperation of numerous staff members of the ORD, our task could not have been performed. We drew heavily upon their time and knowledge, and I must single out for specific acknowledgment the assistance given us by the Director and Associate Director of ORD, Howard Rosen and Seymour Brandwein, respectively. We are also indebted to the directors and staff members of the laboratories we visited and studied, in particular to Eugene Oetting and Charles Cole, Co-Principal Investigators for the Colorado State University Experimental Manpower Laboratory, Denver, Colorado; John McKee, Director of the Experimental Manpower Laboratory for Corrections, Elmore, Alabama; Louis Ferman and Jesse Gordon, Co-Directors of the University of Michigan Experimental Manpower Laboratory, Ann Arbor, Michigan; Irwin Feifer, former Director of Mobilization For Youth Experimental Manpower Laboratory, New York, New York; George Autry, Director of the North Carolina Manpower Development Corporation, Chapel Hill, North Carolina; and Wendell Russell, Director of Training and Technology, Oak Ridge, Tennessee.

The Advisory Committee also benefited from the participation of William Foote Whyte, Chairman of the Subcommittee on Research, Development and Evaluation of the Department of Labor National Manpower Advisory Committee, as an observer in its meetings. Finally, we are grateful to Ronald Havelock,

Program Director, Center for Research on Utilization of Scientific Knowledge, University of Michigan, for presenting to us an account of his work on the utilization of research.

Karl R. Kunze
Chairman

Oxnard, California
February, 1974

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FINDINGS AND RECOMMENDATIONS

The principal charge of the Advisory Committee on the Assessment of Experimental Manpower R&D Laboratories was to evaluate the "experimental manpower laboratory" as a facility, or institutional capability, for conducting manpower research and development. To fulfill this charge, the Advisory Committee examined not only the underlying conception that led to the establishment of manpower laboratories but also their operational characteristics.

Six laboratories were studied:

1. Colorado State University Experimental Manpower Laboratory, Denver, Colorado, which focused on types of pre-and post-placement support designed to improve the work adjustment of disadvantaged individuals;

2. Experimental Manpower Laboratory for Corrections, Draper Correctional Center, Elmore, Alabama, which concerned itself with the effects of operant behavior techniques of training on prisoners, the impact of training on released prisoners receiving assistance, and methods of changing the prison environment for more effective inmate preparation for post-prison employment;

3. University of Michigan Experimental Manpower Laboratory, Ann Arbor, Michigan, charged with applying research knowledge to the development of materials for job interviews, counseling, and follow-up for disadvantaged workers, and with persuading local manpower agencies to utilize them effectively;

4. Mobilization For Youth Experimental Manpower Laboratory, New York, New York, primarily concerned with developing and testing new ways for preparing hard-to-employ youths for employment;

5. North Carolina Manpower Development Corporation, Chapel Hill, North Carolina, which was to assist in developing and assessing the means through which a state could improve its capabilities for planning and delivering manpower services; and

6. Training and Technology, Oak Ridge, Tennessee, concerned chiefly with developing methods for upgrading skills in an industrial setting.

The Advisory Committee finds the concept of manpower R&D laboratories valid and useful, but believes that the existing experimental manpower laboratories have not fully succeeded in achieving the manpower R&D objectives of the Office of Research and Development.

The Committee's major findings and recommendations are designed to enable the Office of Research and Development to translate the concept into reality more effectively. They are presented in three parts, each of which incorporates observations and suggestions derived from the criteria the Committee used in assessing the laboratories.

The findings and recommendations on Planning for Laboratory Effectiveness grow out of observations on the laboratories' operational objectives and organizational structure and resources. Those dealing with Requirements for Effective Management center on problems of self-assessment and communication. In the final part on Utilization, the Committee addresses issues arising from an examination of the quality of laboratory output and the utilization process. Taken as a whole, the Committee's recommendations should be perceived as advice to the Office of Research and Development on the means for planning and organizing more effective laboratories in the future.

I. Planning for Laboratory Effectiveness

ORD's research and development mission is concerned with some of the nation's most critical social problems. Consequently, the determination of overall goals and objectives for that mission is of great importance. The Committee feels that ORD should systematically consider the full spectrum of research needs relating to manpower problems and specify a subset of objectives

of fundamental importance and of high priority. Systematic procedures should be used for identifying long-term research needs that are appropriate to the proposed longer-time perspectives of Experimental Manpower Laboratories. This planning process would benefit from guidance from external information sources, as well as from potential users of R&D products. Similarly, formalizing ORD procedures for assessing and classifying user needs, identifying appropriate research instrumentalities, and deciding which research capabilities are most appropriate to specific tasks are suggested as ways for increasing the relevance of the laboratory's work and assuring worthwhile laboratory products for satisfying the R&D objectives of ORD.

It was not wholly clear to the Committee why these particular manpower R&D capabilities, with their special emphases, emerged as laboratories, while other R&D organizations did not. In part this may be attributed to the fact that ORD's identification of laboratory characteristics provided operational guidelines for the laboratories, but not to a similar degree a rationale for their creation. A systematic approach to determine the preferred geographic location and organizational setting of the laboratories would probably have reduced the number of problems emerging from ambiguity of purpose and function.

The Committee believes that the larger institutional setting within which a laboratory is located has consequences for the laboratory's movement toward its goals. Laboratories located within organizations that share their research orientation, sympathize with their purpose, and provide support for their project activities are more likely to make progress toward the attainment of their objectives than those that do not. The freedom of laboratories to establish and work toward the attainment of their goals, to select their staffs, to design their research programs, and to report administratively to

ORD, rather than the host-agency, is emphasized for its importance in making decisions on their locations.

If it is to achieve the purposes and operational objectives of Experimental Manpower Laboratories, each laboratory, the Committee feels, must meet the test represented by the following criteria put in the form of questions:

1. Does the laboratory deal with problems that reflect user needs and require systematic and long-range efforts?
2. Does it conduct R&D work in a broad and coherent area?
3. Are its R&D products broadly applicable?
4. Is it sufficiently flexible in its operations to realign objectives with the approval of ORD in order to meet changing needs and circumstances?

Recommendations

1. In order to achieve improved planning for laboratory effectiveness, the Committee recommends that ORD establish an R&D Manpower Advisory Committee charged with:

   (a) determining research and development needs and priorities to be met by the laboratories in the light of manpower policies and programs, taking into account (i) high-priority and long-term needs, (ii) compatibility of research goals with potential users' needs, (iii) the breadth and importance of the manpower problems to which R&D objectives relate, (iv) the feasibility of pursuing such objectives in light of political and institutional constraints, and (v) the adequacy of the time available for accomplishing laboratory objectives;

   (b) identifying research capabilities competent to carry out ORD's research plans. This would involve matching R&D needs to appropriate organizations and grouping objectives into homogeneous "clusters" appropriate for consideration by an EML, rather than the short-term, single-task projects; and

(c) reviewing proposals.

2. With respect to its decisions to fund capabilities of this kind the Committee recommends that ORD base them upon the following considerations:

   (a) the demonstrated capability of the potential contractor to perform the proposed research activities;

   (b) the appropriateness of the research design for handling the designated tasks;

   (c) the degree to which the proposed organizational setting complements the laboratory's mission;

   (d) the extent to which project-management plans are tied to considerations of staff allocation, budget expenditures, time schedules, and reporting systems;

   (e) the clarity and thoroughness with which concrete laboratory objectives and research strategies are described; and

   (f) an indication that the potential contractors understand the significance of the specific manpower area for developing solutions to national needs.

II. Requirements for Effective Management

Measurement of a laboratory's progress in accomplishing its mission needs to be systematized and used at prescribed intervals, or after specific project milestones. Detailed management plans, specified project objectives, and deadlines for the completion of tasks, would make it possible to identify reference points when assessing laboratory progress.

The Committee believes that external assistance (i.e., outside consultants with specific competence in the area of the laboratory's research) would make

for more effective assessments of laboratory projects. Contact with investigators conducting similar research would help to avoid redundancy and would improve the efficiency of laboratory operations.

Intra-organizational competition between research and service functions, coupled with ambiguous organizational objectives, has contributed to a breakdown in communication within the laboratories as well as between the laboratories and ORD. To increase opportunities for the flow of ideas and to stimulate new approaches, the Committee feels that there is a need for systematic information exchange among the laboratories and between the laboratories and ORD to keep each informed of the others' activities. It was apparent that more contact with local potential users would enhance the relevance of laboratory products and promote a more receptive atmosphere for their use.

Recommendations

For the purpose of establishing and maintaining appropriate management controls, helping to improve communication processes, and increasing the amount of input available for laboratory efforts in self-assessment, the Committee recommends that:

1. ORD and the laboratories develop explicit management plans supportive of ORD's overall long-range plans;

2. These management plans include clearly defined objectives to be used as reference points in the assessment of laboratory progress. Project milestones should be tied to fiscal decision points and used as benchmarks for measuring progress in the research process. Scheduling, reporting requirements, and budgetary controls should constitute an integral part of the plans;

3. ORD develop a follow-up monitoring system to enable its staff to assure that laboratory projects are completed on schedule and to facilitate communication among the laboratories engaged in similar R&D activities;

4. ORD encourage each laboratory to form an advisory committee composed of representatives with interest and competence in the laboratories' particular areas of concern to aid in the development of project activities, provide continuous assessment and feedback from potential users, and report its findings to both the laboratories and ORD. Such advisory committees, the Committee believes, would be a source of assistance to the laboratories on a more continuing basis than can be provided through the limited staff resources of ORD.

III. Utilization

An experimental manpower laboratory's products should be assessed in terms of how well they satisfy the laboratory's stated objectives and how useful they have been in improving the performance of manpower service agencies. The Committee examined products of laboratories to determine whether they showed thorough and systematic investigation, reflected reasonable familiarity with previous research in the area, were original in character, and could have demonstrably real, or potential, impact on manpower programs. It concluded that many, given the time in which they were produced, were of good quality. However, the Committee also found considerable unevenness in products of individual laboratories. Some products fell short of what could have been accomplished, given the time and resources available. Some were similar to work that had been conducted elsewhere with larger and more varied samples or with better measuring instruments.

In others it appeared that a laboratory would have benefited if its staff had given more attention to previously published work and available re-

search data in certain areas. A more sophisticated approach to a problem could have been developed if a thorough review of previously published work had been undertaken. In general, the Committee believes the laboratories could enhance quality of output by using a number of mechanisms available for building an effective review/feedback/self-correction cycle.

A key measure of success in ORD's use of a laboratory, or for that matter in the majority of R&D programs, is the extent to which the innovations developed by the effort are incorporated into operational programs. Although it is difficult to trace the actual progression of an innovation from demonstration to the operational stage, there is agreement among ORD and laboratory officials that efforts to promote use of laboratory findings have not been successful.

A clearer understanding of the nature of responsibilities relating to the use of laboratory products is needed by both the laboratories and ORD. The laboratory staffs feel they lack sufficient funds and personnel to undertake what some have characterized as a marketing effort, and ORD officials are understandably reluctant to "sell" untested laboratory products. ORD prefers to distribute samples to potential users on the assumption that the market for them would be better determined by their quality.

The articulation of user needs often does not flow directly from the operating agency to the laboratory, but is filtered through several levels of the Department of Labor. Research design and planning decisions for laboratory products are frequently made by DOL utilization and/or program staff independently of information from the field. It is, therefore, the opinion

of the Committee that effectiveness of utilization efforts would be vastly improved if contact between the project staff and users were increased.

Recommendations

The Committee recommends that ORD take the following steps to assure more effective utilization of laboratory R&D products:

1. Adopt, together with the laboratories, a view of research and development that is both process and product oriented;

2. Take measures to ensure, in the design and planning of project activities, that those proposed and undertaken in the laboratories are sufficiently generalizable to contribute to the solution of important manpower problems by having the proposed R&D Manpower Advisory group involve present and potential users of laboratory products and processes in the research planning of laboratory work;

3. Develop an operational definition of utilization that identifies the significant elements and the responsibility for carrying out specific tasks in the utilization process, so that the needs of potential users can be effectively incorporated into laboratory research activities; and

4. Establish a program of small grants, available to present or potential program operators, designed to facilitate the search for exemplary ways of utilizing new or existing knowledge, encouraging research on the manpower R&D utilization process, its flow characteristics, and its relationships to the research-development-dissemination-implementation chain.

I. THE MANPOWER LABORATORY AS AN R&D CAPABILITY

A. GENERAL DESCRIPTION OF THE OFFICE OF RESEARCH AND DEVELOPMENT

The Manpower Development and Training Act (MDTA) of 1962 gave the Department of Labor a mandate to support extramural research. The MDTA directed the Secretary of Labor to "arrange, through grants or contracts, for the conduct of such research and investigations as give promise of furthering the objectives of the Act;...and establish a program of experimental, developmental, demonstration, and pilot projects, through grants or contracts ...". A 1965 amendment broadened that mandate to include experimental and demonstration efforts relating to the current manpower concerns and problems. Prior to the adoption of the MDTA, the research activities of the Department of Labor were conducted primarily intramurally, chiefly by its staff in the Bureau of Labor Statistics, the Bureau of Employment Security, and other divisions in the Department.

Experimental and demonstration programs were administered through the Office of Special Manpower Projects. These E&D activities had their roots in program operations rather than research. Initially the resources to conduct them were drawn from program funds and were primarily allocated to efforts to develop new types of manpower delivery systems. They were basically innovative service programs with secondary emphasis on analysis and measurement. They provided DOL with the opportunity for developing and testing, in operational situations, ways in which manpower programs could more effectively meet significant manpower problems.

In April, 1970, the Office of Special Manpower Programs and the Office of Research, which was primarily concerned with research programs, were merged into what is presently known as the Office of Research and Development. Organizationally, ORD is part of the Office of Policy, Evaluation and Research, Manpower Administration, and reports to the Assistant Secretary of Manpower through the Deputy Assistant Secretary for Manpower. The Office is currently divided into five divisions: (1) Experimental Operations Research; (2) Research Methods and Services; (3) Program Demonstrations; (4) R&D Utilization; (5) Operational Control and Special Grants.

Funds budgeted for R&D activities through ORD are currently (fiscal 1973) about $20 million a year, which represents less than 0.7 percent of total expenditures for the various manpower programs administered through the Department of Labor. Prior to the merger, the Office of Research received approximately $4 million a year (a total of about $30 million for 1962-70), whereas the Office of Special Manpower Projects had a budget of about $16 million a year (a total of approximately $170 million for the years 1962-70).

ORD is charged with investigating potential solutions to problems of unemployment, underemployment, manpower supply, demand, and utilization, and the special labor force problems of members of minority and disadvantaged groups. The MDTA was intended to increase interest in examining the factors influencing the behavior of the labor market and the problems that workers faced when attempting to enter the labor force. Through linkage with MDTA training programs, ORD has been able to expand substantially the level of its efforts by using the MDTA funds to meet the costs of the service components

of experimental and demonstration programs primarily concerned with assessing the feasibility and effectiveness of training innovations.

Each year ORD develops a funding plan that reflects the general priorities and goals to be emphasized in the next fiscal year. Whenever possible, attempts are made to respond to the needs of the operating arms of the Manpower Administration. The funding plan is then submitted to the Secretary of Labor through the Manpower Administrator.

Of the resources made available to ORD, approximately 20 percent are channeled to universities; 45 percent to non-profit organizations (primarily operating service delivery organizations); 25 percent to government agencies (i.e., Bureau of Labor Statistics, State Employment Services, Municipal governments); and about 10 percent to private profit-making organizations. This distribution of resources changes from one fiscal year to the next as priorities and needs change.

The activities supported by ORD range in size from small one-year PhD-dissertation grants of $2,000-$10,000, to 10-year longitudinal studies of selected segments of the labor force, which required several million dollars. Major program activities, areas of concern, and report responsibilities for ORD over the past years have been:

1. Small Grant Program. This program is designed to provide incentives to young scholars to encourage them to investigate manpower problems by supporting their innovative research in the manpower area (e.g., doctoral dissertation).

2. Manpower Research Institutional Grant Program. This program provides support to universities engaged in research on manpower issues and the development of research specialists (i.e., manpower planners, evaluators, program

operators, and manpower administrators) with expertise in manpower problems.

3. Contract and Grant Program. ORD's major activity involves staff in the development of research and development projects, negotiations with contractors and grantees concerning substantive and administrative issues, monitoring of projects, proposal review, dissemination of research and developmental findings, and seeking methods for application of research results. Projects are selected on the basis of their relevance to policy and program issues, current or anticipated, which may shed light on major manpower problems.

4. The President's Manpower Report. Preparation of this report is a statutory requirement under the Manpower Act. The Report includes an annual review of employment-related developments and a review of manpower activities conducted by DOL. It also analyzes major trends and problems in the manpower area.

As of August, 1973 ORD has 263* ongoing contracts and grants under its sponsorship with a staff of 51 professional employees and 29 support staff. Its projects are usually one-time efforts of one or two years' duration, and rarely longer than three. About 60 percent of each year's appropriations are allocated for repeat financing of ongoing R&D work, either to support work by R&D organizations that have been effective or to continue projects that have shown promise and require additional time to complete their work. While these organizations may look to ORD for continuing support, they have no basis for assuming continuity.

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*Excludes small grants and institutional grants.

The ultimate output of a typical R&D funded project is a document that describes its background, work performed, and findings and recommendations. This document may range in size from one-page or two-page pamphlets, which could be used for public information purposes, to reports several thousand pages in length. Reports are generally turned over to the ORD Utilization Division for dissemination to interested parties and institutions concerned with particular content areas. The document is then incorporated into the microfilm library of the U.S. Department of Commerce Clearinghouse for Technical and Scientific Information.

B. HISTORY OF THE ESTABLISHMENT OF THE R&D LABORATORIES

The roots of the Experimental Manpower Laboratories are found in the provisions of the Manpower Development and Training Act of 1962, which, as has been seen, directed the Secretary of Labor to conduct research and perform experimental and demonstration projects related to manpower concerns and problems.

Experience early in the development of the Department of Labor's experimental and demonstration programs indicated there was a need for analytical capabilities to accompany efforts to experiment with various approaches to service delivery problems. ORD also recognized the necessity to provide for continuity of funding to reduce problems of excessive start-up and phase-down time. In some cases, it was not until the second or third year that E&D efforts developed significant capabilities in their areas of inquiry. However, funding constraints and maximum three-year life of projects often forced premature termination of an activity. ORD recognized the need for broadening its

focus to eliminate the frequent tunnel vision that resulted from previous E&D projects.

These considerations led ORD to look for other types of arrangements to satisfy its R&D objectives. ORD identified specific E&D programs and contractors judged to have the ability to mount a conceptual/analytical effort in the manpower area. The majority of the projects and staff identified had been involved in some type of operational activity, their initial orientation being toward the delivery of services. These projects and staff were approached to determine their interest in building, with assistance from ORD, capabilities combining both operational and analytical competence with the support of long-term funding. These programs were eventually designated Experimental Manpower Laboratories.

This study concerns itself with these experimental R&D capabilities. Four were formally designated Experimental Manpower Laboratories: (1) the Colorado State University Experimental Manpower Laboratory, Denver, Colorado; (2) the Experimental Manpower Laboratory for Corrections, Elmore, Alabama; (3) the University of Michigan Experimental Manpower Laboratory, Ann Arbor, Michigan; (4) Mobilization for Youth Experimental Manpower Laboratory, New York, New York. The two other R&D capabilities with laboratory-like characteristics, as defined by ORD, are (5) the North Carolina Manpower Development Corporation, Chapel Hill, North Carolina, and (6) Training and Technology, Oak Ridge, Tennessee. (See Appendix B for summary data on the laboratories.)

C. DESCRIPTION OF LABORATORIES

Colorado State University Experimental Manpower Laboratory

The Colorado State University Experimental Manpower Laboratory (CSU/EML)

was established in 1968 to (1) develop and test experimental procedures for improving the work adjustment of disadvantaged minorities and (2) evaluate the relative impacts of various types of intervention systems.

The focus of the CSU laboratory was an outgrowth of previous work done by the principal investigators. In 1964, DOL funded a project to research and develop techniques for employment counseling and job placement of former mental patients. This work, which continued through 1968, explored methods for counseling mental patients for jobs and providing post-release support. DOL's evaluations of the project and the research team assembled to conduct it led to a request for the CSU staff to shift its emphasis to manpower problems of disadvantaged people in the Denver area who had difficulty filtering into the job market. ORD believed that the insights developed in studying the work-adjustment problems of former mental patients might be useful in developing approaches for problems confronted by disadvantaged individuals, and that the CSU staff might make a significant contribution to their solution.

The CSU laboratory is physically located in Denver, and administered by faculty staff at Colorado State University in Fort Collins. Since its inception in 1968, it has received approximately $1.5 million in funding from ORD. The laboratory's emphasis during this period has been primarily research-oriented and focused primarily on types of pre- and post-placement support necessary to improve job retention of disadvantaged workers. Service rendered to the disadvantaged was incidental to the necessity for testing out research ideas on "real" subjects.

The laboratory has addressed several aspects of the manpower service delivery network: the target population (i.e., socially and economically

disadvantaged Chicanos, Blacks, and Anglos in Denver's inner city), program design, and the services and skills required for effective delivery of services. Its R&D efforts have been directed toward two major application problems -- job coaching and interview training, and three conceptual problems: (1) classification of the disadvantaged into ten subgroups; (2) delineation of a work adjustment hierarchy (a conceptual framework for identifying the level of adjustment of disadvantaged clients to the world of work); and (3) a structural analysis of the elements of the work environment.

Research on coaching accounted for most of the laboratory's efforts in 1970-72. The coaching studies had two major outcomes: first, a general finding that coaching, while contributing to the solution of specific problems, does not increase the probability of job retention; and, second, a Job Coaching Manual intended for use by coaches recruited from the disadvantaged population. The manual identified the practical actions a coach should take to alleviate specific problems of his clients and to handle critical events related to the client's vocation, education, physical needs, health, legal, family, social, and psychological problems. In addition, a manual for supervisors of coaches was also produced, which includes sections on selection, orientation, and training of coaches.

The job interview research focused on three issues: (1) training clients to present themselves more effectively in job-seeking situations; (2) training manpower staff to interact more effectively with their disadvantaged clients; and (3) training employers to be more effective in their interviewing techniques.

The laboratory's theory-oriented research yielded a classification system for assessing the personal and social characteristics that relate to being

disadvantaged; a hierarchy of the levels associated with job preparedness with implications for selective intervention depending upon the level attained by the worker, and the beginning of a conceptualization of work environments designed to identify factors that contribute, negatively or positively, to adaptation of the worker to his job and work situation.

The laboratory's future plans include testing the effectiveness of coach training, identifying the characteristics of effective coaches, refining the systematic classification of vocational disadvantaged; testing the effects of interview training for job applicants, and providing interview training for interviewers.

Experimental Manpower Laboratory for Corrections, Elmore, Alabama

The objectives of the Experimental Manpower Laboratory for Corrections (EMLC) at the Draper Correctional Center are to (1) study the influences of the correctional institution on incarcerated offenders and (2) develop and evaluate pre-release intervention strategies aimed at helping the released offender establish and maintain a stable employment pattern, making use of available support systems relevant to his adjustment to work.

Since its inception, September 1968 to February 1973, the EMLC has received a total of approximately $1.8 million in ORD funding. From 1964 to 1968, prior to its status as an EML, the project had been the recipient of approximately $1.5 million in funding from the Department of Health, Education, and Welfare and the Department of Labor. Two thirds of the support was for MDTA activities.

The laboratory studies inmates in an attempt to measure (1) the effects

of training activities using operant behavior techniques, (2) the impact of training on released prisoners, and (3) methods for changing the prison environment to bring about more effective preparation for post-prison employment. The technology of behavior modification has been used as the intervention strategy in its programs. The token economy, one of the major projects of the laboratory, consists of an "ecology unit" and "basic education" unit. The ecology project is designed to determine whether inmates would respond to an incentive and reward system. A small sample of inmates is separated from other prisoners and given more desirable living arrangements within the prison. They are monitored closely and awarded "points" (tokens) for desirable behaviors. These points may then be used to purchase goods both inside and outside of the prison.

The token economy project is regarded by the laboratory personnel as their best. It uses more of the laboratory funding than any other project and is clearly the highest priority of the laboratory efforts.

The basic-education study is focused primarily on inmates in the ecology project. It assists in preparing individuals for GED (the General Equivalency Diploma) examination by means of an individually prescribed instructional system and an individualized reading program. The basic-education program consists of materials assembled by the EMLC staff and is one of several inputs to the token economy exercise.

The second largest resource-consuming activity in the laboratory program is post-release follow-up studies. The follow-up studies are designed to measure the effect that various project components have on employment and recidivism, and attempts to pinpoint areas in which intensive intervention might prevent the client from recidivating. Laboratory staff have developed

two instruments, the Maladjustive Behavioral Rating, and the Environmental Deprivation Scale, both of which are designed to predict recidivism and criminal behavior.

Laboratory staff have also developed a Correctional Officer Training program that consists of a series of lessons in human relations aimed at improving the skills required to relate to an inmate population. By means of the program, correctional officers are introduced to the use of behavior-modification techniques as an alternative to punishment and aversive control. The ultimate goals of such a training program is to put the correctional officer in the position of administering a program of institutional treatment based on behavior-modification principles.

Another laboratory activity consists of the writing of booklets used in the Correctional Officer Training Program. These instruction booklets are referred to as "behavior modification" booklets and are approached on the "How To" level. The development of these materials consists primarily of the assembling and repackaging of various types of available instructional materials.

The Director of the laboratory and several of the researchers have made arrangements to move the EMLC from its present location to the University of Alabama. This move would call for concentration on a different client group, younger male offenders at the Alabama Industrial School at Mt. Meigs, Alabama.

University of Michigan Experimental Manpower Laboratory, Ann Arbor, Michigan

At its inception, the University of Michigan Experimental Manpower Laboratory was founded with the major objective of establishing a university-

based laboratory with useful ties to existing manpower programs. The laboratory was charged with the development of technology of the retrieval, dissemination, and utilization of manpower operational information in coaching and agency-company relationships. It sought to explore ways of bridging gaps between current scientific knowledge and the ongoing practices in manpower programs, and working out systems for the utilization of innovative manpower development strategies and techniques by manpower agencies and private employers so that disadvantaged groups could be better defined and subsequently better served.

In general, the proposed goal of the laboratory was to develop a set of methods and procedures for manpower agencies to use in collecting data on the effectiveness of: (a) their internal operations; (b) relationships with clients; (c) relationships with employers. The methodology called for the development of feedback loops within the agency so that the collected data could be analyzed and subsequently utilized to improve the agency's performance. The ultimate aim of the laboratory was to develop self-explanatory instruments and procedures that would enable personnel in an agency to analyze the effectiveness of their operations and then implement changes suggested by the data, with little or no need for intervention and assistance from outside consultants.

A change in direction from the Office of Research and Development altered the focus of the first contract period awarded to the University of Michigan Laboratory. The laboratory was asked to retrieve the experience of JOBS NOW, a Chicago-based manpower service organization, which was about to reach the three-year statutory limit on E&D funding. JOBS NOW had developed a program strategy that eventually formed the foundation for the Concentrated

Employment Program (CEP) nationwide. Its innovative approach, a two-week orientation followed by placement and substantial post-placement support, needed documentation before the project's funding terminated.

During the first year of funding, the project's major efforts in JOBS NOW focused on four major activities: (1) analysis of the role performed by the job coach; (2) analysis of services provided to employers; (3) analysis of the agency's administrative system; and (4) provision of guidance and consultation to the agency on its administrative problems. Comprehensive instruments, primarily structured interviews, were constructed for the data-collection effort. Substantial use was made of other methodologies as well, including participant observation and critical incidents (a method for job analysis). As a result of its work, the laboratory has produced a coaching manual, two reports on company-agency relationships, and a handbook on manpower agency operations.

In its second contract, the laboratory returned to its original focus of developing in-house analytical capability in manpower agencies. Working in conjunction with several agencies in Cleveland, the staff pursued its goals of developing the logic and mechanics of manpower agency retrieval of information and practice routines from its own operations. The perspective underlying the work of the laboratory stems from a blending of theories on information retrieval and organizational development. The approach developed, called the RDU (Retrieval, Dissemination and Utilization) process by laboratory staff, was divided into five stages, each of which was seen as characterized by its own dominant problems. RDU was broken down into: (1) access to the agency; (2) initial exploration and planning; (3) information retrieval, analysis and

interpretation; (4) dissemination of information to the agency, and; (5) utilization of information by the agency. Although each stage had its characteristic problems, solutions to the problems had to be worked out individually with each agency through close association and negotiation with the research team. Tradeoffs in leadership, following the lines of competency residing within each organization, appeared to be prerequisites for effective working relationships in the RDU process.

As a product of three years of experience in working with a variety of manpower agencies, the laboratory developed a model approach to the retrieval, dissemination and utilization process. Laboratory products outline the steps necessary for effective implementation of this model, identify particular problems likely to be encountered and provide suggested strategies for overcoming these difficulties.

This Experimental Manpower Laboratory is no longer in existence. During the life of the project, July 1969 to September 1972, ORD invested $627,000 in its research activities. An initial planning grant of approximately $50,000 was made available in 1968.

Mobilization For Youth Experimental Manpower Laboratory, New York, New York

Mobilization For Youth (MFY) began in 1962 as the nation's first comprehensive experimental anti-poverty community organization. Concentrating its resources on the connection between unemployment, underemployment and poverty, MFY's work was designed to enhance the vocational development and employability of disadvantaged youth.

In 1968, MFY was funded by the Office of Research and Development of the

Department of Labor to operate an Experimental Manpower Laboratory to develop and evaluate innovative programmatic strategies, guidelines, and operational models of manpower services for disadvantaged youth. Along these lines, the laboratory has been primarily concerned with three program-development strategies for upgrading the employability of the disadvantaged: (1) technical innovations and refinement of program planning, operations, and evaluation (e.g., in skills-training systems and methodologies, in the systematic provision of incentives and reinforcers, in manpower staff training and upgrading programs); (2) refining and optimizing the cost-efficiency of existent public and private development programs (e.g., Neighborhood Youth Corps); (3) and developing new and/or improved training-employment models for private industry to utilize in accommodating hardcore employees (e.g., training work supervisors in the application of contingency management-behavior modification principles).

MFY is supported by contracts from two major sources. The experimental R&D laboratory activities, funded at approximately $800,000 per year for the past four years of operation (1968 to 1972), are supported by ORD. In addition, MFY receives approximately $220,000 annually from the Neighborhood Youth Corps for a training program for disadvantaged young people in the Lower East Side of New York City (trainee stipends accounts for further funding). It is MFY's NYC program that supplies trainees for the testing and validating of new research strategies developed by the EML.

Located on the Lower East Side of New York City, MFY is a community-based service organization and as such is quite accessible to its target population. Many of the young people served by the EML training strategies not only lack specific occupational skills, but also have severe deficiencies in

the English language and other basic skills that are essential for competing successfully for entry-level jobs. Therefore, many of the NYC skill-training programs (jewelry, sewing, typing, and auto body shops), in addition to teaching specific job skills, are training in the areas of behavioral skills and language skills. MFY assumes this holistic approach to its role with the NYC trainees as the only logical approach for accomplishing the tasks at hand.

The laboratory's overall objective to increase its capabilities and insights by exploring the feasibility and value of various strategies for meeting the manpower needs of disadvantaged young people has remained intact over the years. The programs designed to satisfy the laboratory objectives have varied from one funding period to the next as problems and circumstances changed. In carrying out its objectives MFY proposes to continue to design and assess the relative effectiveness of: (1) new manpower tools and program models for enhancing employer involvement in hiring, training, and upgrading hard-to-employ workers; (2) developing new and/or improved techniques for meeting special problems of job-training and work-experience manpower programs; and (3) new methods and guidance on employment practices to increase retention, mobility, and performance of the disadvantaged.

The laboratory's efforts are, for the most part, "action-oriented" projects designed to find solutions to current manpower problems with a minimum of delay between planning and implementation. This action strategy enables MFY to be somewhat more responsive to its clients and to the community.

MFY's experience is disseminated through a Manpower Monograph Series on Disadvantaged Youth (focusing on the Neighborhood Youth Corps program), program and staff training manuals, reports on special projects, and a report

series known as Field Experiments in Manpower Issues, which presents the results of a systematic, data-based experimentation concerned with timely manpower issues.

In February 1973, ORD reviewed the MFY/EML program and reduced its budget to $500,000. The 40 percent budget reduction resulted in the layoff of a large number of the laboratory's research staff, a temporary halt of all major research activities, and an impending change in the direction of research activities.

North Carolina Manpower Development Corporation, Chapel Hill, North Carolina

The North Carolina Manpower Development Corporation (NCMDC) was created in 1968. Since its inception, NCMDC has been funded by several sources: OEO, the Ford Foundation, the State of North Carolina, the Department of Health, Education, and Welfare, the Department of Labor, and numerous North Carolina foundations. Major funding gradually shifted to ORD/DOL as MDC became involved in the planning and programming for the anticipated decentralization and decategorization of manpower programs. Total ORD investment in this capability, covering the period of February 1969 to June 1973, has been $1.35 million. Since its inception in 1967, NCMDC has been the recipient of close to $8 million from sources other than ORD. Operating as an autonomous organization with funding primarily from out-of-state sources has enabled NCMDC to function with greater flexibility and latitude than might otherwise have been possible.

NCMDC's activities cluster around two primary goals: (1) assisting in the development of a state manpower plan; and (2) assessment of the means by which a state, through its relevant agencies and institutions, acquires

further capability for the planning and delivery of manpower services. More specifically, the project's goals, which have not changed significantly since its beginning, are development of a state manpower plan, continued encouragement of industrial involvement in the delivery of manpower services in the state, and performance of specific R&D functions for DOL.

In its most current contract period, MDC's major thrusts have been in four broad areas: (1) further institutionalization of vocational training within the community college system; (2) continued assistance to the State Manpower Plan; (3) provision of technical assistance to the North Carolina Employment Security Commission; and (4) increased involvement of industry in the various processes that bear upon the employment of disadvantaged and minority workers.

Beginning with a pilot project at one community college, MDC has developed and made operational a vocational training program. This 6 to 8 weeks job-preparatory training, containing adult basic education with a heavily attitudinal human resource development component, includes recruitment, counseling, supportive services, job development, and job coaching. Presently the program is in operation in six community colleges, and in the present session of the General Assembly $2.35 million was allocated for the further spread of the training in six other colleges within the system. MDC's involvement with the community colleges includes educating the leadership of the system regarding the manpower needs of the state, as a prelude to state-wide adoption of the training. Current operating programs are monitored by MDC and are given developmental assistance when needed. With 56 institutions scattered throughout the

state, the community colleges provide a dispersed institutional base for a wide variety of manpower resources designed to serve both under-utilized workers and employers.

MDC was instrumental in the development of the North Carolina State Manpower Council, a legislatively mandated body whose membership is appointed by the Governor. As a result of MDC lobbying efforts, the State Manpower Council was established as a mission-oriented planning agency charged with developing a state manpower plan. Recognizing the imminent possibility of the decentralization and decategorization of federal manpower funds, the Council, in conjunction with the Research Triangle Institute, has been working to develop allocation formulae for the dispersion of monies throughout the state. Through the State Manpower Council, MDC monitors the Emergency Employment Act within the state and seeks to develop other models of public service employment.

MDC's third emphasis is the technical assistance to the North Carolina Employment Security Commission, aimed at helping to prepare for its expanding role in the manpower process. With MDC assistance, the ESC has absorbed the rural CEP, previously operated by MDC, and will incorporate MDC's Mobility Project. Recognizing some of the inherent difficulties besetting the ESC, MDC is providing employer-employee relations training and plans to develop an experimental learning curriculum for use with the ESC and other public agencies.

MDC's fourth area of emphasis is its involvement with industry. Seeking to go beyond its Management Awareness Program, a group-learning technique designed to impart knowledge of problems confronting hard-to-employ workers to businessmen, MDC has developed a "think tank" approach to industrial participation in manpower planning and service delivery. MDC has gathered together

leaders in industry, educational institutions, and government agencies, with the goal of improving inter-organizational communication and demonstrating that new linkages can enhance service delivery to both workers and employers, and can result in improved inter-agency relationships.

A further ad hoc activity of the NCMDC is its contractual requirement to provide ORD with quarterly briefings on the progress being made in the preparation of state machinery to handle manpower revenue sharing. One function of these meetings is to provide DOL officials, outside of ORD, with current information on the status of state manpower planning strategies.

Training and Technology, Oak Ridge, Tennessee

Training and Technology (TAT) began in 1967 as an experimental effort to utilize facilities and production personnel in a high-technology industrial setting as a resource for industrial manpower training. The basic concept of TAT was to join existing resources of industry, education, and government to create a new capacity for training unemployed and under-utilized workers in job skills that are in strong demand. Key elements in the training activity have been the facilities and personnel of the Atomic Energy Commission's Oak Ridge nuclear production and research complex, operated by the Nuclear Division, Union Carbide Corporation; Oak Ridge Associated Universities, for program development and administration; and financial support from MDTA funds.

The first contract, awarded in 1965, grew out of a need to survey the manpower resources and requirements of the southern region. The second funding period was devoted to the start-up of an experimental training program at the Oak Ridge facility. In its third year, a transition was made from an

experimental activity to a program that combines manpower research and development activities and the previous experimental training operation. Operating under the single program title, Training and Technology, are two separately financed components: Industrial Skill and Technical Training, and Manpower Research and Development. The Office of Research and Development of the Department of Labor funds the research and development activities, while the training operation is supported by a diversified funding base including sponsorship from federal, state, and local agencies. Although the training program provides the subject matter and foundation for the research and development activities, the reader should be careful not to allow the training program to obscure the activities funded by the Office of Research and Development. Beginning with the first contract awarded in 1965, and up to December 1972, ORD has invested a total of approximately $1.6 million in TAT's research and development activities. Since 1967, and up to December 1972, about $7 million, which includes trainees' subsistence allowances, has been channeled into the TAT training component.

The Industrial Skill and Technical Training component of TAT was the experimental training program originally funded by ORD in 1967. One hundred and fifty training slots are supported by MDTA funds, and the balance of the training group, up to a total of 210 slots, are sponsored by a variety of state and local agencies and AEC contractors. There is a six-month training cycle that operates at or close to capacity. MDTA funds are no longer available to TAT to cover training costs beyond this year, and TAT has been advised to seek althernative funding sources.

TAT training is conducted at AEC's Oak Ridge Y-12 Plant. Union Carbide operates and maintains the facility and equipment. Its supervisors and skilled personnel provide shop and laboratory instruction in six major training areas--drafting, electronics, physical material testing, machining, mechanical and process operation and welding. The curriculum includes actual work assignments that provide an opportunity for the trainees to develop their new skills.

The Manpower Research and Development component of the TAT project is the portion funded by ORD/DOL. This TAT program area encompasses a variety of activities that share three formally stated goals: the development and extension of innovative approaches to manpower development through new combinations of industrial, educational, and governmental resources; the development of research and experimentation designed to improve training program operations; and the documentation and dissemination of the experimental findings.

Its present work includes efforts to extend the TAT approach to government contractors and private industry willing to utilize current plant or laboratory facilities and skilled personnel to train target manpower populations for career job opportunities either within their own operations or in other companies. TAT staff responsible for work in this area have been attempting to identify situations in which training efforts similar to TAT's could be replicated. They have concentrated primarily on either direct Atomic Energy Commission contractors or associated industries. These extension activities will be a part of a larger regional utilization effort aimed at sharing knowledge, providing a centralized source of retrievable information and providing technical assistance.

Current experimentation and demonstration projects include studies of upgrading and restructuring career ladders and an assessment of new upgrading procedures in operation at Union Carbide. A post-placement survey of TAT graduates and an investigation of the differential success rates among various trainee groups have also been undertaken. TAT's R&D components also engage in activities designed to improve the operations of the current industrial skill and technical training program. It has focused on the trainee-intake system, methods of evaluating trainee potential, development of an evaluative reporting system, and establishment of improved administrative procedures. The training program has recently included two new trainee groups, high school students and public offenders.

The project seeks to disseminate its knowledge through a variety of channels including distribution of written materials, operation of institutes and workshops, tours of training facilities, and staff presentations at meetings and conferences.

II. ASSESSING MANPOWER R&D PROGRAMS

This chapter places within a larger framework the Committee's efforts to assess the impact and functioning of the Department of Labor's Experimental Manpower Laboratories, and, consequently, begins with a consideration of the policy and operational implications of social and behavioral science research in general, and the nature of evaluative activities.

A. SOME GENERAL ISSUES

Before taking up specific issues relative to evaluating R&D activities, attention should be given to the following more general considerations.

1. Four Types of Evaluation

Several different aspects of behavioral and social programs might be the subject of evaluation.

a. Evaluation of program outcomes. Much is currently being written about evaluation of particular governmental programs (e.g., manpower, educational, mental health) designed to change some client system. The subjects of the evaluation are action programs, not research programs. How the program was developed is not at issue. What does interest the evaluator is the usefulness of the program's outcomes for the client population.

b. Evaluation of program execution. Under certain circumstances a particular action program may be well executed but still not produce the hoped-for changes in the target group. One reason for the disparity may be

that the theoretical or technological bases underlying the change program may be incorrect. Consequently, an evaluator may be interested in assessing the skillfulness of program execution rather than the utility of program outcomes. The distinction between this activity and the former is important since, if the outcomes are not effective, the program should be changed, but if the execution is not effective the management of the agency should be restructured.

c. Evaluation of R&D goal achievement. Evaluation research may also be designed to determine to what extent the declared goals of the R&D function of an organization are being achieved and what progress is being made toward meeting them. At least in theory, this kind of assessment can be made independently of whether the objectives themselves are worthwhile.

d. Evaluation of R&D products. If the goals of an R&D program are met, an evaluator might be interested in an assessment of whether the resultant findings and products of the R&D effort are indeed of high value and are utilized.

Most of the current literature on evaluation pertains to a and b and very little to c and d, which are central to the charge given to this Committee. The DOL/ORD definition of a manpower laboratory includes both research program and action program components.

2. An Evaluation Paradigm for R&D Programs

It is perhaps axiomatic that an evaluation of an R&D program is as suggested in (c), an assessment of the extent to which the program met its stated objectives (objectives including time and cost considerations as well as effectiveness and substantive concerns). What remains is the need to

formulate objectives in a clear and unambiguous fashion and to develop criteria for measuring the extent to which the various objectives were achieved. Once that is done it becomes possible to explore the reasons why a particular objective was or was not achieved. That is, what characteristics of the R&D program inhibited or facilitated the achievement of its various objectives? Based on the diagnosis, remedial changes can be recommended. Obviously, this process is not as simple as it sounds; we briefly discuss below some of the major problems involved.

B. EVALUATING MANPOWER R&D: SOME SPECIFIC ISSUES

1. Some Implications of Mission-Oriented R&D Objectives

Since the mid-1960's more and more attention has been devoted to so-called "mission-oriented" social science research. That is, social science research has been increasingly viewed as a means for formulating policy and developing programs with regard to specific problems in mental health, employment, education, and the like. However, certain problems often seem to arise within mission-oriented agencies. If the agency is engaged in the development and implementation of action programs of its own, as is true of DOL, there is a need to evaluate how well it is doing, which creates at least two major pressures. First, there is considerable pressure to carry out these evaluations in a short period of time; and second, to show positive results. The hurried evaluation of the negative income tax experiment (Kershaw, 1972) is an example of the former. With regard to the latter, D. T. Campbell (1969, 1972) and others have pointed out that action programs seem to be funded if

and only if they promise positive results. Thus the evaluation of the agency becomes tied to its promise to implement programs that guarantee positive effects. We are apparently unwilling to have governmental agencies experiment with social programs and to evaluate an agency on the basis of how well it experiments, rather than on the basis of the outcomes produced by its first try. This in turn creates problems for how to assess the effectiveness of the evaluation research itself; that is, to what extent should an assessment of the research function allow for these various constraints, and how?

Many mission-oriented organizations (like DOL) also attempt to maintain an ongoing program of research and development aimed at finding solutions and developing new approaches to substantive problems, rather than only evaluating outcomes of ongoing programs. However, unless the R&D resources devoted to "evaluation" research and those devoted to "problem" research are kept organizationally independent, the pressure for evaluation may result in resources being shifted from one function to the other, on relatively short notice, as the pressure for "evaluation" waxes and wanes. This shifting from problem research to evaluation research, coupled with the rapid changes in program content that often result from changes in political direction, may effectively prevent mission-oriented research from meeting its stated objectives. The mission may disappear, or become moot, before the research is completed.

2. Characteristics of Mission-Oriented R&D Objectives

Magnum (1971) has identified four general kinds of objectives for mission-oriented manpower research and development:

(1) A possible aim of manpower R&D might be to educate high-level policy-makers as to the kinds of manpower problems that need attention.

(2) A second overall objective might be to develop operational programs for dealing with specific problems.

(3) A third aim of research might be to evaluate the outcomes of the program and diagnose its shortcomings.

(4) A more general aim of manpower R&D might be to investigate questions and develop solutions that have implications for a number of different manpower problems and cut across a wide range of programs. The question of how to perform job coaching more economically is an example.

The lessons to be kept in mind here are that the objectives of R&D in these four categories tend to involve different decisions and different decision-makers and require different skills of investigators as well as different criteria for evaluation. The majority of governmental R&D programs probably encompass more than one of these general objectives, which increases the difficulty of evaluating them.

3. Objectives that Never Were

If mission-oriented research is subjected to rapidly shifting demands, the task of formulating detailed and concrete objectives for an R&D program becomes very difficult. The parties involved may find it so difficult that they retreat into very general statements of goals or no goal statements at all, or tend to substitute and justify service functions for R&D activities. At the extreme, the investigators may merely begin to "do something" with no clear idea of what they are trying to accomplish. To the extent that specific concrete objectives are not made public it is difficult to know by what criteria an R&D program should be assessed. The individuals carrying out the

assessment (e.g., the EMLABS Committee) either must infer what the project's objectives were from the kinds of outputs produced or they must impose their own views as to what should have been done. Neither procedure is very satisfactory.

4. Criteria for Measuring Goal Accomplishments

In the context of R&D assessment, a criterion is a specified procedure for measuring the degree to which a particular R&D objective has been met. The objectives themselves are not criteria. Objectives, as typically described, are desired end states and thus are not variables. A criterion measure defines a continuum representing the degree to which a desired end state has been approximated. For example, an objective of a pre-employment training program might be to increase the reading skills of the participants to the 12th grade level as measured by a nationally standardized test of reading comprehension. What criterion should be used to measure the improvement of reading skills and assess whether or not the 12th grade level has been reached? Several standardized tests are available and one could argue about which constitutes the more reliable and valid measure.

It is sometimes possible to embed the criterion in the statement of the objectives itself by saying something like: "An objective of the pre-employment training program is to raise the scores of a target group to certain percentiles with respect to norms of an acceptable standard measure." This would be an ideal state of affairs but it is often difficult to tie criteria to objectives so directly. For example, an objective of a manpower-research program might be to conduct a reasonably definitive study of whether job-coaching or pre-employment training is the better method for promoting job

retention among the so-called hard-to-employ. Finding out whether that objective has been met necessarily entails the use of criterion measures. An expert judgment as to whether the study's sample sizes were large and representative enough to yield an unambiguous answer is one possible criterion. A judgment as to whether the retention index used as a dependent variable is valid and unbiased is another necessary criterion.

All these criteria entail the use of expert judgment as a measurement operation, which illustrates another problem characteristic of R&D assessment. There are very few, if any, non-subjective criterion measures of R&D effectiveness. Variables such as the number of patents produced or the number of articles written or published are sometimes suggested, but they suffer from a number of drawbacks. For example, they are seldom tied to specific objectives and tend to be selected a priori simple because of their availability. In the Committee's opinion, most so-called non-subjective criteria of R&D assessment can be seriously questioned on the basis of either their validity or their relevance. Stipulating that one end of a criterion continuum is "good" is saying, in effect, that behavior represented by the high score is the kind of behavior one wishes to reinforce. To be specific, does ORD want to reinforce the production of a large number of publications? Probably not.

Another kind of criterion measure that has drawn increasing attention is the cost/benefit ratio. The specific strengths and weaknesses of this particular variable have been well described by others (e.g., Glennon, 1972; Rivlin, 1971) and need not be repeated here, except for the following points. Cost/benefit analysis has most often been applied to the evaluation of training and educational programs, not research programs, and the measures on

the benefit side have been things like the market value of the skills produced (i.e., wages), the number of job placements, and job-retention rates. There have been few, if any, attempts to apply cost/benefit analysis to the research operation itself, where it is much more difficult to obtain benefit measures that can be expressed on a cardinal scale. None of the goals of any of the Experimental Manpower Laboratories was expressed in that fashion.

Since valid objective criterion measures are not available and cost/benefit analysis is not altogether appropriate, the Committee adopted the procedure of defining first a number of criterion variables that were judged to be highly relevant for assessing the experimental laboratories' R&D programs. A subjective judgment was then made as to how each EML rated on each criterion. In so doing, the Committee was fully aware of the attendant problems of reliability and validity entailed in this procedure.

5. Factors that Influence R&D Effectiveness

There are few existing data concerning the organizational characteristics that lead to high or low R&D performance. For the most part, the Committee relied on its collective experience with R&D-type organizations and focused on such characteristics as communication strategies, management practices, institutional arrangements, availability of resources, and the like.

Some guidance was provided by Glaser and Taylor (1973), who used a site-visit and interview procedure to search for variables that seemed to be correlated with the relative success of selected research projects funded by the Applied Research Branch of the National Institute of Mental Health. In general, successful projects were characterized by: (a) frequent and thorough

communication among staff, sponsor, users, and outside experts at virtually every stage of the research process, (b) principal investigators who were participative in their management style, (c) principal investigators who devoted full time to the project, and (d) open and prompt confrontation of conflict with the host agency, sponsor, or research-site personnel.

There is, of course, a large volume of literature on management theory and organizational development that does offer a number of hypotheses about what might make an R&D-type organization successful (e.g., Argyris, 1964; Blake & Mouton, 1969; Lawrence & Lorsch, 1969; Likert, 1961, 1967; Thompson, 1967). However, the Glaser and Taylor study is perhaps the only one that looks in a diagnostic way at project-type organizations similar to ORD's Experimental Manpower Laboratories.

C. DOES R&D EFFECTIVENESS INCLUDE UTILIZATION EFFECTIVENESS?

A recurrent theme in discussions of R&D evaluation is whether or not the organization responsible for doing research and developing new products should also be responsible for making the product marketable. In the private sector these two functions are usually performed by different sets of people, and are typically labeled something like R&D and product marketing. In between, there is frequently a third group that performs the function of translating the prototype product into something commercially available on a mass basis (e.g., a production management). However, in behavioral science research and manpower R&D, one group of people is sometimes expected to perform all these functions (i.e., development, production, and marketing), which may not be a very realistic expectation. Nevertheless, if the sponsor

requires that these functions be combined in one organization and the unit is to be held accountable for utilization, then the desired utilization outcomes must be spelled out in the form of appropriate additional objectives. The previously discussed difficulties inherent in measuring goal attainment apply here as well.

1. Alternative Goals for Utilization

Three general types of utilization objectives might be stipulated.

(1) At one extreme a general objective might be to translate R&D products into written manuals, handbooks, or reports that could be distributed to users and be understood by them at some minimally acceptable level of comprehension.

(2) Advancing the process one step, the objective might be to translate R&D products into the medium that maximizes comprehension by the user. For example, a particular report might be better comprehended in the film medium than the written word. Face-to-face "traveling seminars" such as those used by the Office of Education are another example.

(3) Finally, an objective of utilization might be to ensure that the product is in fact used by the client. A particular client may comprehend perfectly well how a particular product is to be used and what its objectives are, but may not be motivated to implement it. This kind of objective involves a consideration of the reward contingencies impinging on the client, the situational constraints under which the client system operates, and all other variables considered by organization development specialists who are concerned with implementing new innovations (e.g., see, Bennis, Benne, and Chin, 1969).

On the surface, objectives such as the above appear to imply that the process of knowledge application moves from research to development to utilization. However, the process might move in the reverse direction. That is, people in the field might "invent" products or techniques because they have a need to fill what they are doing might be communicated to the R&D community, which in turn might try to develop improvements or alternatives. This counter model suggests another goal for the utilization function; namely, that the prevailing needs and current practices of potential users should be regularly surveyed. In the private sector this is known as market research.

In sum, if utilization effectiveness is to be made a part of R&D effectiveness, the task of evaluating manpower R&D becomes broader still and the attendant problems increase considerably. A much larger portion of the entire manpower problem-identification and resource-delivery system becomes involved.

2. Factors that Influence Utilization Effectiveness

Since effective utilization is not synonymous with effective R&D, it is reasonable to inquire about what organizational characteristics have particular importance for determining whether utilization efforts will be effective or ineffective.

The literature on problems of dissemination and utilization is voluminous and much of it has been collated and systematized in the work of Havelock (1971). The concepts and principles developed by Havelock and his colleagues cannot be reviewed here but one of their most salient points bears mentioning. The parties who wish to promote utilization must have articulated

a clear model of the utilization process. Perhaps the specifics of the model are not as important as simply possessing one and having gone through the effort of making it public.

Although we have described the utilization function as relatively distinct from the R&D function, there are obviously characteristics of the R&D function itself that can influence the effectiveness of utilization. The Committee can perhaps do no better than to cite a previous National Academy of Sciences report that was submitted to the Committee on Science and Astronautics of the U.S. House of Representatives.[1]

Some of the key characteristics within the research environment that were viewed as essential were:

"1. The key individuals in the research organizations are fully aware of and sympathetic to the principal goals of the organization, but at the same time the research mission is defined in broad-enough terms so that it retains its validity as circumstances and the state of technology change.

2. The organization is willing to consider and implement new ideas or initiatives on their own merits regardless of the organizational level or functional subdivision in which they originate, or even if they come from a source outside the organization.

3. People within the organization are receptive to moving between the more fundamental and the more applied activities, and also to changing specialities or scientific disciplines. The artificial barriers that sometimes exist between disciplines and between fundamental and applied work are minimized.

4. The organization has a quick response in recognizing and funding new ideas, at least up to the point where the feasibility and desirability of a larger commitment can be assessed.

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[1]National Academy of Sciences. Applies Science and Technological Progress. Report to the Committee on Science and Astronautics of the U. S. House of Representatives, 1967, pp. 13-44.

5. At each organizational level the individual responsible has some freedom in redeploying the resources at his disposal without extensive review by higher authority. This is, of course, more true in research than in development, where the necessity of fitting into a system plan is important.

6. There is full communication through all stages of the research and development process, from original research to ultimate application. A good deal of overlapping activity between each of the stages present.

7. The system of reward and recognition emphasizes technical contributions to the goals of the organization, if necessary, in preference to proper organizational behavior."

Even this cursory look at what makes utilization effective reveals an extremely complex system that is probably far more intricate than the research system itself. Program replication and utilization often has little to do with a scientific evaluation of the program's effectiveness. Many decisions to refund an R&D project or utilize an R&D product are made by policy people who are guided in their decisions by political constraints and motives.

III. THE LABORATORIES IN OPERATION

The primary concern of the Committee, as has been stated, was to determine whether the laboratories fulfilled the concept of "experimental laboratories" as set forth by ORD and represented in their operations R&D capabilities through which the goals of the Office could be achieved. Consequently, it sought to learn whether each of the laboratories was able to achieve the objectives specific to it and to identify the factors entering into success or failure in this regard.

In pursuing its assessment task, the Committee gathered information on: (1) the operational objectives of the laboratories; (2) the institutional arrangements for and settings within which they operated; (3) the communication networks within the laboratories and between them and the Office of Research and Development; (4) the utilization of R&D findings or products; and (5) the procedures and practices adopted by the Office of Research and Development for managing the laboratories as R&D capabilities.

A. OPERATIONAL OBJECTIVES

The underlying concept of an "experimental manpower laboratory" that ORD sought to implement is expressed in the characteristics associated with each of these capabilities. These are as follows:

1. The work of the laboratories is planned as a <u>long-term</u> effort and assumes staff continuity and a reasonable stable funding level.
2. The laboratories have both operational and analytical capabilities.

(Although ORD has not made firm distinctions between operational and analytical capabilities, it defines operational as the activities involved in providing specific services to enrollees in training or related programs, or being closely tied to such an operation. Analytical is defined as those activities which involve documentation, assessment, and interpretation of the operations.)

3. Each laboratory is engaged in a multi-project effort seeking to explore innovative approaches, develop new activities from project spin-offs, and prepare materials documenting useful techniques emerging from its work.

The Committee found that these characteristics were instrumental in providing guidelines for the way in which the laboratories were to operate, but only obliquely related to the "ends" they were to pursue. After examining the activities of the laboratories, the Committee concluded that the "goals" of laboratory efforts are represented by the products resulting from their work. From what the laboratories actually did, their "objectives," though not formally prescribed by ORD, can be readily identified. They include researching and developing innovative techniques, plans, programs, and approaches relating to manpower problems; satisfying long-term manpower needs, shedding light on special problems and needs of minorities; and contributing to various levels of ORD policy decision-making. The Committee noted that many of the laboratories were engaged in rearranging or synthesizing existing knowledge rather than in generating new knowledge. This, however, was frequently viewed as innovative research by ORD because of the manner in which the repackaging or synthesizing was approached.

The laboratory characteristics are often viewed differently by laboratory staff and by ORD. For example, each laboratory feels somewhat insecure about its funding, although, when viewed in retrospect, funding has been of a continuing character and could be viewed as providing stability. However, when the laboratories view funding in connection with their forward planning, there is considerable apprehension about the possibility of termination of ORD support.

Uncertainty concerning continuation of activities and the new level of funding from one contract period to the next has also had the effect of reducing the long-range view that project personnel are expected to cultivate. Laboratory directors have had problems in retaining staff who desire the security associated with long-term employment. An additional problem involves the annual or 18-month funding cycle, which forces laboratory staff to interrupt research activities for two to three months and to engage in documenting and justifying the organization's program activities to DOL. For laboratory staff, this contract-renewal effort is an unnecessary interruption cutting into the time available for accomplishing contractual commitments. It appears, then, that ORD's desire to build program flexibility into the laboratories (i.e., its definition of long-term efforts) is frustrated by constraints on projects with respect to both time and financial support.

The absence of ORD guidelines for the long-term orientation of the laboratories and the work in which they are engaged introduces further uncertainty and ambiguity. Each laboratory views operational objectives as an

essential factor in effective operation, but is uncertain about what ORD objectives are, how they were developed, and how they are to be related to the laboratory's management plan. As a result, laboratory staffs have attempted to "second-guess" ORD in developing program objectives. A case in point is the laboratory at the University of Michigan, which attempted to map out a long-term program of activities with a set of long-range goals and objectives. Lack of ORD guidance in the initial stages of development resulted in the Michigan staff developing a proposal whose objective may have been, with the benefit of hindsight, over-ambitious and unrealistic. The Rehabilitation Research Foundation at Draper Correctional Center, on the other hand, developed much narrower goals which continued, sometimes with extension of objectives, from one funding period to the next. These two examples point out the different approaches taken by laboratories in the development of the scope and content of their projects, presumably reflecting the character of the guidance provided by ORD.

The Committee found that ORD did attempt to identify general problem areas for the R&D activities of the laboratories. For example, ORD singled out job-preparatory skill development as an area of concern for the Colorado Laboratory, and behavior-modification training for the RRF's research efforts. The Committee is of the opinion, however, that the laboratories require more in the way of guidance than the assignment of general problem areas in the development of their research programs. It believes that, to avoid ambiguities associated with broadly defined research objectives, the laboratories need a clearly stated research mission that addresses important manpower problems through the development and implementation of several specific activities.

The Committee feels that ORD should encourage the laboratories to develop hypotheses concerning given content areas that may be explored in depth. ORD's current general approach to defining objectives enables laboratories to hedge their options, and provides them opportunities to justify deviation from their current mandates.

The development of laboratory objectives is, in many cases, not closely tied to considerations of budget. It appears that ORD has a "ballpark" figure in mind for the funding level of each laboratory, but project planning by the laboratories does not seem to be constrained by these budgetary limits. It would be more reasonable, in the judgment of the Committee, if the development of research plans were to incorporate a costing-out process. This would place the planning of research in a more realistic light and help avoid the funding of overly ambitious or excessively narrow projects. Considerations of cost-effectiveness would be included in the planning and early stages of research and development.

B. INSTITUTIONAL ARRANGEMENTS

With the exception of the North Carolina Manpower Development Corporation, all the laboratories are located within a larger host agency that imposes varying degrees of fiscal and functional controls. The laboratories at Ann Arbor, Michigan, and Denver, Colorado operate under university controls. The Rehabilitation Research Foundation (RRF) and Mobilization for Youth (MFY) projects are part of larger service organizations, and the Training and Technology project at Oak Ridge functions within a complex organizational network including Oak Ridge Associated Universities and Union Carbide.

With the exception of the University of Michigan laboratory, which was established specifically as a R&D laboratory to work on the problems of utilization of innovative technique, the laboratories were previously ORD-funded projects that existed within their present institutional settings prior to being labeled "laboratories."

RRF, MFY and CSU were operating with mandates somewhat different from their present missions. ORD identified these projects as capable of assisting in finding solutions to many of DOL's manpower problems. The Colorado research team gained the attention of ORD staff with its previous work on employability development of mental patients. ORD requested the Colorado staff to develop a research capability focusing on the variables affecting job acquisition and job retention among the disadvantaged. MFY had been operating several skills-training programs before ORD persuaded staff there to add a research component aimed at investigating the employment problems of minority youth. RRF, located at the Draper Correctional Center, had been engaged in pre-release training programs of prisoners using MDTA funds. ORD identified Draper as an appropriate location for research concerned with enhancing the employability skills of ex-offenders.

Locating R&D efforts within the boundaries of larger organizations has significant consequences for the manner in which they function. For example, the host agency may have a history of experiences that demonstrates barriers to a laboratory accomplishing its goals. In some instances, the goals or purposes of the host agency may be in conflict with the laboratory's mission.

There are both advantages and disadvantages in the particular settings

in which laboratories are located. The settings interact in a complex manner with research objectives and with the laboratories themselves. The university setting, for example, is likely to provide direct access both to a wider range of professional and scientific expertise than any other setting and to a source of highly trained, inexpensive labor (graduate students). On the other hand, university programs tend to require long lead times, both in start-up and termination, and the "publish or perish" philosophy often shapes research objectives to satisfy academic requirements rather than practical needs. In a mission-oriented governmental setting, on the other hand, while operational relevance may be stressed and "real" subjects may be available, scientific rigor is frequently sacrificed for "practical" and "expedient" reasons. Moreover, the results of research tailored for use in a particular service program may lack generalizability.

In the view of the Committee, MFY and RRF are located within organizations whose primary goals do not coincide with their research objectives. The goals of the Draper Correctional Center, in which the Rehabilitation Research Foundation is located, illustrate a situation in which the host agency and laboratory have different, and sometimes conflicting, goals. Draper's goals are four-fold--increased public safety, improved utilization of human labor, rehabilitation of inmates, and teaching inmates new skills. The research goals that the Department of Labor has for the RRF are--to discover new knowledge, hopefully useful at policy levels, for increasing employability, reducing unemployment, and contributing to improved manpower programs. The goals of Draper (and similar correctional institutions) and the research goals of DOL may be too far apart to be easily reconciled through an R&D laboratory. As a result

of the lack of compatibility in goals and objectives with its host institution, RRF has decided to move the laboratory from the Draper Prison setting to the University of Alabama campus. Plans also call for working with young offenders at a juvenile correctional institution, potentially a more receptive clientele than the adult offenders at Draper.

The North Carolina Manpower Development Corporation (NCMDC), appears to have developed and sustained an independent organizational stance. The Committee members felt that MDC's position as an independent agency, funded by out-of-state sources, has enhanced its ability to be effective within the state. Its autonomous position has provided flexibility in the organization and allowed greater latitude in activities and strategies than might otherwise have been possible. While MDC can be flexible and change its behavior quite readily, state agencies, bound by procedural and fiscal constraints, cannot.

The NCMDC experience, along with that of other laboratories, has shed some light on the relative effectiveness of different institutional arrangements. The experience at Draper suggests that efforts should be made to locate projects within institutions whose missions can embrace the work of the laboratories without strain. ORD needs to make decisions concerning the chances for a project to accomplish its goals in the organizational network in which it is likely to be located. Special attention needs to be given to the support available within particular organizational settings, and those not providing adequate support should be avoided.

Contracting with particular sets of people represents buying specific skills. In some cases, these may not be transferable from one substantive area

to another. The Colorado project is a good example of a situation in which problems were encountered on this score. Staff at CSU had demonstrated its capability in developing strategies for the employability adjustment of former psychiatric patients. ORD, believing some of the insights gained in CSU's previous work were transferable, asked the CSU group to develop job-preparedness strategies for the disadvantaged. Insights and expertise gained in the studies of mental patients, however, did not prove applicable in studies with the disadvantaged population of Denver.

While it might appear reasonable for ORD to turn to previous contractors whose work has been well received to take on new projects, this may not prove effective. It might be better first to pose the researchable questions in order to identify likely potential contractors, rather than to rely on the limited possiblities represented by the universe of previously successful ORD contractors. Consequently, a survey of the research in particular subject areas would be a useful step in identifying appropriate existing competence.

ORD has identified combined operational and analytical capabilities of the laboratories as one of their distinguishing characteristics. The organizational arrangement is designed to provide both an agency for field-testing new innovations and an automatic feedback loop to the research component of the project. However, this frequently presented problems when the parent organization was more committed to the laboratory's service programs than to its research, and when the service function continued to be the strongest program element. Under these circumstances, the research component tends to be less effective than it might otherwise have been.

The University of Michigan effort, for example, did not have an operational component within its own organization. It constituted only the analytical component and used manpower training agencies for its operational activities. As a result, the University of Michigan laboratory could not exercise as much control over its service component as some of the other laboratories. The North Carolina Project illustrates the opposite situation. It operated as a service organization with little research focus, and made no provisions for research activities in its organizational structure or budget.

In cases such as Mobilization for Youth, The Rehabilitation Research Foundation, and Training and Technology, a research component was attached to an already existing service organization. This strategy seems to have several built-in pitfalls. The parent organization, having primarily a service orientation, did not have a strong commitment to research. The points of view of operational staff and research workers vary with the work in which they are engaged. Operational staff are frequently caught up in day-to-day pressures, and may not be receptive to the additional demands imposed by researchers. Researchers, on the other hand, often do not have much operational experience, and, therefore, lack a clear understanding of the conditions under which operational workers function. The skills required to develop and operate a service program are different from those required to design and implement research.

The only laboratory in which both the research and the service sections were initiated at the same time was at the Colorado State University laboratory, and even in this case a communication split developed. Communication between the service and research groups at the same physical location broke down, and

the project administrators alone had an overview of the entire project. The result was a less than efficient program.

Laboratories functioning with a service component often run into difficulties with community-based service agencies that operate competing or parallel programs. While the projects may not be designed as service-delivery organizations, other agencies in their immediate environments, with whom they may be in competition for scarce resources, often do not make this distinction. For example, MFY has 300 Neighborhood Youth Corps vacancies (slots) allotted annually within the pool available in New York City. Since manpower programs in that locality are highly politicized, the laboratory at MFY has become entangled in a highly political manpower struggle in the city. These circumstances affected the laboratory's ability to reach its research goals. The opposite danger may also exist. The Colorado State University effort, whose service branch is located in Denver, has been faulted for being too far removed from the larger manpower concerns of that city.

It appears to the Committee that research objectives must be tied to accessibility of appropriate experimental opportunities, and that the research activity should contribute to, not compromise, the service activity from which it derives validating experience. This implies that ORD would be well advised to expect laboratories to differ in form even though they serve a common function. However, an important general principle to observe is that the research staff and the personnel in the service activity who generate the data for the research must appropriately reinforce each other in making their separate but interrelated contributions to a laboratory. The interdependence of research

and service must be constantly stressed and demonstrated, so that it becomes equally important to all staff personnel that the service is good and that the research results are applicable to service. The reinforcement of the research staff, therefore, must to some extent be made contingent upon the excellence of the services offered, and the rewards of the service staff must be made contingent upon the success of the research effort. Such a contingency is not easy to construct, but in its absence the research or the service will fail to become operational.

C. COMMUNICATION NETWORKS

Communication between ORD and each laboratory appears to differ with respect to amount, source of origin, and content. Most project officers communicate with laboratory personnel primarily on matters related to administrative issues such as proposal development, progress reports, and contract renewel.

A project officer's involvement with a laboratory relates to several considerations, including his background and interest in the problem area being studied by the laboratory staff. The more involved and informed the project officer is about the specific content and goals of the laboratory's efforts, the greater the likelihood he will be able to make worthwhile contributions to its development and implementation. Because of lack of interest in and understanding of the laboratory's work, many project officers have been primarily perceived as monitors by laboratory staffs because they are mainly concerned with procedural matters and adherence to contractual requirements.

The work load of the project officer limits his ability for getting involved in program development. A project officer charged with monitoring the progress of 10 to 15 projects lacks time to provide guidance to the projects. In the best of circumstances he can only hope to become an advocate of his projects and help to facilitate the processing of paper through the bureaucratic system involved in refunding, budget modifications, and other contractual problems.

The Committee reviewed the communications network among ORD, the laboratories, and potential users of laboratory products, and concluded that ORD does not have a firm idea of the laboratories' constituencies, a circumstance that has significant consequences for the design and development of laboratory "products." In view of ORD's demands for utilizable results, information from potential users concerning their research needs is a significant element in the development of laboratory research. Potential users were, for the most part, approached after laboratory products had been developed rather than at earlier stages. Users were then asked to review and provide feedback on the amount and kinds of translation necessary to make laboratory products ready for use in the field.

Communication between ORD and potential users of laboratory products was often one-way, with ORD initiating the contact. Neither operating program officials on the federal level nor representatives of the program personnel appear to have initiated contacts with ORD to request that its research activities address some of their specific needs. Little follow-up on the actual impact of ORD products on potential users seems to have been done.

While recognizing that periodic progress reports are not always effective communication devices, the absence of some type of communication between ORD and the laboratories can result in misunderstandings concerning the laboratory's work and ORD's needs and expectations. The Committee believes that a more effective communication system between ORD and the laboratories could evolve if project monitoring were done on a frequent but informal basis.

Since one of the specific goals of the laboratories is the development of useful products, the Committee believes the laboratories should develop ways of getting information from potential users. One such method might involve use of a committee competent to provide advice on the design of research that would be responsive to local community needs by seeking to produce results likely to be used in the field. Such a mechanism might also contribute to reducing turn-around time in the eventual dissemination of laboratory products.

The Committee believes that reducing the workloads of project officers and assigning projects to officer with compatible interest and background would increase the chances that project officers could improve communication and work more effectively with their contractors on the substance of their activities. In addition, proposals developed with guidance from the potential users of laboratory products can begin to set the stage for successful use of laboratory products. Involvement of local and regional operation staff in the laboratories' work and plans can have several beneficial consequences, including improving relationships, facilitating laboratory functioning, and enhancing the potential for utilization of laboratory products.

D. UTILIZATION

Reports or manuals transmitted by ORD performers frequently satisfy grant or contract requirements. There does not, however, flow from that either utilization or implementation in manpower programs. Such reports frequently fail to include strategies for effective use and implementation. In an attempt to enhance the use, each laboratory was assigned a "Utilization Buddy" from the Utilization Division of DOL. The project officer and the "Utilization Buddy" are jointly responsible for providing guidance to the laboratory in its developmental stage for purposes of maximizing the generalizability and usefulness of its products.

Progress in the development of a systematic utilization strategy at DOL had, however, been slow. The task of developing such a strategy is hindered by the fact that little distinction is made between dissemination and utilization activities. The Committee suggests that both ORD and the laboratories' current utilization activities would be better described as "dissemination."

On occasion, agencies such as the U. S. Employment Services have directed their staffs to use materials distributed by ORD, but ORD has not been able to learn whether these materials were actually put to use. The same situation exists for the laboratories. While most laboratories maintain extensive mailing lists for dissemination purposes, none appears to be in a position to determine whether its products are actually being used.

ORD holds, and with good reason, that to mount the kind of effort necessary to trace the utilization of research products the demand in time and money would be prohibited. In the kind of informal feedback system that

currently exists, successful utilization tends to be measured by the number of outside requests ORD receives for additional copies of a given product, rather than the actual implementation of a product within operating agencies.

Coupled with the absence of a clear understanding of the utilization process, the laboratories tend to view ORD's assignment of responsibility for utilization of their findings and products as an additional, unwanted task. Laboratory staffs view utilization as requiring skills that they lack, and express the belief that their budgets and current staffing patterns are insufficient to accomplish the task.

The Committee is ambivalent about where the responsibility for utilization should best be located, but united in its view that the issue should be addressed in the planning stages of the laboratories. A decision to locate utilization responsibilities at the project level incorrectly assumes that the laboratories have a broad enough view of manpower problems and needs to determine where their products are likely to be of greatest utility. Assigning utilization responsibility to the laboratories would also reduce the amount of time staff have for their primary effort--research and development.

In the Committee's view, one of the initial steps in the utilization process should be an identification of potential users and an assessment of the user's needs. Determining the utilization potential of a given innovation should take into account the inherent difficulties in the utilization process. A major variable is the amount and kind of resources available within the organization seeking to adopt the innovation. There are occasions when the resources (i.e., time, money, people, and space) required for implementation and innovation become excessive. In other instances, incentives for the use

of the new techniques may be required. Practitioners may need to be shown how the adoption of an innovation is worthwhile, and they may require guidance in the use of the product in order to produce its intended effect.

The Committee notes that in behavioral science research directed at interventions into social processes, implementation of research-based innovations usually requires organizational supports. Utilization is more likely to occur when top-level policy and decision makers perceive a need for change, have participated in the design and conduct of the research, and have committed themselves to implementation of research results. These considerations do not appear to enter into the development of laboratory products. The potential for utilization becomes an issue as the products reach completion rather than in their developmental stages.

Past laboratory experience demonstrates that the amount of effort necessary for the production of utilizable materials can create a problem of timeliness. For example, how valuable is a coaching manual when little or no coaching is performed in manpower programs when the manual is made available to the public? Forecasting the needs of operating staff in manpower agencies is difficult, but the Committee believes that ORD should attempt to project these needs two or three years in advance. Often the tension produced by pressure to meet current needs and the ability of the laboratories to be responsive to them, while engaged in developing innovations of value for the future, is a source of conflict between ORD and the laboratories.

In the Committee's view, there is an increasing need for specially developed strategies and specific skills in order to achieve the effective utilization of R&D products. There is considerable agreement in the Committee

that it is necessary to involve potential users in the planning and operations of the laboratories. This can help to build relationships between the laboratories and users and enhance chances that innovative techniques and materials will be developed and eventually utilized. Given the tenacity with which people tend to hold on to familiar methods and techniques and the difficulty involved in gaining acceptance of innovations, experts in utilization may become a necessity. Planning for utilization requires a special set of skills. The Committee suggests that the utilization function might best reside with individuals who are aware of user needs.

E. ORD MANAGEMENT PROCEDURES

In its review of the way in which research ideas are generated at ORD, the Committee noted the difference between an active and a reactive stance. The agency funding R&D usually has a macro-view of the field and is in a position to forecast needs and initiate research in relation to them. It may do this in a reactive manner by supporting unsolicited research proposals. However, it may also play a strongly active role in soliciting research proposals or even designing research efforts. The laboratory, on the other hand, is in a position to take primarily an active stance by identifying the problems underlying the needs specified by the funding agency and providing an institutional structure for such research. The active role demonstrated by the laboratories enables ORD to set the pace and specify project objectives, methods, and management plans.

ORD project officers function both as aides in assisting prospective contractors with proposal development and as critics in reviewing proposals.

Procedures of this kind often result in the development of proposals that reflect thinking within ORD, but fail to stimulate independent thinking by the potential contractors. Also, when projects are up for refunding, project officers are asked to evaluate the project and the people with whom they have worked closely.

Utilization of outside assistance has been minimal at the ORD level. The Committee feels that systematic procedures for outside review of proposals and refunding decisions should be made clear and used more frequently. An ORD advisory committee could provide such a function. This body could assist the project officer in proposal review, assessment and monitoring of project activities, and provide independent judgments on funding-related matters.

Monitoring procedures within ORD seem to show the same ad hoc character. As of September 1973, 43 professional staff in ORD were engaged in project development and monitoring. The distribution of projects among them was uneven and appeared to lack a clear rationale. Some project officers were in charge of 15 or more projects in several content areas with a total value of $3 to $4 million, while others were handling only 3 or 4 projects with a total of less than $1 million.

The Committee sees the tasks of ORD project officers as including the following:

- Assisting prospective R&D contractors in developing proposals for projects which conform to the priorities outlined in the ORD funding plan;

- Negotiating the contract or grant which specifies the objectives of the project;
- Acting as a communication link between the project and the ORD managers concerning operational and programmatic concerns;
- Monitoring project activities to determine if they are on schedule;
- Serving as a central information source to funnel relevant information on manpower activities to the projects;
- Reading and commenting on the products developed by the project;
- Developing papers on significant manpower issues based on the work of ORD projects;
- Answering inquiries from members of Congress and DOL officials on what is available in the way of particular program techniques.

There is evidence that many project officers have had little or no training in management techniques and are not prepared to effectively monitor and control project development. They are often unable to maintain close contact with projects and seem only to be able to devote time to requests for budget modifications and other fiscal concerns. The maintenance of a carefully ORD monitored, time-defined relationship between laboratory performance and budgeted resources is the measure of managerial effectiveness. Concern for this relationship seems to be lacking in most ORD monitoring procedures.

Some monitoring problems may be consequences of the way contracts are written. Communication requirements may not be clearly stated in the contracts, and, when they are, ORD may not hold contractors to the reporting schedules.

In addition, there are times when project milestones may not be clearly identified in the contract. Ambiguous communication responsibilities, coupled with the limited time available for monitoring generally can further reduce effective project monitoring with ORD.

There does not appear to have been a systematic, continuing effort to assess what has been accomplished by the laboratories and how laboratory activities contribute to ORD's overall program plan. This lack may contribute to the less than clear mandates given to the laboratories. The development of more effective working relationships between projects and ORD staff, and the development of ORD's research priorities requires greater clarity in the articulation of ORD's goals for the laboratories and in its definition of research, development, dissemination, and utilization. A clearly formulated and enunciated program plan would greatly facilitate the specification of goals for individual projects. Aggregating the results of individual project assessment would shed some light on how far ORD has progressed in accomplishing its larger R&D objectives and would furnish valuable data for future program planning.

APPENDIX A

COMMITTEE PROCEDURES

As a first step in the work of the Committee, the Executive Secretary held a number of informal meetings with ORD Project Officers and Division Chiefs in which the procedural and substantive aspects of the Advisory Committee's task were discussed. As a result of both these meetings and a review of manpower training literature, a number of critical factors relating to manpower were identified, as well as critical legislation relevant to the Committee's task.

After reviewing laboratory products and ORD/laboratory contracts, the Executive Secretary made initial visits to each laboratory for the purpose of briefing its staff on the Committee's mandate and assessment procedures. Information booklets on each laboratory were developed and disseminated to the EMLABS Committee. They included staff site visit reports, ORD/laboratory contract agreements, listings of laboratory products, and brief historical summaries of the laboratories.

The Committee, at its first meeting, was presented with an overview of ORD and the EMLs by representatives from DOL. Laboratory Directors and Project Officers, on separate occasions, met with the Committee to provide brief descriptions of the activities and accomplishments of the individual laboratories.

Following Committee discussions concerning the evaluation criteria to be used in its assessment of the laboratories, a staff position paper was prepared in which six major areas were identified for assessment. These were:

1. Operational Objectives: The objectives of a laboratory operation were used as measures for assessing its outputs and effectiveness. Ideally, all parties involved in laboratory activities have the same understanding of these objectives and, therefore, define their goals in the same terms. Lack of ORD and laboratory agreement on project goals and objectives could have serious implications for their relationships, at the time of funding, and during program implementation. Lack of agreement within a laboratory itself may have serious consequences for progress toward accomplishing its mission. The Committee raised key questions about objectives such as clarity and congruence between formal vs. operational objectives.

2. Organizational Structure and Resources of the Laboratory: In the intra-organizational area, questions concerning management plan, organizational structure, and resources were raised. Of major importance were the larger institutional settings within which the laboratories have been located, and the organizational relationships which invited examination were those between the laboratories and ORD.

3. Self-Assessment Efforts by the Laboratories: The laboratories are required to review regularly their own R&D activities. This feedback loop is designed to establish and maintain an internal flow of information that could be used to improve future laboratory operation. The Committee determined whether self-assessment does, in fact, occur and what, if any, use is made of such data internally.

4. Communication Process: Communication was a central element in the assessment of the laboratories as R&D capabilities. The communication networks of concern were those existing between ORD and the laboratories, among the laboratories themselves, between the laboratories and the communities in which they operate, and between the laboratories and the users of their products. Effective communication networks were seen as critical for successful laboratory operations.

5. Quality of Laboratory Output: An important dimension of laboratory effectiveness is the quality of its products in the form of research results, manuals, and training programs. The Committee sought to determine whether the output made significant contributions to the specific content under study.

6. Utilization of Laboratory Output: ORD indicated that its R&D efforts were intended to develop innovations which, if valuable, could be utilized in operating programs. The utilization process was viewed from three points of view: the laboratory, the innovation, and the potential users.

The EMLABS Committee was then divided into six site-visit subcommittees. Subcommittee members and EMLABS staff reported the results of their visits to the full committee. As a result of these discussions a number of generalizable statements relating to the overall laboratory concept were identified. These statements were organized into five general categories: laboratory operational objectives, institutional arrangements of the laboratories, communication networks, utilization, and ORD management procedures. These categories, discussed in Chapter III, provided the basis for a staff position paper dealing with the format and content of the final report.

SUMMARY

COLORADO STATE UNIVERSITY EXPERIMENTAL MANPOWER LABORATORY

DENVER, COLORADO

FUNDING*

Contract Period	Duration	ORD Obligated Funds
10/68 to 3/70	18 months(a)	$ 460,081
4/70 to 9/71	17 months(b)	557,132
10/71 to 3/73	18 months(c)	569,244
	TOTAL	$ 1,586,457

*CSU/EML has been refunded by ORD/DOL

(a) Experimental Manpower Laboratory for applied programs in manpower development and job retention for exploring problems of job retention of disadvantaged.

(b) Planning for change through programs in manpower development.

(c) Social intervention systems: coach training, interview training, work experiment studies, classification system of disadvantaged.

LABORATORY OBJECTIVE

Develop and test experimental procedures for improving the work adjustment of disadvantaged minorities and evaluate the relative impact of various types of intervention systems.

PUBLICATIONS

The following is a sample of reports and manuals produced by the Colorado laboratory during the period October, 1968 to March, 1973.

Reports

Evaluation of coaching
Systematic classification of vocational disadvantage

Behavior modification in the job interview using video feedback
The work environment and disadvantagement
Self-concept and the economically disadvantaged
A study of coach-client interaction
Technical consultation and services to Denver manpower agencies

Manuals

A manual for job coaches
A job interview training program
Supervising coaches in manpower programs
Research manual of the manpower laboratory

EXPERIMENTAL MANPOWER LABORATORY FOR CORRECTIONS

ELMORE, ALABAMA

FUNDING*

Contract Period	Duration	ORD Obligated Funds	
9/68 to 2/70	Phase I 18 months[a]	$ 576,000	(Additional funds were received from NIMH and HEW-MDTA Training)
3/70 to 8/71	Phase II 18 months[b]	642,629	(Additional funds were received from HEW-MDTA Training)
9/71 to 2/73	Phase III 18 months[c]	600,000	
	TOTAL	$ 1,818,629	

*EMLC has been refunded by ORD/DOL

(a) Phase I: EMLC's work included four main projects: Community Environmental Support, Employment Barriers, Labor Mobility Assistance, and Prison Environment.

(b) Phase II: Major EMLC activities were: Manpower Development and Training, Contingency Management, Correctional Officer Training, Token Economy, and Follow-up.

(c) Five major projects were in operation during this phase: Contingency Management, Correctional Officer Training, An Ecological Experiment in Corrections, Post-release MDT-EMLC Follow-up, and Analysis of Recidivism.

LABORATORY OBJECTIVE

Study the influence of the correctional institution upon incarcerated offenders, and develop and evaluate institutionally derived intervention programs that will help keep the released offender fully employed and capable of taking advantage of free-world support systems relevant to his work adjustment.

PUBLICATIONS

The following is a sample listing of publications, which evolved from EMLC's work during September, 1968 to February, 1973.

Experimental Manpower Laboratory Study Findings

Clayton, P.W., Schutz, N.W., & Gwozdecki, J. Barriers to the employment of released male offenders. March, 1970.

The Foundation and Its Projects

Milan, M.A. An ecological experiment in corrections: a programmed environment for behavior modification. January, 1971.

McKee, John M. The application of behavior theory to correctional practice. October, 1971.

Corrections

McKee, John M. New directions in corrections. October, 1971.

Educational Technology

Seay, D.M. The roles of the teacher for the effective use of programmed instruction in a correctional setting. The Journal of Correctional Education, 1968, 20 (1).

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Counseling and Education

McKee, J.M. Materials and technology of adult basic education for corrections. NSPI Journal, 1971, X (5).

Individualized Instruction

Individually Prescribed Instructional (IPI) System for delivery of adult basic education skills. 1971.

Measurement and Evaluation

Jenkins, W.O. The role of environment deprivation in criminal behavior: a manual for the use of the Environment Deprivation Scale (EDS).

UNIVERSITY OF MICHIGAN EXPERIMENTAL MANPOWER LABORATORY

ANN ARBOR, MICHIGAN

FUNDING*

Contract Period	Duration	ORD Obligated Funds
7/69 to 6/70	Phase I 12 Months	$ 236,222
7/70 to 9/72	Phase II 15 Months	391,491
	TOTAL	$ 627,713

*University of Michigan EML is no longer funded by ORD/DOL.

LABORATORY OBJECTIVES

The overall objectives for the Experimental Manpower Laboratory were: to establish a university-based program with useful ties to existing manpower development programs to explore ways of bridging gaps between current scientific knowledge and ongoing practices in manpower programs; and working out systems for manpower agency and private employer utilization of innovative manpower development strategies and techniques, so that disadvantaged groups can be better defined and subsequently better served.

Specific objectives were: to develop the logic and mechanics of manpower agency self-retrieval of information and practice routines from its own operations; promote analytical self-examination of this information by agency personnel with particular emphases on how their practices compare with that of other agencies; and develop information exchange mechanisms among agencies with particular emphasis on receptivity to innovative practices by different kinds of agencies.

PUBLICATIONS

The following are products produced by the Michigan laboratory during its funding period July, 1969 to September, 1972.

Phase I resulted in a series of handbooks and manuals that were developed from retrieved agency experiences.

Erfurt, John C. A compendium of information relevant to manpower agencies.

Erfurt, J.C. Handbook of information relevant to manpower agencies.

Ferman, L.A. and Manela, R. Agency-company relationships in manpower operations for the hard-to-employ.

Gordon, J.E. and Erfurt, J.C. Placement and after: a manual for coaches and other employment workers.

Phase II resulted in the following document:

Ferman, L. and Erfurt, J.C. Overview of the experiences of the ILIR manpower laboratory. The development of a model approach to the retrieval, dissemination, and utilization of information on manpower operations.

MOBILIZATION FOR YOUTH EXPERIMENTAL MANPOWER LABORATORY

NEW YORK, NEW YORK

FUNDING*

Contract Period	Duration	ORD Obligated Funds
12/68 to 12/69	12 Months	$ 770,756
12/69 to 12/70	12 Months	795,000
12/70 to 12/71	12 Months	799,950
12/71 to 12/72	12 Months	829,075
	TOTAL	$ 3,194,781

*MFY/EML has been refunded by ORD/DOL at a reduced budget. MFY/EML has also received funds from the Neighborhood Youth Corps.

LABORATORY OBJECTIVES

To develop and evaluate innovative programmatic strategies, guidelines, and operational models for enhancing the meaningfulness, gainfulness, and stability of employment for the hard-to-employ, primarily disadvantaged urban youth, for infusion into current and future manpower programs.

MFY/EML has been primarily concerned with three types of program development strategies for upgrading the employability of the hardcore disadvantaged: (1) technical innovations and refinements; (2) refining and optimizing the cost-efficiency of existent public and private manpower development programs; and (3) developing new and/or improved training-employment models for private industry to utilize in accommodating the hardcore.

PUBLICATIONS

The following is a sample listing of publications which evolved from MFY/EML's work.

The Manpower Monograph Series on Disadvantaged Youth

Integrating remedial education into Neighborhood Youth Corps supervisors, 1968-70.

New directions in the vocational evaluation of Neighborhood Youth Corps trainees, 1968-70.

The Manpower Monograph Series on Disadvantaged Youth: Optimizing the Potential of NYC-2

Using government agencies for training the disadvantaged for employment in the public sectors, 1970-72.

Operating a public service business as a Neighborhood Youth Corps training site, 1970-72.

Coping with over-enrollment problems in a manpower training program, 1970-72.

Guidelines in the utilization of training incentives, 1970, 1972.

Program & Staff Training Manuals

Pre-planned training system: training the hardcore unemployed in job-required behavioral skills, 1968-70.

The work sample: reality-based assessment of vocational potential, 1968-70.

Training the hard-to-employ in job required behavioral skills: group counseling materials, 1970-72.

Identifying on-the-job behavioral manifestations of drug abuse: a guide for work supervisors, 1970-72.

Reports on Special Projects

Industrial guidelines for undertaking a hardcore employment program: an analytical case study of the experiences of an urban industrial organization, 1968-70.

New approaches to work sample utilization, 1970-72.

Teaching job-required behaviors via the systematic use of prescribed group counseling interventions: the program and its operational feasibility, 1970-72.

Field Experiments in Manpower Issues

The reward preferences of Neighborhood Youth Corps trainees: necessities vs. luxuries, 1970-72.

NORTH CAROLINA MANPOWER DEVELOPMENT CORPORATION

CHAPEL HILL, NORTH CAROLINA

FUNDING*

Contract Period	Duration	ORD Obligated Funds
2/69 to 6/70	16 Months	$ 112,086
7/69 to 12/71	29 Months	403,700
7/71 to 6/73	24 Months	827,240
	TOTAL	$ 1,343,026

*NCMDC has been refunded by ORD/DOL. NCMDC has received additional funds from a variety of other sources such as OEO, HEW, other DOL offices, private foundations, and the state of North Carolina.

PROJECT OBJECTIVES

(1) To stimulate the further spread of manpower programming throughout the Community College system;

(2) To assist the State Manpower Council in the development of a system of manpower services for North Carolina;

(3) To help prepare the Employment Security Commission for its expanding role in the manpower process;

(4) To encourage industry to greater efforts not only in the training and upgrading of the work force, but also in the educational and social processes that bear upon the underproductive worker;

(5) To serve NCMDC's primary sponsor, DOL, as a center of demonstration, information and analysis in the manpower field.

PUBLICATIONS

The following is a sample listing of NCMDC publications.

Elements of a human resource development curriculum. April, 1969 Manual.

A handbook for the training of outreach and recruitment staff for manpower programs. December, 1969. Handbook.

A demonstration for the establishment of in-plant training with industry in North Carolina. (Final report to the Manpower Administration, USDL; Contract No. 82-35-69-29). September, 1970.

Relocating the extremely poor from rural to urban areas; problems and prospects. August, 1968. Report.

North Carolina mobility project: final report, 1969-70. (Supplemental report on USDL mobility Contract No. 87-35-68-06 for the period September 1, 1969 - September 30, 1970). January 1972.

Demonstration of manpower development centers in North Carolina communities. (Final report to the Manpower Administration, USDL, and the Department of HEW: Contract Nos. MPRD 82-35-70-01 and OEC-0-9-43001-4642[335]). July, 1972. 2 Vols.

A ten-week curricular guidebook in human resource development. December, 1970.

Human resource development theory as presently practiced by MDC: the state of the art. March, 1971. Report.

A demonstration for the establishment of in-plant training with industry in North Carolina. (Final report to the Manpower Administration, USDL; Contract No. 82-35-69-29). September, 1970. Report.

A compilation of participant reactions to the management awareness program. March, 1969 - August, 1972. Report.

Instructor's manual, management awareness program: a training program aimed at more effective supervision of disadvantaged employees. April, 1970; revised January, 1972, and August, 1972.

1971 Final report of the North Carolina rural concentrated employment program. October, 1971.

Management awareness program: an overview of a training course for supervisors of disadvantaged or minority group employees. August, 1972.

Background information paper: management awareness program. Prepared for ORD-DOL. September, 1972.

Background information paper: developmental aid to N.C. employment service. Prepared for ORD-DOL. September, 1972.

An overview of the interviewer awareness program. July, 1972.

North Carolina mobility project: final report, 1972. January, 1973.

TRAINING AND TECHNOLOGY

OAK RIDGE, TENNESSEE

FUNDING*

Contract Period	Duration	ORD Obligated Funds	Industrial Skills and Technical Training (Title I and II) Including subsistence allowance
3/65 to 10/66	20 Months[a]	$ 87,000	
10/66 to 12/68	26 Months[b]	302,758	$ 1,654,758 (Additional funds were received from USOE)
1/69 to 12/71	36 Months[c]	647,722	1,143,381 (Additional funds were received from AEC, Appalachian Regional Commission and CEP's)
1/72 to 12/72	12 Months[d]	544,800	1,422,000 (Additional funds were received from AEC and CEP's)
	TOTAL	$ 1,582,280	

*TAT has been refunded by ORD/DOL.

(a) A Resource Study for Southern Manpower Development

(b) Action Research in Training for Vocational-Technical Teachers and the Unemployed Worker

(c) Development and testing of a Model Industrial/Education Partnership to Provide the Disadvantaged with Quality Training for Quality Jobs

(d) Oak Ridge Associated Universities Manpower Development Program of Industrial Skill and Technical Training, and Manpower Research and Development

PROJECT OBJECTIVES

(1) Continue efforts to involve the Atomic Energy Commission contractors in the application of manpower development and training findings of earlier AEC/DOL projects;

(2) Make an analytical assessment of the E&D projects conducted by AEC at Oak Ridge in the field of worker training and manpower development for consideration of issues and new pathways for wider utilization of the findings;

(3) Establish an effective experimentation activity to provide operational flexibility, professional talent, and management skills capable of accomplishing a wide variety of needed manpower development work in a large industrial setting.

PUBLICATIONS

The following is a sample listing of publications that evolved from TAT's work:

TAT worker training curriculum, 1967-68, 1969.

Recruitment 1967-68, worker training program, 1967.

Organized labor's participation in a training experiment, 1968.

Analysis of TAT dropouts, 1967.

Final report, the training and technology project experiment research program for vocational-technical teachers, 1968.

Training and technology, a demonstration manpower project, worker training program, Phase I, final report to the Department of Labor, 1970.

Developing technical skills for black trainees in a worker training program, 1970.

Development of human potential, 1969 annual report to Department of Labor, 1970.

The effects of a manpower training program on the personal lives of its graduates, 1970.

General Education Development (GED) program at Training and Technology, 1970.

Preparing rural Appalachians for skilled and technical jobs: a regional approach, 1971.

Technical training for the disadvantaged, 1969.

University participation in manpower training through manpower research activities, 1972.

Manpower research visibility in American Vocational Journal, 1972.

Training and Technology: an industrial/education partnership for industrial manpower development, 1972.

APPENDIX C

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