Some Issues Related to Research Utilization in Occupational Therapy

(professional practice, research, theories)

Kenneth J. Ottenbacher, Roann Barris, Julia Van Deusen

The importance of research in the rehabilitation fields, including occupational therapy, has been widely recognized in the past decade. The production of credible research literature has received high priority as occupational therapy strives to achieve professional status within the hierarchy of rehabilitation service providers. To accomplish this goal, research that establishes a scientific basis for therapy must be produced, and this research must be integrated with clinical practice.

Occupational therapy appears to be making progress in producing research literature related to clinical practice; however, the issue of research utilization has remained largely unexplored. This paper discusses methods of applying research findings and procedures in practice environments and explores some issues related to research utilization. Research utilization is viewed as a complex process involving multiple components related to individual decision making, theory development, and the documentation of clinical practice.

Rogers (1) observed that research in occupational therapy "has been seen as a vehicle for improving intervention, developing the scientific basis of practice, and establishing occupational therapy as a full profession" (p 3). The establishment of occupational therapy as a "full profession" within the rehabilitation service hierarchy is a central concern of the discipline (2) and is directly related to the development of a body of research literature. A body of research-based knowledge forms the foundation for professional authority (3). Professional authority provides control over the creation, organization, and transmission of knowledge; the selection and training of candidates for the profession; the terms under which the profession is practiced; and the selection of the services that the public should receive. Although many occupations have considerable technical skill, only professions claim that their members can appreciate, understand, and participate in the broad knowledge-building process underlying professional practice.

Therapists must be producers, consumers, and users of research information to participate actively in the development of a professional status. However, as Rogers (1) has observed, "being knowledgeable about research results and making use of them are two separate processes and the latter does not necessarily follow from the former" (p 8).

During the past decade major efforts within the profession have been aimed at increasing the research productivity of occupational therapists (4). Ottenbacher and Short (5) surveyed the literature published in The American Journal of Occupational Therapy from 1970 to 1980 and found an increase in data-based studies in which independent and dependent variables were clearly defined and a test of a hypothesis was conducted. This study demonstrated that increased research productivity within the discipline is becoming a reality. However, it is still questionable whether research findings are actually making their way into practice. In psychosocial occupational therapy, for instance, discrepancies have been observed between the content of journal articles and the...
current practices and stated beliefs of many therapists (6).

Most clinical professions seem to share this problem. For example, in nursing, Ketefian (7) investigated the degree to which a specific research finding related to recording oral body temperature was used by practicing nurses. The finding, documented through a series of studies and widely disseminated over a five-year period, had direct application to nursing practice. Nevertheless, among nurses surveyed, Ketefian concluded that “the practitioner either was totally unaware of the research literature relative to her practice, or if she was aware of it, was unable to relate to it or utilize it” (p 91). The type and amount of education, recent graduation from school, and frequency with which the procedure was performed made no difference in the nurses’ practice in this particular case (7).

The problem illustrated by this study of nursing practice is also widespread in other applied professions (8–16). Several explanations of why research findings are not used in clinical practice have been offered. It is frequently stated that much behavioral and social science research is not applicable to clinical intervention (13). Academic behavioral scientists are said to be concerned with esoteric theoretical matters and not with common clinical or practice problems (9). When applied researchers do study clinically relevant issues, they frequently work with independent variables that cannot be manipulated or develop explanations based on average performances across groups of subjects that provide little assistance to those practitioners involved in solving day-to-day problems. The emphasis on group comparison research at the expense of clinically relevant information that can be directly related to a specific client has been a major criticism of research in applied fields (9).

However, even when research methods and results are clearly applicable to clinical situations, research findings may not be used (17). Therefore, the explanations given earlier appear to provide unsatisfactory, or at least insufficient, reasons for the neglect of research by clinicians. The premise of this paper is that research utilization can be compared to the diffusion of innovations. By using a model of the process by which innovations are adopted (18, 19), one can identify a number of critical parameters relevant to the use of research.

The Innovation-Decision Process

Rogers and Shoemaker (19) proposed a paradigm of the innovation-decision process that consists of four stages: (a) knowledge of the innovation and rules for its use; (b) persuasion or the formation of either favorable or unfavorable attitudes toward the innovation; (c) decision making to accept or reject the innovation; and (d) confirmation for the decision. This process is influenced by antecedent variables reflecting characteristics of the group that will be using the innovation and of the social system or context in which group members function and by concurrent variables reflecting characteristics of the change itself.

Characteristics of the User Group

Several factors can predispose an individual to be either favorable or unfavorable towards the idea of making a change. These factors include personality characteristics such as the willingness to take risks, values, conceptual abilities, and social status. Among occupational therapists, many of these traits can be seen as negatively influencing the probability of adopting research findings. For instance, a number of studies of the learning styles and learning preferences of occupational therapists and occupational therapy students have indicated the prevalence of a concrete, “doing” orientation to learning (20–24). Such a style could preclude a high degree of reflection on research and its relevance to practice and instead suggest a tendency to favor an observational approach to learning. Furthermore, the predominant level of education of occupational therapists is the baccalaureate; many programs at this level do not emphasize research to an extent that would counteract the concrete, experiential learning styles of most students.

It is also possible that occupational therapists do not sufficiently value theory development or research. Van Deusen (25) has found that inexperienced occupational therapists who have not pursued education beyond the baccalaureate level, do not place high priority on the value of theory development. Since theory construction involves the integration of research findings (26), therapists must value research if they wish to understand the probability of adopting research if they wish to understand theory development. However, undergraduate occupational therapy students and new graduates of baccalaureate programs place a higher priority on treatment application than on research and theory development (27, 28). Van Deusen (27, 28), for example, found that undergraduate students and new graduates ranked a potential program of graduate study emphasizing advanced clinical procedures as more important to them personally.
than one stressing research and development of occupational therapy theory. This type of priority was in direct contrast to the values held by experienced therapists and those with graduate education. Since a regard for theory development appears to increase directly with an increase in occupational therapy education and experience (25), it seems reasonable to hypothesize that amount of education and experience are also related to the utilization of research innovations in practice.

Social System Factors

Another set of antecedent variables concerns the social system in which the potential innovators function. For occupational therapists, two social organizations are of paramount importance: the setting in which they work and their professional organization.

Occupational therapy, as a reference group for practitioners, cannot clearly be labeled a profession. Its status is somewhat uncertain because it shares some characteristics with professions and others with occupations (29–32). As a result, the field’s norms regarding research and theory development are equivocal, and the average clinician is left without a clear understanding of the purpose of research. Christiansen (33) recently commented, “Our greatest challenge is to overcome the attitude of neglect toward scientific inquiry. Unfortunately, research continues to be viewed commonly as an activity foreign to our clinics and irrelevant to our practice” (p. 197). Furthermore, like other clinical groups, occupational therapists place a high premium on clinical learning and expertise. When clinical expertise is viewed as more important than information contained in research reports, individuals may not feel the need to compare what they do with what has been reported in the literature, let alone shape their practices on the basis of what they have read (34).

The hospital social system may also contribute to an environment where innovation and research are not highly valued. While the need to demonstrate cost-effectiveness may spur efficacy studies, it may not necessarily be an incentive for a therapist to make changes in his or her practice.

Both user characteristics and social system factors affect the probability that an individual will be motivated to seek out and stay abreast of new developments, particularly those that are presented as research. One other variable is critical at this stage, the how-to knowledge that is relevant to the innovation. Some occupational therapists simply may not know how to translate research into practice, that is, they may not understand the principles underlying the methods being tested in the research. Such an inability to interpret research was documented in a survey of physical therapists (16). In this study, 62% of the respondents reported that unfamiliarity with the research process was a barrier to both involvement in and use of research.

Persuasion

While persuasion will be influenced by the preceding variables, its main characteristic is the presence of external forces that may affect the individual’s attitude toward the new ideas. Important factors that could increase the use of research include the prevalence of research findings in literature; an emphasis in continuing education and workshops on applications of research rather than skill development; the ability of important figures to speak persuasively for the adoption of research findings; and the exposure of students and clinicians to research through their own participation in studies. However, the finding that new therapists would prefer skill-oriented continuing education might again influence the type of continuing education that is prevalent and attended.

Decision Making

Diffusion research suggests that the actual decision to adopt or reject an innovation is affected by several characteristics of the innovation itself. These characteristics include the compatibility of the innovation with what an individual believes or is already doing; the complexity of the innovation or how difficult it will be to adopt it; and the divisibility of the innovation or whether or not it can be broken down into smaller parts and tried in stages (18–19). When research is considered an innovation, it becomes apparent that some of the obstacles in translating research into practice are inherent in the research itself. This seems especially true for research that uses traditional group comparison designs.

It is difficult to adopt group comparison research findings. Traditional group comparison designs emphasizing between-group assessment of performance have been the norm in behavioral science research for the last four decades. These “classic” designs rely on identifying homogeneous groups of patients, assigning them randomly to treatments, providing a standardized treatment regime, and obtaining pretest and/or posttest measures of performance.
methodology is familiar to researchers in the behavioral and social sciences. The patients who participate in these designs are selected to represent a relatively homogeneous diagnostic group for which the intervention is specifically designed. When the investigation is completed, the effects of treatment are evaluated by statistically comparing the pretest and posttest performance of the alternate groups to determine if the mean (average) patient performance differs across groups or conditions. However, "while aggregation of data gives invaluable information about groups" (35, p 10), the relevance of a technique to a particular individual is lost. For example, a given treatment might be quite effective for a few patients in a treatment condition whereas the remaining patients may not show improvement or may even deteriorate slightly. When the performance of the subjects in the experimental condition is averaged, the results may indicate that the mean for the treatment group is not statistically different from the mean of the control group. Even if statistically significant differences are found, clinically relevant information about which specific patients benefited from therapy cannot be inferred from group designs. The traditional way of reporting variability in group designs, that is, the calculation of the sum of squares within groups, does provide any information related to individual patients' performances (36). The sum of squares within a group represents an estimate of all the effects not attributable to a particular treatment. It does not provide information about the specific number of individuals within a group or condition who have improved as a result of intervention.

The fact that subjects in such studies are often screened beyond a degree that is clinically possible further illustrates the difficulty of applying group design research. For example, research subjects may fall into a narrow age range, be the same sex or race, or have only one diagnosis. Actual clients, however, are likely to appear with a variety of complicating conditions, come from varied socioeconomic and racial backgrounds, and span several age brackets.

Furthermore, "the replication of intervention strategies reported in research articles within a clinical environment is often impossible" (35, p 10). For example, a study of the effects of vestibular stimulation on children with cerebral palsy reported by Chee and others (37) involved the use of a specially adapted rotating chair and a ratio of two adults to one child. Even though this study had statistically significant results, the practicality of replicating these conditions in most clinics would be poor. The assumption that adapting or modifying the procedures used in a specific group comparison research study would result in similar clinical gains for an individual patient is not justified and represents a misinterpretation of clinical research. Therefore, the clinician who is familiar with the research is faced with a paradox: he or she has knowledge of the support of certain strategies based on traditional research procedures but no apparent way to implement them.

Implications for Research Utilization

The purpose of occupational therapy research is to enhance the knowledge base of occupational therapy practice so that consumers receive the best available treatment. It is axiomatic, therefore, that both producers of research and direct service providers should be concerned with the effectiveness with which information generated through research is disseminated and incorporated into practice. The preceding discussion reflects some of the difficulties that exist in synthesizing research and practice in applied fields. Occupational therapy must begin to deal with the important issue of research integration and utilization at this early stage in its scientific development. As Fuhrer (38) recently observed, "the provision of rehabilitation services that are grounded in systematic research is something owed to the persons we serve and something required if our practice is to be viewed as credible by the informed public. However, mere availability of more and better research will not assure incorporation of that knowledge into practice" (p 610). The previous discussion of the model of innovation-diffusion suggests a variety of strategies relevant to increasing research utilization.

Education

Because occupational therapy is predominantly an applied, people-oriented profession, it is not likely that the type of person who is attracted to this field will change substantially in the future. These individuals will continue to be pragmatic and experiential rather than abstract in their learning preferences. Furthermore, it is not likely that the dual entry-level system currently in existence will change in the near future. Therefore, as several writers have recently suggested (39, 40), if the master's degree is not to become the predominant entry-level degree, then baccalaureate students must be en-
couraged to pursue advanced education. At the same time, educators must begin to see that there are advantages to having students move rapidly into advanced master's degree programs, rather than having them wait several years.

In addition, occupational therapy curricula must be examined to determine how much emphasis is placed on the acquisition of techniques and skills versus the critical thinking necessary for scientific inquiry and theory development. Furthermore, attempts must be made to incorporate research into the entire curriculum. Students need to learn how to evaluate research in the context of their courses in occupational therapy methods; it is not enough for them to acquire an understanding of the research process in a research course that may not be integrated with other course work.

Clinics

If more value is placed on theory development and research as experience increases, clinicians with the potential to use research and to become researchers must be encouraged to remain in clinical practice. Clinical research positions should become the norm rather than the exception in large occupational therapy departments, and, as Dunn (41) suggested, collaborative research between academicians and clinicians should be sought out and fostered by both types of settings.

Research

One way to aid therapists in adopting research findings lies with the design of research. Ottenbacher (36) has pointed out that a bias toward the use of large group comparison designs has resulted in a reluctance to carry out, report on, and value the results of idiographic, or single-subject, designs. However, single-subject research can yield findings that are applicable to specific, individual patients, and it generally incorporates treatment methods that reflect real clinical conditions (36).

That is not to say, however, that group-comparison designs should be abandoned. Instead, therapists may need to consider the best way to approach such research. Burr and others (42) have provided a valuable model for understanding research utilization. They identified two ways in which research may be translated into practice: the empirical method and the theoretical method. The empirical method requires the therapist to read the primary research literature on a regular basis and to apply relevant findings or conclusions whenever a practice problem is presented. As has already been observed, however, direct application of research findings presents numerous obstacles.

The theoretical method involves a "process of going from technical research literature to 'theory' and from 'theory' to practice rather than trying to directly apply research literature to practical situations" (42, p 286). This approach differs from the empirical method in that it attempts to link research with appropriate theory, which means that as practice problems are encountered, the therapist translates them into theoretical terms to find solutions rather than seeking answers directly in the empirical research. In this approach, the value of a body of research literature is directly related to the support or evidence it provides for or against a specific theoretical perspective. Thus, if the results of several studies support a particular theoretical position, the therapist can feel confident that the theory provides a useful guide for treatment. Treatment activities based on the theory would constitute the intervention of choice. On the other hand, if the cumulative research results do not provide support for the theoretical orientation, the theory probably should not be used as a basis for developing a treatment program.

The theoretical method of research utilization clearly illustrates the crucial connection between theory and research and provides a rationale or justification for the use of large N group comparison research methods designed to test theoretically derived predictions. Obviously, the application of the theoretical method depends on the existence of a well-developed theory and a body of research to test the theory. In addition, review techniques designed to systematically integrate existing bodies of research are important to the theoretical method of research utilization since most therapists do not have the time and resources to keep abreast of primary research studies in specific areas of practice (43).

Conclusion

As the scientific basis of occupational therapy is established, the issue of research utilization must be addressed. To apply existing research effectively, occupational therapists must begin to study problems related to the clinical application of research findings. However, future investigation and discussion in this area should not be too narrowly focused. A myopic view of research relevance may produce an antagonistic relationship between clinicians and researchers similar to that associated
with the "scientist-practitioner split" widely discussed and debated in clinical psychology (9, 44).

A hidebound view of research may ultimately lead to the erroneous conclusion that research has little relevance to the practicing therapist. Such a view reflects an inadequate or superficial understanding of the research process in an applied discipline such as occupational therapy. A more productive approach would be to consider the nature of clinical decision making by practitioners and the ways in which research can contribute to decision making and treatment documentation. This perspective will be adopted when therapists develop an understanding of the research process and appreciate the fact that research and practice are inseparable components of occupational therapy science.

REFERENCES

4. Llorens L: A journal of research in occupational therapy: The need, the response. Occup Ther J Res 1:3-6, 1981
27. Van Deusen Fox J: Occupational therapy theory development: Knowledge and values held by recent graduates. Occup Ther J Res 1:79-93, 1981
42. Burr WR, Mead A, Rollins E: A model for the application of research findings by the educator and counselor: Research to theory to practice. Family Coordinator 22:285-290, 1973