

Stuck in a Moment: Concreteness and Psychotherapy After Acquired Brain Injury

C. E. Salas, F. L. Vaughan, S. Shanker, & O. H. Turnbull*

Abstract

This paper surveys the issue of concrete thinking after brain injury—a phenomenon that is widely recognised clinically, but under-investigated in formal research settings. Through the lens of the classical work of Kurt Goldstein the paper outlines the diverse clinical manifestations of concreteness, and the barriers which this might present to the psychotherapeutic process. However, the paper also outlines the way in which preserved psychological functions in highly concrete patients, specially the capacity to focus on immediate reality, and experience emotions in present time, can be used as a lever for psychotherapeutic interventions. The paper concludes with a range of practical suggestions which may aid the psychotherapist in reaching out to this challenging patient group.

Key words: concrete thinking, abstraction, brain injury, psychotherapy, Kurt Goldstein.

Closer examination shows that in order to readjust itself to the world, the injured organism has withdrawn from more or less numerous points of contact with it and has thus attained a re-adaptation to a shrunken environment.

Goldstein (1936a)

Introduction

Concreteness, sometimes used synonymously with the term impaired abstraction, is a common phenomenon after brain injury. It is quite usual to hear, among rehabilitation professionals, phrases such as “this intervention is unlikely to work, because this patient is too concrete”, or “he cannot completely understand what he is going through, because of his concreteness”. If we listen to the way professionals use this term, when speaking about patients, one might suggest that: (a) therapists are able to perceive something *characteristic* in the mode these patients function

*Correspondence to: Christian Salas, Centre for Cognitive Neuroscience, Bangor University, Brigantia Building, Penrallt Road, Bangor, Gwynedd, LL57 2AS. E-mail: c.salas@bangor.ac.uk

(an observable fact), which they later *label* as concreteness; (b) this mode of functioning is experienced as a challenge to the use of therapeutic tools, and the achievement of rehabilitation goals, including eventual generalisation and habituation of therapeutic gains. However, when professionals are explicitly asked about how they understand concreteness, and how they address it technically, their responses are usually imprecise, with a vague use of terminology, and with a rather poor grasp of how concreteness maps into specific impaired functions, or particular sites of brain lesions. The purpose of this article is to address this conceptual gap, by offering a theoretical account of concreteness, and drawing preliminary guidelines on how psychotherapeutic tools could be adapted to facilitate emotional adjustment in this population.

What is concreteness?

Concreteness, or the difficulty to orient our actions by a conceptual point of view (Goldstein, 1942; Goldstein & Scherer, 1941), is not a popular concept today in neuropsychology. This is evident if we consider the remarkably modest amount of research that has been published in the last few decades addressing concreteness after brain injury (see Figure 1). The principal reason may well be that, compared to other neuropsychological processes broadly related to frontal lobe function, such as working memory, planning, or set-shifting, concreteness seems vague and lacking neuroanatomical specificity. Based on clinical observations, different authors have suggested that concreteness is not an homogeneous deficit

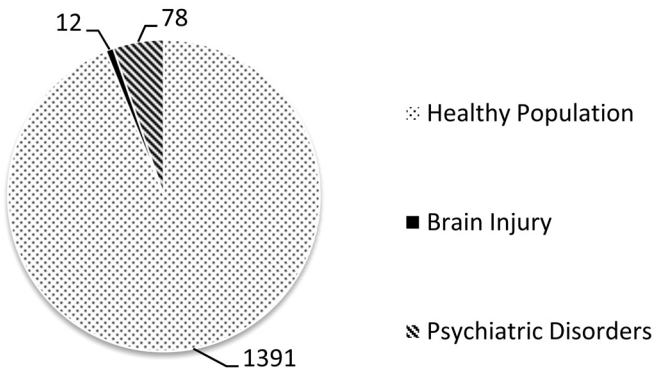


Figure 1: Number of publications on concreteness and brain injury. An all-time literature search in PubMed was performed using the following keywords: concreteness, concrete attitude, concrete thinking, and brain injury. From a total of 1481 relevant articles, only twelve were related to brain injury.

(Goldstein & Scherer, 1941, Prigatano, 1989) and that it is frequently associated with diffuse lesions (Judd, 1999), or with widespread damage to the frontal lobes (Judd, 1999; Klonoff, 2010; Ogden, 1996), particularly on the left (Goldstein, 1942). Given that concreteness (or impaired abstraction) has long been associated with diffuse lesions to the frontal lobes (Yang, Fuller, Khodaparast, & Krawczyk, 2010), and with a growing interest of actual neuropsychology in fractionating frontal lobe functions (Miyake et al., 2000; Stuss, 2011; Stuss & Alexander, 2000, 2007), is no surprise that concreteness has potentially become a rather archaic concept. Interestingly, a different historical trajectory has occurred in the more applied field of neuropsychological rehabilitation, where concreteness as a concept which can inform practice, has survived among clinicians that work with people who experience a brain injury. This paper will focus, and develop, the *clinical* value of concreteness.

Authors in neuropsychological rehabilitation have used the concept of concreteness in different forms. For example, Cicerone and Giacino (1992) refer to the phenomenon as a failure to appreciate the *abstract* or *symbolic* qualities of ideas, comments, or things. Ponsford, Sloan, and Snow (1995) have suggested that concrete patients struggle to *generalise* from one event, or in *distilling the essence* of a situation, which impairs their capacity to learn from experience. Another frequently reported feature of concreteness is difficulty in thinking beyond present thoughts, or seeing beyond one's own perspective (Judd, 1999), which may even translate into difficulties with empathy (Eslinger, 1998), or self-centeredness (Judd, 1999; Obonsawin et al., 2007).

It is interesting to note that most of the above mentioned definitions are in close alignment with the early work of Kurt Goldstein, who coined the term "concrete attitude". He described it as a "*realistic* attitude, where behaviour is confined to the *immediate* [not reflective] apprehension of a given thing or situation" (Goldstein, 1936b; 1942; Goldstein & Scherer, 1941). When addressing concreteness, most authors refer more or less directly to this feature; a basic difficulty in the organism's ability to *detach* itself from the immediate environment, in order to generate a flexible response. Clinically speaking this is usually portrayed as a difficulty using abstract thought or discursive reasoning to guide behaviour. As a consequence, behaviour may become perseverative or extremely susceptible to the varying stimuli in the environment (Goldstein & Scherer, 1941, p. 3).

However, an important trend in recent accounts is the tendency to reduce concreteness to a *cognitive* impairment, equivalent to other neuropsychological deficits caused by brain injury (e.g., aphasia, impulsivity, inattention). This interpretation may be misleading, and certainly

does not reflect Goldstein's original idea. He explicitly specified that concreteness was *not* equivalent to a cognitive deficit, but rather reflected an *attitude* of the *total* personality:

The abstract and the concrete attitudes are not acquired mental sets or habits of an individual, or special isolable aptitudes, such as memory, attention, etc. They are rather *capacity levels of the total personality*. Each furnishes the basis for all performances pertaining to a specific plane of activity. In other words, each attitude constitutes one definite *behavioural range* (my italics) which involves a number of performances and responses. These latter, when taken individually at their surface value, may appear to be discrete entities of quite a diversified nature (e.g., attention, recall, retention, recognition, synthesizing, symbolization, etc.) (Goldstein & Scherer, 1941, p. 1)

What seems to be essential in Goldstein's definition, and absent in recent accounts, is that concreteness refers to a radical change in the way that the *whole* personality, or the *Self*, constructs internal and external experience. When elaborating this point, Goldstein explains that, by *attitude*, he implies a form of *readiness* for response. In assuming an abstract or concrete attitude, he claims, the individual *as a whole* gears himself toward a specific direction of activity, a *mode* of functioning (1941, p. 2). This emphasis on the Self, which we believe is crucial for holistic rehabilitation, is difficult to grasp when concreteness is considered as a cognitive impairment. The intention of this article is to move away from such neuropsychological reductionism, adopting a self-psychology perspective to brain injury (Klonoff, Lage, & Chiapello, 1993; Prigatano, 1999a; Salas, 2012; Salas & Turnbull, 2010).

In this regard it is interesting to note the similarities between Goldstein's proposition and more recent theoretical accounts of how behaviour may change after frontal lobe damage (see Table 1). Mesulam (1986; 2002), for instance, has suggested that large frontal lesions may allow the *resurgence* of a *default mode*, a realm of neural function where inflexible stimulus response linkages (the 'realistic attitude' of Goldstein) remain impervious to modification by context or experience (Mesulam, 2002, pp. 14–15). Here the shared notion of "mode of functioning" is notable, because it stresses the idea that all the organism's abilities are aligned under one single pattern of functioning (a *mode* in Mesulam and an *attitude* in Goldstein).

A final theoretical comment needs to be made regarding concreteness as a neuropsychological deficit. There is no doubt that frontal lesions may impair many cognitive capacities that allow an abstract stance (e.g., set shifting, working memory, monitoring, etc.), however, this *loss* of abstract abilities should not be considered as an equivalent of concreteness itself. In other words, concreteness cannot be reduced to the

Table 1: Comparison between Goldstein's concrete attitude and Mesulam's default mode

Concrete Attitude (Goldstein & Scherer, 1941)	Default Mode (Mesulam, 2002)
Realistic Attitude (unreflective and confined to the immediate apprehension of an object, idea or situation).	Horizon of consciousness confined to here and now and set reflexively in a stimulus-bound mode.
Thinking and acting are directed by the immediate claims made by one particular aspect of the object, or the outer world situation.	Automatic reactions to salient events and immediate gratifications are guided by prevailing motivational states.
Rigidity and lack of shifting (but also abnormal fluidity).	Presence of repetitive responses although they may not fit with environmental demands.
Impairment in the manipulation and operation over ideas and thoughts.	Options for alternative interpretations are not encouraged.
Cannot assume an attitude towards the "mere possible" and to think or perform symbolically.	Appearance cannot be differentiated from significance.

absence of an abstract attitude, to some kind of abstraction "blindness". Following Mesulam's idea of a default mode, concreteness may be better explained as a *re-surgence* of a primary mode of functioning, which has been progressively obscured by the development of abstract capacities throughout ontogeny, and which is preserved in patients despite extensive frontal lobe damage. This view of concreteness, as *preservation*, not as a deficit, has been described previously by Sacks (1986) and has radical consequences to how we approach concrete patients, and recognise them as experiencing beings:

Much easier to comprehend, and altogether more natural, is the idea of the preservation of the concrete in brain damage—not regression *to* it, but preservation *of* it, so that the essential personality and identity and humanity, the *being* of the hurt creature, is preserved. (Sacks, 1986, p. 165)

We have briefly revised the concept of concreteness, hoping that by clarifying it theoretically, its practical relevance in rehabilitation and psychotherapy would become evident. By moving away from a definition that reduces concreteness to a specific cognitive deficit, we have adopted a broader view, highlighting how brain damage modifies the organism's *relationship* with its outer and inner worlds. This distinction is

indispensable to understand, for example, how functioning in a concrete *mode* might transform, but not abolish, subjective experience after the injury (see Prigatano, 1991).

Why concreteness is relevant to neuropsychological rehabilitation

We believe that the concept of concreteness has survived among rehabilitation professionals because of its clinical value. Concreteness is useful because, as a concept, it fits well with three main principles that guide rehabilitation practice. First, concreteness underlines how brain injury modifies the experiencing Self, a proposition that is in accordance with the first principle of rehabilitation: “the clinician must begin with the patient’s subjective or phenomenological experience, in order to reduce frustration and confusion as means to engage him in the rehabilitation process” (Prigatano, 1999a, p. 3). Goldstein’s model of concreteness offers a detailed description of how *phenomenological experience* may change after brain injury, allowing a deeper understanding of these transformations and, in consequence, helping clinicians to grasp the disorganised mind and to attune to the wounded soul.

Second, we know that neuropsychological rehabilitation has progressively evolved from an interest in cognitive deficits, and retraining, with an increased emphasis on socio-emotional functioning and participation (Mateer, Sira, & O’Connell, 2005; McGrath, 2004; Wilson, 1997; 2003; 2008; Wilson, Gracey, Evans, & Bateman, 2010). This movement is, for example, illustrated by the growing literature on identity change (Carroll & Coetzer, 2011; Cloute, Mitchell, & Yates, 2008; Gracey et al., 2008; Segal, 2010; Yeates, Gracey, & McGrath, 2008; Ylvisaker & Feeney, 2000) and interpersonal relationships (Bowen et al., 2009; Bowen, Yeates, & Palmer, 2010; Feigelson, 1993) after brain injury. Concreteness, as we have defined it, taps directly into these issues. It usually implies some kind of *shrinkage* of the *temporal* and *representational* domains of the Self, which radically transforms the way in which the Self relates to itself (Self as an object) and to others (Self–Other). A deeper understanding of concreteness may, therefore, guide the assessment and design of rehabilitation interventions addressing these emotional and interpersonal issues.

Third, concreteness, often associated with frontal lobe damage, compromises elaborated thinking and the use of organising schemas. As a consequence, patients may experience difficulties creating new and adequately organised mental models of the self after the injury (Prigatano, 1989; Ylvisaker & Feeney, 2000; Ylvisaker, Mcpherson, Kayes, & Pellet, 2008), compromising a central goal for rehabilitation (Biderman, Daniels-Zide, Reyes, & Marks, 2006; Klinger, 2005; Nochi, 1998).

Why concreteness is relevant to psychotherapeutic approaches to brain injury

The influence of holistic paradigms in neuropsychological rehabilitation has generated renewed interest in the use of psychotherapeutic tools to address emotional (Coetzer, 2004; 2007; Dewar & Gracey, 2006; Freed, 2002; Gracey, Oldham, & Kritzinger, 2007; Klonoff, 2010; 2011; Lewis, 1999; Prigatano, 1986; Psaila & Gracey, 2009; Salas, 2008a) and interpersonal (Bowen, 2007; Bowen, Yeates, & Palmer, 2010; Salas, 2012; Yeates et al., 2008) difficulties after brain injury. Interestingly, lack of insight and inflexible thinking, two features usually associated with concreteness, have been reported by therapists as common challenges in their work with people who acquired a brain injury (Judd & Wilson, 2005). Unfortunately, very few authors have addressed how concreteness may impact the use of psychotherapeutic tools, and the necessary technical modifications that working with these patients entail (Judd, 1999; Klonoff, 2010; Miller, 1993; Prigatano, 1986, 1994; Salas, 2008b; Ylvisaker & Feeney, 2000).

Concreteness is relevant to psychotherapy for several reasons. First, and most obvious, because it implies a change in how the subject relates to his internal world, thus altering the same territory in which psychotherapy takes place. Second, the *realistic attitude* may impact different dimensions of the therapeutic process (see Coetzer, 2007 for a description of different dimensions in a generic model of psychotherapy for traumatic brain injury (TBI)), setting theoretical and technical challenges that therapists must deal with. For example, concreteness might compromise patients' capacity to spontaneously report problems or conflicts to the therapist (*therapeutic operations*), reflect about themselves during personal (*self-relatedness*) and interpersonal interactions (*therapeutic bond*), or link emotions with external events or situations (*in-session impacts*).

Challenges to psychotherapeutic work with concrete patients

The *concrete* or *realistic attitude*, described by Goldstein, can be considered as contraction in temporal (*presentness*) and representational (*meaning generation*) dimensions of the Self (see Figure 2). In this section we will describe how these transformations may challenge the use of classic psychotherapeutic tools, requiring theoretical and technical adaptations.

Concrete attitude as presentness

According to Goldstein, the concrete or realistic attitude implies that we are confined to the *immediate apprehension* of a given object or situation, in its particular uniqueness. Thinking and acting are thus directed

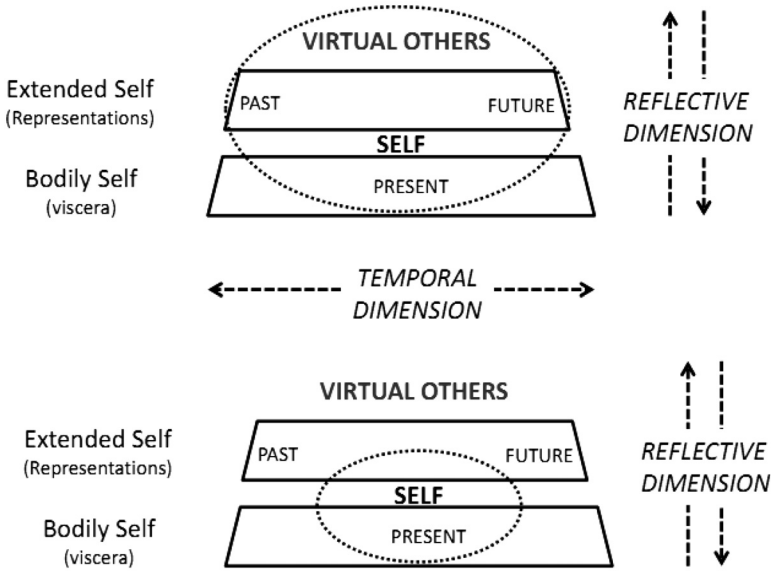


Figure 2: Changes generated by concreteness in temporal and reflective dimensions of the Self. The figure represents how concreteness contracts the Self (dotted circle line) along these two dimensions. Temporal changes modify the Self’s capacity to move forwards and backwards in time (time travel), while Reflective changes modify the self’s capacity to detach from immediate experience, a basic requirement for self-observation and self/other-observation. Visceral experience (Bodily Self), or core experience, is largely preserved despite representational deficits (Extended Self).

by the *immediate claims* which one particular aspect of the object or of the outer world situation makes (Goldstein, 1942, pp. 89–90; Goldstein & Scherer, 1941, pp. 2–3). At a behavioural level, this feature of concreteness can be observed as a difficulty of voluntarily shifting from the experience of a present stimulus, or also as a passive drifting from one stimulus to another (exaggerated attentiveness). In both cases the object, or situation, acquires an *abnormal preponderance*, and the individual is thus *forced* by the stimulus (Goldstein, 1936a,b). In practice, patients may come across as “inflexible” or “rigid”.

The degree to which an individual can be *forced* by the stimulus may vary. At the most extreme end of the continuum, patients may exhibit *utilisation behaviours* (Lhermitte, 1983, 1986; Lhermitte, Pillon, & Serdaru, 1986), where the visuo-tactile presentation of an object elicits its use or grasping, even though no instructions are given to do so (Shallice, Burgess, Schon, & Baxter, 1989). Such patients open doors that are in front of them, get dressed after seeing a shirt in the closet, or lie down if their attention is taken by the bed. In milder cases, individuals

may preserve the capacity to inhibit motoric outputs in relation to objects, but their cognition can be “captured” by immediate object/situation claims, as in difficulties *sustaining* a cognitive set, or *shifting* to another (Shallice, Stuss, Picton, Alexander, & Gillingham, 2008a,b). For example, when instructed to say words that begin with the letter “s”, with the exception of names, a concrete patient may say: “the only things I can think of now are names”.

Even though Goldstein primarily described concreteness in behavioural terms, he also acknowledged its relevance for subjective experience (see the chapter on values in his Lanuti case; Hanfmann, Rickers-Ovsiankina, & Goldstein, 1944). Thus, if a person is constantly *forced* by stimuli, his/her capacity to detach from immediate experience is compromised, becoming somehow stuck in the experiencing moment. We would like to expand Goldstein’s conceptualisation by suggesting that concreteness can change the temporal dimension of the Self; usually understood as a capacity to move backwards into past experiences (hindsight), or forward into possible future scenarios (foresight), an ability typically described in the literature as “time travelling” (Suddendorf & Corballis, 1997, 2007).

Presentness and therapeutic operations

According to Orlinsky’s (2009) model of generic psychotherapy (see Table 2), one dimension of the psychotherapeutic process relates to the so called *therapeutic operations*, where patients present information or complaints to the therapist, usually related to problematic feelings, symptoms, or life situations. This is the first step of any psychotherapeutic exchange cycle, where patients bring *into* the session difficulties that they have experienced *outside* the consulting room.

Concrete patients may struggle presenting “material” to the therapist because the emotional noise of a conflictive event may rapidly fade once *new* events force the organism’s attention in another direction. As a result, patients may appear indifferent (or even happy!), with no visible trace of any distress that might become material to initiate a therapeutic cycle. In many cases this untroubled stance may differ from the therapist’s internal experience of something conflictive that is left outside, or the relative’s distress when describing family issues. The therapist might be tempted then to point out events or situations that deserve to be attended to by the patient, usually with no success. At best, the patient may rationally acknowledge the existence of such events or problems, but without emotional congruence or signs of conflict. In more severe cases, the patient may experience the situation interpreted by the therapist as something completely alien. Consider the case of Mrs I, a patient seen by one of the authors (FV).

Table 2: Different dimensions of a psychotherapeutic process according to the Model of Generic Psychotherapy (Orlinsky, 2009)

<i>Psychotherapy Dimensions</i>	<i>Definition</i>
Therapeutic contract	Mutual understanding between therapist and patient regarding goals of the collaboration, methods to be used, modality (e.g., individual, couple therapy, etc.) and norms governing participants' behaviour in their role as therapist or patient.
Therapeutic operations	Technical or instrumental aspect of the process. Four cyclic steps can be described: <ol style="list-style-type: none"> 1) Presentation of complaints and information about problematic feelings, symptoms, or life situations. 2) Construction by the therapist of an "expert" understanding of the real problem underlying patient's complaints. 3) Offering a therapeutic intervention by the therapist. 4) The intervention evokes co-operation dynamics (collaboration or resistance) that offers further information for a new cycle to start.
Therapeutic bond	Interpersonal aspect of the therapy process. It encompasses task-teamwork and empathic resonance.
Self-relatedness	Intrapersonal aspect of the process, defined as the way in which a person perceives and responds to him while interacting with those around him.
In-session impacts	It refers to positive (insight, emotional relief, and sense of hope) and negative (confusion, anxiety, and discouragement) results attained during sessions.
Temporal patterns	Different configurations that the five previously mentioned dimensions acquire as the therapy process change over time as micro-events within therapy sessions and macro-events over the course of treatment.

Mrs I is a fifty-four-year-old woman who sustained a severe traumatic brain injury in a road traffic accident. She also has a large right frontal infarction, caused by carotid dissection during the same accident. She has a dense left hemiplegia and a wide range of cognitive (mainly executive), emotional and behavioural impairments.

In most sessions, Mrs I experiences low mood, and expresses a great deal of anger and frustration about her circumstances and the difficulties she experiences. These usually relate to the control of her finances, the ongoing adaptation of her home, and arrangements for her care

and support. She has a strong tendency to blame others for difficulties that arise and she has little insight into her impairments and their consequences. In a few other sessions, Mrs I appears to be entirely content and happy. During these sessions and at moment of positive affect, it is impossible to engage her in a discussion about her brain injury, or any of the difficulties she commonly complains about. On these occasions, Mrs I no longer feels that she has a brain injury. She reports that she is content because she will soon be able to move into her new home. Mrs I is convinced that the move into the new accommodation will be problem-free and that life in the new house will be perfect.

The case of Mrs I illustrates how concreteness can compromise the capacity to use events from the past as psychotherapeutic material in the present. In her situation, past negative events (e.g., difficulties in the house conversion or managing finances), that usually are a source of distress, appear to *not* exist when she is *captured* (in the present) by circumstances that elicit positive emotions. In other words, during these moments of positive emotion it seems as if she exists entirely within her contentment and could not relate to any other emotional experience. She attributes her previous frustration and anger to relatively minor factors (e.g., the builders weren't making good progress) and her current happiness to its reversal. When asked about some of the important factors that usually underpin her sense of catastrophe, she dismisses them as no longer important because the house will be finished soon. She refuses to accept that the difficulties that accompany any move into recently built accommodation will occur, and will inevitably be disappointed and enraged when they do.

It is interesting to note that Mrs I's difficulties do not exclusively involve returning to a past scenario to generate conflict, but also consider possible future events as potential sources of distress. This observation is in agreement with the idea that psychotherapy does not exclusively work through the elaboration of material from past events, but also deals with the emotional impact of "possible" scenarios (this is striking in the treatment of anxiety disorders, for example). This evaluation of "future consequences" relies on the Self's capacity to project into the future, detaching from present moment and its current emotional valence. Concrete patients, being forced by present stimulus or situations, can show difficulties in the use of future scenarios to activate a manifest conflict.

A similar observation has been made by Freed (2002) when describing that patients with traumatic brain injuries have difficulties using bodily signals of negative value (*signal anxiety* in psychoanalytic language) to anticipate, and prepare, for negative future events. Evidence from the study of frontal lobe and the envisioning of emotional events in the future

(D'Argembau, Xue, Lu, Van der Linden, & Bechara, 2008), and data from prospective memory deficits after traumatic brain injury (Potvin, Rouleau, Audy, Charbonneau, & Giguère, 2011; Shum, Fleming, & Neulinger, 2002; Shum, Valentine, & Cutmore, 1999) and frontal lobe lesions (Umeda, Kurosaki, Terasawa, Kato, & Miyahara, 2011; Volle, Gonen-Yaacovi, de Lacy Costello, Gilbert, & Burgess, 2011), appears to offer additional support to this hypothesis.

Concreteness, representational meaning and abstraction

Changes in the *reflexive* dimension of the Self are of great relevance for emotional adjustment and potential to utilise and gain from psychotherapy. This dimension refers to a capacity to detach from direct experience, by verbally reflecting upon our own (or other's) behaviour. We specifically relate this dimension to the generation of *representational* meaning, because it involves the *manipulation* of ideas and thoughts about experience. Here it is interesting to note that Goldstein himself emphasised that the process of disintegration towards the concrete does not reduce the *arousal* of ideas and thoughts as such, but affects, and modifies the way of *manipulating* and *operating* with ideas and thoughts (Goldstein & Scherer, 1941). This distinction is extremely important because highlights that concreteness does not compromise primary or core experience, but instead the way we built reflective meaning upon these elements. Consider the case of Mr A to illustrate these matters:

Mr A is a young man in his thirties that suffered a severe traumatic brain injury in a car accident. After two years of successful rehabilitation he was finally working in his former position, as executive of an important bank. Even though he still experienced some cognitive difficulties related to effort tolerance and multitasking, he was able to perform his job without major problems. One day Mr A's wife called his psychotherapist (CS) in a state of crisis. She told him that, for several days, Mr A had been acting strangely. He was restless, and complained of headaches. He also kept saying that he did not want to go to the office. Mr A's wife found this quite unusual, because headaches were frequent, and Mr A never stopped working because of this complaint. She commented to the therapist that she tried to talk to him, to find out if there was something bothering him, in order to understand his avoidance of work, but without success. However, she mentioned to the therapist that perhaps Mr A was behaving this way because of the arrival of someone new to the office, who had been placed in a very similar position to Mr A. This made sense to the therapist, and he remembered that Mr A had talked about this new staff member weeks previously. However, Mr A did not look explicitly conflicted by this

event at that moment. Indeed, he made jokes and appeared to look patronisingly towards the new employee. During the next session the therapist tried to explore Mr A's understanding of this crisis and his need to avoid work. Mr A was not able to link the events with any external circumstance or emotional state. He simply stated that he felt ill, and that this did not mean anything beyond that. It took several sessions to progressively link these bodily feelings to the changes that have taken place at work. It took even longer to begin exploring more complex emotions associated with the threatening presence of the new staff member. Mr A realised the new employee was smart, and perhaps more skilful than him after the accident. He expressed irritation about how this new arrival was trying to win over his boss. He also referred feelings of anger at his accident and himself for making things hard at work, thus limiting his chances for a promotion.

Mr A's case is interesting for several reasons. It illustrates a common difficulty of concrete patients to "make sense" out of conflicting situations, by reflecting upon their experience as a coping mechanism (e.g., I feel threatened by this new employee who is smarter than me). It has been described that, in such situations, concrete patients tend to avoid the source of conflict (Krpan, Levine, Stuss, & Dawson, 2007; Krpan, Stuss, & Anderson, 2011), as a way of down-regulating the emotional disorganisation it produces (Riley, Brennan, & Powell, 2004). The case of Mr A is also an example on how concrete patients preserve a capacity to guide behaviour based on *somatic* sensations (e.g., headaches, restlessness), which mobilise the organism in a rather basic approach or withdrawal fashion.

Difficulty reflecting on experience appears to be closely related to abstraction deficits¹. Several studies have reported that patients with brain injury, and especially those involving the frontal lobes, such as traumatic brain injury, may present with impairments in the ability to structure and synthesise abstract concepts (Elmore & Gorham, 1957; Hagen, 1984; Yang, Fuller, Khodaparast, & Krawczyk, 2010) as in proverbs, irony, and metaphor (Groher, 1983; Hagen, 1984; Levin, Benton, & Grossman, 1982; Towne & Entwisle, 1993). This type of impairment would compromise the patient's capacity to look beyond the most salient elements of experience, in order to generate a broader understanding of situations that encompass multiple perspectives (see Table 3).

Abstraction capacities appear to have a central role in a psychotherapeutic process. It has been proposed that abstraction is a key component in the generation of new mental structures during psychotherapy (Schneider, 1983, in Mergenthaler, 1996). In addition, the temporal coincidence of abstraction and emotion has been suggested as being related to therapeutic change (Mergenthaler, 1996).

Table 3: Comparison of a concrete patient and a matched healthy control on the Similarities task (Wechsler Adult Intelligence Scale III)

<i>Stimuli</i>	<i>Concrete patient (left prefrontal stroke)</i>	<i>Subject with no brain injury</i>
Fork/Spoon	You . . . (gestures bringing something into the mouth) put it in your mouth	Cutlery
Socks/Shoes	For your feet . . . warmth	Clothing
Yellow/Green	Colours	Colours
Dog/Lion	Bark?	Animals
Coat/Suit	Here . . . here puts the suit (puts her hands on her chest) . . . warmth (keeps doing the gesture on her chest) to fasten . . . wool	Clothing
Orange/Banana	Fruit	Fruits
Eye/Ear	On your face . . . one is for sight and the other one for hearing	Senses
Boat/Car	Transport	Transport
Table/Chair	For . . . good for eating	Furniture
Work/Play	They are both good for you . . . you work and you play	Activities people do
Steam/Fog	Same really. Steam is by man and fog is here (points to the sky) . . . rain. Steam . . . you press a button and comes out	Made of water, misty
Egg/Seed	They are both the same really . . . more generation	Beginning of life
Democracy/Monarchy	One has a king and the other one does not	Ways of ruling
Poem/Statue	Statue you see it and the poem is for you to say	Forms of art

A paradigmatic impairment of abstraction in TBI patients is the difficulty to comprehend metaphor or, in simple words, that the map is not always the territory (which is a metaphor in itself that we are using to synthesise an idea). By using metaphors we compact meaning (Ylvisaker & Feeney, 2000) and transfer information regarding internal states more effectively to others (e.g., I felt like hiding my head in the sand). As the reader can

imagine, metaphor has an important role in psychotherapy and hence, metaphoric comprehension deficits can obstruct the use of metaphor to: (a) access to personal memories and feelings (Frank & Frank, 1993); (b) facilitate the entry for the therapeutic dyad into the patient's inner world (Angus, Levitt, & Hardtke, 1999); and (c) construct narratives that generate meaning (Sarbin, 1986; Schafer, 1992).

Concreteness, insight, and emotional awareness

Another aspect of the psychotherapeutic process that can be challenged by concreteness is the capacity to generate insight (Judd, 1999). Insight refers to an *awareness* and understanding of one's own behavioural patterns and motivations (Luborsky, Crits-Cristoph, Mintz, & Auerbach, 1988), and has been considered as a type of "therapeutic realisation" that occurs during sessions and leads to change (Orlinsky, 2009). Insight is a necessary capacity in the emotional adjustment of patients with traumatic brain injury (Coetzer, 2007), especially when addressing questions about normality or the meaning of life after brain damage (Prigatano, 1986; 1991; 1999a). The case of Mr A can illustrate this point in terms of the difficulties he experienced in understanding how his somatic states (headache and restlessness) were connected to environmental triggers (arrival of the new staff member). To him, nothing else existed besides the immediate distress that forced him to act. His capacity to detach from direct experience, and to reflect upon his behaviour, was somehow shattered—especially when in more challenging states of arousal. Here, it was not an external stimulus that *forced* Mr A to function in certain direction, but an internal and urgent state of catastrophe (see Salas, 2012).

The case of Mrs I illustrates a slightly different quality of concreteness, which is the influence of emotion on cognitive ability and awareness. Although Mrs I usually has little awareness of her neurobehavioural impairments, she can occasionally become more accepting of the idea that her emotions, behaviour, and cognitive abilities have been altered and impaired by the TBI. However, these moments of insight are both transient and critically dependent upon Mrs I having a strong sense of being heard and validated within the current session. In these are moments, when Mrs I is calmer and soothed, she seems more able to detach herself from direct experience, and adopt a slightly more reflective, and less defensive, position in relation to her difficulties. She can, for example, give clear descriptions of some profound changes, such as being unable to inhibit over-familiar responses with strangers. For further discussion on this point, see the section on *building mental schemes and manipulating negative arousal*.

If insight refers to an awareness and understanding of one's own motivations (Luborsky, Crits-Cristoph, Mintz, & Auerbach, 1988), and is

closely linked to emotional relief (Orlinsky, 2009), the relationship between emotional experience and abstraction deficits needs to be further understood. Goldstein himself briefly wrote on this topic, suggesting that patient's emotional responses (e.g., dulling of emotions or great excitability) were determined by their capacity to *grasp* the essentials of a situation, and not to a primary defect in emotional experience per se (Goldstein, 1936b). Modern authors have proposed a similar idea regarding patients with frontal lesions, suggesting that disruption of emotion is highly dependent on context. For example, patients may show diminished emotional responses to issues that are *abstract* or not *immediately present*, together with exaggerated emotional responses to immediately present stimuli (Anderson, Barrash, Bechara, & Tranel, 2006). Consider the example of Mr R, a patient who suffered a large left frontal and parietal stroke, to illustrate how concreteness may *narrow* emotional life to the present moment (Goldstein, 1936a). As part of an experiment Mr R had to watch short film clips, which were intended to elicit sadness. After each of the clips he had to report how he felt during the films by rating emotional words (e.g., how shaky did you feel while watching the clip?). When asked "how lonely did you feel?" he replied, perplexed: "why should I feel lonely if I'm here in this room with you?"

Mr R's behaviour and verbal report is interesting. If we consider his facial behaviour during the clip, it is clear that he was able to experience sadness. However, when he was asked to offer some insight about the recently passed emotional experience he struggled to grasp the essence of the question. Although this type of question seems quite straightforward, answering it would require him to: (a) detach from the present moment and move backwards in time (while watching the clip); (b) activate an "as if" emotional experience of a non-present situation (how did I feel then?); and (c) infer abstract information related to the emotional experience (how much?). Mr R's answer reflected difficulties performing these operations, and was instead forced by the salient elements of the present situation (he was, in fact, not alone in the room, at that moment) and the emotional states associated with it (he did not currently feel lonely).

A further understanding of how concreteness compromises emotional awareness, and a key capacity for psychotherapy, can be obtained from research on alexithymia and TBI. Alexithymia, a clinical concept that has been widely related to mental health, has striking similarities with temporal and reflective changes involved by concreteness. For example, alexithymia has been defined as comprising a: (a) difficulty identifying and describing emotions; (b) a concrete communication style; (c) an externally oriented style of thinking; and (d) limited imaginal capacity (Taylor, Bagby, & Parker, 1997). In addition, it has also been suggested

that alexithymia is linked to a failure to elevate emotions from pre-conceptual to conceptual levels of mental organisation (Taylor, Bagby, & Parker, 1997), a core feature of concrete thinking.

In TBI, there are reports that suggest a high level of incidence of alexithymia (Becerra, Amos, & Jongenelis, 2002; Henry, Phillips, Crawford, Theodorou, & Summers, 2006; Wood & Williams, 2007; 2010), which does not appear to be explained by low level emotion perception deficits (McDonald et al., 2011). TBI patients who exhibit alexithymic traits tend to present more physical symptoms (Wood, Williams, & Kalyani, 2009), that appear to function as ways of dealing with emotional distress (Williams et al., 2001). This piece of evidence seems to support the idea that concreteness is characterised by a representational (but not somatic) difficulty generating meaning (as portrayed in Mr A's case). Unfortunately, to our knowledge, no research programme has explored the link between concreteness (as described by Goldstein) and alexithymia.

Concreteness and the therapeutic bond

Changes in the reflective and temporal dimensions of the Self not only influence the use of therapeutic tools (e.g., insight), but also the interpersonal space where psychotherapy unfolds, often known as the *therapeutic bond* (Orlinsky, 2009). Evidence associating the quality of the therapeutic bond with therapy outcome (Martin, Garske, & Davis, 2000; Orlinsky, Ronnestad, & Willutzki, 2004) appears to justify the need to comprehend how concreteness may compromise such a relevant dimension.

According to Orlinsky (2009) two aspects of the therapeutic bond can be distinguished. *Task team-work* refers to how much patients and therapists are able to invest in their respective roles, and how they can coordinate positions of control and initiative. *Personal rapport* denotes the level of empathic resonance that patient and therapist may accomplish, by attuning to one another. It also refers to the emotional climate generated by their emotional responses to one another.

As reviewed above, in relation to therapeutic operations, concreteness can compromise patients' capacity to present problems or difficulties, which are the basic material for therapeutic work. This difficulty can influence the balance of control and initiative inside the dyad, forcing the therapist into a more pro-active or leading attitude. This particular team-work configuration is not negative per se, but it can potentially endanger the patient's sense of agency, which is based on the experience of control and proactivity. To consider this is of extreme relevance, especially in view that a main goal for psychotherapy with brain injured patients is helping them regaining some sense of agency in their life, despite the difficulties set by cognitive deficits.

In relation to the second aspect of the therapeutic bond, *personal rapport*, several ideas need to be considered. First, it is necessary to clarify that concreteness does not appear to compromise patients' capacity to react emotionally to others or to establish new emotional bonds, which are basic abilities required to found a therapeutic relationship. Nevertheless, concrete patients may present difficulties functioning in more abstract or representational levels of interpersonal life². For example, concrete patients might struggle to generate emotionally-driven cognitions about the therapist (so called *phantasies* in psychoanalytic language), which are often a source of conflict, as well as material for the process. In other words, patients will react emotionally to the therapist according to past experiences (e.g., feeling negative during the week and deciding not to call the therapist), but will be less able to produce the associated affective-mental scripts about his/her relationship with the therapist (e.g., I will not call him now that I feel troubled; I do not have to *bother him*. I will wait until our next session. *I should sort this out by myself*. Yes! He has his own life. *Why should he care for me?* You have to do it by yourself! Or are you not able to? Before this damn accident you *never* asked for any help! Why should it be different now?). The exploration of such mental scenarios is a key element for psychotherapy, where affective-mental scripts that guide behaviour, progressively become more conscious, thus facilitating its voluntary regulation. However, affective-mental scripts that involve the therapist are especially relevant because they allow an *in situ* exploration, capturing the emotional intensity of *present* experience. The "archaeological" task of putting together, in the simplest possible way, the different elements that compose affective-mental scripts is a fundamental step in the process of identity reconstruction after brain injury (Salas, 2009; Ylvisaker & Feeney, 2000).

Another core aspect of *personal rapport* is the emotional climate generated by patient-therapist interaction. Here we would like to put forward two basic ideas in line with previous work on countertransference and brain injury (Coetzer, 2006; Klonoff, 2010; Lewis, 1999; Pepping, 1993; Salas, 2008a). The first one relates to the therapist's *experience* of the patient's concrete mind, which may trigger diverse feelings and sensations. For example, patient's difficulty generating meaning beyond what is tangible can be felt by the therapist as "impenetrability", or an inability to access the subtleties of subjective life. Impairments in idea generation can be also experienced by the therapist as "inertia", a sort of resistance of the mind to move in any direction. These sensations are, at the same time, obstacles in the therapeutic process and "samples" of the patient's inner experience of his own mind. Even though they can trigger feelings of frustration, they are valuable hints about the nature of the patient's concrete world.

This raises a second observation, that relates to the impact of the concrete mind of the patient on the abstract mind of the therapist. This is not a phenomenon exclusively associated with concreteness, but one that can be widely observed when working with brain injured patients with different profiles of cognitive deficits, and that can be referred to as “*organic countertransference*”.³ For example, when working with dysexecutive patients, therapists may exhibit problems finding words or organising thoughts, thus effectively mimicking the patients’ deficits. The basic idea here is that, in the same way that therapists (or relatives) influence, and enhance, patient’s cognitive performance (Bowen, Yeates, & Palmer, 2010; Freed, 2002), patients’ neuropsychological deficits can also impact therapists’ (and relatives) mental functioning. This is a relational axiom that needs to be kept in mind when addressing the impact of concreteness on personal rapport, especially regarding the capacity to attune to each other. The main point here is that, when working with brain injured patients we do not just attune emotionally but, perhaps more importantly, also neuropsychologically.

A specific difficulty involved in attuning to concrete patients is that therapists try to accomplish such goals using their abstract mind, which by default adds multiple layers of complexity to the simpler experience of concrete patients. Where there is pure vivid and intense experience, the abstract mind steps back, looking for connections, patterns, or regularities. Thus the abstract mind is constantly complicating, diluting, and unifying experience (Sacks, 1986). This is a challenge, perhaps one of the most important challenges, for any therapist working with concrete patients. Its relevance is manifold. No access to the phenomenological experience of the patient (Prigatano, 1999a) is possible without the therapist becoming concrete. Similarly, no guidance can be offered to relatives without teaching them how to relate to the concrete.

Technical modifications in psychotherapeutic work with concrete patients

The starting point: preservation of [present] emotional experience

After considering the challenges that concreteness sets to psychotherapy, the reader might wonder: to what purpose, given that these patients seem poor candidates for psychotherapy? This type of reaction by clinicians, which is a mixture of discouragement and disbelief on the suitability of our psychotherapeutic tools, for meaningful and effective work with brain-injured persons, on many levels makes complete sense. Indeed, feelings of frustration are quite common among psychotherapists who work with this population (Judd & Wilson, 2005).

It is the experience of the authors that the only way out from this position of powerlessness is by focusing not exclusively on what is lost, but also on what is preserved. As mentioned above, in concreteness, “the personality, identity and humanity, the *being* of the hurt creature, is *preserved*” (Sacks, 1986, emphasis added). An idea such as this might seem counterintuitive, considering the massive transformations in psychological functioning that abstraction loss entails. However, while abstraction might be disrupted, the *sentient* self of concrete patients remains intact. Although this may be hard to picture, especially after our detailed description of concreteness as a deficit, the case of Mr J might be of help to illustrate this point more practically.

Mr J is a thirty-seven-year-old man who sustained a severe TBI after a traffic accident. As a consequence he experienced deficits in cognitive domains such as sustained attention and divided attention, prospective memory, working memory, set shifting, and fluidity. In addition, he also showed awareness difficulties in terms of “indifference” towards these cognitive difficulties when they were not concretely evident. A striking fact about Mr J was that, despite his cognitive deficits, he remained someone capable of experiencing, and expressing, emotional states during interpersonal interactions. Furthermore, his emotional experience had the same features described by Sacks (1986); it was vivid, intense, detailed, yet simple. This is observable in the following example, where Mr J was asked to perform a fluidity task:

Task 1: Write five different sentences with the word “rock”. (1) There is a seagull over the rock; (2) There is a sea lion sleeping on the rock; (3) I sit on the rock to watch the sea; (4) The rock is very hard; (5) Sea stars are stuck onto the rock. *Task 2:* Write five different sentences with the word “sky”. (1) The sky is blue; (2) In the sky there are white clouds; (3) In the sky there are many stars; (4) If you look up into the sky at night you see only stars; (5) The sky is illuminated by stars.

Mr J’s answers in the tasks present some common features of concreteness. They are highly detailed, and mainly based on sensory information. It is also possible to observe some tendency to perseverate in the topic or scene (e.g., a rock in the sea) without shifting to other different uses, or possible contexts, for the target object. Both elements, the high sensory level of detail, and the capture by a single situation or scenario, are examples of what we have described above as “presentness”, or “being forced” by stimuli. However, it is interesting to note that Mr J’s answers do not exclusively portray the impact of abstract deficits in thought processes, but also suggest richness of emotional experience in the present. His answers have, arguably, a genuine sense of depth, as if the

detailed depiction of the scene could transmit the experiencing moment with unusual vividness. The apparent paradox between abstract loss and preservation of personality seem here to dissipate. Emotional experience always occurs in present time, and concreteness is presentness. Even though the capacity of the self to project into past or future scenarios adds invaluable layers of complexity to emotional life, emotional experience always unfolds in present time (*feeling sad*), even if it is triggered by memories from the past (I lost some one I love) or phantasies about the future (I will be left alone).

It is exactly the preservation of these basic emotional capacities that have led authors to suggest that is not only the disorganised mind that needs to be addressed in rehabilitation (e.g., cognitive retraining), but also the wounded “soul” (Prigatano, 1991). Concrete patients, like all patients with brain injury, need to regain a sense of meaning and identity in order to cope better with the psychosocial problems they face (Prigatano, 1986; 1994). This need has been perhaps underestimated by psychotherapists (Judd & Wilson, 2005), who have tended to assume that cognitive impairments prevent these patients engaging with, and benefiting from, psychotherapy (Jude, 1999; Jude & Wilson, 2005; Prigatano, 2003). This paper proposes a different point of view. We believe that by acknowledging, and comprehensively understanding, these impairments, it is possible to adapt the way we do psychotherapy (see Prigatano, 1986), and to work more effectively as a result. We also believe that this challenge has an ethical connotation, based on the recognition that concrete patients clearly experience psychological suffering (Goldstein, 1959, 1995[1965]; Hanfmann, Rickers-Ovsiankina & Goldstein, 1944; Salas, 2012), and often attempt to understand their situation, despite deficits of abstraction (Prigatano, 1986) and, at some point, they actively seek help in order to gain such understanding (Freed, 2002; Salas, 2012). Consider Mr J as an example:

Task 3: write five things you do after you get out of bed. (1) Well . . . I get up and brush my teeth; (2) I get up and go wash my teeth; (3) I get up and feed the dog; (4) I get up and take a shower; (5) I get up . . . and you will have to help me. *Task 4:* write five things you do before you go to bed. (1) Well I get up and I don't know what to do; (2) I get up and don't know what I would do; (3) I get up and don't know what to do; (4) I have never fallen in despair; (5) I have never . . .

Addressing presentness in psychotherapy: using external reality

It has been described that presentness implies a contraction in the temporal dimension of the self. Such transformation may challenge the initiation of a therapeutic cycle, which is usually characterised by

patients proactively bringing into a session complaints related to problematic life situations. This difficulty has been noted by different authors (Klonoff, 2010; Prigatano, 1986), who have stressed the need to increase the frequency of sessions (to repeat and rehearse information) or include external aids (such as notebooks or lists of potential discussion topics) in order to manage abstraction and memory problems. From Orlinsky's model of generic psychotherapy (2009), presentness would compromise the generation of temporal patterns, which are the articulation, over the course of treatment, of the different dimensions of the psychotherapeutic process (explanations of the problems offered by the therapist, insights, emotional relief, etc.).

Perhaps the most important idea to have in mind, when addressing presentness, is that external reality is the most powerful elicitor of emotional reactions. This is a fact that can be easily observed, for example, during the transition from inpatient to outpatient rehabilitation, where contact with the real world violently strikes patients' perceptions of their abilities. Before this encounter, and due to difficulties triggering emotional states based on possible future scenarios, concrete patients are unable to emotionally size up this impact. In other words, it appears that, for concrete patients, problems only exist when they *are* occurring, not much before, and not much after.

The implications of this particular state of mind for psychotherapy are manifold. For example, psychotherapy should carefully seek to identify real life events that generate discrepancies between patient's abilities, expectations, and the environment, and use them as *breaches* to access subjective experience. This might seem obvious and simple, but is not. The case of Mr A is an example of how a real life event (arrival of a new colleague) generated a crisis that is not detected by the therapist or reported by the patient. In this case it is thanks to the close collaboration of Mr A's wife that this event is spotted, and then addressed with the patient. The use of these breaches, generated by real life events, requires the flexible management of session frequency, in order to "strike while the iron is hot". A close coordination with relatives and key colleagues at work is vital to catch these events.

A second implication of dealing with presentness is how to artificially generate breaches that allow access to subjective life. In other words, how it may be possible to mimic real life situations in the therapeutic setting, as a means to activate (and then address) conflicts. Two possibilities must be considered here. One is the use of couple or family sessions, alternated with individual sessions. Of special interest here are approaches developed to address "intimacy" problems after brain injury (Bowen, Yeates, & Palmer, 2010) and dementia (Balfour, 2011). By including significant others in the sessions, it is possible to engage the

patient in real life interactions, that will arouse emotional reactions more effectively and bring interpersonal conflicts into the session. Another useful method to generate breaches is to move out of the consulting room into the patient's own environment. This approach allows the therapist to experience, with the patient, real life situations (at home, at work) which can be later used as source of therapeutic material. The work of Mark Ylvisaker and Timothy Feeney on identity reconstruction is perhaps the best example of doing psychotherapeutic interventions in ecological contexts (Salas, 2009; Ylvisaker & Feeney, 2000).

Making sense: building mental schemes and manipulating negative arousal

Making sense out of the experience of acquiring a brain injury, and the changes it implies, has been described as one of the main goals of psychotherapy after brain damage (Prigatano, 1986; 1994). However, deficits in abstraction can compromise patients' capacity to reflect upon emotional experience and generate meaningful interpretations of what they are going through. Several technical modifications can be implemented to bypass or compensate such abstraction impairment.

One suggestion is that insight regarding emotional or interpersonal difficulties can be best accomplished through continued repetition and generalisation (Prigatano, 1986). In other words, compared to patients without neurological lesions, concrete patients require a prolonged exposure to information in order to fully incorporate it as part of a mental schema or mental category (which can be later used to guide behaviour and decision making). In some cases information may take months, or even years, to sink in—and when it does, is often in the context of an external event that has generated some type of internal disorganisation. Somehow, this information appears to have been “rehearsed” inside sessions, and is then meaningfully (emotionally) connected with the event, and a new mental schema is formed. The subjective experience that accompanies such situations can be a mixture of surprise and fulfilment. Professor F, a patient of one of the authors (CS) arrived in a state of puzzlement to one session, four years after the stroke:

So this is what you meant . . . this is the problem that we keep talking about . . . how my head doesn't work sometimes . . . when it gets messy, disorganised . . . when I'm too nervous. Well, I was at work and received this call asking to finish this document . . . and I did not expect that. My head went blank and I did not know what to do, where to start . . . I was frozen. And there I remembered . . . and I thought . . . this is what we have talked about . . . the executive thing. In a weird way that calmed me down a little bit.

Once a mental schema has been internalised, it needs, ideally, to be generalised to other similar situations, and progressively brought under the same explanatory category. In the case of Professor F, many other life situations (e.g., booking a flight, sorting out bills) that were experienced as mind-disorganising, were explained under the same basic model: “Dealing with unexpected events makes you feel confused, and when you feel confused your head feels messy and it doesn’t obey you”. This basic model was progressively enriched through personal metaphors that he spontaneously used to explain his experience. For example, in moments of confusion, when he felt paralysed, he would describe his mind as being in a state of *inertia*, without any thinking activity.

Generalisation also implies that insights need to be shared by significant others who may be present when the patient experiences these events, or are actively sought after for help. It is extremely important that significant others clearly understand the schema, so they can help the patient without diminishing his sense of agency. For example, Professor F spontaneously started calling his wife during moments of confusion, as a means to extract himself from the mental inertia. He did not need help deciding what was best to do, but could not initiate the process of thinking by himself. That was all he needed.

An additional problem to the generation of mental schemas is concrete patients’ difficulty in tolerating psychological conflict—where a somatic response generates an impulse to act which is somehow counter-regulated by higher order processing (See Salas & Turnbull (2010) for a discussion on conflict, defence mechanisms, and brain injury.). By thinking about somatic experience we detach ourselves from a perception–action mode of functioning (doing), by adopting a reflective stance (thinking). Because abstraction is compromised in concrete patients, somatic responses can be experienced without a coherent representational correlate, only as a tendency to act (see section on concreteness, representational meaning and abstraction to avoidance behaviour in TBI). In Mr A’s case, for example, a negative event from the environment triggered a basic experience of “threat” which was quickly regulated by concretely avoiding the source of discomfort (work).

The basic question that needs to be answered then is how psychotherapy can be shaped to address difficulties in the generation of representational meaning from somatic experience. Several considerations can be of use here. The first is that such patients’ representational capacity (abstraction) might fluctuate according to situational demands, and perceived availability of support. This is not a new idea. In fact, Bowen, Yeates, and Palmer (2010) systematised a significant amount of evidence suggesting that performance in cognitive functions of different sort is heavily dependent on context. In addition, there is substantial literature on the

impact of negative emotion (or arousal) on executive abilities (Davis & Nolen-Hoeksema, 2000; Demanet, Liefoghe, & Verbruggen, 2011; Gasper, 2003; Oei et al., 2011; Schoofs, Preuss, & Wolf, 2008; Smallwood, Fitzgerald, Miles, & Phillips, 2009) or the capacity to think about mental states (Fonagy, Gergely, Jurist, & Target, 2004). A key point is that, as psychotherapists, it is possible to influence patients' representational abilities by manipulating their level of negative arousal. This is of special relevance when working with couples/families, or when the patient-therapist relationship is the focus of the conflict (e.g., alliance rupture).

Another source of negative arousal, that requires modulation, is the patient's struggle to use his/her mind during sessions. Often, concrete patients can experience difficulties generating ideas, finding words, or understanding therapists' interventions. The experience of these deficits can generate vicious cycles where negative emotion impairs cognitive function further. The therapist's stance toward these difficulties is crucial. He has to be available enough to act as an auxiliary ego when, for example, the patient is unable to find a word. Nevertheless, at the same time he has to offer the patient enough space to use, and reclaim, his own mind, tolerating the tendency to "fill in the gaps" that is caused by mutual frustration. A patient of one of the authors, Professor F, commented on this *therapeutic attitude* when writing about his brain injury:

The weekly work with my psychotherapist has been very important: supporting without *replacing*, confirming without *imposing*, helping to understand without rushing into conclusions, week by week I'm learning a new way of relating.

A first step in the generation of meaning, or the building of mental schemas, is helping patients to learn that somatic responses refer to something important, disregard the exact meaning they may have. We have denominated this process as "flagging", because it is not about understanding what is going on, but simply about marking the somatic response to events as something relevant, so it can be brought in for later discussion. In the case of Mr A. he started paying more attention to headaches, and flagging whenever they occurred. At first he was not able to understand their meaning by himself, but collaborative exploration allowed the generation of a set of "typical causes" that he could later test as possible explanations.

Making sense: using symbols to generate and compact meaning

We have described above how concrete patients struggle abstracting the essential from different elements (see Table 3). A similar problem may

occur during the process of synthesising insights and awareness of changes after the injury. Although it may seem paradoxical, considering the research on metaphor comprehension impairment and TBI (e.g., Towne & Entwisle, 1993), several authors have suggested that the use of metaphor or symbols can help bypass these abstraction problems (Prigatano, 1986, 1989, 1999b; Salas, 2009; Ylvisaker & Feeney, 2000; Ylvisaker, McPherson, Kayes, & Pellet, 2008). A possible explanation for this apparent contradiction is that metaphors used in experimental settings, compared to those used in psychotherapeutic interventions, are not chosen by patients themselves, and therefore, they are not personally compelling or emotionally meaningful (see Teasdale & Barnard, 1993 for an approach to metaphor based on affect and action tendencies). In addition, experimental designs actively avoid the overexposure of participants to stimuli, while in psychotherapeutic settings with concrete patients repetition is a key element in the generation of new mental schemas.

Although different authors emphasise diverse aspects of metaphor in their use with concrete patients, they tend to agree that metaphor facilitates the understanding of complex ideas (Prigatano, 1986; Ylvisaker, McPherson, Kayes, & Pellet, 2008), integrates cognition and affect (Prigatano, 1989), helps articulating identity issues (Prigatano, 1999b; Ylvisaker & Feeney, 2000) and can be presented as tangible graphic material (e.g., drawings or identity maps).

For Prigatano (1986), symbols address the core issue with few words and powerful imagery, helping patients with information processing deficits to grasp abstract ideas. He suggests that, paradoxically, metaphors and symbols are often necessary to help patients understand common experiences after acquiring a brain injury, such as the loss of normality (Prigatano, 1989). Even more importantly, symbols (e.g., the journey of the hero; birth/death) offer guidance in coping with such transformations (Prigatano, 1989), facilitating the process of rebuilding a meaningful life (Pepping & Prigatano, 2003). Thus for him the use of symbols related to basic human activities, such as work, love, and play, can help patients to integrate thoughts and feelings, re-establishing a new sense of self (Prigatano, 1989).

Mark Ylvisaker and Timothy Feeney approach the use of metaphors from a slightly different point of view. Metaphors are, for these authors, effective instruments compacting information and generating positive versions of the self that can be used to create meaning, motivate and regulate behaviour (Ylvisaker & Feeney, 2000; Ylvisaker, McPherson, Kayes, & Pellet, 2008). Through the use of metaphor, for example by choosing a personal heroic figure (e.g., a sportsman), different values (e.g., strength of character), goals (e.g., be respected), feelings (e.g., being in control), and action strategies (e.g., careful preparation), can be

emotionally unified into an identity schema, making it more accessible to memory with only one unit of thought (Ylvisaker & Feeney, 2000). Usually the construction of these schemas is supported by external graphic organisers, that allow concrete patients to elaborate, organise, remember, and express thoughts more effectively.

Becoming concrete: concrete patients need concrete therapists

When it comes to addressing the therapeutic challenges posed by concreteness, the modifications suggested in the section above can be assumed to be useful. For example, the generation of affective/mental scripts of the patient–therapist relationship can be facilitated by the use of metaphors and graphic organisers, as well as the basic principles of repetition and generalisation. We will not develop this point further in order to focus on another often unattended problem, which is how to access these patients' inner experience from an abstract mind point of view.

We believe that a first step in this task is to familiarise with a non-conceptual form of experience. Mark Ylvisaker, for example, described this as “talking from the guts” (Salas, 2009), suggesting that concreteness is related to a rather visceral level of processing information, also called implicational meaning (Teasdale, 1997, in Ylvisaker & Feeney, 2000). In practical terms this would require therapists to push themselves into a bottom-up therapeutic stance, where staying in the present moment, and attending to somatic and affective responses are the main points of reference. This approach is not new. In fact, coming from a psychoanalytic background, Wilfred Bion (1963; 1967) suggested that the basic clinical attitude was to confront every session “without memory, desire, or understanding”; because they might cloud the therapist's capacity to grasp what *is* happening during a session. Interestingly, a similar idea has been put forward by Mindfulness based therapies, which attempt to develop the capacity for “sustained moment-to-moment awareness” (Siegel, Germer, & Olendzki, 2009).

Becoming concrete does not imply that the therapist should remain concrete, or completely abandon an abstract stance. As we have suggested before, that is impossible, for we are constantly distancing ourselves from experience in order to make sense of it. Becoming familiar with the world of the concrete is simply an initial step that offers first hand material with which to comprehend the patient's suffering, and the experience that close ones might also have of his/her new way of relating to them. An ideal therapist should be able to immerse himself in a concrete mode of functioning, so he can later emerge from it to reflect upon such experience. This constant shifting between the two modes of functioning is perhaps the heart of the therapeutic process.

We would like to offer a final observation on the emotional impact of treating concrete patients. Therapists often arrive at working with brain injured patients after being trained to work with normal or psychiatric populations. One of the consequences of such “career path” is that therapist frequently spend quite a long time adjusting their theoretical and technical tools. This period of fine-tuning often involves a grieving process too, where the therapist mourns for the patient he will not have, the one he was trained for, the one who will get cured by gaining insight about his problems and history, the abstract patient. In a way, part of the therapist’s identity is endangered during such transition: what am I? Am I *just* a neuropsychologist? Am I *just* a counsellor? What can I do if my tools do not work? To address these emotional difficulties is perhaps one of the most important tasks when working with concrete patients.

Closing remarks

Concreteness is a frequently observed phenomenon in rehabilitation settings, causing important obstacles to teams in helping patients to resume a productive and meaningful life. Concrete patients, as any other human beings, experience emotional difficulties adapting to the drastic changes that a brain injury inevitably results. Overcoming these difficulties is especially demanding for these patients, because their “thinking” ability, a core capacity for psychotherapy, is compromised. In this paper we have tried to describe in detail how concreteness transform different dimensions of the Self and how these changes may challenge the use of psychotherapeutic tools. We have also described technical modifications to address these changes (see Table 4 for a summary).

The observation of concrete patients in therapeutic settings is also important for theoretical motives. It sheds light on several neuro-philosophical problems, such as the neural basis of reason and emotion, time and consciousness, and the construction of meaning. After considering the evidence that these “experiments of nature” present, when the veil of abstraction (and its illusions) is removed, our idea of what is *fundamentally* human seem to change. We are organisms closely connected to our environment, and our behaviour, is the consequence of this incessant flux. Consciousness echoes this flux, always unfolding in an ever changing now. And emotion, visceral emotion, is the core that generates meaning, a felt meaning. This is the “world of the simple” described by Oliver Sacks, or the “shrunken environment” portrayed by Kurt Goldstein. Several authors have addressed these same questions from other points of view. We hope this article will contribute by motivating psychotherapists and researchers to further explore and understand the world of the concrete.

Table 4: Summary of technical modifications when working with concrete patients

<i>Concreteness features</i>	<i>Impact on psycho-therapeutic operations and tools</i>	<i>Theoretical and technical modifications</i>
Changes in the TEMPORAL dimension of the Self	Initiation of a Therapeutic Cycle: difficulty using events from the past and possible future scenarios, as session material	<p>Use real life events as “breaches” to access subjective experience of conflict</p> <p>Close coordination with relatives and work colleagues to spot events of emotional significance</p> <p>Flexible management of frequency of sessions to capture events of emotional significance</p> <p>Alternate individual sessions with couple and family sessions to mimic real life situations</p> <p>Incorporate field trips to explore, with the patient, real life situations</p> <p>Enhancing patient’s sense of agency by calibrating when and how much help is needed</p>
Changes in the REFLECTIVE dimension of the Self	Positive In-session impact, Insight: difficulty generating awareness of motivations and making sense of emotional responses	<p>Teaching patient to “flag” somatic responses to events</p> <p>Collaborative generation of a set of “typical” causes, or events, that trigger somatic responses</p> <p>Prolonged exposure to information or repetition</p> <p>Generalisation of insight to other situations and use of significant others to reinforce new mental schemas</p>

continued on next page

Table 4: Summary of technical modifications when working with concrete patients (continued)

<i>Concreteness features</i>	<i>Impact on psycho-therapeutic operations and tools</i>	<i>Theoretical and technical modifications</i>
Changes in the REFLECTIVE dimension of the Self		Use of personally compelling metaphors
		Use of external graphic organisers (e.g., identity maps)
	Negative In-session impact: difficulty tolerating negative arousal when exploring psychological conflict	Monitoring and manipulating patient's level of negative arousal
		Facilitate cognitive processing without compromising patient's sense of agency
	Therapeutic Bond, Personal Rapport: difficulty generating emotionally-driven cognitions about the patient-therapist relationship	Use of graphic organisers, metaphors, and repetition/generalisation principles
Therapeutic Bond, Personal Rapport: difficulty attuning to a concrete mode of experience		Adopting a Bottom-up therapeutic stance: staying in the present moment and attending to somatic and affective responses
		Flexible shifting between concrete and abstract modes of functioning
		Elaborate mourning feelings associated to working with non-abstract patients

Acknowledgements

The content of this article was first presented at the London Neuro-psychoanalytic Group Meeting in May, 2010. We are grateful to Rudi Coetzer for his comments and suggestions on earlier versions of the

paper. The first author of this article was supported by a PhD studentship awarded by the Government of Chile.

Notes

1. Deficits in the use of abstraction capacities to generate representational meaning can also be caused by excessive amounts of arousal or negative emotion, which dampens higher order cognition. This has been described, for example, by Fonagy, Gergely, Jurist, and Target (2004) in relation to how anxiety compromises the capacity to think about our own and other people's mental states.
2. Here the distinction between bottom-up and top-down emotion generation described by Ochsner et al., (2009) is extremely relevant to critically read evidence suggesting that TBI patients present a decrease in emotional reactivity.
3. The term *organic* countertransference is used to emphasise that some of the feelings and sensations experienced by the therapists may not be related to the patient's conflicts or personality traits, as is often seen in psychiatric populations, but to the peculiar way in which his "disorganised mind" works.

References

- Anderson, S., Barrash, J., Bechara, A., & Tranel, D. (2006). Impairments of emotion and real-world complex behaviour following childhood- or adult- onset damage to the ventromedial prefrontal cortex. *Journal of the International Neuropsychological Society*, *12*: 224–235.
- Angus, L. E., Levitt, H., & Hardtke, K. (1999). The narrative processes coding system: research applications and implications for psychotherapy practice. *Journal of Clinical Psychology*, *55*(10): 1255–1270.
- Balfour, A. (2011). Couple psychotherapy with dementia. Paper presented at the meeting of the Neuropsychanalytic Study Group Meeting, London.
- Becerra, R., Amos, A., & Jongenelis, S. (2002). Organic alexithymia: a study of acquired emotional blindness. *Brain Injury*, *16*(7): 633–645.
- Biderman, D., Daniels-Zide, E., Reyes, A., & Marks, B. (2006). Ego-identity: can it be reconstituted after a brain injury? *International Journal of Psychology*, *41*(5): 355–361.
- Bion, W. R. (1963). *Elements of Psychoanalysis*. London: Karnac.
- Bion, W. R. (1988[1967]) Notes on memory and desire. In: E. Bott Spillius (Ed.), *Melanie Klein Today. Developments in Theory and Practice* (pp. 15–18). London: Brunner Routledge.
- Bowen, C. (2007). Family therapy and neuro-rehabilitation: forging a link. *International Journal of Therapy and Rehabilitation*, *14*(8): 344–349.
- Bowen, C., Hall, T., Newby, G., Walsh, B., Weatherhead, B., & Yeates, G. N. (2009). The impact of brain injury on relationships across the lifespan and across school, family and work contexts. *Human Systems: the Journal of Therapy, Consultation and Training*, *20*(1): 62–77.

- Bowen, C., Yeates, G., & Palmer, S. (2010). *A Relational Approach to Rehabilitation: Thinking About Relationships After Brain Injury*. London: Karnac.
- Carrol, E., & Coetzer, R. (2011). Identity, grief and self-awareness after traumatic brain injury. *Neuropsychological Rehabilitation*, 21(3): 289–305.
- Cicerone, K., & Giacino, J. (1992). Remediation of executive function deficits after traumatic brain injury. *Neuropsychological Rehabilitation*, 2: 12–22.
- Cloute, K., Mitchell, A., & Yates, P. (2008). Traumatic brain injury and the construction of identity: a discursive approach. *Neuropsychological Rehabilitation*, 18(5–6): 651–670.
- Coetzer, R. (2004). Grief, self-awareness, and psychotherapy following brain injury. *Illness, Crisis, & Loss*, 12(2): 171–186.
- Coetzer, R. (2006). *Traumatic Brain Injury Rehabilitation. A Psychotherapeutic Approach to Loss and Grief*. New York: Nova Science.
- Coetzer, R. (2007). Psychotherapy following traumatic brain injury: integrating theory and practice. *The Journal of Head Trauma Rehabilitation*, 22(1): 39–47. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/17235230>
- D'Argembau, A., Xue, G., Lu, Z., Van der Linden, M., & Bechara, A. (2008). Neural correlates of envisioning emotional events in the near and far future. *Neuroimage*, 40(1): 398–407.
- Davis, R. N., & Nolen-Hoeksema, S. (2000). Cognitive inflexibility among ruminators and nonruminators. *Cognitive Therapy & Research*, 24: 699–711.
- Demant, J., Liefoghe, B., & Verbruggen, F. (2011). Valence, arousal, and cognitive control: a voluntary task-switching study. *Cognition*, 2(November): 1–9.
- Dewar, B.-K., & Gracey, F. (2006). “Am not was”: cognitive-behavioural therapy for adjustment and identity change following herpes simplex encephalitis. *Neuropsychological Rehabilitation*, 17(4–5): 602–620.
- Elmore, C., & Gorham, D. (1957). Measuring the impairment of the abstracting function with the proverbs test. *Journal of Clinical Psychology*, 13: 262–266.
- Eslinger, P. (1998). Neurological and neuropsychological basis of empathy. *European Neurology*, 39: 193–199.
- Feigelson, C. (1993). Personality death, object loss, and the uncanny. *The International Journal of Psychoanalysis*, 74(Pt 2): 331–345.
- Fonagy, P., Gergely, G., Jurist, E., & Target, M. (2004). *Affect Regulation, Mentalization and the Development of the Self*. London: Karnac.
- Frank, J. D. & Frank, J. B. (1993). *Persuasion and Healing: A Comparative Study of Psychotherapy*. Baltimore, MD: Johns Hopkins University Press.
- Freed, P. (2002). Meeting of the minds: ego reintegration after traumatic brain injury. *Bulletin of the Menninger Clinic*, 66(1): 61–78.
- Gaspar, K. (2003). When necessity is the mother of invention: mood and problem solving. *Journal of Experimental Social Psychology*, 39: 248–262.
- Goldstein, K. (1936a). The modifications of behaviour consequent to cerebral lesions. *Psychiatric Quarterly*, 10(4): 586–610.
- Goldstein, K. (1936b). The significance of the frontal lobes for mental performances. *Journal of Neurology, Neurosurgery & Psychiatry*, 17: 27–40.
- Goldstein, K. (1942). *After Effects of Brain Injury in War. Their Evaluation and Treatment*. London: William Heinemann.

- Goldstein, K. (1959). Notes on the development of my concepts. *Journal of Individual Psychology, 15*: 5–14.
- Goldstein, K. (1995[1965]). *The Organism A Holistic Approach to Biology Derived from Pathological Data in Man. Notes*. New York: Zone.
- Goldstein, K., & Scherer, K. R. (1941). Abstract and concrete behavior. An experimental study with special tests. *Psychology Monographs, 53*(2): 1–10.
- Gracey, F., Oldham, P., & Kritzinger, R. (2007). Finding out if “The ‘me’ will shut down”: successful cognitive-behavioural therapy of seizure-related panic symptoms following subarachnoid haemorrhage: a single case report. *Neuropsychological Rehabilitation, 17*(1): 106–119.
- Gracey, F., Palmer, S., Rous, B., Psaila, K., Shaw, K., O’Dell, J., Cope, J., & Mohamed, S. (2008). “Feeling part of things”: personal construction of self after brain injury. *Neuropsychological Rehabilitation, 18*(5–6): 627–650.
- Groher, M. (1983). Communication disorders. In: M. Rosenthal, E. R. Griffith, M. R. Bond, & J. D. Miller (Eds.), *Rehabilitation of the Head Injured Adult* (pp. 155–165). Philadelphia: F. A. Davis.
- Hagen, C. (1984). Language disorders in head trauma. In: A. Holland (Ed.), *Language Disorders in Adults* (pp. 247–281). San Diego, CA: College-Hill.
- Hanfmann, E., Rickers-Ovsiankina, M., & Goldstein, K. (1944). Case Lanuti: extreme concretization of behavior due to damage of the brain cortex. *Psychological Monographs, 57*(4): 1–72.
- Henry, J. D., Phillips, L. H., Crawford, J. R., Theodorou, G., & Summers, F. (2006). Cognitive and psychosocial correlates of alexithymia following traumatic brain injury. *Neuropsychologia, 44*(1): 62–72.
- Judd, D., & Wilson, S. L. (2005). Psychotherapy with brain injury survivors: an investigation of the challenges encountered by clinicians and their modifications to therapeutic practice. *Brain Injury, 19*(6): 437–449.
- Judd, T. (1999). *Neuropsychotherapy and Community Integration. Brain Illness, Emotions and Behaviour*. New York: Kluwer Academic/Plenum.
- Klinger, L. (2005). Occupational adaptation: perspectives of people with traumatic brain injury. *Journal of Occupational Science, 12*(1): 9–16.
- Klonoff, P. S. (2010). *Psychotherapy After Brain Injury. Principles and Techniques*. New York: Guilford Press.
- Klonoff, P. S. (2011). A therapist experiential model of treatment for brain injury. *Bulletin of the Menninger Clinic, 75*(1): 21–45.
- Klonoff, P. S., Lage, G., & Chiapello, D. (1993). Varieties of the catastrophic reaction to brain injury: a self psychology perspective. *Bulletin of the Menninger Clinic, 57*(2): 227–241.
- Krpan, K. M., Levine, B., Stuss, D. T., & Dawson, D. R. (2007). Executive function and coping at one-year post traumatic brain injury. *Journal of Clinical and Experimental Neuropsychology, 29*(1): 36–46.
- Krpan, K. M., Stuss, D. T., & Anderson, N. D. (2011). Coping behaviour following traumatic brain injury: what makes a planner plan and an avoider avoid? *Brain Injury, 25*(10): 989–996.
- Levin, H. S., Benton, A. L., & Grossman, R. G. (1982). *Neurobehavioral Consequences of Closed Head Injury*. New York: Oxford University Press.

- Lewis, L. (1999). Transference and countertransference in psychotherapy with adults having traumatic brain injury. In: K. G. Langer, L. Laatsch, & L. Lewis (Eds.), *Psychotherapeutic Interventions for Adults with Brain Injury or Stroke: A Clinician's Treatment Resource* (pp. 113–130). Madison, CT: Psychological Press.
- Lhermitte, F. (1983). "Utilization behaviour" and its relation to lesions of the frontal lobes. *Brain: A Journal of Neurology*, *106*(Pt 2): 237–255.
- Lhermitte, F. (1986). Human autonomy and the frontal lobes. Part II: Patient behavior in complex and social situations: the "environmental dependency syndrome". *Annals of Neurology*, *19*(4): 335–343.
- Lhermitte, F., Pillon, B., & Serdaru, M. (1986). Human autonomy and the frontal lobes. Part I: Imitation and utilization behavior: a neuropsychological study of 75 patients. *Annals of Neurology*, *19*(4): 326–334.
- Luborsky, L., Crits-Christoph, P., Mintz, M., & Auerbach, A. (1988). *Who Will Benefit From Psychotherapy?* New York: Brunner.
- Martin, D. J., Garske, J. P., & Davis, M. K. (2000). Relation of the therapeutic alliance with outcome and other variables: a meta-analytic review. *Journal of Consulting and Clinical Psychology*, *68*(3): 438–450.
- Mateer, C., Sira, C., & O'Connell, M. (2005). The importance of integrating cognitive and emotional intervention in TBI. *Journal of Head and Trauma Rehabilitation*, *20*(1): 62–75.
- McDonald, S., Rosenfeld, J., Henry, J. D., Toger, L., Tate, R. L., & Bornhofen, C. (2011). Emotion perception and alexithymia in people with severe traumatic brain injury: one disorder or two? A preliminary investigation. *Brain Impairment*, *12*(3): 165–178.
- McGrath, J. (2004). Beyond restoration to transformation: positive outcomes in the rehabilitation of acquired brain injury. *Clinical Rehabilitation*, *18*: 767–775.
- Mergenthaler, E. (1996). Emotion-abstraction patterns in verbatim protocols: a new way of describing psychotherapeutic processes. *Journal of Consulting and Clinical Psychology*, *64*(6): 1306–1315.
- Mesulam, M.-M. (1986). Frontal cortex and behavior. *Annals of Neurology*, *19*(4): 320–325.
- Mesulam, M.-M. (2002). The human frontal lobes: transcending the default mode trough contingent encoding. In: D. T. Stuss & R. T. Knight (Eds.), *Principles of Frontal Lobe Functioning* (pp. 8–30). New York: Oxford University Press.
- Miller, L. (1993). *Psychotherapy of the Brain-Injured Patient: Reclaiming the Shattered Self*. New York: Norton.
- Miyake, A., Friedman, N. P., Emerson, M. J., Witzki, A. H., Howerter, A., & Wager, T. D. (2000). The unity and diversity of executive functions and their contributions to complex "Frontal Lobe" tasks: a latent variable analysis. *Cognitive Psychology*, *41*: 49–100.
- Nochi, M. (1998). "Loss of self" in the narratives of people with traumatic brain injuries: a qualitative analysis. *Social Science and Medicine*, *46*: 869–878.
- Obonsawin, M. C., Jefferis, S., Lowe, R., Crawford, J. R., Fernandes, J., Holland, L., Woldt, K., Worthington, E., & Bowie, G. (2007). A model of personality change after traumatic brain injury and the development of the Brain Injury Personality Scales. *Journal of Neurology, Neurosurgery, and Psychiatry*, *78*(11): 1239–1247.

- Ochsner, K. N., Ray, R. R., Hughes, B., McRae, K., Cooper, J. C., Weber, J., Gabrieli, J. D. E., & Gross, J. J. (2009). Bottom-up and top-down processes in emotion generation: common and distinct neural mechanisms. *Psychological Science: a Journal of the American Psychological Society/APS*, 20(11): 1322–1331.
- Oei, N. Y. L., Veer, I. M., Wolf, O. T., Spinhoven, P., Rombouts, S. A. & Elzinga, B. M. (2011). Stress shifts brain activation towards ventral ‘affective’ areas during emotional distraction. *Social Cognitive and Affective Neuroscience*, 7(4): 403–412.
- Ogden, J. A. (1996). *Fractured Minds: A Case-study Approach to Clinical Neuropsychology*. New York: Oxford University Press.
- Orlinsky, D. E. (2009). The “Generic Model of Psychotherapy” after 25 years: evolution of a research-based metatheory. *Journal of Psychotherapy Integration*, 19(4): 319–339.
- Orlinsky, D. E., Ronnestad, M. H., & Willutzki, U. (2004). Fifty years of psychotherapy process-outcome research: continuity and change. In M. Lambert (Ed.), *Bergin and Garfield's Handbook of Psychotherapy and Behavior Change* (pp. 307–390). New York: John Wiley & Sons.
- Pepping, M. (1993). Transference and countertransference issues in brain injury rehabilitation: implications for staff training. In: C. J. Durgin, N. D. Schmidt, & L. J. Fryer (Eds.), *Staff Development and Clinical Intervention in Brain Injury Rehabilitation* (pp. 87–103). Gaithersburg, MD: Aspen.
- Pepping, M., & Prigatano, G. P. (2003). Psychotherapy after brain injury: costs and benefits. In: G. P. Prigatano & N. Pliskin (Eds.), *Clinical Neuropsychology and Cost Outcomes Research: A Beginning* (pp. 313–328). New York: Psychology Press.
- Ponsford, J., Sloan, S., & Snow, P. (1995). *Traumatic Brain Injury. Rehabilitation for Everyday Adaptive Living*. East Sussex: Lawrence Erlbaum.
- Potvin, M.-J., Rouleau, I., Audy, J., Charbonneau, S., & Giguère, J.-F. (2011). Ecological prospective memory assessment in patients with traumatic brain injury. *Brain Injury*, 25(2): 192–205.
- Prigatano, G. P. (1986). Psychotherapy after brain injury. In: G. P. Prigatano, D. Fordyce, H. Zeiner, J. Roueche, M. Pepping, & B. Wood (Eds.), *Neuropsychological Rehabilitation After Brain Injury* (pp. 67–95). Baltimore, MD: John Hopkins University Press.
- Prigatano, G. P. (1989). Work, love and play after brain injury. *Bulletin of the Menninger Clinic*, 53(5): 414–431.
- Prigatano, G. (1991). Disordered mind, wounded soul: the emerging role of psychotherapy in rehabilitation after brain injury. *Journal of Head and Trauma Rehabilitation*, 6(4): 1–10.
- Prigatano, G. P. (1994). Individuality, lesion location, and psychotherapy after brain injury. In: A.-L. Christensen & B. Uzzell (Eds.), *Brain Injury and Neuropsychological Rehabilitation: International Perspectives* (pp. 173–186). Hillsdale, NJ: Lawrence Erlbaum.
- Prigatano, G. P. (1999a). *Principles of Neuropsychological Rehabilitation*. New York: Oxford University Press.

- Prigatano, G. P. (1999b). Science and symbolism in neuropsychological rehabilitation. In: G. Prigatano (Ed.), *Principles of Neuropsychological Rehabilitation* (pp. 332–346). New York: Oxford University Press.
- Prigatano, G. P. (2003). Challenging dogma in neuropsychology and related disciplines. *Archives of Clinical Neuropsychology*, 18: 811–825.
- Psaila, K., & Gracey, F. (2009). The mood management group. In: B. Wilson, F. Gracey, J. J. Evans, & A. Bateman (Eds.), *Neuropsychological Rehabilitation. Theory, Models, Therapy, and Outcome* (pp. 123–137). New York: Cambridge University Press.
- Riley, G. A., Brennan, A. J., & Powell, T. (2004). Threat appraisal and avoidance after traumatic brain injury: why and how often are activities avoided? *Brain Injury*, 18(9): 871–888.
- Sacks, O. (1986). *The Man Who Mistook His Wife For a Hat*. London: Pan.
- Salas, C. (2008a). Elementos relacionales en la rehabilitación de sobrevivientes de lesión cerebral adquirida. Alianza de trabajo, transferencia y contratransferencia, usos de terapeuta. *Revista Gaceta de Psiquiatría Universitaria*, 4(2): 214–220.
- Salas, C. (2008b). Psicoterapia e intervenciones terapéuticas en sobrevivientes de lesión cerebral adquirida. *Revista Chilena de Neuro-Psiquiatría*, 46(4): 293–300.
- Salas, C. (2009). Entrevista: La Reconstrucción de Identidad en sobrevivientes de Traumatismo Cráneo-encefálico. Una conversación con Mark Ylvisaker. *Revista Chilena de Neuropsicología*, 4: 64–74.
- Salas, C., & Turnbull, O. H. (2010). In self-defense: disruptions in the sense of self, lateralization, and primitive defences. *Neuropsychoanalysis*, 12(2): 172–182.
- Salas, C. E. (2012). Surviving catastrophic reaction after brain injury: the use of self-regulation and self-other regulation. *Neuropsychoanalysis*, 14(1): 77–92.
- Sarbin, T. R. (1986) The narrative as the root metaphor for psychology In: T. R. Sarbin (Ed.), *Narrative Psychology: The Storied Nature of Human Conduct* (pp. 3–21). New York: Praeger.
- Schafer, R. (1992). *Retelling a Life*. New York: Basic Books.
- Schoofs, D., Preuss, D., & Wolf, O. T. (2008). Psychosocial stress induces working memory impairments in an n-back paradigm. *Psychoneuroendocrinology*, 33: 643–653.
- Segal, D. (2010). Exploring the importance of identity following acquired brain injury: a review of the literature. *International Journal of Child, Youth and Family Studies*, 1(3): 293–314.
- Shallice, T., Burgess, P. W., Schon, F., & Baxter, D. M. (1989). The origins of utilization behaviour. *Brain: A Journal of Neurology*, 112(Pt 6): 1587–1598.
- Shallice, T., Stuss, D., Picton, T. W., Alexander, M., & Gillingham, S. (2008a). Mapping task switching in frontal cortex neuropsychological group studies. *Frontiers in Human Neuroscience*, 2(1): 70–85.
- Shallice, T., Stuss, D. T., Picton, T. W., Alexander, M. P., & Gillingham, S. (2008b). Multiple effects of prefrontal lesions on task-switching. *Frontiers in Human Neuroscience*, 1(March): 2.

- Shum, D., Fleming, J., & Neulinger, K. (2002). Prospective memory and traumatic brain injury: a review. *Brain Impairment*, 3: 1–16.
- Shum, D., Valentine, M., & Cutmore, T. (1999). Performance of individuals with severe long-term traumatic brain injury in time-, event-, and activity based prospective memory tasks. *Journal of Clinical and Experimental Neuropsychology*, 21: 49–58.
- Siegel, R., Germer, C., & Olendzki, A. (2009). Mindfulness: what it is? Where did it come from? In: F. Didonna (Ed.), *Clinical Handbook of Mindfulness* (pp. 17–35). New York: Springer.
- Smallwood, J., Fitzgerald, A., Miles, L. K., & Phillips, L. H. (2009). Shifting moods, wandering minds: negative moods lead the mind to wander. *Emotion*, 9(2): 271–276.
- Stuss, D. T. (2011). Functions of the frontal lobes: relation to executive functions. *Journal of the International Neuropsychological Society*, 17(5): 759–765.
- Stuss, D. T., & Alexander, M. P. (2000). Executive functions and the frontal lobes: a conceptual view. *Psychological Research*, 63(3–4): 289–298.
- Stuss, D. T., & Alexander, M. P. (2007). Is there a dysexecutive syndrome? *Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences*, 362(1481): 901–915.
- Suddendorf, T., & Corballis, M. (1997). Mental time travel and the evolution of the human mind. *Genetic, Social, and General Psychology Monographs*, 123(2): 133–167.
- Suddendorf, T., & Corballis, M. (2007). The evolution of foresight: what is mental time travel, and is it unique to humans? *Behavioral and Brain Sciences*, 30: 299–351.
- Taylor, G., Bagby, M., & Parker, J. (1997). *Disorders of Affect Regulation: Alexithymia in Medical and Psychiatric Illness*. Cambridge: Cambridge University Press.
- Teasdale, J. D., & Barnard, P. J. (1993). *Affect, Cognition, and Change: Re-modelling Depressive Thought*. Hillsdale, NJ: Lawrence Erlbaum.
- Towne, R. L., & Entwisle, L. M. (1993). Metaphoric comprehension in adolescents with traumatic brain injury and in adolescents with language learning disability. *Language, Speech, and Hearing Services in Schools*, 24: 100–107.
- Umeda, S., Kurosaki, Y., Terasawa, Y., Kato, M., & Miyahara, Y. (2011). Deficits in prospective memory following damage to the prefrontal cortex. *Neuropsychologia*, 49(8): 2178–2184.
- Volle, E., Gonen-Yaacovi, G., de Lacy Costello, A., Gilbert, S. J., & Burgess, P. W. (2011). The role of rostral prefrontal cortex in prospective memory: a voxel-based lesion study. *Neuropsychologia*, 49(8): 2185–2198.
- Williams, K. R., Galas, J., Light, D., Pepper, C., Ryan, C., Kleinmann, A. E., Burrell, R., & Donovick, P. (2001). Head injury and alexithymia: implications for family practice care. *Brain Injury*, 15(4): 349–356.
- Wilson, B. (1997). Cognitive rehabilitation: how it is and how it might be. *Journal of the International Neuropsychological Society*, 3: 487–496.
- Wilson, B. (Ed.). (2003). *Neuropsychological Rehabilitation Theory and Practice*. Lisse: Swets & Zeitlinger.

- Wilson, B. (2008). Neuropsychological rehabilitation. *Annual Review of Clinical Psychology, 4*: 141–162.
- Wilson, B., Gracey, F., Evans, J., & Bateman, A. (Eds.). (2010). *Neuropsychological Rehabilitation: Theory, Models, Therapy and Outcome*. New York: Cambridge University Press.
- Wood, R., & Williams, C. (2007). Neuropsychological correlates of organic alexithymia. *Journal of the International Neuropsychological Society, 13*(3): 471–479.
- Wood, R., & Williams, C. (2010). Alexithymia and emotional empathy following traumatic brain injury. *Journal of Clinical and Experimental Neuropsychology, 32*(3): 259–267.
- Wood, R., Williams, C., & Kalyani, T. (2009). The impact of alexithymia on somatization after traumatic brain injury. *Brain Injury, 23*(7–8): 649–654.
- Yang, F., Fuller, G., Khodaparast, N., & Krawczyk, D. (2010). Figurative processing after traumatic brain injury in adults: A preliminary study. *Neuropsychologia, 48*: 1923–1929.
- Yeates, G. N., Gracey, F., & McGrath, J. C. (2008). A biopsychosocial deconstruction of “personality change” following acquired brain injury. *Neuropsychological Rehabilitation, 18*(5–6): 566–589.
- Yeates, G. N., Hamill, M., Sutton, L., Psaila, K., Gracey, F., Mohamed, S., & O’Dell, J. (2008). Dysexecutive problems and interpersonal relating following frontal brain injury: Reformulation and compensation in cognitive analytic therapy (CAT). *Neuropsychoanalysis: An Interdisciplinary Journal for Psychoanalysis and the Neurosciences, 10*(1): 43–58.
- Ylvisaker, M., & Feeney, T. (2000). Reconstruction of identity after brain injury. *Brain Impairment, 12*(1): 12–28.
- Ylvisaker, M., McPherson, K., Kayes, N., & Pellett, E. (2008). Metaphoric identity mapping: facilitating goal setting and engagement in rehabilitation after traumatic brain injury. *Neuropsychological Rehabilitation, 18*(5–6): 713–741.