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# Participant perspectives on an individualised self-awareness intervention following stroke: A qualitative case study

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Most research investigating the efficacy of neurorehabilitation has focused upon pre- versus post-intervention functioning, which is important for evidence-based practice but overlooks the therapeutic process. Therefore, this qualitative study aimed to investigate a participant's perspective of experiences in therapy throughout an awareness rehabilitation intervention. The participant (CP), a young male with awareness deficits following a right thalamic stroke, had repeatedly attempted to return to work and experienced recurrent periods of depression associated with his employment difficulties. Throughout a 12-session rehabilitation intervention, which targeted self-awareness and self-regulation skills, CP provided interview feedback concerning his experiences of different therapy exercises. The key themes emerging from the data regarding CP's perspectives included: understanding benchmarks and the value of feedback, learning through practical exercises, and individualising therapy. In collaboration with a disability employment support service, CP achieved paid durable employment. This study highlights the importance of

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considering participants' perspectives of the therapeutic process to assist in the design and evaluation of awareness rehabilitation interventions.

### INTRODUCTION

Inaccurate self-appraisal following acquired brain injury (ABI) can pose a significant barrier to engaging clients in the rehabilitation process and achieving favourable outcomes (Toglia & Kirk, 2000). In a treatment context it can be challenging to determine how best to target the development of awareness of deficits while monitoring and supporting the emotional impact of this process (Ownsworth & Clare, 2006). Over the past two decades empirical evidence has emerged to support the efficacy of awareness interventions for improving self-awareness and everyday functioning (Fleming & Ownsworth, 2006). However, research is yet to examine participants' perspectives of the therapeutic process during sessions throughout rehabilitation. Thus, the main objective of this exploratory study was to identify participant perspectives of therapy during an intervention designed to enhance self-awareness and self-regulation skills.

#### Awareness of deficits: Key concepts

A review of conceptual models suggests that awareness of deficits following ABI refers to a broad range of interrelated metacognitive skills such as the capacity to: (a) accurately appraise changes to self and one's abilities, (b) understand the functional impact of these changes (e.g., the implications of deficits for independence or work), (c) set realistic goals, (d) recognise problems as they occur in day-to-day situations, and (e) anticipate that difficulties related to particular deficits will be experienced in the future (Crosson et al., 1989; Fleming, Strong, & Ashton, 1996). Toglia and Kirk (2000) made a distinction between *self-knowledge* of deficits that exists prior to task performance, and *on-line awareness*, involving the ability to recognise and anticipate errors in-situ or during performance. They proposed that these different aspects of awareness interact dynamically with personal characteristics (e.g., cognitive status, personality and coping style), the environment, and task demands. Awareness of deficits is a particularly pertinent issue in vocational rehabilitation.

#### Awareness of deficits and return to work

Awareness deficits are typically viewed as a barrier in the return to work process, which influence goals and expectations and the ability to benefit from feedback and develop compensatory strategies in the workplace (Ownsworth & Fleming, 2005). Ben-Yishay, Silver, Piasetsky, and Rattock (1987) found that the ability to set realistic goals was one of the key predictors of return to work outcomes following intensive holistic cognitive rehabilitation. Ezrachi, Ben-Yishay, Kay, Diller, and Rattock (1991) identified that individuals' acceptance of their injury during rehabilitation significantly predicted work outcomes six months after the programme. Greater acceptance of injury was associated with increased compliance with rehabilitation, active participation and willingness to disclose problems and follow therapists' recommendations. Such attributes in rehabilitation were viewed as important in achieving employment outcomes due to promoting realistic goals and expectations concerning work and the development of compensatory strategies.

Longitudinal studies have identified a significant association between awareness of deficits during rehabilitation and more favourable vocational outcomes (Ownsworth, Desbois, Grant, Fleming, & Strong, 2006; Sherer et al., 1998; 2003). Ownsworth et al. (2006) identified that individuals who achieved competitive employment between an initial assessment during rehabilitation and a 12-month follow-up experienced an associated increase in awareness of deficits while individuals who remained unemployed displayed little change in awareness. While the direction of this relationship was unclear, the findings emphasised the need to monitor developments in self-awareness as they occur during rehabilitation and the return to work process. It was further recommended that interventions target self-awareness and self-regulation skills while supporting the individual to cope with associated emotional reactions (Ownsworth et al., 2006). Techniques for enhancing awareness of deficits include psychoeducation, peer support and group therapy, role reversal, systematic feedback, performance predictions and guided self-evaluation of performance through participation on graded familiar tasks (Dirette, 2002; Fleming & Ownsworth, 2006; Toglia & Kirk, 2000). In general, multi-faceted approaches tailored according to an individual's characteristics are recommended in the context of a broader programme designed to achieve goals that are personally meaningful.

#### Participants' perspectives of rehabilitation

In a systematic review of evidence-based cognitive rehabilitation Cicerone and colleagues argued the need for future research to "move beyond the simple question of whether cognitive rehabilitation is effective, and examine the therapy factors and patient characteristics that optimise the clinical outcomes of cognitive rehabilitation" (2005, p. 1681). In terms of awareness interventions, most studies have focused on an evaluation of outcomes with only select studies investigating participants' perspectives of the process of developing awareness of deficits in the rehabilitation context.

Qualitative research by Kristensen (2004) examined changing goals and intentions during rehabilitation by interviewing participants before and after a 4-month programme. The findings suggested that before rehabilitation individuals generally strived to preserve "the former self" while after the programme individuals shifted towards self-autonomy, self-realisation and adjustment to their current situation. However, due to the pre- post-design, it is uncertain how this shift in self-presentation occurred. Further, Dirette (2002) interviewed three individuals with ABI who had "good awareness of cognitive deficits" and recently completed a day treatment programme. These individuals retrospectively recalled the slow process of developing awareness of deficits, which was triggered by critical events, and use of compensatory strategies. A recent qualitative study by O'Callaghan, Powell, and Oyebode (2006) conducted semi-structured interviews with 10 individuals receiving outpatient rehabilitation. Participants recalled that awareness of deficits developed through personal discovery and other people's reactions, typically outside of the rehabilitation setting, and was associated with fear, loss and grief. Rehabilitation assisted this process by explaining the effects of brain injury, normalising experiences and supporting individuals to accept their post-injury changes.

Overall, these studies reinforce the view that, from the participants' point of view, rehabilitation can be effective in increasing or supporting awareness of deficits. However, participants were required to recall and reflect upon their past experiences of rehabilitation. A further issue raised is whether individuals with awareness deficits and other cognitive deficits can comment insightfully on their experiences. However, as noted by Paterson and Scott-Findlay (2002), qualitative interviewing methods aim to capture the subjective accounts of reality for individuals despite their cognitive impairments. Rather than relying on retrospective accounts, however, it may be beneficial to seek participants' perspectives of their experiences of therapy on a sessionby-session basis throughout rehabilitation. Seeking such timely and successive feedback may assist in the design and evaluation of awareness interventions.

#### Research rationale and objective

The main objective of this case study was to explore how an individual (CP) perceived and reacted to different components of an awareness intervention in the context of a return to work programme. To gain a sense of the experiential dimension of rehabilitation we sought feedback concerning CP's perspectives of different therapy exercises throughout the 12-session intervention.

#### METHOD

#### Research design

The present study employed case study methodology and use of multiple data sources to understand the phenomenon in depth (Yin, 2003). These sources included neuropsychological test findings, questionnaire data, field notes from observations by the research clinician and data from ongoing interviews with the participant about his experiences of the programme. CP was therefore a key informant in the research. According to Gilchrist and Williams (1999), key informants are "individuals who possess special knowledge, status, or communication skills, who are willing to share their knowledge and skills with the researcher, and who have access to perspectives or observations denied the researcher through other means" (p. 73).

#### Participant background

At the age of 33 CP experienced a stroke related to thrombosis in 2000. Prior to his injury CP had completed a university degree and worked in finance and administration positions. At the time of his injury he was single and undertaking further study. CP experienced a right thalamic infarction as a result of dissection of the right vertebral artery. He experienced a subsequent small left pontine infarct two days after the initial stroke. The thrombosis was treated with anti-coagulants.

Descriptive details of a neuropsychological assessment conducted nine months after the stroke indicated that CP's Verbal IQ was in the "high average to superior" range for his age with particular strengths noted on measures of immediate attention, abstract reasoning, arithmetic and general knowledge. His Performance IQ was described as "significantly lower than his Verbal IQ and relative to his age group". General difficulties were noted in the following areas: visuo-spatial construction, working memory, motor speed, speed of information processing, divided attention, verbal learning and coping with distractions or interference, mental flexibility and ability to monitor verbal responses. Visual memory abilities were at a lower level than verbal memory abilities. CP's pattern of deficits was noted to be "most certainly a consequence of his strokes" and consistent with right thalamic damage. The neuropsychological report also documented dysarthria, left-sided weakness, anosognosia, and emotional lability.

For several years after his injury CP worked as a volunteer in administration positions for charity organisations and received extensive return to work assistance from a specialised vocational rehabilitation service. He participated in work trials and applied for many positions in administration, often attending job interviews, but was unsuccessful. A work training evaluation indicated that despite CP's strong interpersonal skills, his speed and accuracy on clerical tasks was impaired and he required constant supervision and checking of his work.

CP attempted to move out of home on a number of occasions with the support of his family and rehabilitation case manager. However, he would typically develop depression shortly after the move and return home to live with his parents. Various stressors and disappointments (e.g., not obtaining employment after a work trial or perceiving a lack of progress in his return-to-work plans) appeared to trigger depressive symptoms such as low mood, loss of motivation, lethargy and occasional suicidal ideation. In 2003 CP was prescribed antidepressant medication by his general practitioner and later began seeing a private neuropsychologist for counselling in 2004. The frequency of sessions varied from bi-weekly during periods of low mood to one session every 2–3 months. This intermittent psychological support continued throughout the present intervention. This treatment was generally based on a cognitive-behavioural model, particularly at times of crisis, and also included more general supportive psychotherapy.

### Pre-intervention assessment findings

The findings of a neuropsychological review conducted just prior to the present intervention are presented in Table 1. Overall, the findings were consistent with the earlier assessment concerning CP's impairments in the areas of processing speed, visual perception, visual memory and visual attention (note: there was no evidence of unilateral neglect), although improvement was evident on measures of working memory and auditory attention.

Reports from CP's rehabilitation case manager of several years generally indicated that he had persisting awareness deficits concerning the effects of his stroke and unrealistic employment expectations. However, during periods of depression he would display a pessimistic view of his employment circumstances (i.e., stating that he may never return to work and that he was not "job-ready") and he occasionally expressed suicidal ideation. When CP's mood state improved he would restate unrealistic employment goals. His fluctuating mood state was observed at the start of one of the neuropsychological testing sessions, when he burst into tears, quickly composed himself, and then stated that he felt "brilliant".

CP completed standardised measures of awareness of deficits and emotional status six months before the intervention and again at two weeks prior to commencement. Six months prior to the intervention CP's scores on the Hospital Anxiety Depression Scale (HADS; Snaith & Zigmond, 1994) were in the "mild" range for depression (10/21) and the "normal" range for anxiety (5/21). However, he reported a "severe" level (16/20) of hopelessness on the Beck Hopelessness Scale (BHS; Beck, Weissman, Lester, &

Test	Raw score (Index or Standard Score)	Percentile (description)
NART-II	15 errors (estimated $FSIQ = 112$ )	(High average)
WAIS-III		
VIQ	71 (111)	77 (High average)
PIQ	31 (76)	5 (Borderline)
FSIQ	102 (95)	37 (Average)
Processing Speed	8 (69)	2 (Extremely low)
Working Memory	37 (113)	81 (High average)
WMS-III		
Auditory Immediate	18 (94)	34 (Average)
Visual Immediate	7 (57)	<1 (Extremely low)
Immediate Memory	25 (73)	4 (Borderline)
Auditory Delayed	17 (92)	30 (Average)
Visual Delayed	10 (68)	2 (Extremely low)
Auditory Recognition	12 (110)	75 (High average)
General Memory	39 (84)	14 (Low average)
Memory		
RCFT Immediate	15 (T  score = 42)	21 (Low average)
Delayed	10.5 (T  score = 36)	8 (Borderline-low)
RAVLT-Total	35	7 (Borderline)
Attention		
Trails A	52 seconds, 0 errors	<1 (Extremely low)
TEA – Map Search I/II	32/58 (6/3)	<1-12 (Extremely low to low average)
Elevator Counting (EC)	7	Normal
EC with Distraction	10 (13)	80-88 (High average)
EC with Reversal	8 (11)	57-69 (Average)
Visual Elevator	9/3.7 (9)	31-43 (Average)
Executive Function		
Trails B	100 seconds, 1 error	<1 (Extremely low)
RCFT Copy	35	90 (High average)
FAS Test	29 words, 0 errors	15 (Low average)
Design Fluency	17 designs, 2 errors	>2 (Extremely low)
Haylings Brixton – A	0	75 (High average)
B – Speed	70	10 (Low average)
B – Accuracy	3	75 (High average)
Stroop Test: Color-Word	40	<2 (Extremely low)
Zoo Map Test	1	9 (Borderline-low)
Key Search Test	3	70 (Average)
Tinker Toy Test	5	15 (Low average)

 TABLE 1

 Neuropsychological assessment data at 5 years post-injury

NART-2 = National Adult Reading Test – Second Edition; RAVLT = Rey Auditory-Verbal Learning Test; RCFT = Rey Complex Figure Test; TEA = Test of Everyday Attention; WAIS-III = Wechsler Adult Intelligence Test–Third Edition; WMS-III = Wechsler Memory Scale–Third Edition. Source: Lezak, Howieson, and Loring (2004), Wilson, Alderman, Burgess, Emslie, and Evans (1996).

Trexler, 1974). On the Self-Awareness of Deficits Interview (Fleming et al., 1996) CP scored 5/9, which reflected some acknowledgment of post-injury changes (mainly activity restrictions such as driving) but suggested minimal recognition of cognitive deficits and largely unrealistic goals (e.g., anticipating full-time work in his previous field of finance). Interestingly, his goals were incongruent with his negative expectations and beliefs indicated on the BHS. On a measure of defensiveness and self-deception (Marlowe-Crowne Social Desirability Scale; Crowne & Marlowe, 1960) CP's score (18/33) was in the normal range.

Two weeks prior to the intervention CP's mood symptoms (HADS Depression = 8, Anxiety-1; BHS = 18/20), awareness of deficits (SADI = 4/9) and defensiveness (15/33) were largely consistent with the earlier assessment.

#### Opinion and rationale

The intervention was initially discussed with CP, his rehabilitation case manager and CP's parents. CP's rehabilitation case manager identified some concerns that due to CP's "fragile" psychological state he might become more distressed if he received feedback about his post-stroke deficits. While this was an important consideration, CP's frequent periods of depression and high level of hopelessness suggested that he was aware of negative circumstances following his stroke (e.g., lack of success in finding work, inability to drive, loss of independence), but could not identify the reasons for these limitations nor understand what he could do to improve his situation. CP's parents were keen to support an intervention that aimed to facilitate his personal goals to live independently and achieve paid work. CP was very motivated to commence the intervention and particularly valued the idea of providing the therapist with feedback concerning each therapy session.

A therapeutic intervention was designed to concurrently target the following: (a) development of awareness of deficits, (b) ability to self-monitor performance, (c) use of corrective or compensatory strategies, (d) self-efficacy and emotional adjustment; and (e) realistic goals and expectations. The awareness intervention was conducted independent of the long-term psychological support provided by the private neuropsychologist, although the objectives and components of the intervention were discussed with this therapist. The self-awareness intervention was considered to be complementary to the general therapeutic approach, in that both methods of intervention encouraged CP to identify evidence for both over and under-estimates of his performance; however, the psychological support focused more on his interpersonal interactions and self-worth while the rehabilitation intervention focused more on his functional competencies. Half way through the

#### TABLE 2

#### A summary of the intervention components and therapeutic focus of each session

Rehabilitation session	Therapeutic focus
Session 1	
(a) Psychoeducation regarding the brain and effects of brain injury	General knowledge of the brain and brain injury
(b) Specific questions about post-injury changes and their implications	Self-knowledge: Awareness of deficits and their everyday impact
Session 2	
(a) Self-ratings of personal strengths and limitations (ratings: High average, Average, Low Very low)	Self-perception of physical, cognitive and behavioural abilities
<ul> <li>(b) Feedback using a graph of self-ratings and objective performance indicators (neuropsychological test results and relative's ratings)</li> </ul>	Self-evaluation of the discrepancy between self- ratings and CP's cognitive performance and relative's ratings
Session 3 – Role reversal	
<ul><li>(a) Therapist's prediction of her own cognitive performance on tasks with feedback from CP</li><li>(b) CP's prediction of his cognitive performance on a different set of tasks and feedback from the therapist</li></ul>	(Task designed to increase CP's understanding of the function of self-predictions and feedback) Self-prediction prior to cognitive performance and self-evaluation of the accuracy of predictions
Session 4	1
Performance predictions on functional tasks (e.g., paying rent, scheduling appointments, attending a work training course)	Self-prediction of functional performance on future activities (anticipatory awareness)
Session 5	
Adjustment counselling	Emotional support
Session 6	
Participation in a cooking task with prompts to self-monitor performance, followed by self- observation on video.	Pre-task predictions (anticipatory awareness) and self-monitoring (on-line awareness) and review of self-predictions
Session /	
Practice on the cooking task with an initial review of performance on video	Identification of goals for improving performance and immediate practice of skills during cooking.
Session 8	
Participation in a group therapy session with 5 other individuals with ABI {Break from the intervention for 2 weeks to re	Self-reflection on recovery and personal goals and sharing of experiences with peers ecceive more intensive support from the private
neuropsy	cnologist}
Session 9	Evaluting the impost of the intervention over
(a) A review of sessions to date	Exploring the impact of the intervention upon self-perceptions.
(b) Preparation for work experience in a bookshop and self-predictions of performance on a range of tasks	Performance predictions (anticipatory awareness) and planned use of compensatory strategies

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(Table continued)

Rehabilitation session	Therapeutic focus
Session 10	
Work sampling in a bookstore: training from a staff member on a range of tasks	Self-monitoring performance and self-evaluations according to prior predictions. Experience in receiving immediate feedback on-the-job
Session 11	
A follow-up session in the bookstore to assess the effects of previous training	Independent self-monitoring (without therapist prompts), self-correction and self-appraisal of performance
{A break of one month unt	il CP obtained a work trial}
Session 12	
Observation and application of self-monitoring procedures to a work environment (a large retail store) with a prospective employer and the job coach	Independent self-monitoring (without therapist prompts), self-correction and self-appraisal of performance

TABLE 2 Continued

<sup>a</sup>Cognitive tasks included: line bisection, immediate recall of a number sequence, recall of a short story, copying a design, and constructing an object (speed and accuracy).

intervention CP was linked with a disability employment service to commence the job search, job placement and on-the-job support process. The latter sessions in the intervention were in part guided by the opportunities that developed to observe and provide training to CP in various work settings. An outline of the 12 sessions of the awareness intervention is provided in Table 2 with a summary of the therapeutic focus of each session. These therapy components are based upon the theoretical framework of Toglia and Kirk (2000); the efficacy of which has been supported by empirical research (see review by Fleming & Ownsworth, 2006).

## Monitoring CP's reactions and feedback

Based on the principles of key informant interviewing (see Gilchrist & Williams, 1999), immediately after each therapy session an informal debriefing was conducted using a semi-structured interview format (10–15 minutes). Given the importance of established rapport, timely questions and the relevance of CP's feedback in tailoring the intervention to his needs the interviews were conducted by the therapist at the site of the session, which included CP's home, work experience site and the group therapy setting. General questions related to the content and process of the session and the therapeutic relationship. These included: "How did you find today's session?", "What, if anything, do you feel that you learnt?", "Was there anything particularly helpful or unhelpful?", and "How did today's session compare to previous sessions?" Specific questions inquired about particular

aspects of the session. For example, "How did you feel when I gave you feedback that you had overestimated your performance on the memory task?" Memory prompts were used as needed during the interview. The therapy debriefing was audio taped and transcribed after each session. The therapist used a mental status examination format (Trzepac & Baker, 1993) to structure observations during the session. Observations were recorded as detailed low inference field notes.

#### Data analysis

The transcripts of the informal debriefing and field notes were analysed thematically with narrative data coded into categories. A researcher who was not involved with the intervention or data collection process conducted this analysis. The initial section of the results presents a description of CP's reactions and feedback throughout the 12-session intervention with selected illustrative quotes. The second section presents the major themes emerging from the analysis of interview transcripts.

#### RESULTS

#### CP's reactions and feedback throughout the intervention

Session 1(a) Psychoeducation about the brain and brain injury. CP observed that this was "very interesting...I had never been educated about different parts of the brain... maybe you could tailor it more to the client and their background".

Session 1(b) Questions concerning the effects of CP's injury. CP found it difficult to answer specific questions about the effects of his injury and repeatedly stated that the therapist should ask his private neuropsychologist or rehabilitation case manager to obtain "an objective opinion". When prompted to consider the long-term effects of his stroke CP felt that acknowledging such problems would mean he was "a second class citizen". CP described this exercise as neither helpful nor unhelpful but "somewhere in between."

Session 2: Self-estimations of cognitive, physical and behavioural abilities. CP found it more difficult to rate his cognitive abilities (e.g., memory for conversations, ability to plan) than his physical and behavioural skills because he did not feel that there was a "benchmark" or "a standard" against which he could compare himself. When he received feedback that he rated his cognitive ability higher than his actual performance on the previous neuropsychological assessment he responded that it was an employer's

or a therapist's responsibility to provide training for a person to improve. For example, he felt that someone with visuo-spatial impairments could receive training to become an air traffic controller or to learn to drive ("If a job requires it, you can work on it"). Thus, he did not view impairments as permanent nor a barrier to employment.

Session 3: Role reversal with predictions of cognitive ability and immediate feedback. The therapist deliberately overestimated her performance on some cognitive tasks to enable CP to provide feedback. He commented: "Don't worry, everyone can make that mistake but at least now you know." When the roles were reversed and CP predicted his performance he received feedback that he had underestimated his skills in a particular area. He stated: "Wow, that is really good to know....it made me feel really good that I was better at something than I thought." After receiving feedback that he had overestimated his memory for a short story he commented: "Well, that is not as good....at least I know for next time." CP identified that receiving feedback immediately after performance is particularly important in a work setting, as follows: "I think it's important to get it [feedback] early because you've got to know how you are measuring up against their standard...but it needs to be accurate feedback."

Session 4: Self-prediction of functional performance on future activities. CP predicted that many activities he had planned would go well over the next few weeks but also identified some for which he was less certain. He anticipated that his memory, visual attention and motor co-ordination skills might influence the outcome on some activities. CP's evaluation of this session was positive: "It's all about anticipation so that if anything crops up you have a plan. Planning the next couple of weeks of my life is just so important."

Session 5: Adjustment counselling. CP became upset at the beginning of this session as he described a situation that had arisen during the week. The therapist focused the session on exploring these issues with him. CP felt concerned about people's expectations of him and that he did not know what the "benchmarks" were in a job. He identified that difficulty regulating his emotions might be problematic for job-readiness and living independently. CP explained: "Crying like this means that I am not normal, that I am still a second-class citizen." CP received psychological support from his private neuropsychologist and stayed with his parents for a few days.

Session 6: Self-predictions and self-evaluation of functional performance. After completing the cooking task CP said that he had felt a bit nervous about being observed but liked the fact that "we were trying

to make it more like a real life situation...like a work situation...and you are not always able to plan for things on the job". He felt that this activity added to the previous sessions because: "Cooking is very hands on... much more useful. That's another reason why we should do the work sampling... so you can get confidence and know exactly what the feedback is." CP wanted to watch the video of his cooking session and repeat the same meal during the next session to "Do it better. I think I could improve things and make changes...yeah."

Session 7: Practice on the cooking task. CP became distressed at the start of this session while discussing his perceived lack of progress with return to work plans. However, he was keen to commence the cooking task and identified several areas for improvement based upon the video self-observation. On completing the activity he identified: "The video was good because it was completely objective. So it wasn't just a person's opinion, it was what happened. And you could see that if there was something wrong you could fix it." When the therapist asked if there were other ways of obtaining feedback CP commented: "I suppose you could ask your boss or job officer to watch you and give you feedback." After a pause he added: "And, just think about what you did wrong and what you need to improve and how you can do it faster."

Session 8: Peer support and group therapy. Other group members offered their encouragement when CP became upset while discussing his work difficulties. CP seemed to take great interest in their perspectives. After the session CP noted: "I didn't realise that other people had been depressed after their injury too...it was good to hear that they could get on with their lives and get jobs and things." He also identified a limitation of the group session was that the suggestions were not specific to each individual.

Sessions 9, 10 and 11: Self-prediction and self-evaluation of work performance. In preparation for his work sampling in a bookshop CP made predictions about his performance on a range of tasks. In relation to one task he commented: "Actually, I think this could be a bit difficult because that needs a bit of fine motor." CP recognised that this prediction proved correct during performance and asked for advice so that he could adopt a strategy. During the debriefing CP identified: "It was really good and useful to, sort of, get me into the mould of work after a lapse" and that making predictions "helps because you know if you are going to find something easy or hard".

During the second work sampling session CP predicted that he would take several attempts to complete particular tasks without prompts. However, CP completed these tasks correctly without any prompts and spontaneously applied strategies. He evaluated his performance as follows: "Well, I went better than I expected...but I wanted to give myself some leeway – expecting the worst and getting the best rather than expecting the best and getting the worst I suppose you could say." When the therapist raised the issue of job readiness CP commented: "Well, I guess it's something. Job readiness is something that is good now because you've done a couple of tasks, even if they're simple tasks...so this programme is a confidence building process."

Session 12: Observation at a work trial. This session focused on the application of self-monitoring and feedback procedures in a prospective work environment (a large retail store) with staff and the job development officer. In the debriefing CP was asked to review the entire programme. He identified: "It's all about being more realistic isn't it? You have to find out what your strengths and downfalls are so that you can be realistic about the type of work you want to do." He additionally advised: "The comment I would make is to try and make things as close to the workplace and reality as possible."

During the post-intervention assessment on the SADI (score: 2/9) CP reported the following work goals: "Hopefully in six months time I'll be working 2–3 days a week, 6 hours per day – maybe at [place of work trial]. I'm not sure what will happen, but this is what I hope. I need to be realistic." On self-report measures of emotional status CP was in the "mild" range for anxiety and hopelessness and the "normal" range for depression.

Three weeks later CP was offered part-time paid work as a retail assistant (3 days per week, 5 hours per week) and had maintained this position at follow-ups conducted at 3, 6 and 9 months post-intervention.

#### Major themes

Understanding benchmarks and the value of feedback. The main theme that pervaded the CP's responses over the 12 sessions referred to the concept of "benchmarks". At times he used this word and at other times he used different words and phrases, such as "yardstick", "standards" and "knowing what's expected", to convey this idea, depending on the focus of the session. His answers, particularly during the early sessions that involved direct questioning about his post-injury impairments, seemed to raise the question of who should evaluate his skills – him or someone else? CP often deferred to, or sought the opinions of others he considered to have more expertise. The issue of benchmarks and social standards appeared to place considerable pressure on CP, which affected his self-confidence and perception of work readiness.

In subsequent sessions throughout the programme, which entailed situation-specific feedback and skills practice, CP seemed to learn that he could better understand standards of performance by seeking feedback from various sources and that this needed to occur early or immediately after task performance for him to personally benefit. He discovered that while feedback could be obtained from therapists, employers and job development officers, he could also gain feedback from self-observations (e.g., on videotape) or by reflecting on his own performance.

Learning through practical experience. The rehabilitation intervention utilised a range of different approaches to increasing CP's awareness of his skills and impairments. Both therapist observations and CP's comments demonstrated that he preferred and benefited most from learning through practical experience. In particular, following the cooking task, CP gave his evaluation that the practical session had been more helpful than the earlier ones because it was "hands on". However, he made the point that other sessions were useful when they involved making predictions about "real life".

Individualising therapy. Throughout the 12 sessions, CP continually referred to the importance of individualising the task or exercise. In the group session he perceived a limitation that the suggestions were not specific to an individual. In CP's discussions about the sessions, he often made reference to his family background. As both of CP's parents worked in the scientific field and he previously worked in finance, he frequently made comments about the "scientific" perspective or "objectivity" being important to him. However, this reference was always placed in the context of understanding that the needs and experiences of others might be different to his. His answers to various questions related to his major goal of work, particularly in the field in which he was receiving training.

### DISCUSSION

The present study investigated a participant's perspectives throughout a 12-week intervention designed to enhance self-awareness and self-regulation skills. His perceptions indicated that the therapy sessions promoted greater understanding of benchmarks and the value of feedback, and enabled learning through practical experience. Individualising or tailoring rehabilitation according to his background and personal goals also enhanced this process. CP's emotional reactions to the intervention were closely monitored and managed by the project clinician in collaboration with his private neuropsychologist and supportive family. Of note, CP described the programme as "a confidence building process", thus reinforcing that awareness interventions

can enhance emotional adjustment (O'Callaghan et al., 2006; Ownsworth, 2005). CP's awareness deficits and reactions can be considered in a biopsy-chosocial context.

In terms of neurocognitive factors, CP displayed marked impairments in visual perception, speed of information processing, psycho-motor speed, visual attention and visual memory, consistent with right hemisphere damage and thalamic strokes (Kumral, Kocaer, Ertübey, & Kumral, 1995; Myers, 1999). Models of awareness deficits (see McGlynn & Schachter, 1989; Morris & Hannesdottir, 2004) propose that conscious experience of post-injury changes requires an interaction between relevant functional domains (e.g., sensory, perceptual, motor and cognitive functions), comparator mechanisms within the central executive system to detect change, and the conscious or metacognitive awareness system. This feedback system relies upon updates regarding the experience of success and failure on tasks thus contributing to an individual's self-knowledge of personal abilities and impairment (Morris & Hannesdottir, 2004). This might occur from feedback from other people and structured opportunities to self-evaluate one's performance. Awareness deficits can arise from a disruption at various stages of processing within this integrated network. While the components of this network have not been specifically localised, thalamic lesions are found to produce diverse impairments in sensory, perceptual, motor and cognitive processes (Kumral et al., 1995), while disturbances in mood and self-awareness have previously been observed after right thalamic lesions (Liebson, 2000). Direct damage to the thalamus and/or disruption of connecting pathways to various regions of the cortex (e.g., fronto-thalamic pathways) may have contributed to CP's deficits in awareness and emotional regulation (Bogousslavsky, 1994).

Interestingly, once CP learnt about performance expectations in relevant situations, with training and practice on specific activities, he learnt to self-monitor his behaviour, identify errors and correct these during performance. CP did not display global executive dysfunction on testing, and thus his capacity to adopt metacognitive strategies most likely relied upon some intact higher-order cognitive abilities. CP's relative strengths in language expression enabled him to articulate the reason why he found it difficult to judge his own abilities, which related to a failure to understand benchmarks for performance, both in therapy and in work settings.

In terms of psychosocial factors influencing CP's awareness of deficits, he indicated that he preferred to receive feedback on his performance on practical tasks rather than direct questioning about his abilities. The concern about appearing a "second class citizen" emerged when CP was feeling uncertain of his abilities and suggested more deep-seated issues concerning acceptance of his disability and social stigma. Similar grief and loss issues have previously been observed following ABI (see O'Callaghan et al., 2006; Ownsworth,

2005; Ruddle & Coetzer, 2005). Ideally, these maladaptive beliefs would be explored and addressed through individual or group psychotherapy within a more holistic rehabilitation context. Overall, CP's motivation during the intervention was high, however, when he experienced heightened emotional distress his support needs were accommodated in the programme by breaks or modifying sessions. Engaging in practical activities such as cooking was found to improve CP's mood state and shift the focus of his self-appraisal from negative thoughts regarding his job readiness to personal achievement in other activities. CP appeared to benefit considerably from psychological support from the private neuropsychologist, particularly to cope with reactive depression in relation to ongoing stressors and life events.

The present study suggested that by developing more realistic expectations and modified goals CP was able to participate more actively in the job search and placement process. Ideally, this attitudinal and behavioural shift occurs during the pre-vocational rehabilitation stage prior to seeking employment (Ben-Yishay et al., 1987). It appears that some individuals may need to experience a lack of success with goals in order to develop a greater understanding of the impact of their deficits. However, such negative experiences may be overwhelming and lead to the development of heightened psychological distress (Langer & Padrone, 1992; Ownsworth & Oei, 1998). In general, a graduated return to work process with work sampling and early supportive feedback is recommended to prevent long-term psychological dysfunction.

#### **Clinical implications**

The present therapy intervention was designed to provide structured opportunities for CP to learn about the effects of his stroke and develop self-regulatory strategies (Toglia & Kirk, 2000). These experiences commenced with general exercises that are commonly used in brain injury awareness interventions, such as psychoeducation, feedback on assessment results, and a strengths and limitations self-assessment (see Fleming & Ownsworth, 2006; Toglia & Kirk, 2000), but subsequently the intervention became increasingly tailored according to CP's goals, incorporating participation on familiar and meaningful activities that CP requested feedback and support with. The approach is consistent with the "client partnership" approach advocated by McKenna and Tooth (2006), and other clientcentred practices adopted in brain injury rehabilitation (see Wilson et al., 2000; Wressle, Eeg-Olofsson, Marcussen, & Henriksson, 2002).

However, the present intervention additionally demonstrated the value of establishing a bi-directional feedback process between the client and therapist at the commencement of an intervention, and structuring time for such communication within each therapy session. Therefore, while the focus of many sessions involved the therapist providing feedback to CP regarding his performance on tasks, CP additionally provided consistent feedback to the therapist regarding his experiences and the value of particular exercises throughout the programme (i.e., during the therapy debriefing). This mutual approach is likely to contribute to the therapeutic alliance, which previous research suggests is related to awareness of deficits (Schönberger, Humle, & Teasdale, 2006). The present study supports the value of therapy debriefing, particularly in the context of awareness interventions, to monitor individuals' perceptions and reactions to different components and assist in processing the meaning of these experiences.

#### Methodological considerations

The present case study was designed to identify a participant's perspective of his experiences throughout an intervention designed to improve self-awareness and self-regulation. Clearly, however, the findings regarding this process for one individual with particular clinical characteristics (i.e., persisting awareness deficits, fluctuating emotional state, and high motivation for treatment) cannot be broadly generalised to other individuals with ABI. The comprehensive data provided in relation to CP's neuropsychological and psychological functioning may assist in determining the relevance of the findings to other clinical contexts. Additionally, the detailed description of the intervention components may support the application of therapy techniques, in this relatively sparse area of rehabilitation practice.

While the present study was primarily concerned with CP's perspective of the therapeutic process, rather than evaluating an awareness intervention or return to work programme, it is important to acknowledge that CP was receiving concurrent psychological support from a private neuropsychologist and the disability employment service. Therefore, although feedback concerning CP's experiences was sought immediately after each session of the awareness intervention, the outcomes of the intervention need to be considered in this broader support context. The treating therapist in this study conducted the therapy debriefings with CP to obtain timely feedback and assist in the design of subsequent sessions. It is important to acknowledge, however, that CP's responses may have differed if the interview had been conducted by a professional independent of the intervention.

Given the exploratory nature of this study, further research into participants' perspectives of participating in rehabilitation is needed to assist in the design and evaluation of awareness interventions. By progressively monitoring clients' reactions to therapy sessions it may be possible to identify common experiences regarding the value of different exercises. Combined with an evaluation of rehabilitation efficacy (i.e., pre- and post-intervention outcomes), this type of investigation has the potential to identify not only who benefits from different interventions but also participants' own evaluation of their experiences and therapy outcome. Although there are pragmatic and methodological issues to consider when interviewing individuals with awareness deficits and cognitive impairment, due to their potential difficulty in reliably recalling and articulating experiences (see review by Paterson & Scott-Findlay, 2002), such methods can provide a valuable insight into personal accounts of rehabilitation which to date have largely been overlooked in the literature.

In conclusion, the findings of the present study suggested that from CP's perspective the awareness intervention promoted greater understanding of benchmarks and the value of feedback, and enabled learning through practical experience. The importance of tailoring rehabilitation according to his back-ground and personal goals was also recognised. Future investigations of participants' perspectives in rehabilitation may assist in understanding how clients perceive the value of different therapy components, thus assisting in the design of interventions that are meaningful to individuals with awareness deficits.

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