Classroom as Clinic: A Model for Teaching Clinical Reasoning in Occupational Therapy Education

Maureen E. Neistadt

Key Words: clinical competence • education, occupational therapy, teaching methods • problem solving

One way to help students transfer their academic skills of data gathering and analysis to clinical settings is to teach them the clinical reasoning process outlined by Joan Rogers. This paper describes a format for teaching that process through the use of carefully structured in-class evaluations of physically disabled guest speakers who role-model as clients. Pre- and posttesting of the performance of 78 students during these in-class evaluation sessions showed a significant improvement over a semester in students' abilities to accurately analyze assessment data and to formulate appropriate treatment plans. Qualitative outcomes are also discussed.

Clinical Reasoning in Class

At Tufts–Boston School of Occupational Therapy (Tufts-BSOT), senior and 1st year master's students are led through this clinical reasoning process by means of clinical simulations in a course called Advanced Occupational Therapy Theory and Practice. The course covers evaluation, rehabilitation pharmacology, sensorimotor techniques, sexuality and disability, and stress management. Evaluation is the centerpiece of the course because accurate evaluation is essential to the appropriate clinical application of theory from the other content areas. The focus is not on technical competence with evaluation methods but on the thought processes involved in identifying clients' problems and in generating possible solutions. Four in-class evaluation sessions of adults with physical disabilities are scheduled throughout the semester.

Two Ways of Learning

Students are advised at the beginning of the course that they need to be prepared to learn on two levels. On the level of objective knowledge acquisition, they are held responsible for the wealth of factual and theoretical information they have gained from their previous courses as well as the additional theoretical and factual information they will receive in this class. On the level of affective responses they need to learn how to be empathetic, genuine, and nonpossessively warm (Truax & Carkhuff, 1967) with clients under the pressure of clinical expectations and time constraints.

Learning the clinical reasoning process is facilitated and assessed by a series of assignments connected to the in-class evaluation sessions. Some of these assignments focus primarily on knowledge acquisition, others focus primarily on affective responses, and a third group does both.

Rogers's Model

The problem/plan lists that are used in this course focus on the knowledge realm and follow Rogers's (1982) model of clinical reasoning. Rogers describes a therapeutic process of evaluating a client that begins...
with a review of the client's chart and/or other available preassessment information. From this review, the therapist, through a process of deduction, forms hypotheses about what the client's problems might be. The therapist evaluates the client, then modifies his or her preassessment hypotheses by considering the specific details of the client's case (induction) and deciding between different interpretations of the client's behaviors (dialectical reasoning). The therapist then works with the client to establish treatment priorities within the client's value system (ethical reasoning). The students are led through this process in class, although with some differences. Instead of taking a theoretical approach and developing a set of hypotheses, they are expected to proceed in a more practical manner and write a problem/goal/plan list after reviewing limited preassessment information. Instead of meeting a client, they meet a physically disabled guest lecturer who serves in the role of client.

The Evaluation

Each evaluation simulation is 3 hours long. At the beginning of these sessions, students are given information about the guest lecturer's age, diagnosis, and social history. Diagnostic descriptions are purposively brief and general (e.g., the diagnosis might be listed as arthrogryposis, cerebral palsy, closed head injury, neurofibromatosis, open head injury, or spinal cord injury at the C5-C6 level). Diagnoses are written this way for two reasons: (a) In a clinical situation the therapist often has to make an evaluation without having more specific information than provided here and (b) students need to begin to think abstractly about diagnoses as disease processes that affect certain body systems and have somewhat predictable functional outcomes. Students are not told the diagnosis of the guest lecturer's condition until the day of the evaluation session. This puts them in a very real clinical situation and forces them to develop abstract concepts about diagnoses.

The social history briefly delineates the guest lecturer's present living situation, his or her vocational status prior to injury or illness, and the professional and/or home care help available to him or her at the present time. This preassessment information is presented on an occupational therapy evaluation form from a local physical rehabilitation/occupational therapy department. This form is used so that students can learn to use an actual evaluation form as a self-cueing tool during their clinical reasoning process. The form covers all of the categories of problems listed in the Uniform Occupational Therapy Evaluation Checklist (AOTA, 1981).

Using this limited initial information, the students are expected to deduce and write, within 30 minutes, a problem/goal/plan list specific to the guest speaker. Then the students hand in their lists, get a 10-minute break, and meet the guest lecturer.

The Guest Lecturers

The guest lecturers are engaging, open adults who are coping well with a variety of physical disabilities. Most are known to the instructor from past and present clinical practice, some have been referred by other clinicians familiar with this teaching method. The students spend 1 ½ to 2 hours with the guest lecturers. Several formats are used for these sessions. In one format, one guest lecturer addresses the entire class of 20 to 30 students. In another format, three guest lecturers meet with groups of 5 to 10 students. In yet another format, 5 to 6 guest lecturers meet with groups of 3 to 6 students.

The guest lecturers are always the primary leaders of their respective groups, regardless of the group size. The course lecturer and teaching assistant as well as other faculty members are available to co-lead with the guest lecturers; course instructors do not role-model an evaluation session for the students. The students are responsible for asking questions and initiating the evaluation procedures they would like to try. This forces the students to take initiative and to perform under pressures similar to those experienced in a clinical setting. The format also helps the students to become acquainted with the concept of "client as teacher." Students realize that they should enter practice open to the idea of learning from their clients.

After meeting with the guest lecturer, the students are given another 30 minutes to write a modified problem/goal/plan list. The verbal exchange of ideas between students is permitted during this time to encourage them to (a) consider all possible information from the evaluation session in the process of inducing specific problems for this particular client (the guest lecturer), (b) exchange interpretations of the guest lecturer's behaviors in a dialectical process of delineating his or her specific problems, (c) consider the nuances of the guest lecturer's priorities in writing their post-meeting/evaluation list. In writing this list, students are expected to consider the guest lecturer as a person rather than focusing on the potential problems associated with a particular diagnosis.

The Students' Responsibilities

The lists. Both the chart review and evaluation lists are graded and handed back to the students promptly after the guest speaker evaluation session. The grades represent (a) the percentage of correctly
Improvements in Diagnostic Skills

A look at the percentage of problems correctly identified by students (see Figure 1) reveals some interesting performance patterns. For their first chart review list, students have correctly identified an average of only 54% of the expected problems. For their last chart review list, they have correctly identified an...
average of 85% of the expected problems. That improvement is significant at a $p < .005$ level ($z = 13.09$). On their first evaluation lists the students have correctly identified an average of 64% of the expected problems. On their last evaluation lists, they have correctly identified an average of 88% of the expected problems. This difference is significant at the $p < .005$ level ($z = 13.33$). The evaluation scores indicate that students have been better able to identify the problems of guest lecturers after actually meeting them.

This improvement in students’ performance after meeting the guest speakers has been consistent across all four simulated evaluation sessions. On Figure 1, the $z$ scores for the difference between the chart review and evaluation lists for each session are as follows: Session 1, $z = 5.1$, $p < .005$; Session 2, $z = 1.98$, $p = .025$; Session 3, $z = 1.8$, $p < .025$; and Session 4, $z = 1.65$, $p = .05$. Students have repeatedly said that meeting adults with disabilities helps them to make sense of and “picture” the theoretical information they have learned in the classroom. No significant statistical differences have been found between the performance of undergraduate and graduate students on either the chart review or the evaluation lists.

There have also been some patterns regarding the problem areas most often excluded. One third to one half of the students have neglected the motor problems associated with spinal cord injury and head injury, particularly on their chart review problem/goal/plan lists. On those same lists, approximately one half of the students have neglected the possibility of perceptual and cognitive problems for adults with cerebral palsy. One to two thirds of the students have neglected future planning for adults living either in the community or in a long-term care facility. On the other hand, students have generally been very accurate in their problem/goal/plan lists for adults with strokes.

Students’ treatment goals and plans for the problems they list have generally been of very high quality from the very beginning of this course. However, even in this area some improvements have been seen. By the end of each semester, approximately 25% of the students have had their problem/goal/plan lists upgraded by the instructor for (a) the creativity and appropriateness of their goals and plans and (b) the overall organization of their lists.

Qualitatively, students’ initial classroom responses to the time-limited problem/goal/plan assignments have ranged from stunned shock to total panic. Some have been angry at being expected to think and perform in a clinical manner within the classroom. By the end of a semester, students generally react to this task more calmly.

**Affective Responses and Growth**

There have also been some trends in the reactions students have expressed in their logs. Students have consistently written about emotional conflicts and concerns with life quality issues, styles of developing rapport, and levels of empathy. A typical comment might read, “I am athletic and a very good dancer—I think I’d rather be dead than have a spinal cord injury.”

There has been a general theme of self-deprecation throughout the logs for the first three quarters of the semester. A common statement in this regard might be, “I could not bring myself to touch the guest speaker (to try passive range of motion techniques) or to ask my questions in front of my classmates and I’m such a terrible person for being unable to do this.” The instructor has responded to these comments with extensive counseling and self-disclosure in the margins, urging students to give themselves the time, personal space, and permission to learn at their own pace and to find their own niches in occupational therapy practice. By the end of the semester, students have begun to express excitement over their learning and their new-found abilities. Statements like, “Wow! I could really feel the guest lecturer’s spasticity when I tried passive range of motion!” then have become the norm.

One other consistent log theme throughout each semester has been an appreciation of the guest speakers as people and teachers. For example, “These are truly remarkable human beings who still have it together after having been through so much” and “I...
also think that the people themselves had a lot to do with how at ease we felt. They were genuinely interested in helping us to learn and made us feel very comfortable.

Information about the students’ abilities to articulate their thought processes are available from their midterm papers. In these papers, students generally give the rationales for their evaluation approaches very clearly. Regarding her introduction to her “client,” for example, one student wrote:

In addressing my client, I would sit down in front of or near him and try to establish eye contact while I am speaking to him. I feel that sitting would let the client know that I am interested in him and that I have time to spend with him—that I’m not just going to leave as quickly as possible.

Regarding the sequence of his evaluation, another student wrote of establishing rapport by following a “progression of less threatening items to more personal and perhaps emotionally charged topics.” This same student continued, “In the course of the interview, I would have to rely on intuition and client feedback to make any adjustments to this planned order.”

Students in this class have also been successful in generating appropriate discharge recommendations for their final team presentation. They have used a variety of formats on their discharge summary forms: summary of treatment with recommendations, summary of treatment goals with recommendations, summary of present status with recommendations, and summary of progress with recommendations.

Students’ evaluations of this course have also yielded some interesting information. Approximately 95% of the students who have taken this course to date have used the “general comments” section of their course evaluations to write enthusiastically about meeting the guest lecturers and about having the opportunity to apply some of their theory in a simulated clinical situation. Many students have written that they have found the practical, clinical focus of the course to be helpful. In their journals, class discussions, and course evaluations nearly all students have said that the in-class evaluations have been helpful in alleviating some of their preaffiliation anxieties. Many students have reported that they felt more confident because the process of identifying and structuring their methods of analytical thinking taught them a general approach to clinical problem solving. On their post-affiliation curriculum evaluations, approximately 30% of the students in each class have listed this course as one of the most helpful in preparing them for clinical practice.

Discussion

The outcomes described above have some interesting educational implications. Although these outcomes speak specifically to the Tufts-BSOT curriculum, the educational issues they raise may be relevant to other curricula. An analysis of the percentage of problems correctly identified by students indicates that students can improve significantly in this task over the course of a semester. In fact, the biggest improvement in performance is seen between the first and second sessions. No further significant improvement in performance is seen after this second session. Are students simply learning the procedures of the problem/goal/plan task as opposed to developing an underlying thought process? Does immaturity in the underlying thought process account for the finding that students still miss 15% of a client’s problems when doing a chart review and 12% of the problems when making an evaluation by the end of this course?

The students’ performance on their first problem/goal/plan list suggests that they have not yet developed the ability to think abstractly about disease processes and their effects on function. Watching students attempt this task for the first time, one sees many who clearly do not even know how to begin and others who appear to be intently trying to recall every detail they may have previously heard or read about this particular diagnosis. Few students seem to use the evaluation form in front of them to help structure their thoughts. In short, when faced with a new, clinically related task, they seem to show a general difficulty with problem solving and do not readily use environmental cues. They seem stuck in detail-oriented academic strategies. Are we teaching our students to be mentally flexible with assignments that make them analyze and solve problems? Or are we focusing too much on the memorization of detail and multiple choice thinking (Spencer, 1986)?

It is also interesting to note that students are generally competent in writing treatment goals and plans at the beginning of this course, even though they are deficient in problem identification. At Tufts-BSOT, as in other curricula, students learn treatment planning primarily by writing treatment plans from case studies. Case studies generally contain more information than may be available to a clinician from a chart; they usually describe behaviors so that students need only match descriptions with labels. Students also have access to their textbooks while writing up treatment plans. This academic approach is needed in the initial stages of learning to plan treatment. However, the outcomes of this study suggest that students cannot automatically make the transition from case studies to clinical behaviors. Clinicians need to generate treatment plans quickly, without reference to books, relying heavily on their evaluation observations. Educational experiences that simulate clinical demands appear helpful in bridging this gap.

The patterns of errors students made in their
problem/goal/plan lists suggest that students may be overlearning stroke rehabilitation and not learning enough about other diagnostic groups. The students' tendency to neglect planning for the future of persons living in the community or in long-term care facilities suggests that more emphasis needs to be placed on the occupational therapist's role in these health care sectors.

Judging from their open and honest responses, students have found writing in their logs to be a useful way to work through some of their reactions to clinical experiences. Reading these logs can give an instructor invaluable information about students' fears, anxieties, and delights. By responding in writing on each log, an instructor can address students' issues in a very personal way, offering individualized support and encouragement through the professional growth process. By sharing general issues with the entire group in class discussions, an instructor can assure students that they are not alone with their concerns. When an instructor knows what the general concerns of the group are, he or she can share relevant personal experiences. Reading these logs can give an instructor invaluable information about students' fears, anxieties, and delights. By responding in writing on each log, an instructor can address students' issues in a very personal way, offering individualized support and encouragement through the professional growth process.

In their pilot study about clinical reasoning, Rogers and Masagatani (1982) found that clinicians generally had difficulty articulating their evaluation thought processes. Steger (1983) has suggested that this difficulty may stem from a lack of formal training in analyzing clinical reasoning. The midterm paper clearly forces students to do this sort of analysis. Nearly all students perform very well on this assignment. That may indicate this assignment is similar to previous academic assignments, like case studies. It is also possible that the clinical supervision students receive in class discussions and through feedback on their problem/goal/plan lists helps them define their clinical reasoning process. Rogers (1982) has suggested that teachers' sharing of their clinical thought processes is a valuable instructional tool.

There are some practical course planning issues that need to be considered relative to this teaching method. Guest lecturers were given honorariums ranging from $20 to $50, depending on how many students they taught in their groups. Tufts-BSOT also paid for transportation for those speakers who were unable to provide their own. For each course, the total cost for the guest speakers has been $500 for honorariums and $145 for transportation.

To maintain a pool of potential guest speakers, it is helpful for an instructor to be involved in both clinical practice and networking with other clinicians in his or her area. The author's experience with this and other student teaching situations has been that adults with physical disabilities are generally very eager to teach, even when teaching requires significant self-disclosure. The following excerpt from a guest lecturer's letter sums up the sentiments that all guest speakers have expressed about their experience with this course:

My visits to Tufts were most enjoyable. It was important to me to be able to show the students that they do not have to be afraid to do things that they have to help them better understand what the patient needs to do to adjust to his/her new way of life. (D. Murphy, personal communication, December 4, 1985)

This method also requires high energy and flexibility on the part of the instructor; clinical simulations are less predictable and more difficult to arrange than traditional lecture or demonstration sessions. To role-model clinical reasoning, the instructor also has to be prepared to frequently reveal his or her personal and professional thought processes.

Conclusion

This model for teaching clinical reasoning appears to be an effective way to connect classroom theory to clinical practice and well worth the extra educator effort it involves. Further research is needed to examine the actual clinical carryover of this teaching approach in comparison with other models.

Acknowledgment

This paper was derived from a presentation made in June 1986 at a conference entitled "Occupational Therapy Education: Target 2000" held by the American Occupational Therapy Association in Nashville, Tennessee.

References


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**Correction**


The second hypothesis should read as follows: “If UN [unilateral neglect] is essentially an attentional deficit, there will be no significant relationship between performance on the Schenkenberg test or on the bilateral awareness scale of the St. Marys CVA Evaluation and the perceptual scores of the CVA Evaluation.”