Clinical Reasoning and New Ideas on Intelligence: Implications for Teaching and Learning

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Some recent research efforts have been focused on the attainment of a better understanding of intelligence and reasoning. One such study is the Clinical Reasoning Study funded by the American Occupational Therapy Association and the American Occupational Therapy Foundation. Other studies have been conducted by theorists of human development. The findings of both groups reveal three common themes: the multiple aspects of intelligence, the importance of understanding the patient’s story, and the use of a caring perspective. This article examines these shared themes and discusses their implications for new directions in occupational therapy curricula.

Fleming (1991) postulated that therapists use different types of reasoning in their clinical practice. A logical mode is used when thinking about the patient’s performance problems, an interactive mode when trying to understand the patient as a person, and a projective mode when thinking about the patient’s future functioning. This description of reasoning differs greatly from that found in the medical literature, in which clinical reasoning is defined solely in terms of logical problem solving (Fleming, in press). Until recently, the psychology profession has emphasized logical, or rational, thought as the critical intellectual capacity.

The model posed by Piaget (Gruber & Voneche, 1977) of a unified center of operation (i.e., intelligence) that leads to the desired reasoning (i.e., logical and abstract) was challenged by Gardner (1985), who proposed instead a theory of multiple intelligences. Gardner posited that several kinds of intelligence exist and that different results are achieved depending on the type of intelligence used. The intelligences he defined were linguistic, musical, logical-mathematical, spatial, kinesthetic, and personal. He argued that people use these intelligences in varying proportions, according to need and ability. Expressing a viewpoint similar to Gardner’s, Fleming (1991) proposed that therapists use more than one intelligence during a therapy session. Indeed, Fleming found that therapists use their movement and sensory capabili-
ties (what Gardner would call spatial and kinesthetic intelligence) as well as their problem-solving mode (what Gardner called logical-mathematical intelligence). In addition, Fleming said that the therapeutic process depends on the therapist's ability to engage the patient in a meaningful relationship (what Gardner called personal intelligence).

Gardner’s (1985) ideas have fueled a debate within human development circles, with those opposing him arguing that what he defined as an intelligence is really more of an ability than a cognitive process. Those sharing Gardner’s view argue that intelligence is not monolithic and that the study of all possible modes of intelligence can lead to a better understanding of how we reason. Supporters of Gardner’s view of multiple intelligences include Sternberg (1988) and John-Steiner (1985). Sternberg proposed a model of multiple intelligence drawn from case studies and an analysis of the history of intelligence theory. John-Steiner, who studied male and female artists, scientists, and writers, proposed that there are several kinds, or languages, of thought. Together, the works of Gardner, Sternberg, and John-Steiner represent a movement in human development to replace the traditional view of a unified intellect with a view of multiple intelligences. The premise of the therapist with the three-track mind posited by Fleming (1991) echoes this movement to define multiple modes of reasoning.

Understanding the Patient’s Story
Luria (1976) has added to our understanding of intelligence through his writings on cognitive development. Perhaps more importantly, he has played a key role in the movement to emphasize the clinician’s responsibility to acquire a full understanding of the patient. He has published what experts consider to be two of the most illuminating clinical studies done in this century (Luria, 1972, 1987). These studies offer a vivid portrayal of cognitive dysfunction that goes far beyond the traditional discussion of diagnosis. Luria enables the reader to understand the disability by portraying the patient’s life as that person experiences it and tries to make sense of it.

Sharing Luria’s (1972, 1987) view, Bruner (1986) posited that we must “understand the ways human beings construct their worlds” (p. 46). He asserted that these constructs are not arbitrary, but rather, reflect intellectual and psychological processes founded on individual’s beliefs and values. He saw the clinician’s role as one of “interpreting a person,” and he argued that this can only be done when one understands the narrative of the person’s life story (p. 39). Sacks (1985) illustrated Bruner’s point by using his “clinical tales” to portray the patient’s “essential being,” which he said was relevant to neurology in that the patient’s personhood and disease “cannot be disjoined” (p. xiv). Similarly, Coles (1989) described how his knowledge of narrative enables him to enter another patient’s life and to understand that person through listening to his or her story.

Mattingly (1989, 1991b) described how the occupational therapist uses a narrative mode of reasoning to develop an understanding of the meaning of disability from the patient’s perspective. In the narrative mode of reasoning, training in daily living activities means more than simply skill building. It symbolizes the patient’s experience of loss of former capacities as well as his or her attempt to acquire new ways of behaving and understanding. The patient, in effect, has to write a new chapter in his or her life story, and the therapeutic experience in part shapes the patient’s perspective. Contrary to studies of clinical problem solving that presume a focus on diagnosis, Fleming (1991) found that therapists spend a considerable amount of their reasoning time trying to understand the patient’s current functioning and predicting future performance capabilities. By discovering the patient’s underlying values and beliefs, the occupational therapist is able to incorporate this knowledge into the therapeutic process. Knowledge of the patient’s story enables treatment dedicated to the patient’s reclamation of self and creation of a new image (Mattingly, 1991a).

Taylor (1989) shared this view when she argued that health professionals need to understand the self-images that their patients create and, if possible, to nurture optimism within the therapeutic process. Like Bruner (1986), Sacks (1985), Coles (1989), and Luria (1987), she underscored the importance of eliciting the patient’s life story and urged that an understanding of this life story is as important a part of the therapeutic process as the establishment of the diagnosis. The idea that knowledge of both the diagnosis and the patient’s life story constitutes the best treatment approach is borne out in the Clinical Reasoning Study.

A Caring Perspective
Gilligan’s (1982) In A Different Voice marked the beginning of a new vantage point from which to view moral and intellectual development. Until that time, Kohlberg’s (1981) theory of moral development had offered the predominant view. Gilligan’s research was prompted in part by curiosity as to why women generally scored lower than men on Kohlberg’s stages of moral development. Her findings suggested that Kohlberg’s schema presumed a particular kind of thinking, one that relied on abstract principles such as truth, justice, and equality to resolve moral dilemmas. Gilligan called this the justice perspective. In contrast, Gilligan found that the perspective most prevalent among women was what she called the caring perspective. Those holding a caring perspective used concerns about relationships and persons to decide their moral dilemmas. This initial theorizing has been substan-
tiated in recent research (Gilligan, Ward, & Taylor, 1988). The studies confirm that both the justice and the caring perspectives exist and that men tend to hold the former perspective while women tend to hold the latter. Gilligan cautioned, however, against making this finding the basis for simplistic views about male and female behavior. Studies indicate that children of both sexes are capable of using the caring and justice perspectives. The research suggests that environmental influences play a major role in the adoption of a particular perspective in adulthood and that adults may change their perspective as they grow older and redefine their values.

A characteristic of the caring perspective is the desire to strengthen relationships. According to Gilligan et al. (1988), “from the perspective of someone seeking or valuing care, relationship connotes responsiveness or engagement . . . a connection” (p. xviii). In a study of medical students, those holding a caring perspective noted the powerful therapeutic potential of a strong relationship between patient and caregiver (Gilligan & Pollak, 1988). Similarly, Mattingly (1991a) argued that a strong therapeutic relationship underlies successful therapy. She explained that only a patient strongly committed to the therapeutic process gains from it and that commitment necessitates that the patient and therapist share a similar view of treatment. Such sharing evolves through a relationship founded on trust and caring.

The difficulty in using the caring perspective within a medical context is evidenced in Fleming’s (1991) discussion of the interactive mode of reasoning. She defined this reasoning as dominated by concern for the person and for his or her reaction to the therapist and the treatment. Although Fleming found that therapists in the Clinical Reasoning Study engaged in this mode of reasoning, they were generally silent about it. Therapists were concerned that administrators, physicians, and third-party payers would not deem these interactions to be a legitimate part of medical treatment. The failure of the medical model to value this aspect of treatment, however, did not cause therapists to abandon it, but rather, to “go underground” (i.e., they continued to address this aspect of treatment but did not discuss it openly) (Fleming, 1991). A similar phenomenon was noted by Gilligan, Lyons, and Hamner (1989) in their study of adolescent girls. They found that when the girls’ valuing of relationships was not reaffirmed by school administrators and teachers, they would retain their beliefs but speak about them only among themselves. These examples illustrate the difficulty that groups have when they hold a perspective that is not recognized by those in the environment, whether it be a school or hospital. The studies done by Gilligan and colleagues have alerted us to the existence of the caring perspective and its importance in adolescent and adult development, whereas the Clinical Reasoning Study documents the importance of the caring perspective in the therapeutic process.

Implications for Teaching and Learning

The knowledge from the research on intelligence and clinical reasoning suggests the following direction for occupational therapy education.

**Teach to all modes of reasoning.** This involves recognition of the different ways of knowing and of designing learning experiences that emphasize the various facets of intelligence. It means a shift from teaching facts toward guiding the development of reasoning capability through experiential and cooperative learning (Slavin, 1985). The experiential model of teaching affects curriculum content decisions in that emphasis is placed on the learning of critical concepts rather than of facts or techniques. The different modes of reasoning should be given equal time in the curriculum. Thus, although we must teach the logic of problem solving, we must also teach students interactive reasoning. Moreover, a focus on the teaching of reasoning requires a shift in the method of evaluation from a quantitative to a qualitative mode of measurement. For example, a videotape of a student working with a patient at the beginning and end of the semester provides a more reliable measure of interactive reasoning ability than does a multiple-choice exam. Similarly, a case study that requires students to apply their knowledge is a more valid measure of reasoning ability than is a test that measures factual retention.

**Teach a narrative approach to patient evaluation.** Because clinical reasoning requires the therapist to use a phenomenological approach in making sense of the patient’s condition, students need to learn how to use a narrative reasoning mode when evaluating patients. For students to understand all of the aspects of the patient, they must learn about the patient’s beliefs and values and develop an understanding of what disability means to that particular person’s life. One way to elicit such information is through interviews that encourage patients to discuss their feelings about illness and disability. Another is to use evaluations that assess interests, values, and roles. Although students are generally well grounded in such evaluations as range of motion and muscle testing, ways of evaluating that can yield data about the meaning of disability are rarely emphasized. By encouraging students to use qualitative as well as quantitative assessments and by familiarizing them with the phenomenological approach to understanding patients, we can promote the development of narrative reasoning. It could be argued that in doing so, we are educating students to use an approach that is not supported by third-party payers. In response, however, we can pose the question, "Who should be shaping occupational therapy education?" The Clinical Reasoning Study offers evidence that narrative reasoning is an integral part of the therapeutic process. Occupational therapy curricula can help to give this underground activity more credibility by teaching students narrative
reasoning and ways to justify its use within the medical model.

*Use a connected teaching approach.* Belenky, Clinchy, Goldberger, and Tarule (1986) described connected knowing as an educational orientation that includes the sharing of common experiences and discussion of the feelings that inform ideas. They contrasted connected knowing with what they called separate knowing, which is an orientation to learning characterized by impersonal and objective reasoning. Separate knowing dominates higher education in that the professor demands that the students acquire a facility for logic and problem solving based solely on abstract reasoning. This approach is commonly referred to as critical thinking in higher education curricula (Paul, 1990). However, Fleming (in press) found that occupational therapists use methods other than logic-based reasoning to make decisions. Similarly, Belenky et al. suggested that although women were capable of mastering a logical approach, they remained uncomfortable using this approach exclusively. The women preferred a more collaborative approach to knowing. Rather than beginning with theory and logic, they found it more fruitful to begin with a discussion of experience and use that as a basis for problem solving. Thus, Belenky et al. recommended a connected teaching approach, wherein experience precedes theoretical abstraction. This approach has the benefit of demystifying theory by making it accessible through illustration in practice. Using the connected teaching approach, the teacher demonstrates the process of sharing concepts and examining them for their aptness. This enables students to see their teacher as someone who, like themselves, forms ideas and tests them out. Thus, the ownership of knowledge shifts from teacher to student, and the classroom becomes the center for the learning and testing of ideas. Classroom activity that involves discussion of experiences and case studies that illustrate theory in practice are two examples of methods that can stimulate connected learning. Fieldwork provides a wonderful opportunity to engage in connected learning. The cases are no longer simulated, but real, and the testing of ideas becomes the basis for treatment. Indeed, the success of clinical education may in part be due to its ability to engage the student in connected learning.

**Conclusion**

Recent research in intelligence and clinical reasoning suggests that education should be redirected from the teaching of facts and techniques to the teaching of methods that stimulate higher-level reasoning capabilities. Whereas multiple modes of reasoning seem to be inherent in clinical practice, these several modes of knowing need to be addressed in the curriculum. The research confirms what occupational therapists have intuitively known: Caring is an important aspect of patient care, and knowing our patients means more than simply learning about their diagnosis. It reinforces the holistic view of patient treatment proposed by our profession’s founders (Schwartz, in press).

In a broader context, the ideas discussed in this paper coincide with the accountability movement in higher education (Wolff, 1990), a movement that originated with the legislature and also with the public to express their growing dissatisfaction with the products of higher education. The movement calls for a change in the traditional methods of teaching and measurement, that is, lecture and multiple-choice exam, on the grounds that they are ineffective in stimulating higher-level problem solving. Although many innovative ideas, such as those proposed in this paper, have been tried in various forms (McKeachie, 1990), there has been no sustained, systematic movement in higher education toward the use of these more effective teaching methods. In addition to a call for change in teaching methods, there is a growing demand for outcomes assessment with which to measure teaching effectiveness (Committee on College and University Teaching, Research, and Publication, 1990). The measurement of students’ performance depends on our ability to define intelligence and reasoning.

The ideas expressed in this article are pertinent and suggest a valuable approach to guide occupational therapy educators as they develop the best methods by which to assess and teach the kind of reasoning that will lead to better-prepared practitioners.

**References**


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