Clinical Reasoning in Occupational Therapy: An Integrative Review

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Clinical reasoning has been an area of increasing interest for researchers, educators, and clinicians in the field of occupational therapy. Rogers directed the profession's interest to this topic when she made clinical reasoning the focus of her 1983 Eleanor Clarke Slagle lecture (Rogers, 1983). The next year, the American Occupational Therapy Association (AOTA) Commission on Education heard a presentation by Donald Schön that highlighted the importance of practical reasoning in the actual provision of professional services (Gillette & Mattingly, 1987). Schön stimulated leaders in the American Occupational Therapy Foundation (AOTF) to seek ways to further understand the nature of therapists' reasoning in practice. This effort resulted in the AOTF Clinical Reasoning Study, completed in 1988. Other authors have attempted to either describe clinical reasoning or prescribe approaches to improve it (e.g., Barris, 1987; Cohn, 1989; Oepeau, 1991; Hall, Robertson, & Turner, 1992; Neistadt, 1987, 1992; Neuhaus, 1988; Pelland, 1987). For this review, more than 25 articles were found in occupational therapy literature since 1982 that address some aspect of clinical reasoning. However, there has not been a comprehensive review of the literature that integrates these writings and suggests directions for further study.

The objectives of this paper are twofold: (a) to integrate the theory and research on clinical reasoning that has appeared in the occupational therapy literature in order to show the similarities and differences among the various views, and (b) to suggest directions for further theory building and research. At the end of this review, a conceptualization of clinical reasoning is proposed that builds on a synthesis of current literature. This framework expands descriptions of clinical reasoning and raises considerations for future research. It also directs managers and educators to new considerations when attempting to support the development of clinical reasoning in students and staff.

The literature in occupational therapy roughly parallels the work on clinical reasoning in other professions such as medicine (Elstein, Shulman, & Sprafka, 1978; Schmidt, Norman, & Boshuizen, 1990) and nursing (Benner, 1984) as well as the more general analyses of professional practice (Schön, 1983, 1987). As demonstrated in this literature, old assumptions of professional rationality and the scientific method are being challenged, and new views of the roles of practical knowledge and practice context are being evaluated (Cervero, 1988; Schön, 1983; Yerxa, 1991). Schön stated this view clearly.

This dilemma of "urgency or relevance" arises more acutely in some areas of practice than in others. In the varied topography of professional practice, there is a high, hard ground where practitioners can make effective use of research-based theory and technique, and there is a swampy lowland where situations are confusing "messes" incapable of technical solution. The difficulty is that the problems of the high ground, however great their technical interest, are often relatively unimportant to clients or to the larger
Most of the research in occupational therapy corresponds with one of Schön’s two epistemologies of professional practice, technical rationality and reflection-in-action. Consistent with these two epistemologies, we have labeled the two major strands of the research in occupational therapy scientific reasoning and narrative reasoning. These labels were chosen to reflect the larger constructs that they represent. Scientific reasoning implies a logical process based on hypotheses testing (Rogers, 1983). Narrative reasoning reflects a phenomenological process in which stories are used to give meaning to therapeutic events (Mattingly, 1991b).

We have also identified an emerging third view of therapists’ thinking, which we have labeled pragmatic reasoning. This view is consistent with a new account of mental activity being developed by cognitive psychologists that considers the context in which that mental activity occurs (Brown, Collins, & Duguid, 1989; Lave, 1988). This concept has been labeled situated cognition. According to this view, mental activities are inherently shaped by the situation; learning that occurs in one context is not necessarily transferrable to another context. This idea is not new to occupational therapy, as a large portion of clinical practice addresses the effects of environment (or context) on human performance (Christiansen, 1991). The field’s literature has, however, neglected to adequately include this view in examinations of professional practice. Clinical reasoning, when viewed from the perspective of situated cognition, goes beyond Schön’s dichotomy. As Lave explained, “there is reason to suspect that what we call cognition is in fact a complex social phenomenon [which] is a nexus of relations between the mind at work and the world in which it works” (1988, p. 1). Situated cognition theory may explain concerns raised by educators and managers about the difficulty new therapists have in using school-based knowledge in the clinic (Cohn, 1991; Neistadt, 1987, 1992). It may also frame our understanding of the influence of personal and practice constraints such as therapist motivation, reimbursement regulations, and equipment options. In the past these have been considered barriers to effective clinical reasoning (Barris, 1987; Neuhaus, 1988; Rogers & Masagatani, 1982). We argue that they are an inherent part of the clinical reasoning process. We label this third aspect of clinical reasoning pragmatic reasoning.

Literature Review: What is Clinical Reasoning?

Several different answers to this question are found in the literature, which we have given the aforementioned labels of scientific reasoning, narrative reasoning, and pragmatic reasoning. Our discussion is organized by three questions asked of each research tradition: (a) What is clinical reasoning? (b) What should clinicians do to improve clinical reasoning? and (c) Does this view of clinical reasoning adequately account for the realities of clinical practice?

Scientific Reasoning

Much of the work of Rogers and her colleagues (Rogers, 1983, 1986; Rogers & Holm, 1991; Rogers & Masagatani, 1982) has centered on the notion of clinical reasoning as a systematic cognitive process. In her Eleanor Clarke Slagle lecture, Rogers described clinical reasoning as the “thinking that guides practice” (1983, p. 601), and elaborated that “cognitive activity constitutes the heart of the clinical enterprise” (p. 601). The goal of clinical reasoning is to decide on a treatment recommendation that is made in the best interest of a particular patient. To do this, the therapist must answer three critical questions: “What is the patient’s current status in occupational role performance? What could be done to enhance the patient’s performance? And what ought to be done to enhance occupational competence?” (p. 602).

Rogers’ view of clinical reasoning is heavily based on a rational model of cognitive processing that is exemplified by the scientific method. In many respects, she reflects Schön’s “high, hard ground where practitioners can make effective use of research-based theory and technique” (1983, p. 42). With the exception of one article (Rogers & Masagatani, 1982), all of her work is based on theory generated from data collected in other professions such as medicine. The exception was a qualitative study in which 10 occupational therapists were observed and interviewed relative to initial evaluation of patients, to “examine the manner in which therapists select, assemble, and use data to reach a judgement about a patient’s status” (Rogers & Masagatani, 1982, p. 218).

Scientific reasoning as a framework is appealing, because it lends a systematic feel to the occupational therapy process. It has been seen as a way to professionalize occupational therapy (see Parham, 1987; Yerxa, 1991, for insights into this perspective). To improve clinical reasoning from this perspective, practitioners need to follow the scientific model more effectively. Several prescriptive approaches for this can be found in the literature (Cubie & Kaplan, 1982; Pelland, 1987; Rogers & Holm, 1991). They generally advocated the selection of a frame of reference, development of a systematic data collection system, generation of competing hypotheses, and effective hypothesis testing throughout the therapy process.

Scientific reasoning has undoubtedly made major contributions to the professionalization of the field, but it is insufficient by itself to adequately explain the complexity of clinical practice. Rogers acknowledged that “As the clinical reasoning process moves from an assessment of occupational status, to a review of treatment options, to a selection of the right action, the scientific mode of reasoning gives way to nonscientific intellectual processes"
(1983, p. 610). The reader is left wondering how the clinician actually decides what to do. Additionally, this view does not attend to the role that the therapist’s personal and practice contexts place on the reasoning process. The cognitive theorists discussed earlier would suggest that cognitive processes are inherently embedded in contextual situations, which in fact activate particular kinds of knowledge (Brown et al., 1989; Lave, 1988). In the scientific view, these tend to be presented as limitations to clinical reasoning, rather than integral to the process (Rogers & Holm, 1991, p. 1046). Finally, while admiring scientific reasoning, one wonders whether clinicians actually have the time to go through the many steps in the suggested detail outlined by its proponents. Rogers and Masagatan’s study suggested that they may not, as they noted that therapists seemed to base treatment decisions more on a “standard operating procedure approach to clinical thinking” than on “scientific thinking” (1982, p. 215).

**Narrative Reasoning**

In contrast to Rogers, Mattingly suggested that clinical reasoning is a “largely tacit, highly imagistic, and deeply phenomenological mode of thinking” (1991a, p. 979). Her description is based on research conducted as part of the AOTF clinical reasoning study, in which a staff of 14 occupational therapists in a large acute care hospital were closely studied over a 2-year period (Mattingly & Gillette, 1991). She suggested that clinical reasoning is not just having a reason for treatment; rather, it is a form of practical reasoning directed toward action. Because therapists must do things with patients, and must do them so as to enlist the patient’s active participation, therapy involves attention to the “human world of motives, values and beliefs” (1991a, p. 983). As such, it becomes more of an improvisational process in which reading the context of the problem from the patient’s perspective is the key clinical reasoning task.

Mattingly saw clinical reasoning as occurring throughout the treatment process, in contrast to earlier research focusing on the assessment phase of therapy. Mattingly contended “that it is often during the process of treatment rather than initial assessment that the thorniest clinical processes present themselves” (1991a, p. 985). As a student of Schön’s, Mattingly appeared to be addressing the “swampy lowland where situations are confusing ‘messes’ incapable of technical solution” and problems are of “greatest human concern” (Schön, 1983, p. 42).

So what does clinical reasoning in the swamps involve? Mattingly (1991b) suggested that narrative reasoning, rather than scientific reasoning, is the fundamental basis of clinical reasoning in occupational therapy. Story making and story telling allow the therapist to contextualize the occupational therapy process: “To effectively treat persons with long-term disabilities, one must treat the whole patient, which involves looking beyond the disease, to how that disease is experienced by that particular patient” (1991b, p. 1000). Narrative reasoning occurs in two primary ways: through therapists sharing stories, and through therapists creating therapeutic stories with current patients.

According to Mattingly (1991b), therapists tell stories about patients to each other, to help them reason through how a particular patient will experience the biomedical condition affecting him or her. Stories about past and current patients help the therapist visualize the course of therapy for this person. Therapists also create therapeutic stories to help patients invent new futures for themselves: “Therapists must be able to picture a larger temporal whole, one that captures what they can see in a particular patient in the present and what they can imagine seeing sometime in the future. This picturing process gives them a basis for organizing tasks” (1991b, p. 1001). This form of narrative reasoning was then used as the basis for selection and communication about therapeutic activities, so that the therapist and the patient saw themselves “in the same story” (1991b, p. 1002).

With this view, Mattingly distanced clinical reasoning from the scientific process and located it within a phenomenological perspective. She viewed scientific reasoning as most useful in addressing biomedically related assessment, which she considered as only a small part of what therapists actually think about (1991a). Clinical reasoning still seems to be a combination of thinking and verbal interaction geared toward understanding.

Mattingly suggested that to improve clinical reasoning, occupational therapists must “take their phenomenological tasks more seriously” (1991a, p. 986) by focusing on the meaning that disability has to the patient and addressing the motivational issues affecting patient performance. A greater appreciation for the context of the patient experience becomes critical. Legitimizing narrative thinking as a critical component of the therapy process will improve treatment. Her view is appealing, because it gives voice to therapists’ concerns with contextual issues and legitimizes the informal discussion about patients that is the counterpart to the formal scientific reports more often seen in team planning meetings and medical records. However, this view is still focused on the patient–therapist interaction, with particular attention given to the meaning that the patient attaches to both the disabling condition and the therapy process. It neglects the larger practice context in which this interaction is occurring, which includes constraints imposed by reimbursement, equipment, and organizational culture.

**Combining Scientific and Narrative Reasoning**

Fleming, who served as co-investigator in the AOTF Clinical Reasoning Study, suggested that clinical reasoning
involves multiple modes of thinking that “are for different purposes, or in response to particular features of the clinical problem” (1991, p. 1007). These forms of reasoning are narrative, procedural, interactive, and conditional. Narrative reasoning has already been discussed above. Procedural reasoning is a “dual search for problem definition and treatment selection” (Fleming, 1991, p. 1008), and in many ways echoes the idea of scientific reasoning. It is employed when thinking about the “disease or disability” (p. 1008) and related treatment activities. Interactive reasoning took place during “face-to-face encounters between the therapist and the patient” (p. 1010), and was directed toward better understanding of the patient as a person. This process served many needs, including gaining the phenomenological perspective of the illness experience, to more finely match treatment choices with patient preferences, gain trust, share meaning, and check on progress of treatment. Conditional reasoning involved the use of both logical and nonlogical methods (such as imagination and intuition) to place the patient in current and possible future social contexts (p. 1011). According to Fleming, this type of reasoning allowed the therapist to envision several future possibilities and refine treatment to match the current and future contexts. Each of these forms of reasoning seems to relate to the development of clinical expertise, in that procedural reasoning was seen in all therapists, interactive reasoning in therapists with increased experience, and conditional reasoning in therapists with greater experience and expertise.

To improve clinical reasoning, therapists must “become facile in thinking about different aspects of human beings using various styles of reasoning” (Fleming, 1991, p. 1013). Fleming noted that each style helps the therapist put together holistic treatment that is directed to both present and future concerns. Slater and Cohn (1991), as a result of their experiences in the AOTF clinical reasoning study, advocated a peer-mentoring system of staff development that allows more expert staff to help novice practitioners gain expertise in using the various styles of thinking.

Fleming’s important contribution, along with that of Mattingly, is the recognition of multiple aspects to the clinical reasoning process. She effectively synthesized several aspects of clinical reasoning to allow for therapists’ attention to the individual biomedical situation and the meaning of that situation to the person. In paying attention to both, the therapist is enabled to walk up and down the slopes between Schon’s “high ground” and the “swamps,” using the form of reasoning necessary to meet the situation’s demands. However, Fleming did not address other aspects of clinical reasoning alluded to by some authors (Barris, 1987; Fondiller, Rosage, & Neuhaus, 1990; Howard, 1991; Neuhaus, 1988). Foremost among these are the reasoning processes related to the therapists’ personal context, as well as that of the practice setting.

**Pragmatic Reasoning**

A number of authors have raised concerns about the effect of various organizational, political, and economic realities on the practice of occupational therapy (Barris, 1987; Fondiller et al., 1990; Howard, 1991; Neuhaus, 1988). It seems logical that contextual factors that inhibit or facilitate therapy are themselves part of the clinical reasoning process. In an exploratory study of clinical reasoning of therapists practicing in psychosocial settings, Barris (1987) noted that patient population, hospital setting, and department tradition (e.g., content of evaluation forms) tended to have more influence on therapists’ clinical reasoning than did their beliefs and attitudes. Neuhaus described some of these issues clearly when she discussed the effect of technology and cost containment on the clinical reasoning process:

> The therapist has increasingly less control over whom to treat, when and how. . . . A major ethical issue, and one that is all too familiar to occupational therapists, is the denial of treatment to a medically qualified person because of inability to pay or eligibility of for third-party payment. (1988, p. 291, 292)

She went on to describe a related but opposite dilemma that occurs when therapists are required to fulfill prescribed intensities of treatment to meet federal policies, regardless of apparent patient need for that intensity. A third variation of environmental pressure is seen when budgetary and personnel shortages result in too many patients for therapists to effectively manage, thus requiring the therapists to ration their services.

To improve clinical reasoning, Neuhaus supported the use of open discussion among peers and with mentors, to allow for discussion of and reflection about the conflicts between values and the treatment environment. Additionally, she advocated the use of groups of colleagues for important decisions, to allow for better ethical analysis. Although Neuhaus framed these issues as recent developments resulting from cost containment and technology developments, it is likely that these issues have always been with the profession. By noting them as an important component of clinical reasoning, clinicians are given one more perspective from which to view the process.

In a provoking article focused on clinical research, Törnebohm (1991) raised several interesting issues relevant to clinical reasoning. He proposed that each therapist represents a unique paradigm consisting of several parts. The major components of the therapists’ paradigms are (a) their view and ideas about occupational therapy, (b) their ability to treat patients, (c) their life knowledge and assumptions, and (d) their interest in patients and the profession. The therapist’s effectiveness can be seen as a relationship between the therapist’s paradigm and the person being treated. From this perspective, new questions arise. Is part of clinical reasoning related to the therapist’s personal paradigm? Others (Fleming, 1991; Rogers, 1983) have alluded to the impor-
ractice of therapists' values, but have not adequately con-
SIDered other personal contexts and how they affect clini-
cal reasoning. Do we nor make decisions, in part, by
inventoring the therapy skills we have, and doing what
we know how to do? Additionally, the therapist's own
motivation must enter into the clinical reasoning process.
Surely, some treatment is based in part on what the ther-
apist is able and willing to do.

By suggesting the personal context of the therapist
as an important point of study, Törnebohm opened the
doors to different directions for improving clinical reason-
ing. Perhaps clinical reasoning is best improved by moti-
vating therapists to care more about their patients. Per-
haps it is facilitated by gaining a broader inventory of
treatment skills. And perhaps critical life experiences fa-
cilitate more effective clinical reasoning.

Future Directions

We believe that clinical reasoning is a multifaceted pro-
cess that includes, not only scientific and narrative rea-
soning, but pragmatic reasoning directed to issues be-
Yond those presented by therapist-patient interaction.
Pragmatic reasoning may parallel what Fleming described
as conditional reasoning (1991), but its focus is much
broader. It is not only concerned with the contextual
issues affecting the patient now and in the future; it is also
concerned with the personal context of the therapist and
the culture of the practice environment. Through the
inclusion of these variables in the clinical reasoning
framework, both prescriptive and descriptive notions of
clinical reasoning will become more anchored in the daily
realities of clinical practice.

The concerns of pragmatic reasoning include both
the therapist's personal and practice contexts. Examples
of therapist contexts are repertoire of therapy skills, abili-
ty to read the practice culture, negotiation skills, and
personal motivation. Examples of the practice context are
the power relationships of occupational therapy within
the organization, reimbursement resources for treatment
services, and the kinds of available space and equipment.
Therapists reason about all of these issues when they plan
for, implement, supervise, and reflect on occupational
therapy services.

Implications

Research is needed that directly addresses the roles that
personal and practice contexts play in the clinical reason-
ing process. Such research would allow for a more
grounded description of clinical reasoning. If contextual
issues prove to be an inherent part of the process, then
both preprofessional and staff development models
could be designed to directly attend to the contextual
aspects of clinical reasoning.

Several authors have suggested educational ap-
proaches that allow for attention to contextual issues
With the exception of Slater and Cohn (1991), these ap-
proaches are directed primarily to preprofessional and
fieldwork education. There is a need to build on these
and to develop other approaches that support the on-
go ing development of clinical expertise. Practice will be
strengthened by educational approaches that support
therapists' identification of their own practice theories,
and understanding of how embedded their knowledge is
in their personal and practice context. Raising these is-
issues allows practice theories to be examined for validity
within a particular context and across multiple contexts.

Additionally, supervisors and managers will be di-
rected to an appreciation of how strongly the practice
context affects the decisions that therapists make in pro-
viding care. Supervisors become guides. Supervision be-
comes the critical link in helping therapists evaluate their
own assumptions and develop the skills needed to nego-
tiate contextual issues in favor of their patients' needs.
Managers will be able to support staff development more
effectively when they recognize that expertise is em-
bodyed in the therapist who is not only motivated, with a
large repertoire of patient treatment skills, but also able
to successfully negotiate contextual issues in favor of im-
proved patient care.

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