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ABSTRACT

Community mental health centers have been faced with mandates to introduce new programs or improve old ones often without the necessary information or expertise to implement such changes. Community mental health centers (N=39) were studied to identify the nature and extent of information use and factors related to information use. Experts visited local community centers, conducted sessions with staff and provided both general and research based information in the area of proposed program change. Trained observers recorded each idea suggested by the experts and provided copies to the consultant staff. Followup interviews with staff at four- and eight-month periods were used to determine the nature and extent of utilization. Approximately 75% of the suggestions provided to local organizations were used in the process of implementation. Information that was rejected tended to be relatively difficult to implement. Utilization in which information was adapted was the most time consuming and involved only six percent of the ideas suggested. The findings suggest that information utilization takes time, especially implementation of more complex information or adaptation of ideas. Research studies which fail to take into account the time required for utilization to occur may not provide accurate data on the extent of utilization. (MCF)

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INFORMATION UTILIZATION AND NON-UTILIZATION

and

EXECUTIVE SUMMARY

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August 1982

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This study is the product of the efforts of a coordinated, if separate, team of people. Dr. Howard R. Davis and Susan Salasin of NIMH provided advice and support throughout the planning phases of the study, as well as sustaining our enthusiasm during the data collection stages. The conceptual issues underlying research on utilization were sharpened in discussions with Robert Rich, who was generous in sharing his broad knowledge of the field and in making detailed suggestions regarding analysis and interpretation. For our discussion of non-utilization we are indebted to Gerald Zaltman who pushed our conceptualization of the issue and also shared data at a time when this was invaluable to our own design considerations.

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I. INTRODUCTION

Change is perhaps the most pervasive characteristic of modern life. The fast pace of daily activity inevitably presents us with the need to do things differently, and with the related need for information about how to do things differently. Sometimes we become aware of new information that is on target and can be used immediately. In other cases, information may not be relevant and we may not use it.

This report describes a study of local mental health organizations and how they used information to deal with changes in their programs. More specifically, community mental health centers were faced with a mandate to introduce new programs for their clients and to improve old programs--in short, to implement major changes in their organizations. Often staff had neither information nor expertise to introduce the necessary changes. Further, when a program was developed and perfected in one organization, rarely was it transported beyond the bounds of that agency. Therefore, a pattern of re-invention evolved in which the same program was developed over and over in similar organizations throughout the country. A major problem, simply stated, was how to facilitate the dissemination and utilization of information among local mental health organizations.

The study of knowledge use leads away from controlled experimental procedure and into the practical world of political pressure, tradition, and personal preference. Questions arise that are fundamental but whose answers remain elusive: How is information use defined? Is use always the same or can it be different in different situations? To what extent is use situation-specific and to what extent is it constant? What characteristics are associated with various types of use? What factors impede or facilitate use?

Since World War II, there has been increasing interest in the ways relevant information can contribute to the public good. The trend is reflected in several forms, examples being the increasing proportion of the U.S. Gross National Product that is devoted to knowledge production and application (Machlup, 1962), and the discussion of this issue by many blue-ribbon commissions (Russell Sage Foundation, 1950; Brim report, 1969; BASS report, 1969; National Academy of Sciences, 1979). Partly as a result of the attention of the panels and commissions, there has been increasing

research of the utilization process itself. Whereas previously recommendations had to be formed solely on the basis of personal experience or beliefs, now the results of experimental studies are combined with informed opinion to reach generalizable conclusions. These conclusions can be applied to a broad range of settings, among them mental health services.

An early assumption regarding information use was that the information was used when it was implemented as part of a program or when it directly led to some decision or course of action; the critical factor was that some specific action should occur. Whether information use should be the responsibility of the researcher or of the potential user depended on the views of the author (Guba, 1968; NIE, 1978). For years, research studies of utilization were based on this general paradigm. However, over time it became evident that with the accumulation of more and more studies and even with improved technological procedures for the transfer and use of information, the frequency and impact of knowledge use did not increase substantially (Caplan, 1980). Therefore, utilization researchers began to re-examine some basic assumptions and realized that the earlier conception of utilization as a relatively straightforward and linear activity was incorrect. Knowledge utilization is a complex interactive process.

The process of using information to effect change involves political, organizational, socioeconomic, and attitudinal factors in addition to the specific information. Any serious study of information use must be cognizant of the contribution--or intrusion--of such factors to eventual use. Not only do such factors influence use, they also interact with the information and each other so that there is a constantly emerging process that continues to change as it goes along (Smith, 1977). The study of information use that ignores such issues and accepts the early simplistic paradigm is likely to produce conclusions that are incomplete if not inaccurate. Such studies are likely to be counterproductive and may even contribute to the abuse of knowledge.

It is generally recognized that there is no one outcome that qualifies as "information use." Use of information exactly in the form presented to the potential user--findings from research studies, a set of policy recommendations, verbal suggestions, or ideas--was the original definition of use. Most studies using this definition conceptualized utilization as occurring in one episode or snapshot; they did not perceive information use

as an evolving, interactive process. Eventually, alternative forms of use were recognized. An early distinction was provided by Rogers and Shoemaker (1971) following Merton (1949) in the identification of latent and manifest consequences of innovation. Manifest consequences were defined as uses that are recognized and intended, and latent uses were those that were neither recognized or intended. Others (Caplan, 1975; Weiss, 1978) have refined the notion of alternative types of use beyond the initial awareness of intended and unintended outcomes. Caplan uses the terms instrumental and conceptual use to clarify one differentiation. Instrumental use refers to cases in which respondents could cite and document the specific way in which information was being used for decision-making or problem-solving purposes. Conceptual use refers to influencing a policy-maker's thinking about an issue without putting information to any specific, documented use. Weiss suggests the term, enlightenment, to describe the broad and general impact of information. "Here it is not the findings of a single study nor even a body of related studies that direotly affeet policy. Rather it is the concepts and theoretical perspectives...that permeate the policy-making process." Even though the results of one single study may not be remembered, generalizations from several studies blend together and are used in planning and decision-making.

II. BACKGROUND

A. Theoretical Approaches

A number of "approaches," "frameworks," or "paradigms" (Dunn, 1980) of information transfer have been posed and are being tested in research. The following are commonly used approaches, based generally on models suggested by Weiss (1978).

1. Knowledge-based approach, (or the Better Mousetrap theory). The assumption of this approach is that if the research is good, it automatically will be used. The use of information is almost a by-product of research; "the power of the 'facts' to speak for themselves is so compelling that findings with social utility will be sought out, discovered, and put to appropriate use" (Caplan, 1980). Weiss observes that few examples of this approach can be found in the social sciences.

2. Problem-solving approach. This approach assumes that the first step is identification of a problem, followed by research designed to solve the problem. This is a rather commonly used approach, and several variations on the basic framework have evolved.

a. Research, development, and diffusion (R,D&D). The approach includes conducting research, developing innovations or solutions, and then diffusing the innovations to potential users. Innovative solutions thought to be responsive to general needs are produced by the research. The progression from research to development to diffusion is assumed to be a linear and consistent process. Often federal demonstration projects fall into this category.

b. Commissioned research to solve a specific need. The specific problem of a specific user is the focus of this approach. Weiss states that there is an assumption that the user has a clear idea of knowledge needed to solve the problem. "Even a cursory review of the fate of social science research suggests that these kinds of expectations are wildly optimistic."

c. Social interaction to solve an identified need. The important element in this model is the existence of a communication network through which information about a solution, often an innovative solution, passes. Much of the research on diffusion of innovations is based on this framework. The approach seems to be most useful in dealing with individual knowledge users, not with organizations.

d. Innovative organizations responding to a need. In this framework, the organization is the potential user, not the individual. Most research based on this framework attempts to identify critical characteristics of innovative organizations, using a correlational approach. To date, no dominant set of characteristics has emerged.

e. Organizational change. Information transfer in this approach is conceptualized as a variant of the change process. The research seeks to identify desirable innovative behavior, and to promote change-oriented activities.

3. User-focused approach. In these paradigms, it is the user who is the focus of attention. Conditions under which the user is responsive to information transfer activities are studied along with the manner in which the user applied this information.

a. Policy-maker constraint approach. The approach perceives utilization in terms of the constraints under which a policy maker operates. "It is argued that policy makers typically need concise information in a short period of time, and that policy makers can only deal with malleable variables and must often premise action upon the course that is politically most feasible. Therefore the opportunity to apply knowledge is necessarily limited" (Caplan, 1980).

b. Two Communities approach. The approach explains utilization in terms of the relationship of the researcher and the research system to the policy maker and the policy-making system (Rich, 1982; Caplan, 1980). Caplan argues that there is a gap between the information producer and the information user, and the gap needs to be bridged through personal relationships involving trust.

4. Interactive approach. According to this paradigm, knowledge utilization is a multi-faceted process that involves several factors such as experience, political pressures, and judgment (Larsen, 1982). The approach studies information in the context of the potential users, information source, diffusion strategies, and external factors. Unless multiple factors are included, findings of research studies are so limited as to have limited application.

5. Enlightenment approach. Weiss states that it is not the findings of a single research study nor even a body of related studies that directly affect policy. Rather it is the concepts and theoretical perspectives that

permeate the policy-making process. Information may be used without explicit awareness that specific research studies may have produced the relevant information.

B. Information Use Research

The information use process has been recognized implicitly by nearly every researcher and observer, but rarely has it been described or examined systematically (Tornatzky & Fergus, 1980). Using information implies change in the individual or group. The process of implementing change--however substantial or insignificant it is--is not limited to rational factors. Inevitably, there are intangibles that influence, and directly affect, outcome. Those describing information utilization "will often prescribe immaculately rational solutions to...problems. All too often, however, such blueprints do not translate into action, and change efforts are vitiated. The rational planner's moment of truth arrives when he discovers that change is engagement in a political change process, and not achieved by technocratic prescription" (Hirschowitz, 1974). Baldridge and Deal (1975) discuss information utilization research as a matching of the technology with the organization. Changes in the technology must be accompanied by changes in the organization. This series of actions then leads to outcomes.

Information Use as an Outcome

Historically, most information use scholars stated that they were studying utilization, but did not provide a careful or consistent definition of utilization. This led to studies of utilization that were describing completely different, if not conflicting, outcomes and leading to contradictory findings and conclusions. Some studies identified cases in which a high degree of utilization was achieved, and the next group of studies failed to confirm the earlier findings.

At one time, studies of information use assumed that either information was used or it was not used. Studies based on this assumption would report results such as "Practice X is being used in 50 percent of the organizations." Such findings indicated that utilization occurred in some percentage of cases and implied that utilization did not occur in the remainder

of the cases. This all-or-none perception of information use "represents a vast oversimplification" (Havelock, 1969).

Studies limited to a single indicator of utilization, and one that is action-based, measure one narrow dimension and may miss other types of utilization entirely. As Davis and Salasin (1975) state, information utilization may be occurring frequently, but researchers may not recognize it if it does not fit into a narrowly predetermined variable and occur within a specific period of time. Likewise, Caplan et al (1975) found that the extent of research utilization hinged on the conceptualization of utilization and research. If use was defined as the direct influence of research findings on programs or decisions, it was not common. However, if it included the consideration of research-based concepts and generalizations in formulating questions, setting goals, and planning activities, then it was not uncommon.

Only recently has the study of information use expanded to acknowledge the existence of alternative utilization outcomes. Several studies have posed categories of outcomes and have reported techniques for measuring the nature and extent of utilization. Larsen et al (1976) identified nine outcome alternatives including categories of utilization and non-utilization. Hall and Loucks (1977) presented a model for determining whether the treatment was actually implemented and posed eight Levels of Use (LoUs). Dunn (1980) reported five categories of adoption. Whether one selects five, seven, or eight categories of outcome is not important. The critical point is the realization that alternative types of outcome exist, along with a developing convergence on what these types may be.

Information use studies often define outcome, or the dependent variable, as covering a broad range of actions and attitudes, including both quantitative and qualitative accounts, and incorporating one or multiple indicators. There is no one definition of outcome that is "correct" and in many cases, there is not even a preferred measure of outcome. Outcomes of information use can be a function of the information itself, the potential users of the information, or the process. The specific outcomes selected as appropriate for a study depend on the purpose of the study--what it is about information use that is being investigated. A study with limited objectives may be able to identify outcomes that are narrowly defined and that deal with a specific aspect of information use. A study with general objectives may need to incorporate more and broader outcomes. In certain cases, outcomes of the

information use process are by definition uncertain, and the definition also may be vague.

The ways in which outcomes are defined and certainly the way in which they are measured depends on which elements of information utilization a study chooses to emphasize. Outcomes that are conceptualized primarily as the study of information may report the nature and extent of information use. Outcomes focusing on the users may describe how an organization changes or how a problem was solved. Outcomes dealing with the information use process may describe an individual or group experience on a case-by-case basis. No one category of outcomes can be claimed to be superior to the others in all cases.

The very nature of the word defining this area of study, utilization, indicates another major problem. There is an inherent belief that utilization, not non-utilization, should result from the presentation of information. Utilization is thought to be desirable and non-utilization to be unfortunate, if not undesirable. There is very limited research on non-utilization as a valid alternative. Much of the research that has been done assumes that non-use results from a mismatch or lack of fit between information and the potential user (Russell Sage Foundation, 1950; National Research Council, 1978). Zaltman's (1980) research on deliberate non-use in marketing finds that this outcome may have an eventual positive effect. The potential user may realize that using certain information could be deleterious, and may implement an effective alternative instead. "The apparent non-use may thus be viewed as an attempt to correct or alleviate the negative consequences of an apparent positive use of the knowledge by the mandating authority."

Conscious non-utilization of information occurs with regularity in policy-making (Rich, 1977). Public policy is somewhat different from other cases of non-utilization in that the decision not to use information often is deliberate whereas non-use in other settings may be more hidden. Open non-use is especially common in cases that involve negotiation and compromise, such as when public opinion is clear or when the concerns of special interest groups must be considered for political reasons. In these cases, the scientific merit and implications of the information may be acknowledged as less important than other factors. Acknowledging that not all information must result in observable change and that non-utilization may be preferable to inappropriate utilization is a recent refinement.

III. RESEARCH METHOD

The study was designed to identify the nature and extent of information use and to identify factors related to information use. The research studied information use in 39 community mental health centers throughout the United States. Information in this study was defined as the ideas or suggestions provided to an organization by an expert consultant. Information included both the results of professional scientific inquiry (Lindblom & Cohen, 1979) and ordinary knowledge. One of the requirements imposed for selection of consultants was that the individuals be experts in their content area. The rationale for this criterion was that experts are more likely to be familiar both with research-based information and ordinary information. To limit the definition of information to research-based results would not have been responsive to the needs of practice-directed mental health centers, nor characteristic of real-world information-exchange.

Information on a specific program area identified by the organization was provided by an expert in the area. Visits were arranged by asking a community mental health center to indicate an aspect of its general program which it would like to revise or review, such as children's services, in-patient services, or the like. An expert recommended by the National Council of Community Mental Health Centers as knowledgeable in the content area was matched to the center. Eighteen experts, each visiting two or three centers, conducted sessions with staff and provided information on the topic, both research-based information and general information.

Each expert was accompanied by a trained observer who had the responsibility for collecting data. One of the activities of the observer was to collect data on specific information or ideas provided by the expert. To do this, the observer kept a careful record of each idea suggested, and at the end of the visit, the observer and expert reviewed the list. This allowed the expert to approve the list and to suggest rewording of some ideas to insure they represented the original intent. A list of these ideas was left with the staff, a copy given to the consultant, and a copy retained by the observer.

Examples of information provided to the organizations and eventual utilization status are presented in Figure 1.

Figure 1

Examples of Information Provided to Organizations

1. Work out a system between the state hospital and the center in which a client discharged from the hospital has more than a three-day supply of medication. Research (citation given) has shown that a high proportion of re-admissions are the result of clients having problems with medications when they leave the hospital. Therefore, try to see that the clients have more than a three-day's supply of medication upon discharge, or enable the client to recieve a prescription from the center prior to discharge.

   Utilization status: Center implemented the idea as presented; arranged for state hospital to provide more than a three-day supply of medication.

2. Consider the formation of therapy groups in the partial hospitalization program. Other local mental health agencies have found that cohorts or groups of clients that enter the program together may be discharged as contemporaries, thus spawning outpatient groups. This has worked sucessfully elsewhere (citation provided by expert).

   Utilization status: Information under consideration; no groups formed in partial hospitalization at the time of data collection, but the idea was being considered.

3. A national organization (citation provided by expert) provides information on materials that would be appropriate for your children's services. For example, consider using the Interpersonal Cognitive Program Solving series with children, rather than developing new materials at your agency that would duplicate those already available and found to be effective in research studies.

   Utilization status: Information considered and rejected; agency decided that they did not want to use materials that had been developed elsewhere.

At two points in time, four months and again eight months following the expert's visit, the list of ideas was used as the basis for follow-up interviews with staff. The primary purpose of each interview was to learn what, if anything, had been done with each idea--in other words, to determine the nature and extent of utilization.

The follow-up interviews identified information that was selectively noted and used, and information that was disregarded or not used. The interviewer went through the list of ideas sequentially, probing on each to determine whether the information was used, and if so, how. In all organizations, follow-up interviews were conducted with more than one staff member. If the responses of two individuals generally confirmed each other, the observer determined a summary score for each of the ideas. If two respondents differed in their opinions, a third individual was interviewed. If no agreement was apparent from three interviews, a fourth person was interviewed and so forth until the discrepancy could be resolved and one score was determined, representing the general consensus.

A. Outcome categories.

Outcome was differentiated into three types of non-utilization and four types of utilization. The seven categories and their definitions are listed in Figure 2.

Figure 2

Utilization and Non-utilization Categories and Their Definitions

1. Considered and rejected. Some discussion took place, but the information was rejected.

2. Nothing done. No action, not even discussion, was taken.

3. Under consideration. The information had not been used, however, it was being discussed and considered.

4. Steps taken toward implementation. Although the information had not been used, the decision to do so had been made and initial planning steps had been taken.

5. Partially implemented. Certain features of the information had been used while others had been disregarded.

6. Implemented as presented. The information was used in the form in which it was originally presented.

7. Implemented and adapted to fit user's needs. The information was modified or adapted to fit the local situation.

The seven types of utilization and non-utilization are listed roughly in order of the degree of utilization judged to be entailed in each. That is, "Considered and rejected" is viewed as entailing the least utilization (or, in other words, the most non-utilization), whereas "Implemented and adapted to fit user's needs" is viewed as involving the highest level of utilization of the currently described categories. The number preceding each category may be taken as its value in an ordinal scale.

Our assumption that these utilization categories approximate at least an ordinal scale warrants further discussion. When a characteristic is measured at the ordinal level, differences in the size of numerical scale values reflect differences in the magnitude of the underlying characteristic: In our list of utilization and nonutilization categories, a 6 is assumed to reflect more utilization than a 5, a 5 more than a 4, and so on. This approach to ordering the categories was developed on the basis of careful consideration of the degree of utilization represented in each category. Although we realize there will not be total consensus, we feel this ordering provides the basis for preliminary analyses.

An alternative interpretation of the categorization is that it is a nominal scale, in which the numerical values are merely names for the categories. In this case, the numbers in Figure 2 could just as easily be randomly chosen letters. If the listing in Figure 2 is viewed as reflecting the nominal level of measurement, then a score of 6 indicates a different amount of utilization from a score of 5, but not necessarily more or less utilization. It is clear that the 7 categories are, for the most part, distinct, and we feel some degree of order is involved. The assumption that the categories can be rank-ordered allows application of more sensitive and statistically powerful quantitative methods than could be used if assessment at only the nominal level is assumed.

Another level of measurement that may apply to the categories in Figure 2 is the interval level. If utilization is measured at this level, the numerical scale values reflect not only ordering but also specifiable differences in "true" utilization level. That is, an idea utilized at level 6 would entail as much more utilization over an idea utilized at level 5 as an idea at level 5 does over an idea utilized at level 4. While our utilization categories clearly do not form a true interval scale, a case may be made for the scale's having interval properties at some score levels. In this case,

this measure may be akin to many employed by social scientists in being somewhere between the ordinal and the interval level. Assuming that utilization is being measured at the interval level permits use of statistics involving summing of scale values as well as multiplication and division. For example, it is not appropriate to calculate the mean utilization of a set of innovations unless it can be assumed that utilization forms an interval scale.

The outcome categories can be treated as seven distinct categories or they can be combined in any number of ways to facilitate the measurement problem at hand. For example, if the purpose of the research is to identify a range of utilization alternatives, it would be most appropriate to use a larger number of categories to capitalize on the distinctions among types of utilization and non-utilization. However, if the purpose of the research is to determine general classes of utilization, fewer more inclusive categories is preferable.

We used this approach with the seven utilization categories listed in Figure 2, developing a three-category classification. The three categories were:

1) No Utilization (Considered and rejected; Nothing done)

2) Interest in Idea (Under consideration; Steps being taken; Partially implemented)

3) Utilization (Implemented as presented; Adapted to fit user's needs).

The distribution of ideas can be summed into these three categories, similarly the percentage of ideas in each category can be computed.

IV. RESULTS

A. Extent of Utilization

Experts presented 788 ideas to staff in 39 local mental health organizations.* The number of ideas presented to any organization ranged from 6 to 34, with the mean being 20 (Figure 3).

Extent of use or non-use (status) was determined for each idea. The frequency distribution of status scores four months following presentation is found in Table 1. Nineteen percent of the ideas had been implemented as presented, and 6% had been implemented with adaptations. This gives an overall utilization percentage of 26% of the information; in other words, about one-fourth of the information had been used. Another fourth of the information had not been used: Nothing had been done with 16% of the ideas, and 9% had been considered and rejected. Almost 50% of the information fell in categories indicating that they had been neither fully implemented nor rejected.

B. Characteristics Associated with Utilization

1. Information

It is obvious that not all information is equal. Some ideas involve considerable work and planning on the part of the user, while others are simple and straightforward. Simple frequency counts of implementation of ideas therefore have limited value. The study addressed this problem by collecting data on variables describing each idea. Five characteristics were included to provide a general estimate of the "quality" of the idea: (1) number of people required, (2) cost of implementing the idea, (3) time

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* A total of 885 ideas were presented to the local organizations by the expert consultants. Of these ideas, 13 could not be implemented for reasons beyond the organization's control; e.g., the organization could not introduce a program because it was offered by another public agency. For 84 ideas presented by the expert, we learned during follow-up interviews with staff that the ideas were already in use at the organization prior to the expert's visit. Since utilization or non-utilization of these ideas was not associated with our study, these 97 ideas were dropped from further consideration. The data analysis and results presented in this report are based on 788 ideas that were appropriate for consideration and use or non-use by the organization.

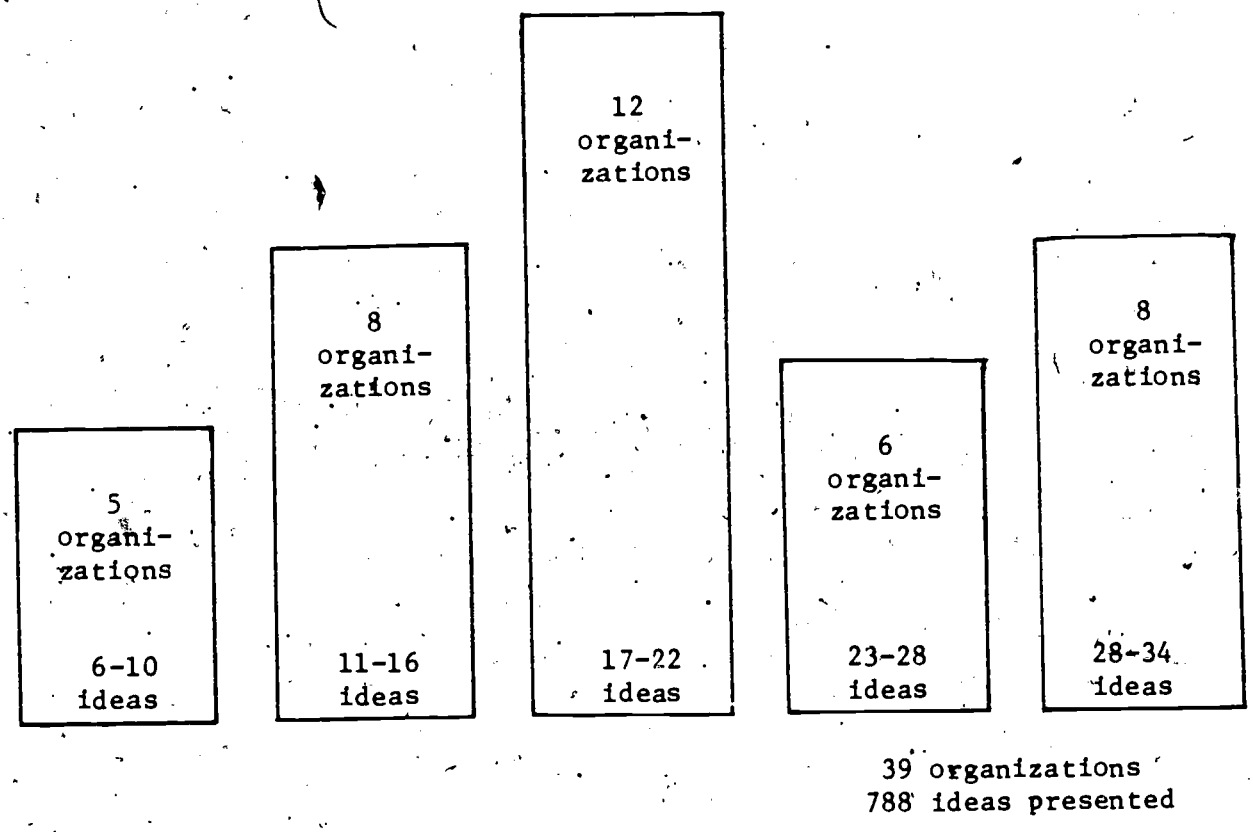

Figure 3. Number of Ideas Presented to an Organization

TABLE 1

Frequencies and Percentages of Suggestions in Various Status Categories and Summary Categories at Four-Month Follow-Up

Status Category	N	Percent	Summary Category	N	Percent
1. Considered and rejected	72	9.1			
2. Nothing done	129	16.4	Non-utilization	201	25.5
3. Under consideration	152	19.3			
4. Steps taken	115	14.6	Interest in idea	386	49.0
5. Partially implemented	119	15.1			
6. Implemented as presented	152	19.3	Utilization	201	25.5
7. Implemented but adapted	49	6.2			

Note: N=788 suggestions.

required, (4) trialability--extent to which the idea can be tried out, and (5) complexity--ease of understanding the idea. Our hypothesis was that information that is more difficult to implement would have higher levels of non-use than information that is easy to implement.

Three characteristics provided an indication of the difficulty of implementing the idea. That is, some ideas are relatively easy to implement, requiring few changes in current operations. Other ideas are more far-reaching, and may represent major revisions for the organization. The three difficulty variables--number of people required to implement the idea, degree of effort required to implement the idea, and cost--provide a measure of this variation. In general, the more people, time, and money required to implement an idea, the more difficult its introduction. The observer scored each idea on a 3 or 4 point scale with 1 indicating low difficulty and 3 or 4 indicating high difficulty. A series of chi-square analyses was computed testing the relationship between the information characteristics and extent of use or non-use (status).

People. Number of people required to implement the idea indicates quantity and also provides an indirect measure of organizational boundaries. Each idea was categorized into one of the following alternatives:

1. The idea requires one or two existing or new staff.
2. The idea requires three or more existing or new staff.
3. The idea requires one or two existing or new staff plus people outside the organization.
4. The idea requires three or more existing or new staff plus people outside the organization.

Data on the relationship between number of people required to implement the information and extent of use are presented in Table 2. There was a statistically significant relationship between people required and use. The majority of the ideas (N=634) required only staff from the organization. Relatively few ideas (N=154) needed people from outside the organization to join staff in implementing the idea. Almost half of the ideas required three or more staff to implement them; only one-third of the ideas could be carried out by one or two staff.

TABLE 2

Number of People Required to Implement Idea

Category	N	Percent
1-2 staff	251	32
3+ staff	383	48
1-2 staff + outside people	70	9
3+ staff + outside people	84	11
	788	100

TABLE 3

Amount of Time Required to Implement Idea

Category	N	Percent
Less than 8 hours	173	22
8 - 40 hours	298	38
40+ hours	317	40
	788	100

TABLE 4

Cost of Implementing Each Idea

Category	N	Percent
No cost	557	71
Minimal	169	21
Major	62	8
	788	100

Most of the ideas required several people to be involved in planning and implementation, indicating that the ideas were not trivial. When few people--one or two staff members--were needed to implement the information, the most common outcome was that the information was completely used as presented. However, if many staff and outside persons were required, the most frequent response was that nothing had been done but the information was still under consideration, and the least common outcome was for the information to be used completely as presented. Evidently when information is used completely it requires only a few people; if more people are involved, the information almost certainly will not be implemented completely as presented.

Time. Each idea was categorized in one of the following alternatives:

1. The idea requires no more than eight hours.
2. The idea requires from 8 to 40 hours.
3. The idea requires more than 40 hours.

Results of the chi-square analysis are found in Table 3. The largest number of ideas (40 percent) required over 40 hours for implementation, with 38 percent requiring between 8 and 40 hours of effort for them to be carried out. Only 23 percent of the ideas required less than 8 hours. Information that required less than eight hours to implement was most likely to be used completely as presented. Information requiring the most time, over 40 hours, was most often still under consideration. Perhaps considerably more time than 40 hours already had been spent planning the implementation or deciding whether the information matched the organization's needs.

Cost. The cost of the idea is again an indication of the resources required to implement the idea. Each idea was categorized in one of the following alternatives:

1. No additional cost is required to implement the idea.
2. Minimal costs (up to $500) are required to implement the idea.
3. Major costs (more than $500) are required to implement the idea.

Data on the cost of implementing the ideas are presented in Table 4.

The majority of ideas (71 percent) required no additional cost to implement. One fifth needed minimal funds and only eight percent required major funds. Thus, implementation of most of the ideas was not hindered due to high implementation costs.

The cost of implementing the information had the same general relationship to use as people and time required. Ideas that did not cost anything were most likely to be implemented completely as presented. Ideas that cost over $500 to implement were either under consideration or were in the early planning stages of implementation. These results suggest that if information is expensive to implement, it will rarely be implemented completely as presented, and that a good amount of time will be involved. Often such information still is being considered or is in the planning stages four months following its presentation.

Two characteristics--complexity and trialability--described the ease of implementing the idea. These were not quantitative measures in the sense that the difficulty measures were, but rather assessed attitudes regarding the information.

Complexity. Complexity is the degree to which an idea is perceived as relatively difficult to understand and use. Ideas that are straightforward and easy to grasp are more likely to be used than those that require considerable explanation and for which the implications of the decision are not apparent. Attitudes regarding each idea were categorized in one of the following alternatives:

1. Not difficult to understand
2. Moderately difficult to understand
3. Difficult to understand.

Data on complexity of the ideas are presented in Table 5. Nearly three-quarters of the ideas were not difficult to understand. About 23 percent were moderately difficult to understand, and only three percent were rated as difficult. Evidently the consultants presented most of the ideas in such a manner that the organization could understand the idea and what it involved.

TABLE 5

Complexity of Each Idea

Category	N	Percent
Not difficult to understand	572	73
Moderately difficult to understand	191	24
Difficult to understand	25	3
	788	100

TABLE 6

Trialability of Each Idea

Category	N	Percent
Easy to implement on trial basis	382	48
Difficult to implement on trial basis	322	41
Impossible to implement on trial basis	84	11
	788	100

Trialability. Trialability is defined as the extent to which an idea can be readily tried out. Ideas that can be tried out and reversed easily are more likely to be considered for implementation than ideas that cannot be tried out readily. Judgments regarding trialability were categorized in one of the following choices:

1. Easy to implement on a trial basis
2. Difficult to implement on a trial basis
3. Impossible to implement on a trial basis.

Results of trialability of ideas are found in Table 6. Half of the ideas were considered easy to try out. Forty percent were difficult to try out, while only ten percent could not be tried out on any basis. Thus, half of the ideas were difficult or impossible to try out.

The ability to implement information on a trial basis and see how it works is espetially important to large organizations. Changes in large organizations may produce major impacts and the organization wants to be sure that the change will work. Therefore, the extent to which an idea can be tried out is of great concern. Information that was easy to implement on a trial basis was most often used completely as presented. Information difficult to try out was most frequently under consideration, but information that was impossible to try out was most often rejected from further consideration.

The great majority of the ideas--nearly 80 percent--required three or more staff and over eight hours of effort to implement. Over 70 percent of the ideas did not require additional money, and a similarly large percent--74 percent--were not difficult to understand. Half of the ideas were easy to try out. These findings suggest that the information presented to the local organizations was appropriate in scope, and within the capabilities of the organization to use. For the most part, lack of utilization was not a function of the information being too grandiose or beyond the reach of the organization.

The characteristics describing each idea provide indicators of the scope or difficulty of implementing each idea. To synthesize these data, we combined the five scores into one overall "difficulty" measure, ranging from a low of 5 to a high of 15. Because difficulty scores of 12 and above occurred

TABLE 7

Difficulty of Implementing Consultants' Suggestions to Community Mental Health Centers

Difficulty	N	Percent
5	60	7.6
6	114	14.5
7	128	16.2
8	152	19.3
9	114	14.5
10	74	9.4
11	77	9.8
12	69	8.8
	778	100.0

TABLE 8

Correlations Among Components of Difficulty of Consultants' Suggestions

	Cost	People	Effort	Trialability	Complexity
Cost	-				
People	.22*	-			
Effort	.31*	.38*	-		
Trialability	.32*	.15*	.28*	-	
Complexity	.31*	.23*	.35*	.36*	-

Note: N = 788 ideas

* $p < .001$

rarely, they were merged into category 12, which thus represents ideas that were most troublesome to implement.

The frequency distribution of difficulty scores is presented in Table 7. It can be seen that most ideas were in the moderate-to-low difficulty categories (9 and below) and that only about a third had difficulty scores of 10 and above. The correlations among the components of the difficulty measure are presented in Table 8. All were positive and significantly greater than zero. The level of intercorrelation among these is comparable to that among items combined in many multi-item scales in psychology.

Utilization scores and difficulty level were found to be significantly associated ($X^2 = 83.40$, $p < .001$). A summarization of the results of this cross tabluation is presented in Table 9. This table lists the percentage of ideas in each status category that had received each difficulty rating. The status category showing the clearest link to difficulty is "Implemented as presented." Relatively few of the ideas in this category were high in difficulty (9% had difficulty scores of 11 or higher) whereas many were low (52% had difficulty scores of 7 or less). Another status category related to difficulty was "Considered and rejected." Very few of the ideas that had been considered and rejected were easy to implement (i.e., had low difficulty), but many were of intermediate difficulty. On the whole, ideas in the middle status categories, those in which there was interest but which had neither been fully utilized nor rejected, were more likely to be high in difficulty than either ideas that had not been utilized or those that had been utilized. This suggests that it takes longer for organizations to come to decisions about difficult ideas.

Based on these findings, we suggest that studies reporting high rates of information utilization are likely to be describing information that lends itself to simple implementation. By contrast, studies of information that is of greater scope and more difficult to implement are likely to report low levels of utilization after four months. Information of greater scope would still be under consideration or in initial planning stages four months following presentation.

2. User Organization

Information use is not a function only of the information. The organization or individual who will potentially use the information may be

TABLE 9

Percentage of Ideas in Each Difficulty Category

Status Category	Difficulty 5	6	7	8	9	10	11	12
Considered and rejected	4.2	5.6	8.3	26.4	26.4	11.1	4.2	13.9
Nothing done	7.8	15.5	13.2	15.5	17.1	11.6	12.4	7.0
Under consideration	3.9	17.1	20.4	17.8	13.2	5.9	10.5	11.2
Steps taken	9.6	9.6	14.8	19.1	14.8	11.3	8.7	12.2
Partially implemented	5.0	10.1	18.5	21.8	10.9	8.4	16.0	9.2
Implemented as presented	14.5	21.1	16.4	22.4	8.6	7.9	6.6	2.6
Implemented but adapted	4.1	18.4	20.4	8.2	20.4	14.3	6.1	8.2

equally--or more--important as the information. Users face specific local needs or problems that force them to use the information in different ways. In a recent review of the use of R&D-based information to problems of education, Kane & Kocher (1980) suggest that factors of organization control may be the most critical factors affecting utilization.

Reviews of utilization studies reveal that the basis of a typology of contexts appears to exist. Examples include the size of the organization, number of staff and/or clients, location whether urban, rural or mixed, annual budget and the like. If information use studies described the context of users in these terms, it would facilitate comparison of results across studies. In the absence of agreement on such a typology, the next best alternative is for researchers to provide explicit descriptions of the context of their study (Wolek & Griffith, 1979). Further, the researcher should deliberately limit the study to one contextual area and select samples from that one domain (Berman, 1980). This type of contextual clarification would be responsive to a need in the field (Larsen, 1980) and would go a great way to clear up some of the confusion resulting from imprecise descriptions of users.

Community mental health centers were the organizations studied in this research. Demographic characteristics of each organization that may help explain their extent of information use were collected. The characteristics were the following: number of employees, annual budget, metropolitan status, region of country, tenure of the director, and year in staffing grant.

Organizational Size

Three measures of size were included in the study: annual budget, number of part-time employees, and number of full-time employees. Data on these variables were supplied by NIMH and corroborated by the local center.

Number of full-time and part-time employees were combined into one measure of number of employees. The distribution of centers in the study was as follows:

Under 60 employees	13 centers
60 - 100 employees	13 centers
Over 100 employees	13 centers

Budget is highly correlated with number of employees, both providing an indication of organizational size. The distribution of centers according to their annual budget is presented below:

Under $1,200,000	12 centers
$1,200,000-$2,500,000	12 centers
Over $2,500,000	11 centers

No budget data were available for four centers. Size of these four centers was determined solely on the basis of number of employees. Since the correlation between budget and number of employees is high, we are fairly confident of assignment on the basis of only one indicator.

Region of Country

The geographical regions used in the study followed those defined as HHS regions with minor exceptions. The Northeast included states in HHS Regions I, II, and III; the South generally included states in Regions IV and VI; the Midwest generally included states in Regions V and VII; and the West included states in Regions VIII, IX, and X. Centers included in the study were distributed among the four regions of the country as follows:

Northeast	10 centers
South	12 centers
Midwest	9 centers
West	8 centers

Metropolitan Status

Community mental health centers were identified by NIMH as located in a metropolitan area, non-metropolitan area, or a mixed area. The distribution of centers in the study was the following:

Metropolitan area	20 centers
Non-metropolitan area	11 centers
Mixed area	8 centers

Tenure of Current Director

Related research on organizational problem-solving found that the support of the director and key staff is highly related to success with problem-solving (Larsen & Norris, 1982). We included the tenure of the current director in this study of information use to provide an indirect measure of the extent to which the director would be familiar with the organization's operations and style. We hypothesized that there may be a relationship between the tenure of the top administrator and the extent to which an organization might consider implementing new information. The number of years the current director had been with the organization was collected from each center.

Year in Staffing Grant

Federally funded community mental health centers received staffing grants that covered a multi-year period. Data on the year of the grant at the time of the study were provided by NIMH. These data give a general indication of the "age" of the center, i.e., how long it has been operating as a federally funded community mental health center.

Data on extent of utilization or non-utilization were collected for every center in the study, allowing us to identify organizations that used information, those that did not use information, and those that did nothing. Centers high in each of these categories were studied to determine whether there were organizational characteristics that differentiated among organizations based on extent of information use. We selected sixteen organizations for further study: (a) four organizations reporting the highest percentage of Information used as presented, (b) the four reporting the highest percentage of Information used with adaptations, (c) the four with the highest percentage of non-utilization (combination of Considered and Rejected, and Nothing done), and (d) the four centers with the greatest percentage of uncertainty (combination of Under consideration, and Steps taken).

The organizations with patterns of not using information were older centers and had directors who had been there for several years. All of the centers were in the eighth or ninth years of their staffing grants, and the average tenure of the director in these centers was 6 years. Three of the four centers were in metropolitan areas, and three of the four were in the

Midwest. As a group, organizations in this study that were most likely not to use information were older centers in metropolitan areas of the Midwest with directors who had been there for several years.

Distinctive center characteristics also were found for centers that reported high amounts of information use. Centers reporting the highest extent of use of information exactly as it was presented were small or medium-sized centers usually in non-metropolitan areas. They were relatively young centers, in the average in the fourth year of their staffing grant. The average tenure of the director at these centers was slightly over 3 years. To summarize, centers most often using information as presented in this study were relatively young or small or medium-sized centers in rural areas.

Centers most often using information with adaptations to fit their own needs were established organizations but with a relatively new director. The average tenure of the director was about 2 years, but the mean year of the staffing grant was 7 years. Three of the four centers were in the Northeast, and three of the four were medium or large centers. As a group, centers adapting information to fit their needs were established, relatively large Northeastern centers with a new director.

There were a number of centers that did not do much with the information they received. They did not use it, and they did not decide not to use it--in fact, they disregarded the information. Three of the four organizations reporting highest frequency of this behavior were located in metropolitan areas. All were medium or large centers, with an average director's tenure of slightly under four years. On the average, they were in the sixth year of their staffing grants. In summary, centers not doing anything with the information were medium or large metropolitan centers that were of medium age with a director who had been there about four years.

The number of organizations involved in this analysis is small and these findings must be regarded cautiously. But it appears that organizational characteristics may be related to differences in information use. Size of the organization, the population density of its surrounding area, and the tenure of its director are factors that especially deserve additional attention.

C. Effect of Time on Utilization

The influence of time on information use has been ignored by most researchers. Theoretical models of information use and organizational change generally describe stages in the implementation process, thus implicitly acknowledging time. Such models usually state that at some point the information enters the group's awareness, is considered, begins to be implemented, and eventually becomes integrated into an ongoing program. It appears obvious that information use takes time, however few models or research studies include time as a variable influencing the utilization process.

We feel that time is a major variable affecting information utilization, and we included it as a primary component in our research. A study of information utilization could include several rounds of data collection at different points in time, and each would yield completely different--and correct--findings. It is almost certain that different outcomes would be identified at each point in the utilization process.

The influence of time can be treated in both a descriptive and causal sense. The descriptive function is perhaps most obvious--different characteristics of the information and the user will be important at different points in the utilization process. Viewed in this context, time provides a benchmark against which to note variations in utilization. Time can also be a causal factor. The utilization outcome commonly called discontinuance is dependent on time, i.e., discontinuance cannot occur until some amount of time has passed.

If extended over a long period of time, adoption of new information could be expected to become routinized (Yin, 1976), or to lose its distinguishing characteristics as it melds into the organization's ongoing program. Backer and Glaser (1979) found that programs lasting over time typically change in format and operation. These findings suggest that nature and extent of utilization occurs in a predictable sequence. Implementation may be followed by discontinuance, discontinuance by re-adoption, and rejection by later adoption (Havelock, 1969).

The limited data available on the relationship of time and information use indicate that time has an impact (Rich, 1977; Ciarlo, 1975) and that there appear to be systematic shifts in information use over time. Rich (1977) poses the presence of two waves or cycles of utilization, the first

being specific documentable use of information and the second being primarily conceptual in nature. Strommen and Aleshire (1979) found that time was a major factor in utilization decisions of large organizations. If new information was introduced after the year's program had been set, the information was disregarded regardless of its merit. Likewise, cycles of bureaucratic decision-making and policy revision determine the type of information use in the public sector.

The influence of time in information use mandates that a longitudinal methodology as the approach of choice for collecting useful outcome data (Tornatzky & Fergus, 1980). A series of outcome indicators collected at different points in time also allows process variables to be incorporated in a structured manner, and avoids the problems of selective recall found in retrospective studies.

Temporal influences on information use was one of the main concerns of the present study, and measurement of this variable was designed into the research. Data on extent of use and non-use were collected at two points in time--four months and again eight months following initial presentation of the information. The changes in categories of utilization over this period are striking (Table 10). Categories of use representing a tentative or ambivalent position declined (Nothing done, idea under consideration; Initial steps taken). Categories indicating that a decision had been made increased in frequency (Information completely used; Information used and adapted; Information rejected).

Eight months following presentation, most ideas had either been accepted or rejected; only 52 ideas (7 percent) still were under consideration. The category "Intial steps taken" also reported a decrease in ideas from 111 to 71 or a drop of 36 percent. Evidently, eight months following introduction of information, most potential users have considered the information and reached an explicit or implicit decision on most of it.

During this time period, categories indicating a decision had been made increased in frequency. The category with the greatest increase was "Information completely used as presented", growing from 152 ideas to 246. Another category indicating a decision had been reached, "Idea considered and rejected" also showed an increase from 72 ideas to 99, or a 38 percent change. However, the category with the greatest proportionate increase was "Information used and adapted to fit the user's situation", increasing from

TABLE 10

Change in Information Use Over Time

Category of use	Four months following presentation		Eight months following presentation		Percent change over time
	N	%	N	%	
Non-use					
Information considered and rejected	72	9	99	13	+ 4
No decision made; information likely to be disregarded	129	16	104	13	- 3
Nothing done but information under consideration	152	19	52	6	-13
Use					
Steps taken toward using the information	115	15	71	9	- 6
Part of information used	119	15	112	14	- 1
Information completely used as presented	152	19	246	31	+12
Information used but adapted to fit user's situation	49	6	93	12	+ 6
Use not possible for reasons beyond user's control			11	1	
	788	99%	788	99%	

49 to 93 ideas, or a 90 percent increase. Our hypothesis was that adapting information to fit one's specific needs is a more thoughtful and time-consuming process than using information exactly as it is presented. These results support the hypothesis.

Patterns of use and non-use of information were investigated in greater detail by means of a cross-tabulation of data from the four-month interviews (T1) with data from the eight-month interviews (T2). The table is presented in Table 11.

The category reporting the greatest change, "Nothing done but information under consideration," distributed ideas across all other categories but focused on three. Of the 100 ideas that moved to other categories, 26 moved to preliminary planning stages (Steps taken), 22 were completely implemented, and 20 were considered and rejected. In the four-month interval between interviews, final decisions were made on use or non-use of 42 of the ideas.

Information that was in the planning stage (Steps taken) at the first interview was most likely to move to "Complete implementation" by the second interview. Perhaps this information was more complex and difficult to implement, and a longer implementation period was required. If so, it would be reasonable that in four months, initial steps had been taken and by eight months, the information was completely implemented.

Likewise, a high proportion of the information that was "Partially implemented" at the first interview moved to "Completely implemented" at the second interview. In this case, the information may have contained several components and the organization may have used a sequential process for implementing the information. Again, a considerable increase in this type of use occurred during the four-month period.

Information that was used with adaptations at the second interview came from all other categories of use and non-use. The largest numbers moved from the three other categories of use--"Steps taken", "Partial use", and "Complete use." Again, this suggests that the adaptation process unfolds over time. Uses that appeared to be final at the first interview may actually have been intermediary steps in the adaptation process. With the additional time allowed before the second round of interviews, the adaptation process may have been able to reach completion. This outcome becomes much more frequent when adequate time is provided, and must be considered a legitimate outcome of information use.

TABLE 11

Utilization Categories at Second Follow-up

Utilization Categories at First Follow-Up	Not Possible	Nothing Done	Still Under Consideration	Considered & Rejected	Steps Being Taken	Partially Implemented	Implemented as Presented	Implemented & Adapted	ROW TOTAL
Nothing Done	0	76	3	12	7	6	17	4	129
	0.0	58.9	3.9	9.3	5.4	4.7	13.2	4.7	16.4
	0.0	73.1	9.6	12.1	9.9	5.4	6.9	6.5	
Still Under Consideration	7	16	42	20	26	15	22	4	152
	4.6	10.5	27.6	13.2	17.1	9.9	14.5	2.6	19.3
	63.6	15.4	80.8	20.2	36.6	13.4	8.9	4.3	
Considered & Rejected	0	1	2	62	0	1	2	4	72
	0.0	1.4	2.8	86.1	0.0	1.4	2.8	5.6	9.1
	0.0	1.0	3.8	62.6	0.0	0.9	0.8	4.3	
Steps Being Taken	4	9	3	5	38	19	27	10	115
	3.5	7.8	2.6	4.3	33.0	16.5	23.5	8.7	14.6
	36.4	8.7	5.8	5.1	53.5	17.0	11.0	10.8	
Partially Implemented	0	2	0	0	0	64	41	12	119
	0.0	1.7	0.0	0.0	0.0	53.8	34.5	10.1	15.1
	0.0	1.9	0.0	0.0	0.0	57.1	16.7	12.9	
Implemented as Presented	0	0	0	0	0	6	133	13	182
	0.0	0.0	0.0	0.0	0.0	3.9	87.5	8.6	19.3
	0.0	0.0	0.0	0.0	0.0	5.4	54.1	14.0	
Implemented & Adapted	0	0	0	0	0	1	4	44	49
	0.0	0.0	0.0	0.0	0.0	2.0	8.2	89.8	6.2
	0.0	0.0	0.0	0.0	0.0	0.9	1.6	47.3	
COLUMN TOTAL	11	104	52	99	71	112	246	93	788
	1.4	13.2	6.6	12.6	9.0	14.2	31.2	11.8	100.0

V. DISCUSSION

Information is used--or not used--in different ways. Organizations that receive new information may or may not consider it, and may or may not actually implement it. This research considered alternative forms of use and non-use and identified characteristics related to these outcomes. The context for this analysis was a study of information utilization in 39 local mental health organizations throughout the U.S.

The study found that information is used by local organizations and is used frequently. Approximately 75 percent of the suggestions provided to local organizations were used or were in the process of being implemented; only 25 percent of the information was disregarded. The relatively high rate of information use provides evidence that local organizations generally review relevant information, and often use it to modify their programs. There was no evidence of organizational resistance to information use in this study although there were cases in which the information did not match the organization's needs and the information was not used. In general, local mental health agencies were eager to receive relevant information and used much of it in their programs.

Information in this study was defined as ideas regarding service programs suggested to local mental health organizations by experts. Information included both results of research studies and common knowledge. For the most part, ideas suggested to the organizations were within their ability to implement--most were easy to understand, most did not require additional funds, and most could be implemented on a trial basis. As a consequence, non-utilization could not be explained on the basis of the ideas being too complex or too costly.

Information use generally required the organization to make a commitment in terms of staff and time. Nearly 80 percent of the ideas that were used required three or more staff and at least 40 hours of staff time to implement them. An extensive process of planning and coordination occurred prior to introducing even minor modifications. Preliminary activities are time-consuming and require the involvement of staff at many levels and with different types of skills. Local agencies with ties to the community, state and other human service organizations must lay the groundwork for program change by coordinating their plans with other agencies. For utilization to

occur, political realities require an investment of staff and time; without a commitment in these areas, information probably will not be used. Non-utilization can result from an explicit decision not to use information or it can occur implicity, without any decision. In this study, explicit non-utilization was classified as Information considered and rejected, whereas implicit non-utilization was called Nothing done with the information. Of the information presented to local organizations, one-fourth fell in these categories of non-utilization.

All information was rated on a difficulty scale; information that was considered and rejected tended to be relatively difficult to implement. By contrast, implicit non-utilization, Nothing done with the information, occurred with information covering a range of difficulty levels. This suggests that explicit non-utilization may be a reasonable and defensible decision for the organization. If the information is very difficult to implement, it may be beyond the organization's resources and utilization may be impossible. Therefore, a non-utilization decision may be a correct and positive outcome. By contrast, de facto non-utilization was found to occur with information that is not particularly difficult to implement. In these cases, the organization apparently did not seriously consider the information but let it fade away. It is noteworthy that the organizations most likely to report non-utilization were older established organizations without new leadership. Since the information was not particularly difficult to implement, perhaps administrative style strongly influenced this non-utilization outcome.

Several utilization categories reported information that was in the process of being used, or that was partially used: Information under consideration, Steps taken toward implementation, and Information partially implemented. In all cases, utilization was neither completely present nor absent; eight months following initial presentation, the outcome still was not clear for some ideas. The percentage of ideas in these categories decreased over time--nearly 50 percent of ideas fell in these categories four months after initial presentation, and approximately 25 percent of the ideas were still in these categories eight months after presentation. Evidently decisions were made, and the ideas moved from an intermediate state to utilization or non-utilization. Information in these categories was spread across a range of difficulty levels with one exception. Information that was partially

implemented was judged to be rather difficult, with one-quarter of the ideas being very difficult to implement.

Information utilized completely as presented is the outcome most often implied by studies of utilization. The assumption is that information or an innovation is presented to a potential user and the user either adopts or fails to adopt the complete package. We found that complete utilization is more likely to occur with information that is relatively easy to implement. Only one-quarter of the information implemented completely as presented was above average in difficulty level. Evidently information completely implemented often is straightforward and can be incorporated into the organization's program with little disruption. This raises the question of whether utilization studies that report high levels of adoption may be confounding the user's utilization decision with the relative difficulty of the information itself.

The utilization category that we judged to be of the highest level was information implemeted but adapted to fit the user's needs. This type of utilization requires that the user consider local values and circumstances, then select specific information that matches those requirements. Such utilization takes both the organization and the information into account in an interaction approach.

Utilization in which the information is adapted is among the most time-consuming and thoughtful types of utilization outcomes, which may be why only six percent of the ideas suggested fell in this category. Information that was adapted was distributed normally on the difficulty scale, therefore the information was no different from most of the ideas provided. Organizations that reported high percentages of utilization with adaptations were established medium or large organizations with a new director. These organizations may merge their own sense of identity with a stimulus for considering new information, resulting in utilization only of information appropriate for their needs. Utilization requiring attention and planning should have a better chance for lasting over time, and in fact this was the case. Utilization with adaptation was the category that showed the greatest increase over time, indicating not only that more time was needed for planning and implementation, but also that once the information was implemented, it did not move to other outcome categories.

Certain types of local organizations appear to have distinctive patterns of information use. Organizations that most often decided not to use information were older metropolitan organizations with a director who had been there for several years. These organizations may have had well-defined programs and evidently were not interested in making any program changes. By contrast, organizations that most often implemented information exactly as it was presented were small or medium-sized, young organizations in non-metropolitan areas with relatively new directors. These organizations moved quickly, implementing information as they first learned about it without modifying it to fit their situation.

Organizations with patterns of using information after adapting it to fit their needs were medium or large organizations that were well-established but with a relatively new director. Perhaps these organizations combined an interest in updating and improving their program with a sense of organizational identity. Rather than implementing information exactly as it was presented, as did younger organizations with new directors, these organizations considered their own needs and resources, considered the information, and then adapted the information to fit their requirements. They designed a match between themselves and the information.

A final group of organizations most frequently did nothing with the information--they neither rejected it nor accepted it. As a group, these organizations were medium or large metropolitan organizations that were characterized by being average. They were neither new nor well-established. Perhaps these organizations were in transition, moving from the state of a young organization using information exactly as presented to the other extreme of older organizations rejecting most information. It is interesting to speculate what would happen if these relatively established organizations were to get a new director. Perhaps they would meld their own identity with a new director's interest in up-dating programs and report high rates of information use, adapting the information to match their needs.

A major finding of the study is that information utilization takes time. At least, utilization of information designed to be relevant to program concerns in community mental health centers takes time. This study found that implementation was still underway eight months following presentation of the information. How much longer the implementation process may last is not known.

Perhaps information utilization can occur quickly--in a few months--if the information is simple to understand and easy to put in place. However, when dealing with public organizations such as schools, health agencies, or governmental units, there are few situations in which program changes are simple or easy to put in place. Using information in real world programs requires a lengthy process of negotiation, planning, try-outs, establishing support and consolidation. Research studies of information utilization that fail to recognize the time required for these activities to occur may collect outcome data before the outcome is possible. Such studies are likely to find little evidence of utilization, a correct conclusion if the data are collected before utilization could occur. Unfortunately, such studies are a commentary on the researcher's lack of understanding of the time required for utilization to occur, and may not provide accurate information on the extent of utilization.

Utilization is complex, incorporating elements of the information and the user. Utilization--and non-utilization--can occur in several forms. This research begins to address alternative outcomes and factors influencing those outcomes, however investigation of these issues must be expanded and applied in different contexts before definitive conclusions can be drawn.

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Executive Summary

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Change is perhaps the most pervasive characteristic of modern life. The fast pace of daily activity inevitably presents us with the need to do things differently, and with the related need for information about how to do things differently. Sometimes we become aware of new information that is on target and can be used immediately. In other cases, information may not be relevant and we may not use it.

This report describes a study of local mental health organizations and how they used information to deal with changes in their programs. More specifically, community mental health centers were faced with a mandate to introduce new programs for their clients and to improve old programs--in short, to implement major changes in their organizations. Often staff had neither information nor expertise to introduce the necessary changes. Further, when a program was developed and perfected in one organization, rarely was it transported beyond the bounds of that agency. Therefore, a pattern of re-invention evolved in which the same program was developed over and over in similar organizations throughout the country. A major problem, simply stated, was how to facilitate the dissemination and utilization of information among local mental health organizations.

The study was designed to identify the nature and extent of information use and to identify factors related to information use. The research studied information use in 39 community mental health centers throughout the United States. Information in this study was defined as the ideas or suggestions provided to an organization by an expert consultant. Information included both the results of professional scientific inquiry (Lindblom & Cohen, 1979) and ordinary knowledge.

Visits were arranged by asking a community mental health center to indicate an aspect of its general program which it would like to revise or review, such as children's services, in-patient services, or the like. An expert recommended by the National Council of Community Mental Health Centers as knowledgeable in the content area was matched to the center. Eighteen experts, each visiting two or three centers, conducted sessions with staff and provided information on the topic, both research-based information and general information.

Each expert was accompanied by a trained observer who had the responsibility for collecting data. One of the activities of the observer was to collect data on specific information or ideas provided by the expert. To do

this, the observer kept a careful record of each idea suggested, and at the end of the visit, a list of these ideas was left with the staff, a copy given to the consultant, and a copy retained by the observer.

At two points in time, four months and again eight months following the expert's visit, the list of ideas was used as the basis for follow-up interviews with staff. The primary purpose of each interview was to learn what, if anything, had been done with each idea--in other words, to determine the nature and extent of utilization.

Outcome was differentiated into three types of non-utilization and four types of utilization. Outcome--extent of utilization or non-utilization--was determined for each idea.

Not all information is equal. Some ideas involve considerable work and planning on the part of the user, while others are simple and straightforward. Simple frequency counts of implementation of ideas therefore have limited value. The study addressed this problem by collecting data on variables describing each idea. Five characteristics were included to provide a general estimate of the "quality" of the idea: (1) number of people required, (2) cost of implementing the idea, (3) time required, (4) trialability--extent to which the idea can be tried out, and (5) complexity--ease of understanding the idea. Our hypothesis was that information that is more difficult to implement would have higher levels of non-use than information that is easy to implement. A series of chi-square analyses was computed testing the relationship between the information characteristics and extent of use or non-use (status).

The study found that information is used by local organizations and is used frequently. Approximately 75 percent of the suggestions provided to local organizations were used or were in the process of being implemented; only 25 percent of the information was disregarded. The relatively high rate of information use provides evidence that local organizations generally review relevant information, and often use it to modify their programs.

Information use generally required the organization to make a commitment in terms of staff and time. Nearly 80 percent of the ideas that were used required three or more staff and at least 40 hours of staff time to implement them. An extensive process of planning and coordination occurred prior to introducing even minor modifications. Preliminary activities are time-consuming and require the involvement of staff at many levels and with different types of skills.

All information was rated on a difficulty scale; information that was considered and rejected tended to be relatively difficult to implement. By contrast, implicit non-utilization occurred with information covering a range of difficulty levels. This suggests that explicit non-utilization may be a reasonable and defensible decision for the organization. If the information is very difficult to implement, it may be beyond the organization's resources and utilization may be impossible. Therefore, a non-utilization decision may be a correct and positive outcome. By contrast, de facto non-utilization was found to occur with information that is not particularly difficult to implement. In these cases, the organization apparently did not seriously consider the information but let it fade away.

Several utilization categories reported information that was in the process of being used, or that was partially used. The percentage of ideas in these categories decreased over time--nearly 50 percent of ideas fell in these categories four months after initial presentation, and approximately 25 percent of the ideas were still in these categories eight months after presentation. Evidently decisions were made, and the ideas moved from an intermediate state to utilization or non-utilization.

Information utilized completely as presented is the outcome most often implied by studies of utilization. The assumption is that information or an innovation is presented to a potential user and the user either adopts or fails to adopt the complete package. We found that complete utilization is more likely to occur with information that is relatively easy to implement. Only one-quarter of the information implemented completely as presented was above average in difficulty level. Evidently information completely implemented often is straightforward and can be incorporated into the organization's program with little disruption.

Utilization in which the information is adapted is among the most time-consuming and thoughtful types of utilization outcomes, which may be why only six percent of the ideas suggested fell in this category. Information that was adapted was distributed normally on the difficulty scale, therefore the information was no different from most of the ideas provided. Organizations that reported high percentages of utilization with adaptations were established medium or large organizations with a new director. These organizations may merge their own sense of identity with a stimulus for considering new information, resulting in utilization only of information appropriate for

their needs. Utilization requiring attention and planning should have a better chance for lasting over time, and in fact this was the case. Utilization with adaptation was the category that showed the greatest increase over time, indicating not only that more time was needed for planning and implementation, but also that once the information was implemented, it did not move to other outcome categories.

A major finding of the study is that information utilization takes time. At least, utilization of information designed to be relevant to program concerns in community mental health centers takes time. This study found that implementation was still underway eight months following presentation of the information. How much longer the implementation process may last is not known.

Perhaps information utilization can occur quickly--in a few months--if the information is simple to understand and easy to put in place. However, when dealing with public organizations such as schools, health agencies, or governmental units, there are few situations in which program changes are simple or easy to put in place. Using information in real world programs requires a lengthy process of negotiation, planning, try-outs, establishing support and consolidation. Research studies of information utilization that fail to recognize the time required for these activities to occur may collect outcome data before the outcome is possible. Such studies are likely to find little evidence of utilization, a correct conclusion if the data are collected before utilization could occur. Unfortunately, such studies are a commentary on the researcher's lack of understanding of the time required for utilization to occur, and may not provide accurate information on the extent of utilization.

Utilization is complex, incorporating elements of the information and the user. Utilization--and non-utilization--can occur in several forms. This research begins to address alternative outcomes and factors influencing those outcomes, however investigation of these issues must be expanded and applied in different contexts before definitive conclusions can be drawn.