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Problem Solving in Occupational Therapy

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We don't talk about problems now, we focus on strengths.
An experienced clinician

Introduction

Since the earliest days of occupational therapy, the focus of the therapeutic process has been to assist individuals with the 'problems of living' (Meyer, 1992, p. 4). So it should be no surprise that occupational therapists describe themselves as being problem solvers. What is surprising is the limited amount of research which has looked at problem solving processes used in the profession. Notable exceptions include researchers who have used the hypothetico-deductive reasoning literature in medicine as well as general human problem solving to underpin their work (Roberts, 1996a; Robertson, 1996; Rogers and Holm, 1991). To a lesser degree, others have drawn on this framework to inform their studies of clinical reasoning (Hagedorn, 1996; Mattingly and Fleming, 1994). The majority of researchers have looked at what the therapist is reasoning about in general terms, rather than how the therapist is reasoning in relation to a specific problem identification and solving process. Exceptions to this are recent studies which used repertory grids to elicit information about the occupational therapy process (Kuipers and Grice, 2009a) and multiple case vignettes to stimulate decisions about actions, which were compared to decisions agreed on by experienced therapists (Harries and Gilhooley, 2011; Rassafiani et al., 2008). The problem solving process is not unique to occupational therapists but what they incorporate into the process is.

Problem solving is a cognitive approach to reasoning that is encapsulated within the occupational therapy profession by the use of the 'OT process', which is evident in all major occupational therapy text books and considered to be an essential tool in the new graduate's

thinking repertoire. Despite an apparent adherence to using a problem solving process, there is reluctance amongst occupational therapists to describe problem identification as being central to their reasoning. Unlike the medical and nursing literature, within occupational therapy it has become fashionable to avoid identifying a 'problem' (as illustrated by the opening quote for this chapter). However, Rogers (1983) has repeatedly asked us to be clear about the occupational therapy diagnosis. There seem to be some valuable gains for our profession in thinking through the concept of problem solving a little more coherently. For example, this framework provides a structured way of thinking through reasoning processes, which can be useful not only in forward planning but also in analysing reasoning to identify errors or gaps. In teaching students, it can be a powerful way of clearly identifying steps in decision making processes and the influences on these. This chapter begins, then, the task of clarifying the relevance of problem solving for occupational therapists' practice by discussing three strands that contribute to the argument that problem solving is an important way to conceptualise reasoning in occupational therapy practice.

Strand One: the theoretical underpinning of problem solving

Problem solving is based on an information processing theoretical approach. Other authors (Carr and Shotwell, 2008; Fleming, 1994b; Rogers and Holm, 1991) have described this approach in detail and the intention of this section is not to replicate their work but rather to focus on aspects that are specific to occupational therapy reasoning. Problem solving is described as a series of steps including referral, data collection, assessment, problem identification, planning, intervention and evaluation, which is mirrored by the OT process. Additionally, there are considered to be two stages (Robertson, 1996): identifying the problem (also called the occupational therapy diagnosis (Rogers and Holm, 1991)) and providing solutions (or 'resolutions' (Fleming, 1994b)). The first stage is regarded as being pivotal to problem solving processes because it provides the direction for ongoing planning and implementation of solutions. However, we argue that in occupational therapy the second stage is also a stage of intense reasoning because the plans that are made may need to be evaluated and revised partially or totally before a satisfactory way of working with the client(s) is found. In this second stage the client's strengths, referred to in the title of this chapter, are important. This process can perhaps be better understood as a spiral rather than as a linear process, where problems are formulated and then reformulated based on a deeper understanding of the problem being addressed (Higgs and Jones, 2008b).

Stage 1 of problem solving: from referral to problem identification

In cognitive science, the brain is often compared to a computer that has an input device and ways of storing and retrieving information on demand. In reality, the human mind is more complex as information is stored in idiosyncratic ways in schemas which act as mental templates, helping us to organise knowledge and make sense out of our current experiences. Like a magnet, what we already know pulls us towards more information with which we can make a connection. Cues stimulate knowledge from long-term memory, which is then drawn into short-term memory to be considered for its match to the situation being confronted. This matching process triggers hypotheses, which are hunches about what problems might need to be addressed and are regarded as tentative explanations for observations that can be tested by further investigation. Essentially they are assumptions made on the grounds of reasonable evidence. They arise on the basis of relatively few cues (such as a referral) and depend on the cognitive ability of the therapist to relate a new situation to past experience (Kassirer et al., 2010).

The following example of the referral of a nine-year-old boy to a child mental health service illustrates the development of hypotheses. Scott is reported as ‘displaying behavioural and learning problems at both home and school’. The referral is brief but two key cues are evident: *behavioural problems* and *learning problems*. The therapist immediately considers several explanations for the behaviour (i.e. hypotheses). Her questions include, ‘Are the identified problems related to vision or hearing deficits?’, ‘Have they arisen because of a head injury?’ and ‘Are they a result of problems with relationships at home or at school?’ Influences on the therapist’s reasoning include experiences of working with children who have sensory and motor control difficulties, experiences of working with parents who are struggling to care for a child and her own personal experiences of being a mother. Thus information stored in her long-term memory provides the platform for what she now notices and wants to check out.

In this situation, an occupational therapy problem has not yet been identified. The therapist has focused on the performance components without reference to a particular occupation. This may be ‘implied’ from the therapist’s point of view, however; until the occupational therapy problem is identified, there is no apparent way to identify a relevant goal. One of the confusing factors in occupational therapy reasoning is that a focus on the performance components can distract the therapist from the problem that is specifically related to the occupational concerns. Ryan (2011) refers to this manner of working as ‘pre-occupational’ because it addresses the skills necessary to carry out an occupation. A key concern for

occupational therapists is the clarity with which we identify problems that are our core practice; that is, the occupational diagnosis (Rogers, 2004).

While problem solving may appear to be a structured and theoretical approach to reasoning, responses to the data are not impartial – two therapists may see the same situation differently. The problem that the occupational therapist chooses to address arises from the perceived salience of the cues and this is influenced by characteristics specific to the individual therapist, such as past experience, knowledge, values and methods of processing information. In other words, what we have seen and experienced previously becomes integrated into our schemas and will direct our attention to cues that have personal relevance. Each client encounter gives rise to many cues, but as Taylor (1997) reminds us, their relevance and significance is at the discretion of the practitioner. The lens that we use for viewing a situation is never neutral. This lens influences what we ‘see’ in the first instance or ‘read’ in the case notes, and will also impact on ongoing data collection methods such as an interview with a client. As Hooper (2008) notes, therapists’ reasoning is based on personally held assumptions that can influence cue identification and interpretation. This raises the issue of accuracy in reasoning, which is addressed later.

Stage 2 of problem solving: from goal setting to implementation

While Stage 1 is directed to the main goal (e.g. legible writing) and sets the direction for the ongoing planning and intervention, Stage 2 addresses the means of getting to the goal (e.g. sensory integration techniques) and involves implementing plans. Matching client ability and interest to the demands of a task requires a great deal of technical skill (or ‘know how’). Knowing when plans are not working and then deciding how to modify them is essential. As noted in the introduction, occupational therapists are sometimes accused of jumping into the solution phase without being clear about the problem they are dealing with – perhaps this is because this second phase involves much more than applying a standard solution and occupational therapists recognise that reasoning must deal with multiple interrelated elements. Mattingly (1994a) concurs with this when she says that experienced therapists believed that ‘effective therapy depends as much on the capacity to modify plans and to rethink treatment goals as it does on the capacity to create plans and goals in the first place’ (p. 271). However, the effectiveness of the reasoning is dependent on the clarity with which the first stage is defined.

Complexities of the goals

In reality, some problems are more readily defined than others. In problem solving, Gagné (1985) describes three types of problem that have clear

end points or goals. Two are described as relatively simple, having one or two routes to get to a defined goal. The choices for solutions may be equally effective or one may be slightly favoured over another. For example, when a referral states that a heavy, immobile client is very difficult to transfer from bed to chair, there might appear to be little doubt about a hoist being the suitable response, but there could be a dilemma about which hoist is most suitable. Such a decision may also be constrained by the funder, with the standard hoist invariably trialled and a more expensive option only considered if the standard one is deemed unsuitable. Essentially this type of problem solving requires little cognitive effort as the choice is limited.

However, even a problem that has a definite end point can be complex and the means of getting to the end point far from obvious. There may be a range of solutions and not necessarily one correct response. This tests our resourcefulness and Gagné (1985) says that the problem solver can think of options but with little assurance that what is tried will lead them closer to their goal. For instance, a therapist reports the following:

Case 1: Creative problem solving

A boy with spina bifida (who uses a wheelchair) is getting too heavy for his mum to lift him in and out of the corner bathtub in the bathroom. A level access shower cannot be installed because the sewer pipes on the property are too close to the surface. A bathlifter will not work as it wobbles when placed on the curved base of the bathtub, and there is not enough room for his legs to fit. The Ministry of Health has turned down my application to install a large box-type shower with a step (which I know he could manage with a shower bench). A completely new and novel solution was reached but it took several months to come up with the idea and even at the point of manufacture I had no idea whether it would work or not, but it did.

Thus planning can be very time consuming while the options are considered. Solutions offered are tempered by the therapist, who in this instance is quite clear about what would work if only the funding were available. The eventual solution was developed by considering all the facts (including cost) and is a good example of both persistence and creativity. The occupational therapist's job is to ensure that the intervention works.

The idea that reasoning is 'complex' pervades the clinical reasoning literature. However, the complexity of the problem may be in 'the eye of the beholder', as suggested by Davis (2009, p. 213), where past experience or being new to the job may make the task seem easy or difficult. Additionally, approaches to solving a particular problem may differ between therapists. For instance, does the choice of the type of hoist depend on the therapist's perception of what should be provided? Past experience may have influenced the therapist to decide that a basic 'sling' hoist is the only one likely to be approved in this situation. On the other

hand, a novice who has little experience of this type of situation may 'go for gold' and decide on a more expensive hoist or panic at the sight of this large man being transferred by his willing family and recommend that he needs carers to provide a safe transfer.

Factors affecting the intervention

Once the goals have been decided, plans are developed and the task becomes deciding *how to implement* them. Both the physical and the social environment can impact on how the intervention transpires. Many factors need to be considered in treatment planning, which may result in modification of the task or the environment to ensure that end points are reached. So, for instance, bed heights may not allow for a manual hoist to be positioned accurately. While this is not the primary problem it is certainly a feature that has to be considered when recommending a hoist. Another example might be that the client says very little and allows his family to speak for him; this is not a problem to be overcome, rather a condition that is present. The therapist may have attempted to engage the client, but he may not have been willing to converse or a family member may have taken on the role of spokesperson with or without his approval. The methods of achieving the goals may need to be modified for various reasons such as the family's preferences or the client's willingness to be transferred with a piece of equipment.

The therapist will also take into account the *social environment* and explore the family's view of the situation. This could result in a different way of managing the problem. For instance, instead of deciding on a hoist, the therapist might assist the family in making better use of manual lifting techniques to ensure that all involved are safe, or provide an extra carer to assist with transferring and so reduce the amount of physical strain for the family members. Perhaps the family is not happy to have the client living at home and would rather he was in a residential home so that they could be relieved of the burden of lifting and feel freer to interact with him in different ways.

In occupational therapy there is often blurring between the problems that are addressed and the factors that influence the intervention. Both are important aspects of problem solving and the therapist's role is always to make sure the interventions 'work'. This can involve ensuring that practical components/resources are supplied and that the material environment is modified to meet occupational needs. Matching client ability to the task demands can take a great deal of technical skill, which is only learnt by carrying out such decisions on a regular basis to understand the nuances of how they should be applied. Thus intervention is not a mechanical process of carrying out plans; it involves active problem solving where the realities of the situation are taken into account and plans are modified accordingly.

Strand Two: the relationship of problem solving to other models of reasoning

A feature of the clinical reasoning research in occupational therapy has been the tendency to generate ideas about several types of reasoning, such as scientific, diagnostic, procedural, narrative, pragmatic, ethical, interactive and conditional reasoning, as summarised by Boyt Schell and Schell (2008). This expansion of ways of describing reasoning has produced a rich vein of literature within the occupational therapy research community, but this diversity has created complexity. Roberts (1996b) believes that the profession has confused the ‘process’ with the ‘content’ of reasoning and argues that what is known about the process of decision making has often been ignored as new descriptors of reasoning have been developed. She suggests that ‘there is a universal underlying process of problem solving based on acquiring cues, processing these and proposing a solution’ (p. 236). More recently, Tomlin (2008, p. 116) has also proposed that we should ‘reconceptualise all type of reasoning so as to reflect their ultimate interconnectivity’. This section is an attempt to argue for problem solving as a core human activity that is also central to our clinical reasoning. To achieve this, three-track mind and narrative and pragmatic reasoning are examined and compared to cognitive processing.

Relationship to three-track mind

In Fleming’s (1991) account of reasoning as a therapist with a ‘three-track mind’, the problem solving process is equated with procedural reasoning. Roberts (1996b) notes that this could be a misleading analysis and suggests that problem solving describes a cognitive process, while the ‘three tracks’ of reasoning provide an explanation of what occupational therapists think about as they practice. For instance, in three-track mind, when using the track of *procedural* reasoning, the cues noticed are those that trigger ideas about what deficits in function need to be addressed. They are often related to a particular condition and arise from information sources such as the referral, the client’s notes, client observations, team discussions and the client’s report of their difficulties. In contrast, the cues that are attended to when using the *interactive* reasoning track are those provided by the client that give insights into their particular concerns, and what they would like to deal with. Finally, the *conditional* track is the most complex form of reasoning as it is multidimensional and related to three elements: the therapist’s understanding of the client’s condition (including the context), the therapist’s beliefs about how this condition might change and the client’s participation in this revision of the possible outcome (Fleming, 1994a). In this reasoning track, the therapist notices the cues that relate to the client’s situation and draws on previous knowledge to think about what possible problems might be experienced by the client.

Thus the three tracks describe different types of cue that are sought and responded to. The search might include only the procedural track or might also include a phenomenological approach where information is gleaned from interactive and/or conditional tracks of data. Therefore, one could consider that the three-track mind provides an explanation for the variation in cues used by occupational therapists when problem solving.

Relationship to pragmatic reasoning

In pragmatic reasoning, Boyt Schell (2008) describes two types of impact on reasoning: the practice context and the personal context. Both are considered to be important because they direct the thinking of the therapist and thus the nature of the services that are provided. In information processing, both these aspects are examined. Cognitive boundaries (known as the problem space) are set by the problem solver and restrain what will be considered (Kassirer et al., 2010). The combination of domain-specific knowledge with the intelligence of the problem solver will impact on the problem space used to generate the hypotheses for problem solving (Newall and Simon, as cited by Roberts, 1996b). An aspect that is integral to this is the interpretation of the context. External factors such as the organisational constraints (see Chapters 3–5, for examples) impact highly on what is possible, but it is the therapist's understanding of them and ability to manipulate them that is pivotal to effective decision making. Thus personal schemas are important to direct reasoning.

Relationship to narrative

Mattingly (1994b) suggests that it is necessary to work out what story you are in because this sets the scene for the ongoing intervention. 'Stories,' she says, 'help frame practical decisions about what to do' (p. 239). They involve drawing from past experiences to find elements that help therapists make sense of the present situation as they work alongside a client. Developing stories helps therapists to act appropriately because they gain an understanding about what is unfolding. The images Mattingly refers to that are important in driving the story could be argued to be those that arise from the schema (or stores of knowledge) that the therapist has developed through practice. Imagining the future could therefore be a way of describing the reasoning; that is, deriving realistic long-term goals and then working towards these. Over time, cues give rise to different hypotheses as the story progresses. Effective intervention requires careful matching of activity to client ability and an understanding of the connection between the story and the client's needs. This skill is basic to the practice of occupational therapy. Story telling is a very effective way of raising the complexities of practice to conscious awareness as the medium through which to report our reasoning.

The second use of narrative reasoning is the use of stories as a method of intervention. To be successful, the stories must be relevant to the client and move them towards something that they care about. As Mattingly (1994b) explains, the goals are a way of capturing intentions of what might happen and what might be accomplished during therapy. Ensuring the relevance of the ongoing therapy to the client 'involves constructing a story of the treatment process rather than relying on a generic line of action that strings together standard goals and activities' (p. 247). The ongoing process of therapy can be likened to Stage 2 of the problem solving process: as new information about the client's abilities and his/her motivation and hopes for the future are better understood, treatment is revised.

One reason why there is a resistance to talking about 'problems' in occupational therapy is that we see ourselves as focusing on the positives and drawing on the strengths that clients bring to their situation. However, let us consider how the reasoning unfolds. When interviewing clients with an orientation towards their hopes for the future, the occupational therapist is simultaneously identifying any problems that will provide barriers to the unfolding story and listening for the motivators that drive the client. Clients' ideals regarding the future may seem unrealistic given their current ability but the occupational therapist's task is to think about how to adjust solutions to match expectations. In general, clients' stories provide insights into how they want their lives to evolve; the therapist must translate this hope into practical ways of moving forward. Clients' ideals may or may not be realised; what is important is that they direct the therapist's thinking and thus stimulate the therapist to devise creative ways of engaging them in therapy that is relevant and embedded in their context. This is a problem solving process.

Initial intervention may provide opportunities to practice skills that are needed later. So, for instance, the young lady who wants to be a fashion model is tempted into a task where she will report on fashion in the community group's newspaper. The purpose of this strategy is to address immediate problems such as limitations in reading and writing that will impact on her ability to gain any type of employment. A second purpose of initial intervention may be to assist clients in solving their own problems. This is illustrated below by an occupational therapist's reflections on a client with a head injury who has begun a 'return to work' (RTW) program.

Case 2: Walking with the client

It's a journey really and I try to walk it with my clients, helping them to gain meaning from involvement in activities, see the potential pitfalls, whilst supporting their hopes and dreams ... I see the process of RTW as helping my client to construct a sense of self and eventually derive some meaning from this process. I see there is a message in her returning to work. A metaphoric message that by testing her limitations and experiencing the reality of her injury, her awareness will increase, enabling her to make an informed decision about her future.

Mattingly describes this reasoning process by suggesting that therapy becomes a 'meaningful short story in the larger life story of the patient' (Mattingly, 1994b, p. 269). It is evident that planning interventions for the long term involves a series of problem solving exercises where each step forward suggests the next. The therapist must be aware of progress made, when to increase the challenge and when problems may need to be restructured.

Strand Three: using problem solving to define outcomes in reasoning

The way the problem is represented in the mind of the problem solver is a critical aspect of problem solving (Schön, 1983). This representation sets the scene for the ongoing problem solving process; that is, the goals and interventions that will be put in place to solve the problem. Various descriptors have been used in the literature for this phase, including problem identification, problem representation and diagnosis. Essentially they are all referring to the same phenomenon: that of clearly stating what problem will be addressed. Rogers (2004) makes a strong plea for occupational therapists to take seriously their diagnostic processes. She says:

The occupational diagnosis ... is a pivotal concept because it summarizes the need for occupational therapy and identifies the entity for which occupational therapists can be held professionally responsible (p. 18).

Rogers is suggesting that the use of a diagnosis assists us in defining clearly our scope of practice. Rather than limiting our terminology to that used in a medical world it will allow us to communicate the focus of our practice in an environment where problem solving is well understood. With directives to be 'evidence-based', well-defined outcomes or goals are important and depend on clear problem identification.

Ensuring accuracy in reasoning is given little attention in the occupational therapy literature and is more fully addressed in both medicine and nursing, where, for instance, courses are run with the aim of improving accuracy in reasoning. As noted by Scheirton et al. (2003), little attention has been paid to errors in occupational therapy practice. Rogers and Holm (1997) allude to ways of avoiding faulty reasoning such as the use of standardised tests and comprehensive assessment procedures to ensure that adequate information is gathered. Tomlin (2008), in his explanation of scientific reasoning, extends this discussion to provide further information about how to ensure trustworthiness in reasoning and describes therapist issues such as bias and beliefs that influence subsequent interpretation of cues. Scheirton et al.'s (2003) study explores practice errors in occupational therapy and identifies that these are caused by factors such as lack of time in fast-paced practice or inadequate knowledge of technical skills. They recommended that students should be exposed to case studies where errors

in reasoning are likely to raise awareness of factors that would impact on accuracy. Tomlin (2008) wonders whether this would actually make any difference in practice, where contextual issues such as time pressure and team communication provide elements not available in academic exercises.

Recently, research has been reported using a 'professional judgment' framework that makes comment on the differences between therapists on the basis of right and wrong ways of viewing a clinical reasoning task. Harries and Gilhooley (2011) developed a programme to train novices to think more like experts where the task was to prioritise client referrals in a community mental health practice. This involved correcting assumptions about what was important so that the novice learns how to interpret the cues on a referral. Other authors have reported differences in reasoning between therapists working in neurology, where clear distinctions have been made between those whose reasoning is more effective and those whose reasoning is less effective (Kuipers and Grice, 2009b; Rassafiani et al., 2008). The idea of judging reasoning is a relatively new phenomenon. The research is in confined areas of practice where parameters such as evidence related to neurological functioning and 'expert opinion' can be identified as the basis of evaluating judgments. This implies identifiable end points in reasoning, so that decisions can be made about whether or not they have been reached.

Daily practice requires decisions to be made in a short time frame and on the basis of previous knowledge. As stated by an experienced clinician:

Case 3: The impact of past experience

Past experience tells me how difficult it is to return people to work following brain injury and the evidence supports this ... I have to be conscious that this prior knowledge does not compromise my finding a workable ... solution. Pattern matching can lead to faulty thinking. It is possible that my previous experience is predetermining the outcome. I need to be cognizant of this.

This therapist is concerned that her preconceptions might influence the current analysis of information about the client. Robertson (1999) describes experience as a 'two edged sword – it can assist and give direction in solving problems but can also result in habits which limit our ability to consider alternative approaches' (p. 21). Reflective practice can be very helpful in teasing out the personal theories that underpin decision making. Consideration needs to be given to how best to identify these beliefs and values, such as using a critical friend to provide a sounding board (Titchen and Higgs, 2008). Seeking feedback and challenge through talking about practice is recommended in order to identify both errors and credibility (Higgs and Jones, 2008a). Using a problem solving framework is an effective way of reflecting on practice decisions as it provides a structure for considering the various stages of decision making, such as

the cues that were/were not attended to and the skills needed to effectively carry out the planned interventions (McInerney 2002).

Conclusion

This chapter has argued that while there are different approaches to thinking about clinical reasoning, problem solving can be used as a complementary conceptual framework because of its focus on cognitive processes. It provides a structured way of thinking through reasoning processes, which can be useful not only in forward planning but also in analysing reasoning to identify gaps, errors and carelessness in thinking. For instance, redirecting thinking from 'strengths' to identifying the core professional 'problems' that we are held responsible for can assist in gaining greater clarity about our domain of concern. Problem solving is perceived by some to be a 'technical' approach to reasoning with overtones of being reductive and therefore not consistent with how we reason as a profession. This is true if we envisage that all the information remains the same but we know from research describing knowledge schema that knowledge is networked within long-term memory in an idiosyncratic manner. Thus the exploration of the content can be considered from a constructivist framework (McInerney and McInerney, 2002). However, the problem solving process itself is by its very nature a process of setting boundaries at which problems and goals are identified and then implementing plans to deal with them. It is when viewing it in this sense *only* that it is reductive because it takes a situation and turns it into a defined course of action that can be managed.

The problem solving process itself is by its very nature a method of setting boundaries where problems and goals are identified then plans drawn up. When viewing problem solving in this sense only it is reductive because it takes a situation and turns it into a defined course of action that can be managed. However, the end point in occupational therapy is future orientated and the therapist must work out how to achieve the vision; in this sense problem solving is creative and can be compared to abductive reasoning (see Chapter 2). There has been relatively little research in occupational therapy that explores the processing of information that occurs during practice. We would concur with Boyt Schell, Unsworth, and Schell (2008) that it would be timely to use this framework to further understand its applicability in occupational therapy practice.

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