

THE USE OF SOCIAL RESEARCH TO IMPROVE SOCIAL PRACTICE*

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Six patterns of use of scientific resources are identified and illustrated: (1) derivation of action designs from relevant research findings; (2) the adoption of experimentally tested models of practice; (3) diffusion between practitioners; (4) diagnostic team with feedback; (5) internal action-research process; (6) the training of consumers to be open to the use of science. Six differences between social science utilization and the use of physical and biological science are identified. The role of the research utilization agent is explored.

MY OBSERVATIONS IN this paper are an attempt to summarize the brief but varied experiences with problems of use of science by the staff of our Center for Research on the Utilization of Scientific Knowledge at the University of Michigan. Our staff teams are involved in projects concerned with the use of scientific resources to help cope with such social problems as delinquency, illegitimate teenage pregnancy, the educational motivation of culturally deprived children, the lack of spread of creative teaching practices, leisure-time programs for central city girls, the pathology of communication between parents and teenagers and the mental health and

productivity problems of work groups in government and industry.

In each project an effort is being made to focus attention and inquiry on the process by which scientific knowledge and scientific personnel can be used to help develop and validate significant improvements in educational and social practice.

First, I would like to identify and illustrate six patterns of use of scientific resources which we see emerging from our work in the area of social practice. Then I would like to review some of the differences we believe we have discovered between the problem of research utilization in applying social research as

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contrasted to the use of the biological sciences (e.g. in agricultural practice, medicine or public health) or the use of the physical sciences (e.g. transportation, industrial production or weather prediction). Finally, I would like to focus what seem to emerge as the various roles or functions of the applied behavioral scientist or professional science utilization agent in facilitating the application and diffusion of the practical implications of scientific research and theory.

SUMMARY OF MODELS, ILLUSTRATIONS OF RESEARCH UTILIZATION PROCESS

Models which Import Change Resources from Outside the System. I want to distinguish between three patterns of research use which have the characteristic of bringing into the science consumer system (i.e. agency, school system, family) new knowledge and validated practice from outside and three other patterns which have the characteristic of developing the scientific knowledge within the system and then using it as a basis for improvement of practice. In each case I would like to identify briefly the pattern and to illustrate it by a recent or current project of our Research Utilization Center.

The first pattern is one in which the scientist-consultant in communication with a particular practitioner or practice group identifies and defines a problem of practice. This definition is used to guide a process of research knowledge retrieval in which relevant research and theory are brought together and used as a basis for deriving action implications and the design for an improvement of practice or the invention of new prac-

tice. Let me briefly describe two recent examples of this research retrieval and derivation procedure:

A recent one-day consultation conference focused on the problems of how the several million citizens of a metropolitan area could be involved in a process of goal setting and feedback in regard to the development of plans for the metropolitan region. A team of professional and political leaders from the metropolitan area spent half the day interviewing invited resource people. Some of these outside resource people were familiar with research and theory in this field, and others were leaders of projects in other metropolitan areas which had attempted to cope with this same problem. With a predeveloped schedule of probes the host team conducted a guided conversation with the visiting resource people. All this retrieved information was tape-recorded. During the second phase of the day the local leadership took active initiative in attempting to formulate implications of this inquiry for the development of a program for their own metropolitan situation and began to project the elements of a design for action that drew from the implications both of previous research and previous practice innovations. The next steps of developmental work also were clarified and agreed on.

A second example started from the definition by elementary school personnel of their problem of "the in-betweeners." These were defined as primarily older, elementary-school, acting-out boys who were too disruptive to be acceptable in the classroom or other educational facilities of the school, but too young and not seriously delinquent enough to be appropriately in the hands of the po-

lice and the court. A knowledge retrieval session of school people and scientists from child development, educational psychology, social psychology and sociology identified a variety of relevant research findings. The school people and scientists then focused on producing a series of statements about the possible implications of the findings for "things that should happen to the clients" in order for a significant process of resocialization and education to be achieved. These statements of implications from research findings were used as a springboard for a brain-storming session with the practitioners about possible elements of program design that might most effectively deal with the elements of the problem. An action design emerged which was quite different from anything which either the researchers or the practitioners had visualized originally as an appropriate design for re-education. This design was later tested for feasibility and side effects in two school buildings, evaluated as successful and subsequently diffused to other school buildings.

A second procedure for importing knowledge from outside the system is to conduct outside the system an experimental feasibility test of a design procedure to meet some social practice issue. Such a test is conducted by the applied scientist team under controlled conditions. If the test proves successful, the newly developed model for improved social practice is demonstrated and recommended for adoption. What is taken into the system from outside is a developed and validated model for adoption or adaptation by the client system. This, of course, is comparable to the development of new products in the experi-

mental farm or in the research and development laboratory of the industry.

An example of this procedure in the work of our own staff is the development of the so-called "cross-age socialization design." From previous research several of our staff members had developed the hypothesis that one of the major potentials in most educational and socialization situations was unused. This was the potential influence of older peers on younger peers. It was decided to test out experimentally the feasibility of training 10-, 11-, and 12-year-olds to function as educational aids and socialization agents with 5-, 6-, and 7-year-olds. The experimental farms consisted of a camp and an elementary school where the team of scientists and social engineers had control over all phases of the experimental program. Results indicated that it was feasible to train the older peers to assume creative teaching functions, that there was very significant response on the part of the youngsters and that the olders showed great personal growth in their own attitudes and achievement because of their experience of responsibility in collaboration with adults and their learning from the training seminars. It then was possible to present evidence of feasibility and validation from this experimental test to a school system which was concerned about the problems of achievement and motivation to learn in the young pupils. They adopted the model on a tryout basis and made several creative adaptations in the process of carrying out and evaluating the design.

The third pattern of importation of knowledge is a very exciting one to me. This is the process of identifying creative innovations which have been invented

some place else and of developing procedures for getting appropriate documentation about these social inventions so that their relevance to local needs can be considered and the essential features of the practice can be adopted or adapted. It is our observation at the present time that one of the great tragedies in American education and social practice is that a large proportion of the creative inventions which are in line with good research and theory never become visible and never become appropriately transmitted from one setting and practitioner to another. What dissemination does take place is so slight that successful, high quality adoption usually is impossible.

An example of a model for coping with this problem is illustrated in a current project with a state teachers association. A questionnaire nomination procedure has been developed in which all teachers in a school system have an opportunity to fill out a teaching practice nomination sheet identifying whether they feel they have personally invented a teaching practice to cope with the particular type of educational problem (for example, stimulating more motivation to learn) or whether they know of any colleague who has invented a practice. These nomination sheets serve as the basis for work by a screening committee to review the conceptual and research relevance, the practical significance and the potential adoptability of each practice and to select a smaller number of practices for intensive documentation. For example, a nomination survey in four school systems identified about 300 practices which were reduced by the screening committee to 30 for intensive investigation and description. The doc-

umentary description emphasizes a concrete description of activity, an identification of necessary skills, a review of the traps and problems of successful use of the practice and ideas for possible improvement of the model from experience of the innovator. The current experiment is attempting to discover what kinds of practices can be communicated in this written form, what kinds require additional steps of observation and what types require more intensive training and consultation. The main point here is that this is a procedure for identifying, describing and importing new models into the system which have been developed by practitioners in other communities, agencies or organizations.

Procedures for Development of the Needed Knowledge Resources Within the System. Let me turn now to the three processes of use of scientific resources which emphasize the local development of the resource knowledge.

The first model is one where the organization or agency contracts with the scientist team to collect diagnostic data relevant to some problem, to analyze the data and then to feed the data about the local situation back to the agency or organization staff for their use. Two brief examples will illustrate this pattern:

Using trained citizen interviewing, the action research team conducted an intensive study in a city of a sample of delinquents and matched nondelinquents, both boys and girls, to assess some of the major factors related to development and maintenance of patterns of delinquent behavior in teenagers of the community. They also conducted an interview study of the key educational and socialization policy leaders of the community concerning their conceptions of

delinquency and of delinquency prevention. These data were analyzed by the scientist team and were reported back to the community leaders in a series of community seminars to which the key community leaders were invited. Staff members were available during these seminar sessions to provide consultation on interpretation of the findings and to react to the generalizations and implications being formulated by the community leaders.

The second illustration is a study, in three school systems, of all of the high school girls who dropped out of school because of premarital pregnancy. The findings were summarized and fed back to school officials and other key community leaders for their possible use.

The second pattern is one in which the outside applied researchers supervise a self-study process within the organization, community or agency. The researchers train local staff members to collect the information and to participate in the processing of the data, the interpretation of the findings and the working-through process involved in spelling out the implication of the findings for the development of change in educational or social practice.

Our classroom teaching study illustrates this pattern of science utilization. Thirty teachers from seven school systems volunteered to work with us on a diagnostic self-study of their classroom educational climate and the possible implications for changes in their teaching practice. During the spring the action research team provided the teachers with questionnaires to inquire into their own attitudes and orientations. The teachers also were given rating and questionnaire tools to use in eliciting infor-

mation from their classroom group concerning orientation toward learning, toward the teacher, toward each other and many other aspects of classroom dynamics. During the summer the teachers met regularly with the staff to help tabulate and analyze the data, to develop the concepts needed to work on interpretation and to think through the implications of the findings for possible changes in their own teaching role in the fall. Consultation was provided in this thinking through process and in clarifying the plans for the use of new teaching procedures.

The third model of internal mobilization is quite different from the other two. It focuses on the idea that the practitioner needs direct training in learning to be a consumer of science and of scientific resources in order to be an effective user of scientific knowledge. It is our observation that the desired collaboration between the consumer and the scientist often is impossible because the consumer or practitioner has received no basic training in how to use services of scientists or in how to use inquiry procedures in generating their own basic diagnostic knowledge for the development of their own practice. Let me mention briefly two examples of current work in this very undeveloped area:

One of our activities is focused on training teachers in the techniques of problem solving. We provide them with a tool kit of diagnostic tools and conceptual orientations to assist them in collecting appropriate information and in using it to solve their problems of classroom management. They are trained to be users of two products of science: information-getting methods and conceptual models.

In another project we have developed a laboratory course in behavioral science for elementary schoolchildren. Students have an opportunity to discover who the behavioral scientists are and how their resources can be used as well as to learn to carry through their own inquiry projects on various problems of human relations. It seems clear that part of the current negative orientation toward scientific resources in mental health, education and social welfare results from a serious lack of any concrete education about the nature and the utility of social research and the social scientists.

SOME SPECIAL CHARACTERISTICS

From our comparative study of the process of research utilization in agriculture, medicine, public health, industry, mental health and education we have come to the conclusion that there are some very significant differences between the problems and process of research utilization in the area of social research and social practice as compared to these other areas of applied biological and physical science. I would like to summarize briefly several of these differences as we see them:

First, most significant adoptions of new educational or social practice require significant changes in the values, attitudes and skills of the social practitioner. This requires a deeper personal involvement in adopting the new practice than is true in the adoption of new agricultural, industrial or medical practices. There will be more problems of resistance to change and of relearning.

Second, most significant changes in mental health or educational practice really are adaptations rather than adoptions of the innovations of others. What

is being passed on is not a thing (e.g. a new seed, new implement, new drug or new machine), but is a new pattern of behavior to be used in a new social context. Therefore, there must be significant features of adaptation in each adoption. One implication of this is that the dissemination of the new practice must therefore include much more orientation of the adopter to the basic principles or conceptions involved in the practice in order to make creative adaptation possible.

A third important difference in our field of social practice is that the concept of "social invention" really has not been developed adequately. There are no adequate procedures for identification, documentary description and validation of new practices. This means that on the one hand there is often a large volume of poorly described nonvalidated practices tempting uncritical adoption efforts by professional colleagues. On the other hand, there is a great volume of creative practice which remains invisible and inaccessible to review and consideration. This means that the diffusion of significant new practice is a very retarded and chaotic situation.

A fourth characteristic of the social practice situation is that the practitioner gets very little feedback about the effectiveness of his adoption effort. The farmer can quickly see that his soil is more fertile or that the new seed produces more corn per acre. The doctor can check whether the new drug reduces infection more rapidly. The engineer can check objectively on the increased output of a new machine. But the teacher or mental health worker typically lacks the criteria and the tools to make this type of check. There is less sense of re-

ward for the effort and very little data for quality control to provide guidance to the practitioner who is making an effort to use a new practice model.

A fifth important difference is that the ways in which mental health and educational practice are organized provide little stimulus for the practitioner to take risks in searching for and using new resources. The practitioner remains relatively invisible to colleagues and supervisors. There are neither competitive challenge nor good communication channels to stimulate sharing and improvement of practice. In addition, there tends to be a high sensitivity to the potentially negative reaction of various publics to changes of practice.

A sixth critical point of difference is that our social practice fields have not developed the networks, procedures and manpower resources necessary to link basic and applied research to operating practice. We lack the in-service training and support needed to stimulate and maintain the upgrading of social practice as social science resources grow and as social technology develops.

I think that all of these facts point to the special challenge we face in our field of making a conscious and concerted effort to focus energy on research utilization.

From the types of studies I have reported we have come to conceive the research utilization function of our staff as requiring that they be *linking agents* at various points in the flow of research use. It has become clear that we have to develop new skills of retrieving and organizing research-based knowledge in such a way that it links to the needs of the social practitioner or client population. Helping the practitioner to clarify

his resource needs is, of course, another aspect of this linking responsibility.

But in most cases the appropriate knowledge resources are not enough, as we have seen. There is a necessary linkage function of helping the practitioner work through the implications of new knowledge for specific models of practice and specific operational skills.

As we have noted in several of our examples, another function of the research utilization agent is to serve as inquiry consultant or trainer to assist the client population in carrying through their own diagnostic research and working through the meaning of the findings for changes of practice.

Another necessary linkage function was identified in our look at the diffusion problem. We must find effective and appropriate ways of linking creative innovators to their colleagues to provide for the spread and successful adaptation of new practice.

Our own experience with graduate seminars and practicums has revealed to me that there is a significant number of students both in the behavioral science departments and in the professional schools who are eager to explore these new roles and acquire the new skills which differ considerably from those of research production being typically taught in the behavioral science departments and from the skills of operating practice being taught in the professional schools. Certainly the training of research utilization agents requires a grounding both in behavioral science discipline and in professional values and technology. This obviously puts a strain on the fairly segregated curriculum designs and training sequences which still exist in most of our graduate programs.