DOCUMENT RESUME

ED 083 475   CE 000 534

AUTHOR   Klein, Lawrence R.
TITLE   Expanding the Benefits of Manpower Research. Final
                Report.
INSTITUTION   Arizona Univ., Tucson. Coll. of Business and Public
                Administration.
SPONS AGENCY   Manpower Administration (DOL), Washington, D.C.
                Office of Research and Development.
REPORT NO   DLMA-82-04-71-27
PUB DATE   31 Aug 73
NOTE   50p.
AVAILABLE FROM Office of Research and Development, Manpower
                Administration, U.S. Department of Labor, Washington,
                DC 20210 (Single copies free, subject to limits of
                supply)

EDRS PRICE   MF-$0.65 HC-$3.29
DESCRIPTORS   Economic Factors; *Economic Research; *Education;
                *Graduate Students; Manpower Development; Objectives;
                *Program Planning; Reports; Research; *Student
                Employment; Universities; Writing
IDENTIFIERS   Manpower Research

ABSTRACT
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research to facilitate maximum use of the findings; and (3) practical
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writing and analysis in their reports. (Author)

EXPANDING THE BENEFITS

OF MANPOWER RESEARCH

Final Report of the Project Director

for Manpower Administration Project 82-04-71-27

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College of Business and Public Administration

Tucson, Airzona

BIBLIOGRAPHIC DATA SHEET	1. Report No. 82-04-71-27 (1)	2.	3. Recipient's Accession No.
4. Title and Subtitle Expanding the Benefits of Manpower Research: Final Report of the Project Director for Manpower Administration Project 82-04-71-27			**5. Report Date** September 1973
			6.
7. Author(s) Lawrence R. Klein			**8. Performing Organization Rept. No.**
9. Performing Organization Name and Address College of Business and Public Administration University of Arizona Tucson, Arizona 85721			**10. Project/Task/Work Unit No.**
			11. Contract/Grant No. 82-04-71-27
12. Sponsoring Organization Name and Address Office of Research and Development Manpower Administration U. S. Department of Labor Washington, D. C. 20210			**13. Type of Report & Period Covered** Final - July 1971 to
			14. September 1973
15. Supplementary Notes			

16. Abstracts

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17. Key Words and Document Analysis. 17c. Descriptors

Economic analysis
Education
Mathematical models
Universities

17b. Identifiers/Open-Ended Terms

Social Sciences Report Writing
Manpower research reports
Graduate student employment

17c. COSATI Field/Group 5 A

18. Availability Statement Single copies free from sponsor, subject to limits of supply.	**19. Security Class (This Report)** UNCLASSIFIED	**21. No. of Pages** 48
	20. Security Class (This Page) UNCLASSIFIED	**22. Price**

CONTENTS

PREFACE

Contract 82-04-71-27, A Project to Expand the Benefits of Manpower Research, calls for a two-purpose final report by the project director. One purpose is to assess the methods employed on the project as devices "for raising the standards of analysis and writing among graduate students in the social sciences" so that universities may "adapt the plan to their own setting." This evaluation is carried out in considerable detail in Part I of the report.

The second assignment enjoins the project director to develop "materials which the Manpower Administration could use in a concerted effort to improve the quality and usefulness of Manpower research reports. . . ." Specifically, "a set of research guidelines" were to be developed, based on analysis and evaluation of those reports which came under the purview of the project. These guidelines were to "point out what appear to be common faults in the approach and execution of manpower research and suggest methods that would facilitate. . . maximum usability for administrative and policy purposes." They constitute Parts II and III.

Although the final report was to be "an integral and major part of the project," it is really a by-product of the substance of the work. What the project was concerned with was the adaptation of Manpower Administration-sponsored research to use by specialized groups. This was attempted through an interdisciplinary group of advanced graduate students in the social sciences. How they functioned and with how much success points again to Part I.

Although several score Manpower studies were examined during the 2 years of the project, they constituted only a small segment of all the published research of the Manpower Administration. They were selected because of their subject relevance to a given writing assignment, not because they were representative of "good" or "bad" research or analysis. But among the assortment there were enough symptoms of problems to warrant some proposals in Part II that might enhance the administration of research. The Guide that makes up Part III doubtless sounds elementary and perhaps gratuitous to competent and experienced researchers. But errors of commission and scholarly gaucheries were discovered in sufficient numbers to justify the abecedarian character of the Guide. The rules are offered in the spirit of helpfulness, and although they come in an assortment of shoe sizes, I am sure that there will be many who will find them a poor fit. Naturally, they need not wear them. To the others, wear them in good communicative health.

I am grateful to three of the project's graduate research associates—— Barry Painton, David Shaw, and Marilyn Spencer——for suggestions that contributed to the final report. I am especially grateful to Susan Ghozeil for drafting assistance on Parts II and III and for editing the report as a whole.

Lawrence R. Klein, Project Director
Visiting Professor of Economics
University of Arizona

August 31, 1973

FINAL REPORT ON PROJECT TO EXPAND

THE BENEFITS OF MANPOWER RESEARCH

Part I. The Feasibility of the Project

This project demonstrated that it is possible for an interdisciplinary group of graduate students, working under proper direction, "to expand the benefits" of research supported by the Manpower Administration. The project further demonstrated that such activity, leaning on the experience of its 2 years, can have a continuing usefulness. These statements hold true irrespective of the overall degree of success achieved on individual items produced by the experimental group that operated at the University of Arizona.

Assumptions of the Project

The term "experimental" is a key word in any evaluation of the project. The venture was unique. What it attempted was to take an assortment of Manpower research studies that collectively impinged on practically all of the many disciplines of the social sciences and rework them in various ways for the practical benefit of specific users. It was prompted in part by recognition that a good deal of academic research lies fallow because it is not presented in forms understandable by those who could well make practical application of the findings. In planning the project it was reasoned that professional writers would not be satisfactory for this kind of venture because they would not be conversant with the subject matter and could not interpret the complicated mathematical models which formed the basis for many of the conclusions of the research; moreover, their engagement for such work would be prohibitively expensive. Consequently, a different type of writer-analyst was sought.

If amongst advanced social science graduate students at a university center a team could be recruited whose members had some conversance with economics and possessed writing and analytical ability above the norm for such students, and if the team could be directed by a labor economist with considerable editorial experience, a pioneering shot at the project might be worthwhile. It was prescribed that the graduate students be from mixed disciplines from which the subject matter of Manpower Administration research derives.

Certain generalizations were made in the project proposal regarding the qualities to be sought in the student group: "The research group will have demonstrated talents in analytical report writing, data presentation, and imaginative approaches to research. For maximum effectiveness, every effort will be made to include representatives from economics, sociology, public administration, and industrial psychology. At least one member will be a mathematical statistician. . . ." These were sound enough requirements, even though in some respects the combinations of talents could not be found. It was easy to achieve a good disciplinary mix. But to find proper mixes of sound analytical writing ability, research imagination, and skill in data presentation was not uniformly possible so far as the graduate students who applied for work on the project were concerned.

How the Applicants were Chosen

There were seven graduate students (five men and two women) chosen at the outset of the work--three economists, two anthropologists, a political scientist, and a psychologist. In background and on the basis of tests they were the best qualified of the 21 applicants. Recruitment had consisted of conferences with department heads and others in the economics, finance, sociology, government,

anthropology, psychology, and journalism departments, at which the purpose and methods of the project were described. All were enthusiastic over the need for and the objectives of the project as well as the exceptionally good opportunity for valuable training for the students. In addition to the conferences, written notices were circulated and an announcement prepared to be given to all social science graduate students registering for the fall term. Maximum pay allowed to graduate students on the University scale of rates was offered to help assure competitive attraction of the best available candidates (few departments offer the maximum).

A rather formal set of criteria was used in selecting the candidates. Strong endorsement by the department head was required. He was questioned especially about the academic proficiency of the applicant, his analytical ability, his group-work potential, and maturity. (It turned out that some discounting of departmental recommendations is necessary.) The applicant himself was subjected to an in-depth interview by the project director, exploring his academic background, work experience, reading habits, conversance with sta- tistics, and interest in general social problems and the objectives of the project. Each candidate was required to submit at least one writing sample that would demonstrate research standards and handling of data. An important element in the evaluation was a practical test. Identical manuscripts were given to each applicant with the option of accepting or rejecting it for a hypothetical journal. If rejected, a 500-word letter to the author was to be written explaining why; if accepted, a thorough editing of the paper was to be completed. In retrospect, the test was not well devised, although it so happened that all appointed candidates properly rejected the manuscript. Each

student was scored on each of these elements of the total selection process, with selectees' scores ranging from 245 to 280 out of a possible 300.

Organization of the Work

The first formal meeting of the project group, headquartered in the College of Business and Public Administration, was held in mid-September, 1971. Each member had been hired to work one-third time (13 hours). For the second year of the project, the number of graduate students employed was reduced to four and the hours increased to 30 (three-quarter time). For the last 6 months there were only three students. A full-time secretary-staff assistant was employed for the duration of the project.

An important consideration for a successful project is the adequacy of physical accouterments. For optimum efficiency, office space must be sufficient to accommodate no more than two students per office. Single-person offices, on the other hand, are not satisfactory because they inhibit the opportunity for consultation. If personal compatibility can be assured, office mates should be from different disciplines. The project director must have an office in close proximity to the staff and the secretary-administrative assistant. A conference room for frequent staff meetings is essential. Among office supplies and equipment there must be ample book shelving and locked files. Each worker must have a typewriter. Light and quiet are crucial environmental requirements because the work entails great concentration and creative effort.

Work hours themselves must be flexible for individuals, because of varying class schedules by the graduate students. But mixed as they are, there must be constancy so that conferences and meetings can be held with regularity. "

Initially it was planned for the group to work exclusively in teams of two on a given assignment, with each member of the group reading the research studies assigned to all teams so that group discussion could take place on all products, based on first-hand knowledge of the studies being worked on. As should have been anticipated, such a procedure proved to be self-defeating once the studies began pouring in, and the effort was abandoned. Instead, the team approach was retained through the first year, but individuals read only the documents assigned to them for treatment. However, the entire group would engage in oral and written critiques of the drafts prepared by teams or individuals, judging the drafts for their clarity, cohesion, and conformance to the stated objective. Such critiques, plus the searching reviews of all manuscripts by Mrs. Mary Bedell of the Manpower Administration, were very helpful. Especially during the second half of the contract period, a camaraderie and rapport had developed among the students that enhanced their working together and encouraged informal cooperation in handling assignments. Moreover, they had acquired respect for each other's academic specialties.

Work discipline, except in the case of one individual, was good. Employees worked the stipulated schedules, and, without request or fanfare, into overtime. The latter effort was particularly noticeable following criticisms of their work by the Manpower Administration, which they felt keenly, and at times they hotly challenged the relevancy or accuracy of the criticisms, but not often with merit.

As publications were received from the Manpower Administration, assignments were made and an outline prepared of the proposed monograph, article, or summary.

First drafts were read by all members of the group and each was discussed in a meeting. A rewrite was completed and the new draft edited by the project director and, if deemed necessary, reviewed in a second meeting. Subsequent drafts (sometimes four or five) were prepared. A final revision was made based on a fact check by the author with a group member and on editing within the Manpower Administration. Efforts (not always successful) were made to fashion the manuscript to usefulness for the particular group for whom the finished product was intended. This group was not always clearly defined when the documents were being worked on, and on occasion the purpose of the manuscript the project group had produced was changed.

In a sense, the entire operation was different from that of any other project financed by the Manpower Administration. The group really functioned as an extension of the Manpower Administration staff rather than as a subsidized independent research project. Despite this special relationship, the group always felt the need for more thorough briefing on manpower policy and program objectives and the relation of study selections for the writing group to those goals. A thorough discussion concerning the intended user of the adaptation of a given study, for example, would have been of inestimable help in setting the level and tone of the manuscript. There was often a fuzziness about the user. In a related problem, there was sometimes a negative evaluation on the part of the project group of the study chosen by the Manpower Administration for work by the group. Joint selection, or right of refusal by the project director, would materially aid in the production of a usable product.

What Was Accomplished

The accompanying list recounts the 43 manuscripts submitted to the Manpower Administration during the life of the project. Ultimate use of the items is not

indicated because placement or distribution was handled by the Administration, six or seven were considered unusable for various reasons, and the ultimate fate of others is unknown. There certainly was less than complete success on the part of the project group. Much of the first year's work was not satisfactorily completed until the second year, but the quality of the output improved during the second year, especially in the second half. Productivity also improved in the second year. It took the project group an inordinately long time to develop flexible and satisfactory writing skills, accuracy, and a sense for extracting the essence of a research document's findings. The patience for painstaking fact-checks was acquired only in the later stages of the project and after embarrassing errors were disclosed in the Manpower Administration review. Shame is a powerful teacher.

Given the good will and hard work of the graduate associates and the reasonably good working conditions under which the Arizona project operated, a legitimate question arises over why the product of the experiment was not better. Reduced to generalities, the reasons were inability to understand or apply standard operating procedures for fact checking, lack of literary skill that prevented the reconstitution of academic studies into simple, jargon-free, pleasant prose, and the peculiar circumstances at the University and in the College of Business and Public Administration that made expert on-campus consultation almost impossible to obtain.

There were specific contingencies that are characteristic of all working staff situations, but nonetheless seemingly difficult to cope with. In the first year, turnover was high, and among the losses was the only econometrician on the staff along with the best writing stylist, both during the first half year. It was not possible to find a suitable mathematical statistician until

the second half of the second year, and another facile, engaging writer was never discovered. Because of the turnover, assignments keyed to individual talents were difficult.

More fundamental to success are the role and proficiency of the project director. And of course the responsibility and the blame for any degree of failure must rest with him. In an operation of this type the project director is executive, consultant, teacher, editor, critic, father confessor, disciplinarian, and friend. He also must try to be familiar with the contents of all the studies on which the project group works. While these duties are not really onerous, they are time-consuming and sometimes exhausting.

The task of the Manpower Administration in locating a project director who, in addition to the ancillary duties noted above, combines the talents of an editor-writer with those of a superbly trained mathematical statistician familiar with manpower problems and policies is probably impossible of achievement. In the Arizona project the difficulty was thrown into bold relief.

But no matter in what degree a project director can be the desired jack-of-all-specialties, he cannot and should not be expected to rewrite the drafts of his subordinates. He can describe what a given assignment requires, he can illustrate with sample paragraphs, he can demonstrate what fact-checking entails, he can stress the need to achieve a given level of simplicity, he can instruct as to what the significance of a given study is, he can insist on redrafts; but he cannot do these things for his staff, or he will be mired in a mass of detail.

A possible solution is to divide leadership, with an econometrician as director and a brilliant stylist as assistant (or vice versa). With such a mix, talent could be concentrated on the two chief essentials for project success: interpretation and factual accuracy coupled with easy-flow writing that would overcome the consummate dullness and academic formalism that often characterized the writing during the experimental project.

Which kind of director best meets the project objectives, the Manpower Administration must decide. Perhaps both types are needed.

Nevertheless, there were positive accomplishments. Some of the output was published and appeared to be useful. The first dissertation monograph (containing 13 abstracts and an introductory essay) ultimately became a rather creditable document. The monograph on mechanical harvesting distilled the essence of more than a score of research studies and reached sensible conclusions that enable people to learn about the research in that field, pointing convincingly in the direction of what research remains to be done. A similar type of monograph exploring problems and research in health occupations has proved its usefulness.

Yet the practicality of "state of the art" monographs is doubtful; there is always the thirsty desire to add one more title or to update material, and there is a finite limit to the ability of part-time students to cover the significant literature of a given field. The dissertation monographs, which abstracted a number of theses supported by Manpower Administration grants, could be interesting and useful if the dissertations selected were less exercises in methodological gymnastics and more germane to social problems and

their solution. The most promising document for exploitation is the individual study that can be converted readily to popular article, news release, or other adaptation for a lay readership.

A by-product of the project is a set of guidelines for manpower researchers, based on observation by the project group of the methods, analyses, and caliber of writing employed in the many published research reports reviewed during the course of the project. The objective was to give advice that will improve the quality and usefulness of Manpower research reports. Part III of this report comprises the guidelines.

An especially salutary benefit of the project was the unusual experience provided to the 10 graduate students who at various times performed the work. They had an opportunity to read and rework the research studies of scores of scholars, some of whom enjoy considerable professional reputations. In the process, the students could apply the theoretical training they had in their several disciplines in a cooperative effort. They also, by dint of trial and many errors, learned to read and critically appraise research, and in some instances to write reasonably jargonless and coherent analytical prose for various types of readers. They developed an understanding and feeling for manpower problems, and two students will do dissertations on manpower-related subjects as a result of interest generated during work on the project. They will be better researchers, teachers, and critics as a result of their experience.

The greatest benefit that accures from the project is the blueprint for success that can be drawn from the experience and mistakes of this first venture. It is the conviction of the project director, as vouched at the outset, that under proper circumstances and surroundings the general objectives of the project can be met, using the basic assumptions which underlay the experiment at the University of Arizona.

Admonitions

To facilitate success in the event of another go-around, the following suggestions are offered:

1. The project if attached to a university should operate in an atmosphere congenial to manpower research and in which manpower is recognized as a discipline.

2. It is not necessary that the project be operated through a university, but it should be in proximity to one for library and consultation facilities. There are advantages in having an extramural status. It would cost less: the services rendered by the University of Arizona, including rent, at a cost of about $48,000 for the 26 months, could have been obtained privately for about one-third the amount. It would permit greater flexibility of hours worked by graduate students. It would enable payment of a larger salary to the students, thus encouraging sustained work quality and maximum productivity as well as absolute preference for the project among potential applicants.

3. Greater care than was exercised during the initial hiring should be taken in evaluating background and personality problems and symptoms of incompatibility among the graduate students. As it turned out, the best writer among the first seven students hired had to be separated because of frequent absenteeism caused by personal habits. Another had to be separated because of

inability to work harmoniously with others. A third left for similar reasons. More astute questioning of the candidates as to the number and kind of job changes and past experience in working with people of differing backgrounds, as well as more skepticism concerning the recommendations of faculty sponsors, would probably have avoided some of the turnover.

4. The success of the project rests on popularization of material. Therefore, a search for students with writing ability per se is necessary. At least one person in the group should possess style in a literary sense and be used largely for rewrite purposes. To this end a thorough exploration of English and Journalism graduate-student possibilities suggests itself. Writing tests designed to reveal qualities of style and precis-writing proficiency should be taken by all applicants, and given as much weight in selection as academic training in their disciplines. Patently, if a student cannot write interestingly and adapt style to reader use, the purpose of the project is more difficult of achievement if not lost entirely.

5. Students should be hired on the basis of a 2-year commitment to the project to allow for thorough indoctrination in methods and policy and to maintain maximum productivity for a cost-beneficial period. The pressure on the graduate student could be relieved somewhat, if the 2-year commitment proves onerous, by arranging the work as an internship with academic credit accorded. Given the vagaries of graduate student life, an escape clause for director and student after 6 months might be arranged.

6. The team approach should not be attempted as a writing technique, although it appeared to work in evaluations and critiques. Generally, students work better as individuals in writing endeavors, although they work well as willing and cooperative collaborators in consultations and evaluations.

7. If the project director works without an assistant, no more than four students should be hired. Even with an assistant director the number should be limited to seven, and the assistant should be an experienced faculty member in the manpower field. Student hours worked should be no less than 30 per week.

8. Field visits by the group to local and State manpower and planning offices would help materially in learning the realities of operational and policy needs at the working level and would provide a gauge for measuring the effectiveness of the output of the project. Unless members of the project can visit local manpower administrators and discuss with them their problems and their possible use of manpower research in the solution of them, including the form in which the findings of research can best be presented for their needs, the project operates pretty much in the dark. In pursuit of this special knowledge, persons working on the project can better understand and maintain the sensitive balance between manpower policy and the relation of research to real-world application.

9. To succeed, the project staff must have thorough and regular briefings by appropriate staff members of the Manpower Administration, covering policy, objectives of the output of the project, the user group to whom the publications of the project are directed, and the reasons governing the selection of material for the project. This type of briefing implies that the policy implications of the studies forming the raw material of the project should be drawn even if the original researchers failed to do so.

10. The success of the work would stand a better chance if the project assumed responsibility for placement of the finished manuscript. It is patently true that aiming for the appropriate reader can be truer and more realistic, and the medium of conveyance sought with greater zeal and found more readily, if the project operatives complete all aspects of the work.

Part II. To Improve the Quality and Usefulness of Manpower Research Reports

Manpower Research: Strengths and Weaknesses

Manpower research, as funded under Title I of the Manpower Development and Training Act (MDTA) of 1962, is intended "to provide information which will lead to the development of informed and responsible manpower policies and programs." As Mangum noted in a state-of-the-art review of manpower policy research, the Office of Manpower Research and Development has gone far toward realizing this aim:

> . . .Research products are plowed for insights of policy signifi-
> cance. Strategies are explored for "social engineering" approaches
> to implementation. Similar results can be identified in the research
> efforts of other agencies, but rarely with such coherence and
> consistency. . . . (Mangum, p. 112)

It is to the Manpower Administration's credit that MDTA has attracted serious social scientists to do research on "those activities having to do with the utilization of human beings as an economic resource or the role of employment as a source of income and status to human beings. . . ." (Mangum, p. 62)

The work of these researchers has done much to debunk a number of prevalent myths about manpower—first, about the importance of technological displacement as a cause of unemployment; more recently, about the effect training or relocation outside the ghetto will have on the employment prospects of members of racial minorities.

However, some of the Manpower Research projects and project reports that came under the purview of the project have shortcomings which reduce their usefulness as tools for policymaking and program development. The following observations flow from the experience of the 2-year Arizona project on expanding the benefits of completed manpower research products.

Selection of Studies. The project reviewed studies in a limited number of areas--labor market experience, training, medical manpower, labor effects of mechanical harvesting, and selected doctoral dissertation topics. Consequently, the observations that follow are generalizations based on a limited number of studies in the subjects mentioned. From the studies reviewed, however, project participants gained the impression that the body of Manpower research does not form a cohesive unit. Despite a number of repeated themes, studies cf different researchers do not really build on each other over the years. It was rare during the course of the project to encounter a study that took up the findings of a previous study and continued the investigation, to fill in specific gaps in information, or to transfer procedures to a new situation, giving depth and breadth to the earlier results.

A cumulative research effort would permit confirmation (or contradiction) of individual findings through repeated study, and might ultimately permit researchers to examine all major facets of important selected problems in the manpower field. Without such an effort, the findings of single studies can only be patched together to approximate a whole. When many elements differ across projects dealing with the same problems, it is difficult to determine whether discrepancies in findings reflect only differences in sample population and research procedures or shed new light on the theoretical conception.

A second problem encountered is related to project selection: Some of the studies reviewed--particularly dissertations--were on topics of Manpower concern but, because of the specific avenues pursued, their immediate use to policymakers is doubtful (e.g., dissertations by Flanagan, Hansen, Mott, Rosenquist). One researcher (Kim) even stated "The purpose of this study has

been to enhance our knowledge of the forces affecting married women's labor force participation. The purpose was not primarily to derive any immediate policy implications from the study."

Research Techniques. Weaknesses of research technique are treated in some detail in Part III, Guidelines for Manpower Researchers. The major shortcomings encountered were:

(1) Use of inappropriate research techniques. This is failure to make use of interdisciplinary techniques which could have yielded more or more useful information on the topic at hand. Researchers tend to use the techniques of their own discipline, rather than search in related social sciences for procedures more suited to finding the kinds of answers they seek. For example, Reischauer tried to derive information on Southern counties' welfare administration procedures, and migrants' information about certain cities, from census-type data. A sociological or anthropological approach, using survey techniques or intensive interviews might have proved more useful.

(2) Unsuitability of data. The previous item is involved here, in that unsuitable data may result from use of an inappropriate data-gathering technique. A common failing is to substitute more readily available data for information on a variable in a hypothesized relationship, without considering the implications of this substitution (e.g., Reischauer, Stebbins). Another problem concerns choice of sample size (King, Rosenquist, Lerman). Some experimental studies are done with so few subjects (perhaps only four or five per "treatment") that the extent to which one can generalize from the findings must be questioned. The other extreme, use of very large groups, may weaken the study if it means

secondary sources of data must be used exclusively (substitution of variables, mentioned above, is the problem here). In addition, some researchers may find that a number of relatively small differences or correlations obtained from a large-sample study are statistically significant, and will try to expand their theory to encompass all these lesser phenomena rather than probe further for major effects. The result may then be a complex, unwieldy theory with conflicting implications for policy (Lerman).

(3) Mishandling of statistics. Included here are failure to recognize the limitations of a particular method of analysis, and the tendency to give excessive importance to findings which are only of marginal significance statistically. Correlations, no matter how high or how significant, are insufficient to prove causation. One study is rarely enough to prove a theory, despite what ardent advocates might wish, and failure to observe a phenomenon cannot prove that it does not exist.

Report Writing. Poor reporting may curtail the efficient use of a well-designed and well-implemented study. Researchers can sabotage their own work by:

(1) Confusing fact with opinion. The failure to separate the findings of a study from casual observations during its progress or unsupported opinions on the same topic can weaken a reader's confidence in the conclusions of a study and the recommendations based on them (e.g., Harrison, Hjalmer Rosen).

(2) Saying too much or not enough. Asked for the policy implications of their study, some researchers expound, page upon page, recommendations irrelevant to or only weakly supported by their actual work (e.g., Hjalmer Rosen, Herberg).

Others, reluctant to go beyond their data, leave the reader with a bewildering mess of uninterpreted facts, perhaps not even weighted in terms of relative importance (e.g., Lerman).

(3) Obscurity. Reports apparently written only for the researcher's colleagues are often too jargon-filled or "academic" to be used readily by interested laymen or policymakers. Dissertations most often fall into this trap, with lengthy discussions of theory, and few terms defined. While it is true that the dissertation calls for a comprehensive treatment of a research topic and its place in a given field, it can be made scholarly without being oppressively pedantic.

Other reports repel the reader by sloppy preparation. Ungrammatical ai ambiguous passages, tables that do not agree with text, and inadequately labeled charts discourage him from reading a paper through, much less considering its merits.

Some Remedial Suggestions

Members of the project group have offered a number of suggestions to counteract the weaknesses described above.

Soliciting Proposals. The Manpower Administration might consider solicitation of proposals in specifically-defined problem areas. Definite limits could be set, based on present and anticipated needs, on the types of projects for which funds are available. A list of these research priorities could be circulated widely by the Manpower Administration.

The suggested approach does have some problems: It lends itself more to "headline research"—quickly executed research on popular, news-making topics—which adds little to available knowledge. It may stifle creative, potentially

rewarding, investigation of more novel hypotheses. It is only as strong as
the Manpower Administration's ability to predict policy and research needs
over the time period needed to complete the project.

However, such an approach could provide a means of obtaining a unified body
of information on selected topics of manpower importance. To avoid the problem
of stifling creativity, some funds could remain available for study of topics of
merit not "on the list." Also, those studies which leave least room for research
innovation (e.g., replications, with minor variations, of previous studies) might
be carried out by master's candidates, under the auspices of a more experienced
manpower researcher, the candidates receiving grants to carry out such rese rch
in lieu a master's thesis.

Monitoring Projects. Some funded research projects might have been of
greater utility to the Manpower Administration if weaknesses of design, imple-
mentation, or analysis had been discovered early enough and remedied. If closer
monitoring of projects would be at least a partial remedy, the following
practices are suggested:

(1) The grant budget of each project would include allowance for a
sufficient number of days of consultation with a member of the Manpower
Administration staff, or some other approved evaluator outside the project.
This external evaluator would provide critical analysis of project design, data-
gathering procedures, and methods of data evaluation, and, if necessary, would
recommend alternative practices.

(2) Periodic progress reports would be submitted to Washington, not only
by contract recipients as is currently the case, but also by grant recipients.

These could be submitted either at regular calendar intervals or according to
some other timetable. The latter method of reporting has the advantage that
reports from the many projects would not all arrive in Washington at once, so
that the time interval from submission of a project report to receipt of feed-
back (comments, criticisms) could be kept relatively short. To assist in the
careful reading of progress reports, outstanding doctoral candidates or post-
doctoral students might be invited to hold 6-month or 1-year internships in
Washington or at other centers of Manpower research activity. Reviewing research
progress reports and providing feedback to project directors could be two of
their assigned functions.

(3) As an added check on the utility of project findings and recommenda-
tions, it might be desirable to submit an early draft of each final report to a
number of potential users. Their comments could then be relayed back to the
project director, for his consideration.

(4) Disbursement of funds should be made contingent on orderly progress
toward project completion, as determined by monitoring methods. Specifically,
25 percent of contracted funds on each project might be held as a performance
bond. This portion would not be awarded to projects which failed to satis-
factorily complete the project and final report within a specified time period.
As a further incentive, the annual projects book could include a list, by project
number, of all projects receiving the full amount for which they were funded.

Standardizing Report. The Guidelines in Part III offer some suggestions
for improving the readability of Manpower Administration research reports. In
addition, researchers should be given some direction on the report format, so
that the final products would be more nearly standard. The intent here is not

to force arbitrary conformities upon disparate works--in fact two or three model formats might be offered for different types of research. The aim of introducing some uniformity to the works is to facilitate their use by administrators and others, so they can "get into" reports, or subsections of reports, quickly and compare two or more studies easily.

Dissertation grant recipients are perhaps the worst offenders in terms of producing unreadable manuscripts. Comprehensive literature reviews and formal statements of hypotheses, often required by the degree-granting institution, make tedious reading at best for the harried administrator. It is surely worthwhile to ask that recipients of such grants prepare a brief report in the Manpower Administration format. As an incentive, it could be suggested that adequate report would be published by the Manpower Administration, at least as internal documents. Again, a portion of the grant should be withheld until the final report is completed satisfactorily.

Part III. Guidelines for Manpower Researchers

Some General Considerations

The Purpose of Manpower Research

. . .The Manpower Development and Training Act of 1962 directed the
Secretary of Labor either to conduct research or to have research
conducted which would help solve manpower problems created by automa-
tion, discrimination, immobility, and the inadequacy of training.

In carrying out its responsibility, the Department depended on
its own expertise as well as the skills and knowledge of the academic
community and profit and nonprofit research organizations. Emphasis
was placed on original research which would, hopefully, contribute to
the solutions of manpower problems and to the knowledge and under-
standing of those who administer or operate manpower programs. (Rosen,
1970, p. 47)

Problems of purely "academic interest" are not what the MDTA was designed to

support. The Manpower Administration is interested in social and economic

research that has immediate or potential use in the solution of real life

problems. Utility is the watchword for Manpower research.

As Garth Mangum (1971) has noted, the traditional hierarchy of "pure" and

"applied" research is inverted in the manpower field, where "[t]he prestige

accrues to those whose research results have affected policy." (p. 61) Three

guidelines used in the past for reviewing Manpower Administration-supported

doctoral dissertations also place the stress on policy:

1) Are there any policy implications explicitly presented by
this dissertation? If not, are there any which you see implicitly?
These might take the form of modifications of existing manpower
programs, proposals for new programs, or basic data which would
change or prove the assumptions on which present policy is being made.

2) If there are policy recommendations, are they justified by
the methodology employed? Basically, would you recommend policy
changes based on these findings or would you need further research?

3) Assuming positive answers to 1) and 2), what are the policy
recommendations, what would be needed to implement them, and what
would they accomplish? (Borus, 1971)

Obviously, research with such practical goals will differ from less pragmatic

efforts. The purpose of this guide is to discuss some of the problems most

frequently encountered by previous researchers in the manpower field and by

the project group in the course of its work.

Use of an Interdisciplinary Approach

Over the years, the social sciences have developed as a number of special-

ized fields--economics, psychology, sociology, political science, anthropology,

and others. Yet the borders between fields are somewhat arbitrary, and it is

rare that a large practical problem in any one of these areas can be considered

without regard to the others.

. . .Manpower problems cut across most of the social science
disciplines. For example, in studying the problem of unemployment,
the Department [of Labor] has become involved in motivational problems
as well as institutional arrangements which inhibit employment oppor-
tunities. The methods and expertise of sociologists, psychologists,
political scientists, and economists are all needed--and in conjunction--
if we are to develop meaningful answers to most manpower problems. Thus,
researchers are needed who are willing to learn the methods of other
disciplines and who have the capacity to work with people of different
disciplines in developing and working on research questions. (Rosen, p. 48)

Different methodologies have been developed in the various social sciences,

to deal with the types of phenomena most frequently encountered. A manpower

researcher must resist the temptation to be a "one-method man," applying his

favorite or customary method to any problem that interests him. Interviews

and observation, questionnaire surveys, small group experiments, mathematical

models--these methods should be seen as complementary, not competitive. Each
has its best use in solving certain types of problems, and may be virtually
useless in attacking others. It is the problem at hand, and not the nominal
specialty of the researcher, which should determine the methodology of a study.

Avoiding Headline Research

In his efforts to do work relevant to manpower needs, a researcher may be
tempted to take his cue from the morning paper's headlines. The problem here
is that the headlines will change tomorrow. A researcher may get caught up in
what one cynic called the essence of leadership--seeing which way the crowd is
running, and running even faster in the same direction.

A research approach more likely to bear fruits is the one described by Rosen:

> . . .[R]esearchers should spend more time in developing a long-term
> strategy for their own research plans. They ought to devote more
> effort in identifying a particular problem whose solution may well
> require a considerable effort over an extended period of time. This
> does not mean that results will not be published for decades. It
> does mean that if a meaningful problem is carved out for study, it
> may be wise to develop a strategy for research that can be cumulative
> in explaining all facets of its complexity. . . . (p. 48)

If a research program is to lead to practical payoffs, we must "think in
terms of continuities, and avoid a scattering of one-shot operations." (Whyte,
1972, pp. 294-95)

A Comment on Neat Research

It is very satisfying to do research which has no loose ends. If a problem
is small enough, it may be possible to solve it with one study, involving only
a few months' time commitment, and resulting in a clearcut journal article
(perhaps even two). There is just one snag, as Tukey (1961) has observed:

Very often the same amount of difficulty attaches to finding:

(1) The "best" way to do very easy problems,
(2) Better ways to do easy problems,
(3) Good ways to do hard problems,
(4) Any way at all to do very hard problems. (p. 98)

From the point of view of Manpower research, questions of types (1) and

(2) are only useful for what they can teach about (3) and (4) type problems.

Checking on Accomplishments

Evaluation of experimental projects is an area which straddles the fence

between research and development. Some social scientists have even debated

whether it deserves to be called research, calling it instead a feedback portion

of the development process. However, it is a gathering of information for the

purpose of testing hypotheses (at the very least, to determine broadly the

success or failure of a given project).

Perhaps researchers are dismayed at assessments of the "does-it-work-or-not"

variety, in which a complex of variables (i.e., the whole program) is treated

as a single independent variable. Information from such studies is not particu-

larly useful, as one can never ascertain from it what elements or combination

of elements in a project brought about its failure or success.

Controlled studies in which one specific aspect of a program or potential

program is compared with alternative treatments can tell us much more, but they

are not often economically feasible.

If there must be an appraisal of a whole program, at least one precaution

should be taken: do not assume that the formal description of the project tells

all that actually occurred. Observation and interview techniques can uncover

other elements which may have contributed to the project's success. Such

systematic observation would at least give the evaluator some confidence in

his ability to reproduce a program which has proven effective. (Whyte, pp. 284-85)

The Data

How Much Data?

> Too many researchers are intellectually crippled by the
> need to smother themselves in the security blanket of masses
> of data. (Rosen, p. 48)

Just how much data does a study actually call for? Where does a researcher

draw the line? Working with a few well-chosen variables is usually more fruitful

than an effort to study what all the possible influences at once would be.

Beware the siren-call of the computer. The computer's capacity to work

large numbers of calculations, employing a variety of assumptions, does not

make computation a substitute for judgment or hypothesis. (Schumacher, 1961)

Yet more than one Manpower researcher has succumbed to temptation (Mott, Parnes,

Lerman). To quote one such worker:

> The main object is to test the effects of many variables on
> the youth labor force participation and school activity decision,
> and the effects on youth employment probabilities. We analyze all
> these effects with the use of regressions across individuals. In
> order to make sense of these effects, a theoretical framework and
> a set of hypotheses provide a method for interpreting the tests.
> . . .The reason for varying the usual order is that the investigator
> often thinks of hypotheses relating to a particular factor after
> the tests of a large number of explanatory variables are performed.
> (Lerman, p. 20)

The best models for dealing with a real situation are rarely the most

"complete." Tukey's example from the physical sciences is a case in point:

> . . .A study of the tidal interaction between the earth and
> the moon is obviously incomplete if it neglects such things as:
>   (1) The daily shifting of a hundred million pounds (or so)
> of human bodies in and out of Manhattan Island,
>   (2) The annual shifting of a much larger mass of persons
> and their gear to and from vacation resorts,
>   (3) The seasonal flight of birds,
> and so on. Yet putting such matters into a treatment of earth-
> moon tidal interaction would be unwise. . . .(p. 114)

Tukey's point is that the scientist is usually seeking the parsimonious, not

the comprehensive, solution. The researcher must recognize that incompleteness

of this sort is not only inevitable, but proper. All research models are

approximations of real conditions, rather than replications. Such models can

only be as good as the knowledge and assumptions on which they are based.

Accordingly, the researcher should continually be alert to the possibility that

small errors in his assumptions may produce large errors in his results, and

also to techniques which may uncover important questions he has overlooked.

Variables, Especially Proxies

Our discussion of how much data to collect has also touched on the problem

of what data to study. Once the researcher has made his choices, he should keep

them well in mind. If one starts out to study "happiness of urban workers," and

defines happiness as "number of movies seen in four sample weeks in 1969," that

definition must not be forgotten in later interpretation of the data.

This problem arises most often when a researcher is dealing with variables

(1) that are not readily measurable, or (2) not covered by the data in data

banks available to him. The usual procedure then is to pick a variable, on

which data are available, which approximates the desired one as closely as

possible--a proxy. Although selected for its similarities, the proxy's differences from the original variable cannot be ignored.

One Manpower researcher, in studying migrations from a rural area to a city, decided to use the number of persons who had previously migrated to that city as a proxy for rural residents' information about the city. Not surprisingly, he found that this "information" contributed most heavily to his regression equation (Reischauer). Another defined "religiosity" as having attended parochial schools (Mott, p. 127).

Sometimes confusion may arise simply from a poor choice of label for a variable. For example, one study dealt with a "home wage scale" which could not readily be converted into a dollar figure: "The square root of [the number of children under 15 years of age who are not enrolled in school] is multiplied by the weight given to the child-age category to obtain the final value of the home wage scale." (Kim, p. 48)

What To Do With It All

Let us assume that the researcher has made his decisions, chosen his variables, conducted his study. He now has folders full of data--written statements, computer printouts, score sheets. Where does he go from here?

If the data are not quantifiable, some logical organization must be sought--chronological, topical, whatever--to reduce the information to comprehensible form. If the information can be quantified, one place to start is to arrange all the data in table form. This process is not always as straightforward as it seems. Are the data grouped in some manner? What is the rationale for such grouping?
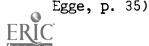
One Manpower researcher attempted to study the "professionalism" of married and unmarried women trained in social work, without regard to whether they were--or ever intended to be--employed as social workers. (Herberg)

It is wise to look carefully for "natural" groupings within the data--new methods of classification can lead to new insights. Careless arrangements may distort the data. Suppose, for example, that a group of assembly-line workers turn out twice as many widgets as usual in the hour before lunch, and none at all in the hour following. If one looks at their output over the two-hour period, though, it appears to be at the usual rate. Valuable information would be lost in such a grouping of the data.

The researcher who does not have access to raw data is at a distinct disadvantage when it comes to grouping his information. As Bezdek has noted (1971, p. 76):

> . . .Indeed, by far the most serious difficulties encountered in the course of this study concerned the integration and reconciliation of statistical data which were not comparable, not conformable, and often existed either in only summary form for dissimilar time periods or simply did not exist at all in any form whatsoever.

Even when data are collected for a specific study, there may be some loss of information when questionnaires are improperly or incompletely filled out, or when subjects drop out in mid-experiment. It may be desirable to use a subset of all the available data for a particular analysis. If this is done, a more substantial explanation should be offered than that of one Manpower researcher, who dropped nearly 1,000 men from his sample with a one-line justification: ". . .the sample used in the regressions (2,557 men) is smaller and more homogeneous than the 3,538 men who make up the total sample." (Karl A. Egge, p. 35)

Statistics

Tabular presentations can reveal the size of a phenomenon, and can be used to get some indication of similarities and differences between groups with regard to whatever was measured. Tables cannot tell a researcher anything about the likelihood of the events he observed: Could they be chance phenomena? Under the same conditions, how likely are they to recur? For answers to questions such as these, statistical analysis is a valuable tool.

Some words of caution are in order, however, before we all prostrate ourselves before this god of measurement.

Pomposity vs. Utility. The use of statistics is not in itself a virtue. It is important to know which statistics to use with the type of data collected to obtain the desired kinds of information. Using a complex or currently fashionable statistical technique where it is unnecessary or irrelevant is a form of pretentiousness, and may obscure a study's findings rather than help to interpret them.

Significance and Statistical Significance. "Given a sample of the size used, the results obtained are likely to occur by chance only one time in a hundred." If this is so, then the finding is said to be "statistically significant at (in this case) the .01 level." It is important to remember that statistical significance is tied to the sample size; with large enough samples, one can have confidence that even small changes are not due to chance. With small samples, larger changes are needed. There are some important implications.

A researcher doing regression analysis with a large sample may come out with small r^2s which are highly significant statistically. Before he goes on to explain all of human behavior in terms of these variances, he might do well to remember how little of the variance has actually been accounted for.

Statistical significance should not be confused with social significance or research importance. Some events which we are fairly certain are not due to chance (e.g., the correlation of number of fingers on the left hand with number of toes on the right foot) are of little research value. Other events, although they fail to pass the test of statistical significance, may be useful hints for future research investigation.

Causation, No Difference, and the Rabbit in the Woods. Statistical significance, regardless of the probability level, does not suffice to prove causation.

> . . .The establishment of causation comes about by combining
> empirical grounds for believing a continuing relationship and
> theoretical grounds that other causal relations such as "a
> common cause for both," or "the latter causing the former" are
> impossible. . . . (Tukey, p. 117)

On the other hand, failure to obtain a statistically significant effect does not mean the effect is zero. If two experimental treatments or two training programs are compared on certain features, and no significant differences are found, this does not mean the two are the same. It remains to be seen whether they differ on other, uninvestigated dimensions. When asked about this problem of proving the "null hypothesis," one professor would reply:

> If I go into the woods to look for rabbits, and I don't find
> any--even if I look for quite some time, I cannot say "There are
> no rabbits in the woods." I can only say "I found no rabbits this
> time." (Dinham, 1971)

About Conclusions and Recommendations

Which Are Which?

What are the differences between results and conclusions, between conclusions and recommendations? Results are the findings of a research effort and of the statistical analysis. Conclusions relate these findings to the hypotheses on which the study was based, and to findings of other studies in the field. Recommendations deal with implications of the conclusions for action--institution of new practices, modification of existing ones, research to clarify, extend, or support the findings or serendipitous observations.

In Conclusion

In drawing conclusions and making recommendations, the researcher should be particularly aware of any limitations his study may have had.

Was his sample small? Selected in a nonrandom fashion? Did a large part of the sample drop out of the study before it was completed?

Did he define certain terms in an unusual manner? Use any proxy variables?

Were any major snags encountered in conducting the study, so that the actual project was implemented in a way different from the intended manner? What effect might these changes have had on the results?

Were some statistical techniques used despite violations of their underlying assumptions? What effects, if any, might these have had on the results?

None of these factors need invalidate the study. However, failure to consider chance factors which distort results can reduce the utility of a study's findings and recommendations.

Not Wisely But Too Well

It is a great temptation, in studying topics of great human interest and importance, to ignore caution and the data, and base recommendations on "the way things ought to be." A researcher's opinions may well be worth consideration, and his casual observations may offer directions for future investigation, but neither should be passed on as research findings. Recommendations included in a research report should have sound basis for support in the study itself.

In the same vein, it should be remembered that one study rarely proves anything conclusively. The researcher lives with uncertainties and probabilities most of the time. Until a finding has been corroborated many times in many contexts, it ought not be presented as the ultimate truth.

Too much conviction, too great a passion, are a threat to the objectivity of a report. No conviction at all can be a threat to its utility. Some researchers try to stay so close to the literal findings of their studies that they descend into the trivial and self-evident, even the absurd: "Most of the cyclical variance in unemployment and vacancy rates," one such investigator reported earnestly, "is due to cyclical variations in the duration of unemployment and vacancies." (Lerman) Another noted that "a year's postponement in the onset of childbearing has the following implications, on the average, for older women: (1) smaller families and (2) somewhat younger children." (Rosenberg, p. 118)

> Many researchers are timid. This is most evident in their reluctance to expose themselves to the slings and arrows of their peers, to put their reputations on the line in developing hypotheses, to suggest answers to problems, or to make recommendations for policy and/or programs. If, however, they are to help society solve its numerous problems, they must be willing to put their ideas before their peers and the public, and they must be willing to wrestle with the real problems that endanger the very existence of this nation. . . . (Rosen, p. 48)

Writing the Report

> There is a tendency to place exposition "below" research. . .
> But the gaining of understanding is one of the highest aims of
> research; and no methodology can be said to be understood until
> adequate understanding can be conveyed to those who should use
> it. . . . (Tukey, p. 128)

The research report is a Manpower researcher's advertisement of his wares, his

effort to bring his findings to the attention of policymakers in a manner most

likely to bring acceptance. The report must be attractive and understandable,

and should make clear the policy implications of the new-found knowledge.

On Target

Reports are meant to communicate; they are worthless if they are not under-

stood. In speaking, we use different vocabularies, make different assumptions

about information and interest in a topic, and treat aspects of the topic in

varying depth, depending on whom we are addressing. The same should be true

in writing. For this reason experienced writers find it worthwhile to devote

some time to determining their target audience--the intended readers of their

work. Beginners are sometimes advised to think of this readership as a specific

person they may know, and write as if speaking to that person. One expert in

communication said, "Write as if it were a letter to a maiden aunt who had

? years at Wellesley." (Hayakawa, 1962)

The target audience for most Manpower reports consists of policymakers and

administrators implementing manpower policy. They are interested, educated

persons with some familiarity, but not necessarily any academic training, in

the social sciences. They want not to be impressed, simply to be informed.

There is no place for obscure jargon or linguistic pretension in Manpower

reports. Why invent a phrase like "manifest consonance" (Kim, p. 80), when

"apparent agreement" will do? The snob has an audience of one. By the same

token, complex mathematical equations should be explained in words; esoteric procedures should be explained, not merely named.

Organization

When a report is aimed at a lay aud... ne, rather than academicians or specialists in the social sciences, it is not likely to look like a dissertation or journal article. Exhaustive reviews of existing literature, elaborate statements of hypotheses, or lengthy discussions of the theoretical basis of a project, would be out of place. The reader is more likely to be interested in what was tried, what was found, and what it all means for him

The Value of Outlining. An outline can be a great help to the researcher in organizing his thoughts before he starts to write. Its compact form makes it easier to see what the paper will be like as a whole--omissions can be spotted readily, and the logical flow of ideas observed. Should it be necessary, an outline can be reworked much more easily than can a finished paper.

The outline can indicate the relative amount of space devoted to various aspects of a study. Important topics can be emphasized by treating them at greater length, in greater detail--the outline should reflect this emphasis.

What Should the Report Include? The sophistication of the target audience is an important factor in determining how detailed a treatment of research techniques should be. However, even the most simplified write-up should include:

Definitions of important terms. What was used to measure "masculinity," "blindness," "social class," "prestige," or whatever?

Description of the sample. Who was included? How large was the sample? Perhaps even how it was selected (random picking? volunteers?).

Brief description of the study's design. Was it an experiment? A survey? Census data applied to test a new model?

Major findings. What makes them important, in the context of past research and present Manpower needs.

Implications. What can be done with the findings? What does the study indicate should be done?

In longer papers, it may be wise to start with an overview and end with a summary. Or, in the words attributed to one old-time preacher "First I tell 'em what I'm gonna tell 'em, then I tell 'em, then I tell 'em what I told 'em."

What to Say in the Abstract. The abstract should be a brief recap of the procedures, sample description, significant findings, and implications. It should be as specific as space permits: "A six-week training program in business English for 50 Navajo girls, resulting in placement of 96 percent of the partici- pants in business and industry" tells much more about the project to a skimming administrator than does "An innovative educational experiment in language pattern change for selected persons learning English as a second language, resulting in increased employability for most project participants," though both descriptions use the same number of words. Precision is more a matter of word choice than word volume.

Details, Details

Who Can't Spell? Spelling, grammar, punctuation, matters of style may seem trivial to the research writer, but inattention to such trivia can make even the cleanest research incomprehensible to the interested reader. A good dictionary,

a grammar text, and a style manual can arm the writer to handle almost any problem of expression not caused by illogical thinking or weak research. The following quotation from a study embodies most of what has been noted above:

> Among those ever married, women are over three times as likely to have no children than are the men. (David, p. 90)

The Fact Check. Once a report is written it must be checked carefully for accuracy and internal consistency. This is a two-person job, with the researcher challenged to prove every conclusion and to validate every fact.

Simplification can lead to distortion, and the discussion of research procedures should be read over carefully for possible misrepresentations. The accuracy of all quotations and other citations of outside sources must be checked against the original works (not just against research notes).

The report text should be scrutinized for internal inconsistencies at all levels:

Do stated goals coincide with conclusions?

Are conclusions supported by fact?

Do equations match up with their descriptions in the text? Is a standard notation used throughout?

Do figures in tables tally and tables cross check with each other and with citations and figures in the text?

Do figures and labels in tables, charts, and footnotes agree with references to them in the text? Do table headings agree with table contents?

Are all proper names spelled correctly and bibliographical titles and page references accurately and properly given?

Readability. Now that the text is factually correct, is it readable? The
director of one large university press recommends a heartless test: Read the
finished paper aloud into a tape recorder. Then play it back and listen to it.
Is it boring? Stilted? Pedantic? Obscure? If so, rewrite wherever necessary--
repeat the fact check--and test again.

Even Your Best Friend. Once the researcher is satisfied with the accuracy
and readability of his paper, he should try one more test. That is to ask a
colleague to read it over, but not just "to see how it sounds." To help him
give a more useful answer than "Seems okay," the reader should be provided with
a checklist, and asked to specify precisely wherein the report fails with regard
to certain aspects of style as well as in content.

Clarity, organization, consistency, completeness, suitability of method,
and relation of recommendations to findings might all be on the checklist.
Questions for the list might be based on those in the Department of Labor
"Check List for Review of Dissertations Completed Under Manpower Administration
Grants," but recast to make it difficult for a reviewer to merely agreeably
check off an item.

Wherein does the report fail to:

1. Present tenable hypotheses?
2. Use data suitable to the problem at hand?
3. Take into account implications resulting from the use of
substitute data?
4. Note inadequacies of the data or analysis?
5. Analyze data fully and appropriately?
6. Distinguish correlation from causation?
7. Document statements adequately?
8. Investigate relevant aspects of the problem thoroughly?
9. Present material in a professional manner?
10. Evaluate the implications or the validity of working
assumptions used?
11. Discuss fully the policy implications?
12. Consider implications for Manpower policies or programs?
13. Consider implications for further Manpower research?
14. Specify how policy or program implications might be implemented?

In addition:

15. What factors limit generalization based on this study's findings?
16. Does the study answer an interesting question efficiently and definitively?
17. Do the results show a relationship which is of substantial interest because of its nature and magnitude?
18. Does the study make a major contribution?
19. What additional data or analysis would be needed in order to permit an answer of yes to questions 16-18?
20. Are the policy implications worthy of popular presentation?

The colleagues' comments may lead to further rewriting.

Clean Copy. After the final typing is complete, the paper should be checked carefully for typing errors--misspelled words, missing paragraphs, omitted footnotes--and to see that all tables, figures, and appendices are complete and in order. If there are no errors, and all is in order, the report is finished.

REFERENCES

Bezdek, Roger Hugh. Doctoral dissertation, "Manpower Implications of Alternative Patterns of Demand for Goods and Services." Urbana, Illinois, 1971

Borus, Michael. Memorandum to members of the grants reviewing committee, April 5, 1971.

Department of Labor. "Check List for Review of Dissertations Completed Under Manpower Administration Grants." Internal memorandum, 1973.

Dinham, Sarah. Personal communication, 1971.

Hayakawa, S. I. Personal conversation, 1962.

Mangum, Garth L. "Manpower Research and Manpower Policy." In A Review of Industrial Relations Research, V. 2 (Madison, Wisconsin: Industrial Relations Research Association, 1971), pp. 61-124.

Rosen, Howard. "A Challenge to the Now Generation." Growth and Change, April, 1970, pp. 47-50.

Schumacher, E. F. "Economic Forecasting for Industry as a Whole." Proceedings of the First British Conference on the Social and Economic Effects of Automation. Harrogate, June 27-30, 1961.

Tukey, John W. "Statistical and Quantitative Methodology." In Ray, Donald P. (ed.), Trends in Social Science (New York: Philosophical Library, 1961), pp. 84-136.

Whyte, William Foote. "The Behavioral Sciences and Manpower Research." In Berg, Ivar, Human Resources and Economic Welfare: Essays in Honor of Eli Ginzberg (New York: Columbia University Press, 1972), p. 272-98.

MANUSCRIPTS SUBMITTED IN THE COURSE OF

PROJECT 82-04-71-27

Dissertation Monographs

Baker's Dozen: Abstracts of 13 Doctoral Dissertations Assisted
by Manpower Administration Grants

"Introduction"

"An Analysis of Youth Labor Force Participation,
School Activity, and Employment Rates"
Robert Irving Lerman

"Labor Force Participation and Business
Fluctuations: An Analysis by Cyclical Stages"
Thomas Frederick Wilson

"A Study of International Differences in Phillips
Curves"
Robert Joseph Flanagan

"Education, Training, and the Urban Ghetto"
Bennett Harrison

"Managerial Relations with Disadvantaged Work Groups:
Supervisory Expectations of the Underprivileged Worker"
Albert Sidney King

"The Impact of the Welfare System on Black Migration
and Marital Stability"
Robert Danton Reischauer

"Income and Occupational Differences Between Whites
and Nonwhites"
James David Gwartney

"Relative Wage Determination Among Industries: Some
Theoretical and Empirical Results"
Michael L. Wachter

"Career Patterns and Work Participation of Graduate
Female Social Workers"

                      Dorothy Mary Chave Herberg

"Male-Female Wage Differentials in Urban Labor
Markets"

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"The Short-Run Employment Decision and Overtime
Behavior in U.S. Industry, 1966"

                      Ronald Gordon Ehrenberg

"Britain's Industrial Training Act: A Case Study in
the Development of Public Manpower Policy"

                      Gary Baker Hansen

"Intrametropolitan Migration of White and Minority
Group Households"

                      Jay Siegel

Septet: Abstracts of Seven Doctoral Dissertations Assisted by Manpower
Administration Grants

"Manpower Implications of Alternate Patterns of Demand
for Goods and Services"

                      Roger Hugh Bezdek

"Labor Force Participation and Fertility for Women With
Young Children in Rhode Island: An Analysis of Their
Interactions and Antecedents"

                      Frank L. Mott

"The Impact of Company Training Programs on Reducing the
Alienation of the Hard-Core Unemployed"

                      Barbara Ann Rosenquist Crispen

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in Science and Engineering"

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A Descriptive and Econometric Analysis"

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"The Social Science Ph.D. in Corporate Industry"

                      Michael William Stebbins

"The Labor Market Impacts of the Private Pension System"

                      Robert Taggart III

State-of-the-Art Monographs

Man and Machine in Field and Orchard

High School Students and the Marketplace

Youth in School and in the Labor Force

Meeting Health Manpower Needs Through More Effective Use of Allied Health Workers

Articles

"Middle-Aged Men in the Labor Market"

"Middle-Aged Men in the Labor Market: A Summary of the Pre-Retirement Years: A Longitudinal Study of the Labor Market Experience of Men" Vol. III

"Planner's Punch: A Look at a New Input-Output Model"

"Working Poor: Profile and Prospects"

"Training for Jobs in Private Industry: The Special Problems of the Hard-Core Unemployed"

"Self-Image--An Integral Part of Vocational Training"

"Starting an English-As-A-Second-Language Program"

"Vocational Training with a Twist: Learning English as a Second Language"

"Toward a Fuller Use of Medical Manpower"

Summaries

"Educational and Work Experiences of Young Men: An Adaptation of Two Manpower Administration Studies"

"Middle-Aged Men and Their Labor Force Experiences"

"Labor Supply of Middle-Aged Men: An Adaptation of Two Manpower Administration Studies"

"Women and Work: An Adaptation of Five Manpower Administration Studies"

"Women, Work, and Welfare: An Adaptation of Two Manpower Administration Studies"

Summaries (Cont'd.)

    "Staff and Distaff: When Women Go To Work"

    "Work and School Experience for Man and Boy"

    "Growing Old in the Labor Force"

Special Items

    Expanding the Benefits of Manpower Research: Final Report of the Project
    Director for Manpower Administration Project 82-04-71-27

    Critique of Dissertations