Using a Head-Mounted Video Camera To Explore Current Conceptualizations of Clinical Reasoning in Occupational Therapy

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OBJECTIVE. The purpose of this study was to explore current conceptualizations of clinical reasoning in occupational therapy.

METHOD. Using a head-mounted video camera and debriefing interviews following therapy sessions, clinical reasoning data were collected from 13 experienced occupational therapists working in physical rehabilitation. The data were collected and analyzed within a focused ethnographic framework.

FINDINGS. Mattingly and Fleming’s (1994) classification of clinical reasoning encompassed most of the thinking processes revealed in the therapists’ debriefing interviews. Therapists also used aspects of pragmatic reasoning (Schell & Cervero, 1993). Additionally, within the forms of procedural, interactive, conditional, and pragmatic reasoning, a new form of “generalization reasoning” is proposed in which therapists draw on past experience or knowledge to assist them in making sense of a current situation or client circumstance.

CONCLUSION. This research builds upon previous classification systems to support the categories of narrative, procedural, interactive, conditional, pragmatic (practice context), and generalization reasoning to explain how occupational therapists think in action. Further research is required to explore this emerging description of clinical reasoning.


Clinical reasoning may be defined as the many modes of thinking and decision making associated with clinical practice (Dowie & Elstein, 1988; Higgs & Jones, 2000; Mattingly & Fleming, 1994). It has been more than 20 years since clinical reasoning was first described in the occupational therapy literature (Rogers & Masagatani, 1982). Since that time, many studies have shed light on the construction of this complex activity and a language has evolved to articulate what clinical reasoning is in occupational therapy (Mattingly & Fleming, 1994; Rogers, 1983; Rogers & Masagatani; Schön, 1983). The aim of this paper is to explore current conceptualizations of clinical reasoning in occupational therapy using a novel video method.

Modes of Clinical Reasoning

Although clinical reasoning as described today has its roots in the work of Polanyi (1966) and Aristotle (Crisp, 2000) among others, it is the work of Schön (1983) that has contributed most to our current conceptualizations of clinical reasoning. Schön’s descriptions of tacit knowledge (knowing-in-action), as well as technical rationality (factually-based scientific problem solving) contributed greatly to our understanding of occupational therapists’ reasoning processes. Additionally, his work has supported the notion that theory can derive from practice. Drawing on Schön’s work, the first large scale study of clinical reasoning in occupational therapy...
was conducted over the 5 years from 1985 to 1990. As a
dresult of this study, a theoretical framework for clinical rea-
soning in occupational therapy was developed (Fleming,
1991; Mattingly, 1991; Mattingly & Fleming, 1994). This
evolving theory provided an approach to describing and
labeling four modes of reasoning (narrative, procedural,
interactive, and conditional). In 1993, Schell and Cervero
presented a theoretical argument that in fact there were
three kinds reasoning: scientific and narrative reasoning
(which covered Mattingly and Fleming’s classification) and
pragmatic reasoning. The contributions of these writers to
current conceptualizations of clinical reasoning will be
briefly described.

Mattingly and Fleming: Four Modes of Reasoning

The findings from Mattingly and Fleming’s in-depth study
of 14 therapists from a physical rehabilitation setting in
Boston, Massachusetts (Fleming 1991; Mattingly, 1991;
Mattingly & Fleming, 1994), suggested that narrative rea-
soning is a deeply phenomenological mode of thinking, and
that therapists think in narratives (story telling and story
creation) with clients, caregivers, and colleagues when dis-
cussing and giving meaning to therapy events and activities.
In addition to this foundational form of reasoning, Fleming
(1991) described how therapists seemed to be thinking in
three tracks: procedural, interactive, and conditional.

Reflecting the earlier work of Rogers (1983), Rogers
and Holm (1991), and Rogers and Masagatani (1982), pro-
cedural reasoning represents the more scientific compo-
nents of practice, which include systematic data collection,
hypothesis formation and testing. A therapist is reasoning
procedurally when considering the client’s physical ailment,
defining occupational problems, describing strengths and
limitations, and selecting interventions (Mattingly &
Fleming, 1994). Procedural reasoning is similar to the
hypothetico-deductive reasoning used in the medical
problem-solving literature to arrive at a diagnosis.

Interactive reasoning is concerned with understanding
the client as a person. Mattingly and Fleming (1994)
describe interactive reasoning as the reasoning used when
therapists want to understand the client’s problems from
their point of view, to construct a shared language of actions
and meaning, to show interest in the client and their con-
cerns, and to engage the client in treatment. Hence, the
selection and conduct of a particular interactive strategy or
style is supported by interactive reasoning. Mattingly and
Fleming found that interactive reasoning develops in ther-
pists as they gain the experience and confidence to interact
with the client as a person.

Conditional reasoning is used by therapists when con-
sidering the client’s condition and the impact of this on his
or her broader social and temporal context (Fleming,
1991; Mattingly & Fleming, 1994). For example, a ther-
pist is reasoning conditionally when considering the
client’s life before their attendance in therapy, and when
working with the client to develop a shared view of an
imagined future.

Although distinct modes of reasoning have been iden-
tified, it is unlikely, in the complex and diverse practice of
occupational therapy, that these modes of reasoning are
used in isolation. Rather, as discussed by Mattingly and
Fleming (1994), many therapists shift rapidly between
these forms of reasoning and show a capacity to use the dif-
f erent modes of reasoning simultaneously. Hence, Fleming
described “... the therapist with the three-track mind”

Schell and Cervero: Pragmatic Reasoning

In 1993, Schell and Cervero theorized that clinical reason-
ing can be described as encompassing three components;
scientific reasoning (Mattingly and Fleming’s [1994] proce-
dural reasoning), narrative reasoning (Mattingly and
Fleming’s interactive, conditional, and narrative reasoning),
and pragmatic reasoning. Although the first two forms of
reasoning identified by Schell and Cervero represent similar
concepts to Mattingly and Fleming, it is the third classifica-
tion of pragmatic reasoning that seems to add to our under-
standing of how therapists think.

Pragmatic reasoning is used by therapists when think-
ing about their practice and personal contexts and how
these affect therapy. Schell and Cervero (1993) drew on
the work of Barris (1987); Neuhaus (1988); Fondiller, Rosage,
and Neuhaus (1990); Törnebohm (1991); and Howard
(1991) when describing this kind of reasoning. Based on
the notion of situated cognition that considers the context
in which mental activity occurs, Schell and Cervero
described the therapist’s practice context as including the
organizational and political environments, and economic
influences such as resources and reimbursement. In research
examining the clinical reasoning of a certified occupational
therapy assistant, Lyons and Crepeau (2001) labeled this
kind of reasoning management reasoning. Schell and
Cervero described a therapist’s “personal context” as includ-
ing his or her motivation, repertoire of therapy skills, abili-
ty to read the practice culture, negotiation skills, and what
Törnebohm described as life knowledge and assumptions.
Schell and Cervero argued that rather than serving as barri-
ers to effective clinical reasoning, these influences were an
inherent part of the reasoning process. However, no empir-
ic studies have supported their assertions. More recent
work by Hooper (1997) has supported the influence of
the therapist’s personal context on clinical reasoning.

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Clinical Reasoning Research

There has been a steady increase in literature exploring different facets of clinical reasoning such as the reasoning of novice versus expert therapists (Gibson et al., 2000; Hallin & Sviden, 1995; Robertson, 1996; Strong, Gilbert, Cassidy, & Bennett, 1995; Unsworth, 2001a), ethical reasoning (Barnitt & Partridge, 1997; Neuhaus, 1988) and the kinds of reasoning therapists use when working with varied client case-loads (Creighton, Dijkers, Bennett, & Brown, 1995). In addition, Neistadt made a substantial contribution to this field through her writings on teaching clinical reasoning (Neistadt, 1987; Neistadt & Atkins, 1996). Although some of these researchers have based their constructions of clinical reasoning on Mattingly and Fleming’s (1994) modes, others mix types of reasoning from different theoretical perspectives, or add new types of reasoning altogether. Occupational therapists and other allied health scientists have now documented more than a dozen types of clinical reasoning including: scientific, diagnostic, pragmatic, management, procedural, interactive, collaborative, predictive, conditional, narrative, ethical, intuitive, propositional, and client-centered (Fleming, 1991; Higgs & Jones, 2000; Lyons & Crepeau, 2001; Mattingly & Fleming, 1994; Rogers & Holm, 1991; Schell & Cervero, 1993). Loose use of terminology is leading to fragmentation of our knowledge of the construction of clinical reasoning. Occupational therapists need to continue to empirically study the evolving theory of clinical reasoning, as first described by Mattingly and Fleming (1994), and build on this foundation to increase our understanding of this complex construct. Although many studies on clinical reasoning have been undertaken, most explore discrete areas of practice or types of reasoning. Few studies have sought to determine if all four modes of reasoning identified by Mattingly and Fleming are present in practice, and to see if other types of reasoning can be added to build on this evolving theory. Such studies are urgently required because so many researchers use Mattingly and Fleming’s classification as a basis for clinical reasoning research (Creighton et al., 1995; Hallin & Sviden, 1995; Robertson, 1996).

One of the factors limiting occupational therapy theory development on clinical reasoning has been the inadequacy of data collection methods. Many clinical reasoning studies have been conducted with written or filmed case scenarios rather than actual client-therapist interactions (Fondiller, Rosage, & Neuhaus, 1990; Gibson et al., 2000; Hallin & Sviden, 1995; Roberts, 1996), resulting in a lack of ecological validity. Researchers who have attempted to capture real therapy interactions to enhance reasoning recall have used quite basic video technology, and current researchers do not seem to be taking advantage of the more sophisticated video technologies now available to support clinical reasoning research. Theory development in this field can be enhanced by capturing real therapy encounters using video technologies that minimize interference with the unfolding therapy process. The purpose of this research was to explore current conceptualizations of clinical reasoning in occupational therapy using a novel video approach to capture clinical reasoning data. In particular, the study sought to investigate the use of narrative, procedural, interactive, conditional and pragmatic reasoning, and determine if other forms of reasoning complemented these.

Method

Design

Using focused ethnography (Morse, 1987; Muecke, 1994; Spencer, Krefting, & Mattingly, 1993), this research examined the clinical reasoning of 13 experienced occupational therapists during their therapy with 13 clients. This was achieved through analysis of a longitudinal series of debriefing interviews (as described below) following real therapy encounters recorded on a head-mounted video camera.

Participants

Participants in this research were studied at three rehabilitation centers in a large metropolitan city in Australia. All 13 occupational therapist and client dyads volunteered for the study and were a convenience sample. For clarity, the participants are referred to as either clinicians or occupational therapists or clients. Based on the selection approach used by Embrey, Guthrie, White, and Dietz (1996), the occupational therapists were nominated as experienced therapists by their occupational therapy managers, had practiced as occupational therapists for more than 4 years, and had completed some form of postgraduate training. The occupational therapists were all female and had a mean of 7.85 ± 4.78 years experience in rehabilitation. The 13 clients who participated in the study had each experienced a stroke (one male and seven females 50 years of age or more) or head injury and orthopedic injuries (three males and one female under 25 years of age and one male in his 60s). The participating therapists selected clients for inclusion in the study based on their willingness to participate, and the fit of their anticipated length of stay with the 18-month time frame for data collection (clients with a head injury who had an anticipated length of stay > 18 months were excluded). Ethics approval for the study was sought and obtained from the author’s university and the participating rehabilitation centers. Informed consent was obtained from both therapists.
and clients. Each therapist made a videotape of an evaluation, an intervention and a discharge planning session with her client, and described the clinical reasoning employed during these three sessions (see below).

Data Collection

Using Video To Record Therapy. It is generally assumed that therapists know more than they can say (Schön, 1983). Hence, when examining the reasoning of occupational therapists, methods are required that enable therapists to describe their reasoning as fully as possible.

Video-assisted recall is argued to be the best retrospective method of eliciting reasoning since the therapist can rely on a sequential video image to prompt recall of reasoning. This is believed to be better than memory alone, or memory prompted by an audio tape with no visual image (Omodei & McLennan, 1994). The use of video to assist recall of thinking was first described by Kagan (1976) and requires two procedures; first, the therapy session must be captured using video, and second the therapist must use the video to aid recollection of reasoning during a debriefing session. The reasoning described by the therapist in this debriefing session forms the data for analysis.

Researchers generally use a standard stand-alone video camera to capture clinician-client therapy encounters for analysis. However, this approach is limited since the camera operator needs to be present to film the session and his or her presence may be intrusive. In addition, since the camera is generally placed at a distance to capture as much of the scene as possible, the fine detail of therapy, such as tabletop activities, cannot be seen. Finally, a standard stand-alone video camera captures the image from a different visual perspective from that of the therapist, which may interfere with the therapist’s capacity to recall his or her reasoning (Omodei & McLennan, 1994). To overcome these problems, a novel method involving the use of a head-mounted video camera to capture data (Unsworth, 2001b) was used in this research. A small head-mounted video camera attached to a video recorder worn in a waist pouch is used by the therapist to record the therapy session as it unfolds.

Use of a head-mounted video camera by the therapist enables him or her to conduct the therapy session without a researcher’s presence, and to accurately capture tabletop therapy tasks. Most importantly, when viewing footage from a head-mounted video camera, the therapist “sees” exactly what he or she saw as the session unfolded (i.e., has the same visual and cognitive perspective), a feature that is believed to significantly enhance reasoning recall (Omodei & McLennan, 1994). The main disadvantage associated with this approach is that the therapist looks a little peculiar when wearing the head-mounted video camera.

However, a pilot study of therapists using this equipment revealed that therapists and clients quickly “forgot” about the existence of the camera. When using head-mounted video camera in this study, the researcher set up the therapist with the camera and video, and waited while the therapist independently conducted the session. The head-mounted video camera system enabled therapists to collect data both indoors and outside, and at the rehabilitation center or at the client’s home on a home visit.

Debriefing Using Video-Assisted Recall. Immediately after each therapy session, a member of the research team (either the author, research assistant, or research student) and the therapist watched the video footage on a television monitor and the clinician was instructed to describe the therapy session and supporting reasoning. The researcher guided these debriefing interview sessions with nondirective prompts such as “... can you say some more about what is happening here?” or “... what else are you thinking about here?” (Kagan, 1976). If the therapist needed more time to describe the reasoning supporting a particular action, the video was paused to provide a full account of the reasoning before proceeding. It was important for the researcher not to “lead” the debriefing session, but rather to allow the therapist to speak freely about her thinking with as few prompts as possible. Hence, a semistructured interview, or list of questions, was not used. During these debriefing sessions, a new videotape was made that showed the original picture and the original soundtrack (soft) of the therapy session, and the new clinical reasoning soundtrack (loud) of the clinician describing the reasoning that supported the session. This new videotape contained the data for analysis. Immediately following the debriefing, the researchers noted field observations concerning the therapy session or practice environment.

Data Transcription. Thirty-nine therapy debriefing sessions (13 clinicians with three therapy sessions each) were recorded. These debriefing sessions lasted between 30 and 55 minutes with an average of 40 minutes. The clinical reasoning soundtracks of the debriefing sessions were professionally transcribed from the videotapes by law court transcribers, and these transcriptions were checked by the researchers by comparing them to the tapes. Approximately 390 pages of double-spaced transcript were generated from the research. Since English was not the first language of one of the therapists, minor grammatical corrections were made to her transcripts.

Procedure

Each clinician nominated a client for inclusion in the study and was requested to undertake usual evaluation, intervention, and discharge sessions and not be influenced to choose a particular client because of the study. The use of the three
sessions was chosen to ensure a balanced sample of therapy encounters. Since some of the clients were in rehabilitation for 6 months or more, many weeks elapsed between the collection of the evaluation, intervention, and discharge clinical reasoning data. Intervention sessions were selected for inclusion in the research based on the researcher’s scheduled attendance at each facility and client willingness. Therapists did not require any practice using the head-mounted video camera. Immediately after making the video of the therapy session, the therapist watched the video and provided her reasoning. As described above, the videos were then transcribed, and the debriefing transcriptions provided the data for analysis.

Analysis

Initially, the author and the research student reviewed four transcripts and independently coded these with colored markers using Schell and Cervero’s (1993) pragmatic reasoning and Mattingly and Fleming’s (1994) categories of procedural, interactive, and conditional reasoning. Since therapists recounted the story of the therapy session, narrative reasoning was viewed as a way of expressing the other forms of reasoning, and was not coded separately. This a priori approach to coding was also used by Lyons and Crepeau (2001) and Alnervik and Sviden (1996). As discrepancies between the codes used by the raters were found, the two researchers spent time together going through samples of the different modes of reasoning and developing a guideline to clarify coding. The two researchers then independently coded two more transcripts and almost perfect agreement was found. The remaining transcripts were then coded by the researchers.

The author then analyzed a fresh set of all transcripts by reading them over several times and looking for patterns, themes, or relationships between the reasoning modes (Miles & Huberman, 1994) and for modes of reasoning that did not fit within the categories already established. In other words, the transcripts were read for the second level of analysis beyond Mattingly and Fleming’s (1994) and Schell and Cervero’s (1993) a priori codes. To enhance the trustworthiness of the analysis, emerging data interpretations were reviewed by members of the research team, graduate research students undertaking clinical reasoning studies, and two of the participating therapists.

Findings and Interpretation

Procedural, Interactive, and Conditional Reasoning: Single, Successive, and Mixed Modes

Coding the transcripts using Mattingly and Fleming’s (1994) reasoning modes revealed that procedural, interactive, and conditional reasoning were all used by therapists, and these reasoning tracks seemed to account for most of the reasoning used by the therapists. As documented by Fleming (1991), therapists attend to the client at three levels—the physical ailment, the client as a person and the client as a social being in the context of their culture, environment, and family. Therapists used the different modes of reasoning when attending to these three levels of concern. In many cases, large sections of the narratives reflected one particular mode of reasoning. However, there were also instances where therapists used the different modes of reasoning in rapid succession. In the following example of this, procedural reasoning is underlined, interactive reasoning is bold, and conditional reasoning is in italic. All therapist and client names are pseudonyms.

She has got a lot of double vision and can’t use her right hand for sort of fine tasks, so in terms of doing her favorite things like reading and watching TV, she can’t really do any of those, so it’s difficult to sort out things for her to fill in her spare time. I asked her to talk to her family about it, for them to sort of help each other make the decision, but I think from what I gather the family are also having trouble knowing what is the right thing to do.

Kitty (therapist) and Geraldine (client)
—Discharge Planning Session

In addition, it also seemed that therapists used these modes of reasoning simultaneously. Hence, therapists also seemed to “mix” their modes of reasoning. Fleming (1994, p. 120) stated “. . . therapists could process or analyze different aspects of the problem, almost simultaneously, using different thinking styles . . .” The following transcript coding revealed instances where two or three forms of reasoning were used simultaneously.

. . . He’s certainly not someone I’ve had a lot of domestic community ADL [activities of daily living] goals in terms of household stuff . . . Rodney had never even made himself a cup of tea or coffee whereas he comes to breakfast group now and I’m hoping that will carry over, that will certainly be um I suppose education of his family. And that’s something that’s also been picked up by social work in terms of setting limits ‘cos they’ve done whatever Rodney’s said their whole lives and you know things are sort of going, the whole family’s changing their dynamics remarkably. Leisure wise . . . he’s a bit limited with some of those things at the moment given his um physical status but that’s stuff that I’d like to pick up within his own environment and I think that will be really important . . .

Sarah (therapist) and Rodney (client)
—Discharge Planning Session

Hence, using Mattingly and Fleming’s (1994) framework, seven modes, or combinations of modes, of reasoning
were used by the therapists in this research: (1) Procedural, (2) Interactive, (3) Conditional, (4) Procedural and Interactive, (5) Procedural and Conditional, (6) Interactive and Conditional, and (7) Procedural, Interactive, and Conditional. The relationship between these modes of reasoning is presented in Figure 1. In this illustration, procedural, interactive, and conditional reasoning are all viewed as narrative and scientific forms of reasoning, and the fact that therapists seem to use two or three forms of procedural/interactive/conditional reasoning simultaneously is presented by the use of a Venn Diagram.

**Pragmatic Reasoning**

Review of the transcripts revealed many instances where the therapist’s reasoning seemed related to the environment in which therapy was conducted, and in an extremely small number of instances, to the therapist’s own personal philosophy, both of which Schell and Cervero (1993) described as pragmatic reasoning. Neuhaus first described the impact of the environment or directives from hospital administrations and insurance companies or third-party payers on therapist’s reasoning in 1988. Although these pragmatic influences on reasoning were noted by Fleming (1991), they were not articulated as a separate form of reasoning.

In the current research, the therapists’ narratives did seem concerned with what was or was not possible in therapy due to the influence of the practice context, and this reasoning did appear distinct from procedural, interactive, and conditional reasoning (see Figure 1). For example, therapist narratives reflected insurance or reimbursement issues, the kinds of services and equipment that could be provided, whether the client could afford to purchase equipment and the kinds of services available in the community for the client on discharge. Client length of stay was usually dictated by a plateau in client recovery, however, the availability of a supported housing placement often had a major influence in the timing of discharge. Whereas procedural, interactive, and conditional reasoning all appear to be client-driven forms of reasoning, pragmatic reasoning appeared driven by the therapeutic context. The pragmatic reasoning used by therapists in this study all seemed related to barriers and limitations rather than opportunities.

It is important to note that pragmatic reasoning as influenced by the environmental or practice context appeared to directly interface with therapists’ procedural, interactive, and conditional reasoning. In other words, a therapist’s reasoning surrounding selection of a piece of ADL equipment (procedural reasoning), could include consideration of how the client might respond to using the equipment (interactive reasoning), as well as cost and availability (pragmatic reasoning). In the example below, pragmatic reasoning occurs together with procedural reasoning.

[I used the] mini mental assessment because it’s a standard assessment that we have to complete . . . If it was by choice, I wouldn’t have chosen it . . . because functionally I have gleaned enough information to indicate that she’s orientated, she is able to follow a three-stage command, she doesn’t appear to have any short-term memory problems, she’s able to locate her personal belongings in her room and find her way around the hospital, to describe what’s happened to her. To me it was completely inappropriate to do that assessment but we have to. And I say that to many people because it makes me so angry that we do that with every single person that comes through the hospital, it’s a directive.

Debbie (therapist) and Irene (client)

—Evaluation Session

Time as a part of therapists’ pragmatic reasoning was also commonly seen in the transcripts from this study and included reasoning concerning the client’s length of stay, the need to book access to specific areas in the therapy department such as the kitchen in advance, the pressure of running late and having clients waiting, and treating more than one client at a time, and finally, the need for clients and therapists to remind each other of the change in client status that occurs over time. An example of therapist’s pragmatic reasoning in relation to time included:

I’m spending a bit more time with Jenny, and usually what I would do is I’ve got two other patients as well so I’d be trying to, I’d be seeing them and talking to them a bit more. But I did sort of ignore them a fair bit. I put Jenny in the wheelchair and gave her the recipe books, um, and said I’ve got to go and see the other clients. . . . That’s what it gets like, sometimes it’s like where do I look now, what do I do! It’s just [like I’m] running sometimes . . .

Susan (therapist) and Jenny (client)

—Intervention Session

The therapists in this study also seemed to be reasoning pragmatically when weighing their therapy skills against the therapeutic needs of the clients to determine if other occupational therapy experts or other health professionals needed to be called in to give advice or treat a client:

We’re talking about making him a splint . . . I might have to ring some people, well, some hand therapists . . . and talk to them about the problem, ‘cos you often talk to other therapists about things, get some ideas, ‘cos um, I don’t do a lot of hand . . . work . . . so I often, um, will ask other therapists for advice, or information about that . . .

Jacinta (therapist) and Joshua (client)

—Discharge Session
Although there were many instances of pragmatic reasoning in the transcripts relating to the therapist’s practice context, there were very few related to the therapist’s personal context. The following excerpt details one of the few occasions in this research when therapist reasoning did explicitly reflect underlying beliefs and assumptions.

I think OTs are really great at empowering people and help them to feel they are in control and they have some say. I think OTs do that better than a lot of other professions. . . . I love to work with people with disabilities so I think if you actually enjoy the contact and seeing people achieve things it’s such a rewarding job. That comes across in your approach.

Sally (therapist) and Sam (client) —Evaluation Session

Research evidence has shown that therapy is conducted under the influence of the therapist’s own personal motivation, values, and beliefs (Eisenberg, 1979; Hooper, 1997). However, instances of pragmatic reasoning related to personal context could not be easily gleaned from the methods used in this research, and further investigations surrounding this kind of reasoning are required to confirm the presence of pragmatic reasoning—personal context. It may be that although therapists are able to reason pragmatically concerning the practice context, their personal context is an implicit influence on, rather than a form of, reasoning.

Generalization Reasoning

Within the other modes of reasoning, therapists also seemed to be able to draw on their experiences or knowledge base in a way that was not singled out by Mattingly and Fleming (1994), but that does seem to warrant attention. Therapists in this study seemed to reason initially about a particular issue or scenario with a client, then reflect on their general experiences or knowledge (i.e., making generalizations) related to the situation, and then refocus the reasoning on the client. This occurred in rapid succession in much the same way as a photographer can use a lens to zoom in and out between a foreground and background. This kind of “generalization reasoning” did not appear to be a separate mode of reasoning, but rather a subcategory of reasoning present through the other modes (procedural, interactive, conditional, and pragmatic). Generalization reasoning has been denoted in the following example in CAPS. For example, while reasoning interactively about Rodney’s selection of and independence in completing an activity (a construction activity consisting of pieces of metal, nuts, and bolts, and a set of instructions), Sarah commented:

I MEAN OFTEN, YOU KNOW, PEOPLE WITH BRAIN INJURIES THEY JUST REQUEST A LOT OF UNNECESSARY ASSISTANCE OR NEED REASSUR-

ANCE, but Rodney really got stuck into it and obviously enjoyed it.

Sarah (therapist) and Rodney (client) —Treatment Session

In another example with the same client, Sarah presented the reasoning behind moving the client from a single room to a shared ward. In this example, Sarah is reasoning procedurally (in relation to the client’s post-traumatic amnesia [PTA] status), and pragmatically (concerning the number of beds available in the hospital as well as the client’s need for a single bed) together with the GENERALIZING form of reasoning:

. . . there’s probably not a great deal of need for him to be in his own room, he’s not in PTA (Post Traumatic Amnesia) [anymore] . . . so he may or may not get moved . . . we sort of keep private rooms for people who are in PTA or who have special social needs or who just can’t tolerate behaviourally or cognitively having other people in the room with them.

Sarah (therapist) and Rodney (client) —Evaluation Session

In summary then, it appeared that “generalization reasoning” was a subcategory of procedural, interactive, conditional, and pragmatic reasoning (see Figure 1).
Directions for Future Research

Since the data for this study were collected from occupational therapists working in physical rehabilitation, findings are most applicable to the therapists working in such settings. Further research is required to explore Mattingly and Fleming’s (1994) tracks of reasoning as used by therapists in a range of settings to determine if patterns of usage of clinical reasoning vary between therapy services. Additionally, although the data in this study supported the use of pragmatic reasoning as a separate category of clinical reasoning, evidence of practice-context reasoning was far more obvious than personal-context reasoning. Further research is required to examine the personal-related component of pragmatic reasoning, particularly in light of Hooper’s (1997) work on the influence of worldview on therapist reasoning. Similar to the work of Barris (1987) and Fondiller, Rosage, and Neuhaus (1990), studies investigating the personal-context aspects of pragmatic reasoning could be undertaken using a semistructured interview method to specifically ask therapists about their experiences in using this type of reasoning.

A new type of reasoning, termed generalization reasoning, was identified through this research. Although generalization reasoning appeared to be a subcategory of reasoning used within the other forms, further research is required to support this or to determine if it is an independent mode of reasoning.

Finally, there is great potential for head-mounted video camera technology to be used in a range of clinical and research settings. A head-mounted video camera is ideal when therapists need to video record sessions in which the client moves around, the therapist needs to use both hands to work with the client (i.e., cannot hold the camera), or where the presence of a camera operator would be too distracting for the client. As noted earlier, a distinct advantage of the head-mounted video camera is that it provides video footage from the same visual perspective as the wearer. The technique is therefore useful when the therapist is required to recall or talk about a therapy session after it has concluded. Video recordings made with a head-mounted video camera can also be used to monitor client change over time, to provide objective feedback to clients regarding behavior, and to enable therapists to study client verbal and nonverbal interactions. Research is required in each of these applications of video techniques to compare the data yield and quality when using a head-mounted video camera versus a standard, static video camera on a tripod, or a standard video camera that is held and moved by an operator.

Limitations

In this research, clinicians’ reasoning was accessed through a technique referred to as retrospective reporting (Unsworth, 2001b). It should be noted that the main disadvantage associated with this method is the participant’s reliance on memories of their thoughts. The complexity and length of any task means that large gaps and distortions of events are possible when a memory-dependent approach is used (Martin, 1992). In addition, participants may reconstruct their reasoning based on what they think they were supposed to do, or what the researcher might like to hear, or by rationalizing their thoughts to create a logical story, rather than what they were actually thinking. Although the researchers attempted to minimize these difficulties by conducting debriefing sessions immediately after the therapy session, and reassuring therapists that there were no right or wrong answers, these limitations remain. However, in the spirit of the qualitative frame of reference in which this study was conducted, it can be stated that the reasoning provided by the therapist is an accurate representation of their thoughts at the time of the interviews.

Conclusion

In conclusion, it seems that therapists use procedural, interactive, conditional, and pragmatic reasoning in their practice. As a subcategory in each of these types of reasoning, therapists also reason using “generalizations” from their experiences or knowledge base. Research is required to further examine and build on this conceptualization of clinical reasoning in occupational therapy. Such research is of value since clinical reasoning provides an important avenue for reflection on and subsequent improvements to therapy services, and a language to help us articulate the rationale for practice to clients, caregivers, health care funders, and the wider community.

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A new type of reasoning, termed generalization reasoning, was identified through this research. Although generalization reasoning appeared to be a subcategory of reasoning used within the other forms, further research is required to support this or to determine if it is an independent mode of reasoning.

Finally, there is great potential for head-mounted video camera technology to be used in a range of clinical and research settings. A head-mounted video camera is ideal when therapists need to video record sessions in which the client moves around, the therapist needs to use both hands to work with the client (i.e., cannot hold the camera), or where the presence of a camera operator would be too distracting for the client. As noted earlier, a distinct advantage of the head-mounted video camera is that it provides video footage from the same visual perspective as the wearer. The technique is therefore useful when the therapist is required to recall or talk about a therapy session after it has concluded. Video recordings made with a head-mounted video camera can also be used to monitor client change over time, to provide objective feedback to clients regarding behavior, and to enable therapists to study client verbal and nonverbal interactions. Research is required in each of these applications of video techniques to compare the data yield and quality when using a head-mounted video camera versus a standard, static video camera on a tripod, or a standard video camera that is held and moved by an operator.
camera and debrief systems. The video recorder and camera equipment were purchased and built with funds from a La Trobe University “Major Equipment Grant” for which I am grateful.

References


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