PsycBITE™ REHABILITATION SUMMARIES

A project funded by the Psychologists Registration Board of New South Wales

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BACKGROUND

Within the Australian and other communities there is a high incidence of acquired brain impairment (ABI), and psychologists are becoming increasingly involved in the treatment of cognitive and behavioural disorders associated with ABI. Clinical practice with this population, however, is complex and difficult, and clinicians require specialised knowledge and access to appropriate resources to guide the implementation of evidence-based therapies.

PsycBITE™, the Psychological Database of Brain Impairment Treatment Efficacy, commenced in 2001 and has been freely available on the internet (www.psycbite.com) since 2004 (see McDonald et al., 2006; Tate et al., 2004; Togher et al., 2004). It contains all published reports on the psychological consequences of acquired brain impairment - almost 2,000 records meeting the five selection criteria are currently archived on the database. In combination with information already provided on PsycBITE™, the objective of this project was to further assist clinicians and supervisors of clinicians in selecting and implementing evidence-based interventions for adults and children with ABI.

The Psychologist's Registration Board of New South Wales provided funding for this project to develop 150 summaries of rehabilitation treatments for the psychological consequences of ABI. This new and important initiative will assist in further streamlining PsycBITE™ procedures and enhancing its user-friendly features. At the touch of a button, end-users will be able to retrieve pithy summaries of rehabilitation therapies for 10 types of problem areas (e.g., memory, communication), covering 10 types of neurological conditions (e.g., Alzheimer's disease, traumatic brain injury) across the lifespan. It is anticipated that this will serve to provide ready access to evidence-based interventions, and be an especially useful resource for supervisors and clinicians in situations where they are unfamiliar with the current literature, treat unusual conditions, practice in remote areas, or have limited access to resources.

At the outset, it is emphasised that the aim of the rehabilitation summaries is not to replace the original article. Rather, the objective is to provide more detailed and targeted information than is commonly available in a journal abstract in order that the clinician and/or supervisor can quickly grasp the elements of the therapy program, the population with whom it is used, the target

behaviours or clinical condition that was treated, efficacy of the therapy and the methodological quality of the trial. It is recommended that when a suitable study that meets the clinician's needs is identified, then the original article should be consulted.

Selection criteria for inclusion of research studies were as follows: (i) one of 10 key target areas of psychological difficulty were targeted (viz., problems with mood, interpersonal skills, behaviour, memory, attention, communication, insight/awareness, executive functions, pain, and fatigue), (ii) demonstration of satisfactory methodological quality, and (iii) evidence of treatment effect.

The rehabilitation summaries included in this project were not restricted to randomised controlled trials; single-subject designs were also included. The single-subject design is commonly used in a number of situations, such as when a randomised controlled trial has not been conducted, the condition occurs infrequently, or there are special features (e.g., dual diagnosis). Indeed approximately two-thirds of the rehabilitation summaries feature single-subject designs.

One hundred and fifty summaries were completed. The proportion of rehabilitation summaries in terms of target areas, neurological groups and age groups are a close approximation to the database as a whole, as reported by Perdices et al. (2006). This indicates that the rehabilitation summaries in this project provide a good representation of the current literature.

While an increasing number of studies is being published regarding therapies for patients with an ABI, a relatively small proportion currently available provide positive findings that are methodologically rigorous. The summaries conducted for this project reflect the quality of work currently available. It is important to note, however, that while these summaries reflect the best available evidence regarding ABI treatments, it does not mean that the treatments described are ideal or endorsed by PsycBITE™ or members of the PsycBITE™ team. Finally, given the developing nature of the area, it will be important for this resource to be updated to provide maximum benefit to clinicians.

The Rehabilitation Summaries were compiled by and are the property of the PsycBITE™ team: Robyn Tate, Michael Perdices, Skye McDonald, Leanne Togher, Regina Schultz and Sharon Savage

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Target Area: Anxiety, Depression, Stress & Adjustment / Quality of life

Bell, Temken, Esselman, Doctor, Bombardier et al (2005) ***Archives of Physical Medical Rehabilitation*** **86: 851-856**	**PEDro score** - 8/10
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** RCT. ➢ **Population:** n=171 moderate to severe TBI patients, M=18-70 years, mean 36 years ± 15, 77% male. ➢ **Groups:** 1. Telephone intervention (n=85) 2. Standard follow up (n=86). ➢ **Setting:** Family home via telephone. **Primary outcome measure/s:** Overall composite score of the secondary outcome measures. **Secondary outcome measure/s:** ➢ FIM. ➢ Disability Rating Scale. ➢ Community Integration Questionnaire. ➢ Neurobehavioural Functioning Inventory. ➢ Functional status examination. ➢ Glasgow Outcome Scale- Extended. ➢ SF-36. ➢ Brief symptom inventory. ➢ EuroQol. ➢ Modified Perceived Quality of Life. **Result**: Significantly better outcomes overall were observed for the intervention group compared with the standard follow up group (as measured on the composite index). Significant differences were also noted on specific measures of functional status and quality of life when comparing between the groups, including emotional state.	**Aim:** To assist in functional and quality of life outcomes following traumatic brain injury. **Materials:** Telephone and toll free number set up for patients to call, printed resource information sheets, treatment manual on motivational interviewing. **Treatment plan:** ➢ **Duration:** 3.5-5 contact hrs over 9 months. ➢ **Procedure:** 30-45 min telephone calls at 2 wks, 4 wks, 2, 3, 5, 7 and 9 months post discharge. ➢ **Content:** - *Telephone Intervention:* Scheduled telephone calls providing telephone counseling and educational sessions. Patients are sent information in the mail outlining the schedule for calls, the contact phone numbers if patients need to initiate calls, and other resource material (e.g. on how techniques to manage problem solving, motivation for change, and information or referral for other forms of assistance). The structure of the calls involves: 1. Follow-up on previously identified concerns. 2. Identification o f current concerns (behavioural, physical, cognitive, financial, legal); 3. Appropriate intervention in response to concerns (e.g. providing information, mentoring, assisting in goal-setting, giving reassurance, modeling problem-solving etc). - *Standard follow up*: no additional contact.

Target Area: Anxiety, Depression, Stress & Adjustment / Independence & Self Care ADL

Clark, Rubenach & Winsor (2003) ***Clinical Rehabilitation*** **17(7): 703-712**	**PEDro score** – 7/10
Method/Results	Rehabilitation Program
Design: ➢ **Study Design**: RCT. ➢ **Population**: 62 stroke patients (61% male and their spouses). Patients excluded if had severe aphasia, poor English, low MMSE score, no partner or discharged to residential care. ➢ **Groups**: 1. M=71.2 years, SD=8.8 2. M=73.3 years, SD=8.5 ➢ **Setting:** Inpatient rehabilitation for stroke. **Primary outcome measure/s:** ➢ Barthel Index. ➢ Adelaide Activities Profile (measures performance of 21 lifestyle activities in prior 3 months). ➢ Short Form Health Survey (SF-36). ➢ McMaster Family Assessment device FAD) to measure family function. ➢ Geriatric Depression Scale (GDS). ➢ Hospital Anxiety and Depression Scale (HADS). ➢ Mastery Scale 7-35 (high score =high mastery). **Secondary outcome measure/s:** ➢ None. **Results:** Significant improvements for treatment group specifically in FAD, Barthel, and some aspects of AAP.	**Aim**: To use education and counselling to improve family functioning and psychosocial outcomes for stroke patients and families and improve functional and social outcomes for patients. **Materials**: Information package (available from authors). **Treatment Plan:** ➢ **Duration:** 5 months. ➢ **Procedure:** Patients given Information package and had 3 visits (each one hour) from social worker 3 weeks; 3 months and 5 months post discharge. ➢ **Content:** Information pack has information about stroke and consequences, measures for reducing risk of further stroke, practical coping suggestions and information about community services and supports. Social worker reinforced information in pack on first visits and offered counselling on next two.

Target Area: Interpersonal & Social Skills/ Quality of Life

Lai, Chi and Kaiser-Jones (2004) ***International Psychogeriatrics*** **16(1): 33-49**	**PEDro score** – 7/10
Method/Results	Rehabilitation Program
Design ➢ **Study Type**: RCT comparing treatment to control activity to waitlist. ➢ **Population**: 101 patients with dementia. ➢ **Groups**: 1. Control (n=30, 37% male, M=6.8 years; SD=7.3). 2. Comparison (social contact only, n=35, 31% male, M=84.1 years; SD=7.4). 3. Treatment (n=36, 28% male, M=86.2 years, SD=6.3). ➢ **Setting:** Nursing home. **Primary Outcome measures:** ➢ Social Engagement Scale (SES) (rated by caregivers). ➢ Well-being/ Ill-being scale (WIB) used to rate behaviour over 6 hour period. **Secondary outcome measure/s:** ➢ None. **Results**: No between-group differences after treatment. A within group difference (pre-post) arose for the treatment group but not for the other groups.	**Aim**: To use reminiscence to increase psychosocial well being in people with dementia. **Materials**: None specified. **Treatment Plan:** ➢ **Duration:** 6 weeks. ➢ **Procedure:** Weekly 30 minute sessions. ➢ **Content**: Groups were prompted to reminisce/discuss their life story using Hellen (1998) "LSB" concepts.

Target Area: Anxiety, Depression, Stress & Adjustment / Behaviour Problems / Multiple Problems

Teri, Gibons, McCurry, Logsdon, Buchner et al (2003) *JAMA* 290(15): 2015-2022	**PEDro score** - 6/10
Method/Results	Rehabilitation Program
Design: ➢ **Study type***:* RCT. ➢ **Population:** n=153 community dwelling patients with moderate Alzheimers Disease (AD) or related dementias, ranging in age from 55-93 years. ➢ **Groups:** 1. Exercise plus behavioural management-RDAD program (n=76, 63% male). 2. Standard care group (n=77, 55% male) ➢ **Setting:** Family home. **Primary outcome measure/s:** ➢ Physical functioning and physical role functioning subscales from the SF-36. ➢ Body care and movement, mobility, and home management subscales of the Sickness Impact Profile (SIP). ➢ Hamilton Depression Rating Scale. ➢ Cornell Scale for Depression in Dementia. **Secondary outcome measure/s:** ➢ Patient walking speed, functional reach and standing balance. ➢ Caregiver reports of exercise, activity days, falls. ➢ Revised Memory and Behaviour Problem Checklist for level of patient behavioural disturbance and caregiver distress. **Result**: Significant benefits for physical functioning (SF-36) and levels of depression (Cornell Scale) resulted for the RDAD group compared to the control group at the 3 month follow up. Patients in the RDAD group improved while routine care patients declined. RDAD patients also reportedly increased their level of physical activity, and had less restricted activity days. At 24 months, RDAD group continued to show significantly higher scores on some physical measures.	**Aim:** To help decrease the frailty and behavioural impairment of patients with Alzheimer's Disease. **Materials:** Treatment manual available from authors. **Treatment plan:** ➢ **Duration:** 12 hrs over 11 weeks. ➢ **Procedure:** Hourly sessions: 2 per week for first 3 weeks, then weekly for 4 weeks, then fortnightly for remaining 4 weeks. ➢ **Content:** - *Exercise plus behavioural management (RDAD group):* The exercise component involves aerobic/endurance activities, strength training, balance and flexibility training. Patients are encouraged to maintain 30 mins/ day of moderately intense exercise. The behavioural management component involves educating caregivers about dementia and its impact on patient behaviour and function, teaching caregivers to identify and modify behaviour problems and patient distress, and instructing caregivers on how to identify pleasant activities for patients, and encourage increased physical and social activity. Within each session, demonstrations and exercises are carried out with caregivers. Sessions 1-10 introduce different topics, while the final sessions focus on maintenance of the exercise and behavioural management. - *Standard care group*: Routine medical care included the nonspecific advice and support routinely provided by nurses, primary care physicians or community support services.

Target Area: Anxiety, Depression, Stress & Adjustment

Lai, Studenski, Richards, Perera, Reker et al (2006) ***Journal of the American Geriatric Society*** **54(2): 240-247**	**PEDro score** - 6/10
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** RCT. ➢ **Population:** Stroke survivors, who suffered a mild to moderate stroke. ➢ **Groups:** 1. Exercise group (n=44, 52% male, M=69±9 years. 2. Usual care group (n=49, 55% male, M=70±11 years). ➢ **Setting:** Family home. **Primary outcome measure/s:** ➢ Geriatric Depression Scale (15 item). ➢ Medical Outcome study 36 item (SF-36). ➢ Stroke Impact Scale (SIS). ➢ Motor measures including Berg Balance Scale, Functional Reach, Wolf Motor Function test Emory, together with measure of strength and mobility. **Secondary outcome measure/s:** ➢ None. **Result**: Depressive symptoms were significantly lower in the exercise group compared with the usual-care group immediately following the intervention (and to some extent at 9 months post) with a greater group effect seen in those participants who reported depressive symptoms at baseline. Quality of life was also rated higher in the exercise group.	**Aim:** To reduce depressive symptoms in stroke survivors through physical exercise. **Materials:** Stationary bicycle, elastic bands of varying resistance. **Treatment plan:** ➢ **Duration:** 36 sessions (session length not provided). ➢ **Procedure:** 3 exercise sessions per week for 12 weeks. ➢ **Content:** - *Exercise group*: A progressive exercise program targeting strength, balance, endurance, and upper extremity function was implemented in the home, supervised by a physical or occupational therapist. - *Usual care group*: Home rehabilitation services were provided. A research assistant visited every 2 weeks to provide education about stroke prevention and to take measurements of blood pressure and oxygen saturation.

Target Area: Anxiety, Depression, Stress & Adjustment / Behaviour Problems

Magai, Cohen and Gomberg (2002) ***International Journal of Psychogeriatrics*** **14(1): 25-38**	**PEDro score** - 5/10
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** RCT. ➢ **Population:** n=91 people (6.6% M; M=85.9 years, SD=7.8) with dementia (mean MMSE=3.4; SD=5.0). ➢ **Groups:** 3 Nursing home units assigned to: 1. Nonverbal sensitivity training. 2. Behavioural placebo. 3. Wait-list. ➢ **Setting:** Nursing home. **Primary outcome measure/s:** ➢ BEHAVE-AD (Checklist of hallucinations/delusions): ➢ Cohen Mansfield Agitation Inventory (CMAI) to measure 29 types of agitated behaviour (likert scales). ➢ Cornell Scale for Depression in Dementia (CSDD). ➢ Coding of facial expression recorded during semi-structured interview. ➢ Brief Symptom Inventory (for carers). **Secondary outcome measure/s:** ➢ None. **Results:** Increase in frequency of positive facial affect for treatment group at 6 weeks post treatment, faded by 12 weeks. No other effects.	**Aim:** To improve quality of life, behaviour and affect in people with dementia and their carers by increasing understanding of non-verbal affect. **Materials:** Training manual for 10 hour education program on affect (available from authors on request). **Treatment Plan:** ➢ **Duration:** 2 weeks. ➢ **Sequence:** 10 one hour lectures. ➢ **Content:** Program addresses education for carers regarding basic emotions, how these are conveyed and practice in their recognition.

Target Area: Anxiety, Depression, Stress & Adjustment

Bryant, Moulds, Guthrie and Nixon (2003) *American Journal of Psychiatry* 160(3): 585-587	**PEDro score** - 6/10
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** RCT. ➢ **Population:** n=24 people with mild TBI and acute stress disorder. ➢ **Groups:** 2 groups: 1. CBT group (33% male, M=29.4 years; SD=13.9); 2. Supportive counselling group (33% male, M=33 years; SD=14.3). ➢ **Setting:** Community setting - PTSD unit at a hospital. **Primary outcome measure/s:** ➢ PTSD Scale (post treatment only). ➢ Impact of Events Scale (IES). ➢ Beck Anxiety Inventory (BAI). ➢ Beck Depression Inventory (BDI). **Secondary outcome measure/s:** ➢ None. **Result**: Fewer in CBT had PTSD at post treatment and 6 months later. CBT group had greater improvement in BAI and IES scores at post treatment and follow-up.	**Aim:** To reduce chances of developing PTSD in those with acute anxiety disorder after mild TBI. **Materials:** None specified. **Treatment plan:** ➢ **Duration:** 5 weeks ➢ **Procedure:** 1.5 hour weekly sessions ➢ **Content:** 1. Education about trauma. 2. Progressive muscle relaxation. 3. Imaginal exposure to trauma (for 50 minutes, also as homework). 4. Cognitive re-structuring. 5. Graded in vivo exposure to avoided situations.

Target Area: Anxiety, Depression, Stress & Adjustment

Mohr, Hart, Julian, Catledge, Honos-Webb et al (2005) ***Archives of General Psychiatry*** **62*:* 1007-1014**	**PEDro score -** 6/10
Method/Results	Rehabilitation Program
Design: ➢ **Study Type**: RCT comparing CBT to supportive emotion focused therapy (both delivered via the phone). ➢ **Population**: Patients with depression and functional impairments due to MS. ➢ **Groups**: Assigned to: 1. CBT (n=62, 24% male, M=48.6; SD=9.6) 2. Emotional treatment (n=65, 26% male, M=47.4; SD=10.1). ➢ **Setting:** Administered over the telephone with patients in their homes. **Primary Outcome Variables**: ➢ Hamilton Depression Rating Scale (HDRS). ➢ Structured Clinical interview for DSM-IV diagnosis of major depression. ➢ Beck Depression Index (BDI). ➢ Positive Affect scale score of the Positive and Negative Affect Scale (PANAS). **Secondary outcome measure/s:** ➢ None. **Results**: CBT group improved on HDRS/PANAS relative to emotion group. Long term gains maintained but differences between groups diminished.	**Aim**: To reduce depression using telephone CBT. **Materials**: Patient workbook to support treatment. **Treatment plan:** ➢ **Duration:** 16 weeks. ➢ **Procedure:** Weekly sessions for 50 minutes. ➢ **Content** Patient spoke to trained clinical psychologist using CBT.

Target Area: Anxiety, Depression, Stress & Adjustment / Behaviour Problems

Wade, Carey & Wolfe (2006) ***Rehabilitation Psychology*** **51(3): 179-189**	**PEDro score –** 6/10
Method/Results:	Rehabilitation Program
Design: ➢ **Study Type:** RCT. ➢ **Population:** 39 families of children with moderate to severe TBI (M=11 years; SD=3.2, 56% male, mean lowest GCS score=11.4). ➢ **Groups:** Assigned to online: 1. Family-centred problem-solving (FPS: n=20, 55% male, M=10.92 years; SD=2.45). 2. Internet Resources Comparison (IRC: n=20, 60% male, M=11.00 years; SD=3.93) ➢ **Setting:** Family home with computer. **Primary Outcome Variables**: ➢ Child Behaviour Checklist (CBCL) (Achenbach & Rescorla, 2001). ➢ Problem Solving and Communication subscale from the Family Assessment device (FAD) (Miller et al, 1985). ➢ Home and Community Social Behaviour Scale (HCSB) scale (measuring self-management). **Secondary outcome measure/s:** ➢ Children's ratings of ease of use and helpfulness. ➢ Children's ratings of emotional reactions to the web site and videoconferences. **Results**: HCBS scores improved for the FPS group more than did the IRC. Those who were older (more than 11 y.o.) and from lower socioeconomic status, had larger effect sizes.	**Aim**: To use online CBT to improve childhood adjustment to TBI. **Materials**: PC, broadband connection, web camera and printer in each family's home; web-site and sessional content designed by authors. **Treatment Plan** ➢ **Duration:** 14 separate web-based sessions completed by families at own pace over several months. ➢ **Procedure:** Each session 1-2 weeks to complete. Therapist assisted if not completed in 2-4 weeks. Following completion of each session, therapist organised tele-conference to review. ➢ **Content:** 8 core sessions: 1. Overview, identify goals. 2. Positive problem orientation. 3. Steps of problem solving. 4. Cognitive changes. 5. Behaviour changes. 6. Communication. 7. Crisis management. 8. Planning for the future. 9. Remaining 6 tailored to individual context including stress management, working with schools, sibling concerns, anger management, pain management, marital communication.

Target Area: Anxiety, Depression, Stress & Adjustment / Communication, Language & Speech Disorders / Independent & Self Care ADL / Quality of Life

Chapman, Weiner, Rackley, Heinan & Zientz (2004) ***Journal of Speech, Language, and Hearing Research*** **47(5):1149-1163.**	**PEDro score** - 6/10
Method/Results	Rehabilitation Program
Design: ➢ **Study type***:* RCT. ➢ **Population:** n=54 participants with mild to moderate Alzheimers Disease (AD), M=54-91 years, 46% male. Participants were fluent in English, living at home, and aware of their diagnosis. ➢ **Groups:** 1. Combined cognitive stimulation and donepezil (n=26). 2. Donepezil only group (n=28). ➢ **Setting:** Not stated (although all participants were residing at home). **Primary outcome measure/s:** ➢ Composite discourse score. ➢ Texas Functional Living Scale (TFLS). ➢ Neuropsychiatric Inventory (NPI). ➢ Quality of life questionnaire. ➢ Clinician Interview-Based Impression of Change. **Secondary outcome measure/s:** ➢ None. **Result**: Significant group x time effects were found for the combined group regarding improvements in emotional symptoms of apathy and irritability, and patient-reported quality of life. Although the combined group showed improved discourse scores, compared with a decline in the control group, the group differences were not significant.	**Aim:** To enhance the relevance of discourse, performance of functional abilities, emotional symptoms, quality of life and overall global function. **Materials:** None specified. **Treatment plan:** ➢ **Duration:** 12 hrs over 8 weeks. ➢ **Procedure:** 8 weekly sessions of 1.5hrs each. ➢ **Content:** The cognitive stimulation group was divided into subgroups of 6-7 participants. Sessions were run by a speech pathologist/ intern speech pathologists. Activities focused on conversational interaction rather than practice or drills, and included participant-led discussions requiring homework, interactive sessions about AD, and discussions using salient life stories.

Target Area: Anxiety, Depression, Stress & Adjustment / Cognitive Deficits / Executive Functioning Deficits / Multiple Problems

Tiersky, Anselmi, Johnston, Kurtyka, Roosen et al (2005) ***Archives of Physical Medicine and Rehabilitation*** **86: 1565-1574**	**PEDro score** - 6/10
Method/Results	Rehabilitation Program
Design: ➢ **Study type***:* RCT. ➢ **Population:** n=20 adults with mild-moderate TBI (45% male), age 19-62 years, M=46.85 years; SD=10.51). ➢ **Groups:** 1. Experimental group (n=11) - active treatment. 2. Control Group (n=9) - wait list. ➢ **Setting:** Outpatient clinic. **Primary outcome measure/s:** ➢ *Neuropsychological measures*: PASAT, Attention questionnaire. ➢ *Psychosocial and affective functioning*: Problem Solving index from Coping Response Inventory (CRI), Depression, Anxiety, GSI scales of SCL-90R. **Secondary outcome measure/s:** ➢ RAVLT, ACFI (to assess memory complaints). ➢ Community Integration Questionnaire, Somatization index of SCL-90R, Emotional discharge index of CRI. **Result**: Significant reductions in levels of anxiety and depression were reported for the treatment group compared with the control group. Some improvement in auditory attention was also found for the treatment group.	**Aim:** To treat emotional distress and accompanying neuropsychological sequelae in TBI by using a combination of psychotherapy and cognitive remediation. **Materials:** Treatment manual (contact authors for details), Attention Process Training II materials (from Sohlberg et al 1994), notebook for memory training. **Treatment plan/procedure** ➢ **Duration:** 11 week program (55 contact hours in total). ➢ **Sequence:** 3 sessions of 50 mins each/week. ➢ **Content:** 2 components: - *Structured cognitive remediation*: based on a process-specific approach, including both retraining exercises and exercises to improve compensatory skills. Includes a series of multimodal techniques focusing on auditory and visual attention and concentration, some memory book training and environmental modification. - *CBT*: individually tailored, educative program involving: 1. Engagement (rapport building, identifying behaviours and cognitions). 2. Active treatment (detection of automatic thoughts, behaviour experiments etc). 3. Prevention of relapse (planning, summarizing etc).

Target Area: Anxiety, Depression, Stress & Adjustment / Behaviour Problems

Lichtenberg. Kemp-Havicam, MacNeill & Johnson (2005) ***The Gerontologist*** **45(3): 406-410**	**PEDro score** – 6/10
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** RCT (one nursing home randomly selected for treatment, the other as control). ➢ **Population:** n=20 people with dementia (gender not specified). ➢ **Groups:** 2 groups: 1. Treatment group: n=9 (age=84.8, SD=4.9) 2. Usual care group: n=11 (age=85.0, SD=5.1). ➢ **Setting:** Nursing home, special care unit. **Primary outcome measure/s:** ➢ The BEHAVE-AD (a psychologist rated scale for behaviours such as paranoia, hallucinations, aggression). ➢ Geriatric Depression Scale (GDS). ➢ Cornell Scale for Depression in Dementia (CSDD). **Secondary outcome measure/s:** ➢ None. **Result**: People in treatment NH significantly less behavioural disturbance than control NH at post treatment. No change in depression.	**Aim:** To use behavioural treatment to improve wellbeing (i.e. depression, agitation and behavioural disturbance) in individuals with dementia in nursing homes (NH). **Materials:** Holiday post cars, letters, old photos, equipment for pampering (hair care etc), books etc. **Treatment Plan** ➢ **Duration:** 3 months. ➢ **Sequence:** 20-30 minutes, 3 times a week. ➢ **Content:** Imagery and breathing exercises (2-3 mins); then engagement in activity such as correspondence (letter writing etc), reminiscence, pampering (e.g. massage) 15-20 mins.

Target Area: Anxiety, Depression, Stress & Adjustment / Behaviour Problems

Wade, Michand and Brown (2006) ***Journal of Head Trauma Rehabilitation*** **21(1): 57-67**	**PEDro score** - 5/10
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** RCT. ➢ **Population**: n=32 children, 65.6% male, age 10.83 (2.94) years, severity-moderate to severe (GCS), aetiology - TBI. ➢ **Groups:** 1. Intervention group: Family-centred problem solving intervention (FPS). 2. Control group - usual care (UC). ➢ **Setting:** Either at the clinic or at the family's home. **Primary outcome measure/s:** ➢ Child behaviour checklist (CBCL). ➢ Brief symptom inventory (BSI) ➢ Conflict behaviour questionnaire (CBQ). **Secondary outcome measure/s:** ➢ Satisfaction survey. **Result**: No group differences on CBQ or BSI. Parents reported a decline in anxiety and depression in the FPS group but a slight increase in the UC group. Reported increase in knowledge of TBI and behaviour strategies in FPS group (not measured in US group).	**Aim:** To give families strategies for problem-solving and behaviour management. **Materials:** None specified **Treatment plan:** ➢ **Duration**: 6 months (~9-12hours). ➢ **Procedure:** 7 (biweekly sessions) for 1¼-1 2/3 hours. ➢ **Content:** - UC group - received standard medical care - FPS group - received 7 sessions. - Each session had two parts - didactic (30-40 mins) and problem solving (45-60 mins). Families were taught a problem-solving framework based on D'Zurilla & Nezu (1999). There are five steps - AIM, BRAINSTORM, CHOOSE, DO IT and EVALUATE (ABCDE). Families started using these strategies in session 2 and continued throughout the program with progressively more severe problems. Families were also taught behaviour management strategies (positive everyday routines). These were aimed at modifying and structuring the family environment to help with goal implementation. Sessions also covered communication skills, coping abilities and future planning. During session 6 families were assessed to see whether they needed additional individual sessions; with the focus of these sessions being specific areas of burden identified. This occurred in 50% of families.

Target Area: Anxiety, Depression, Stress & Adjustment /Fatigue & Low work tolerance /Cognitive Deficits

Mittenberg, Triemont, Zielinski, Fichera & Rayls (1996) ***Archives of Clinical Neuropsychology*** **11(2) 139-145**	**PEDro score** - 5/10
Method/Results	**Rehabilitation Program**
Design: ➢ **Study type:** RCT. ➢ **Population:** Patients who suffered a mild head injury, with no significant extracranial injuries. ➢ **Groups:** 1. CBT group (n=29, 72% male, M=43±7.5 years). 2. Control group (n=29, 66% male, M=49± 21 years). ➢ **Setting:** Inpatient (just prior to discharge). **Primary outcome measure/s:** ➢ PCS symptom checklist. **Secondary outcome measure/s:** ➢ None. **Result**: Patients undergoing CBT reported significantly shorter symptom duration and fewer symptoms at 6 months. Significant remission of headaches, fatigue, memory difficulty, concentration impairments and visual disturbances were found in the CBT group, but not in the control group.	**Aim:** To reduce post concussive symptoms, including anxiety, depression, fatigue, memory and attention/concentration problems following mild TBI. **Materials:** Printed 10 page manual. **Treatment plan** ➢ **Duration:** 1 session face-to-face (1hr duration). ➢ **Procedure:** 1 session. ➢ **Content:** - *CBT group*: patients received a manual and met with a therapist to review expected symptoms, discuss current symptoms, the CBT model, go through techniques for reducing symptom, and instructions for the gradual resumption of pre-injury activities. The patient was encouraged to review the manual as necessary. A 10 item quiz was given as a means of structured rehearsal. - *Control group*: routine hospital treatment and written discharge instructions were provided. Patients met with their regular nurse for review an discussion, and were told to contact their doctor if they experienced symptoms, and to have a period of rest.

Target Area: Anxiety, Depression, Stress & Adjustment

Sondergaard, Jarden, Martiny, Andersen & Bech (2006) ***Psychotherapy and Psychosomatics*** **75: 244-248**	**PEDro score** - 5/10
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** RCT. ➢ **Population:** n= 63 acute stroke patients who were not already on anti-depressive drug treatment or suffering other degenerative or neurological diseases. ➢ **Groups:** 1. High-intensity group (n=34 study completers, 53% male, M=74.9; SD=8.2). 2. Medium-intensity group (n=29 study completers, 10% male, M=74.9; SD=9.5). ➢ **Setting:** Inpatient. **Primary outcome measure/s:** ➢ Hamilton Depression Rating Scale (HAM-D). ➢ Bech-Rafaelsen Melancholia Scale (MES). **Secondary outcome measure/s:** ➢ None. **Result**: A substantial reduction in depression was found during the four weeks of treatment. After 4 weeks, a statistically significant effect was seen on the HAM-D between the two groups (effect size = 0.55).	**Aim:** To reduce levels of depression in patients post-stroke. **Materials:** Lamp (in conjunction with receiving 20mg citalopram daily). **Treatment plan/procedure:** ➢ **Duration:** 4 week program (7 hours of light therapy). ➢ **Sequence:** 30 min sessions x 14 days. ➢ **Content:** All participants received 20 mg citalopram daily for 4 weeks. For a period of 14 consecutive days, participants also received light therapy each morning (high-intensity for one group= 10,000 lx; medium-intensity for the other group=4,000 lx). The lamp was placed in front of participants and was supervised by nursing staff.

Target Area: Anxiety, Depression, Stress & Adjustment

Larcombe & Wilson (1984) ***British Journal of Psychiatry*** **145: 366-371**	**PEDro score** - 5/10
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** RCT. ➢ **Population:** n= 20 patients with a diagnosis of Multiple Sclerosis, aged between 26-61 years (mean = 42.5 yrs) who self-reported depression in the prior 3 months ➢ **Groups:** 1. CBT group (n=9 study completers, 22% male) 2. Waiting list group (n=10 study completers, 40% male). ➢ **Setting:** Specialised centre for multiple sclerosis. **Primary outcome measure/s:** ➢ Beck Depression Inventory (BDI). ➢ Hamilton Depression Rating Scale (HRSD). ➢ Daily mood ratings (best, worst, and average mood). ➢ Significant-other rating scale (SORS). **Secondary outcome measure/s:** ➢ None. **Result**: Pre-post analyses showed significant improvements on the BDI, HRSD and SORS and worst mood rating. Participants in the CBT condition improved significantly more than participants in the waiting list control group on each of these measures.	**Aim:** To reduce levels of depression in patients with Multiple Sclerosis using Cognitive Behavioural Therapy (CBT), thereby increasing the frequency, quality and range of activities and social interactions and reducing negative thoughts. **Materials:** Shortened version of Pleasant Events Schedule, Cognitive Schedule, and standard monitoring sheets for patients to indicate thoughts and mood **Treatment plan/procedure:** ➢ **Duration:** 6 week program (9 hours total). ➢ **Sequence:** 1.5 hr sessions / week for 6 weeks. ➢ **Content:** Group format (where groups consisted of 4-5 participants), using Beck et al's (1979) procedures for joint use of behavioural and cognitive techniques as a guideline. First two sessions focused on behavioural procedures (based on Lewinsohn's 1975 behavioural theory of depression), remaining sessions focused on cognitive procedures. Treatment attempted to teach participants to engage in activities that are rewarding and involved deriving an activity schedule, instigating activities, discussing social interactions. Any incorrect or illogical beliefs associated with social interactions were also identified and tested for validity. Individually tailored thought schedules were compiled, and negative thoughts were discussed and monitored.

Target Area: Anxiety, Depression, Stress & Adjustment

McCallion, Toseland & Freeman (1999) ***Journal of the American Geriatrics Society*** **47(2): 203-214**	**PEDro score** – 5/10
Method/Results	Rehabilitation Program
Design: ➢ **Study type***:* RCT. ➢ **Population:** n=66 nursing home residents patients with moderate to severe dementia and their families. Participants were from 5 skilled-care nursing homes. ➢ **Groups:** 1. Family Visit Education program (n=32, 6% male, M=86.44± 6.59 years. 2. Usual care group (n=34, 35% male, M=85.53 ± 6.65 years. ➢ **Setting:** Nursing home. **Primary outcome measure/s:** ➢ Multidimensional Observation Scale for Older Subjects (MOSES). ➢ Cornell Scale for Depression in Dementia (CSDD). ➢ Cohen-Mansfield Agitation Inventory (CMAI). ➢ Geriatric Indices of Positive Behavior (GIPB). ➢ Management of Problem Behaviors (MPB). ➢ Measures of visit satisfaction, hassles and management strategies for family members. **Secondary outcome measures:** > None. **Result**: Participation in FVEP had a positive impact on residents' depression, irritability and problem behaviours. Significant interaction effects were found for mood related and physical signs of depression, and agitation levels, with reductions for the FVEP versus increases for the usual care group. Verbal behaviours were significantly greater in the FVEP group, while noninteractive behaviours were found to decrease for FVEP but increase for usual care participants over 3 months.	**Aim:** To improve the quality of interaction between family members and nursing home residents with moderate to severe dementia, and to reduce problem behaviours and feelings of depression, irritability and withdrawal. **Materials:** A written intervention manual, participant workbooks, and training videotape are available. **Treatment plan** ➢ **Duration:** 8 weeks (9 contact hours). ➢ **Procedure:** 4 x 1 ½ hr group sessions and 3 x 1hr family conferences. ➢ **Content:** - *Family Visit Education Program:* Groups sessions involve: 1. Education regarding Alzheimer's Disease, typical cognitive, affective, and behavioural presentations, caregiver strains and the impact of family interactions. 2. Training in effective verbal and nonverbal techniques for communication. 3. Training in memory aids such as memory albums and audiotapes. 4. Training in activities that promote interaction. Family sessions included observation of interaction with in vivo feedback and face-to-face feedback with the family members not in the presence of the resident. Specific feedback is given regarding the family's implementation of strategies taught in the group sessions. - *Usual Care group:* Participants engaged in the usual social and recreational programming offered by each nursing facility.

Target Area: Anxiety, Depression, Stress & Adjustment / Behaviour Problems / Insight & Awareness

Cohen-Mansfield, Parapura-Gill, & Golander (2006) *Journal of Gerontology* 61B: P202-P212	**PEDro score** - 5/10
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** RCT. ➢ **Population:** n= 93 older persons with a diagnosis of dementia, who resided in a nursing home or attended a senior day centre, aged 72-101 years. ➢ **Groups:** 1. Treatment group (n=52, 37% male, mean MMSE=11.29); 2. Control group (n=41; 20% male, mean MMSE= 9.67). ➢ **Setting:** Day care centre or nursing home. **Primary outcome measure/s:** ➢ Self-Identity in Dementia Questionnaire. ➢ Self-Identity Awareness question. ➢ Lawton's Modified Behavior Stream (LMBS) for pleasure, interest, anxiety, and anger measures. ➢ Modified Agitation Behavior Mapping Instrument (ABMI) for involvement and agitated behaviour. ➢ Multidimensional Observation Scale for Elderly Subjects (MOSES) for disorientation, depression or anxiety, irritability, and withdrawal measures. ➢ Mini-Mental Status Examination (MMSE) and BCRS. **Secondary outcome measure/s:** ➢ None. **Result**: Individualised treatments for strengthening self-identities appeared more effective in promoting well-being than usual activities. The treatment group showed significantly higher levels of pleasure and interest post-intervention than the control group, and greater involvement in activities. They demonstrated a significantly lower level of disorientation and agitation, which was not observed in the control group. The treatment group participants manifested a greater increase in awareness of their identity.	**Aim:** To greater improve the affect, well-being, and involvement in activities, and decrease agitated behaviours in elderly people suffering dementia by using identity specific interventions. **Materials:** Variable, depending upon the type of activities designed for the participants (e.g. might include photographs, tape player and audio tapes, video player and video tapes, newspapers etc). **Treatment plan/procedure:** ➢ **Duration:** 10 days (2.5 hours of active treatment) ➢ **Sequence:** 5 days of observation, then daily 30 min sessions for 5 days ➢ **Content:** Interventions were designed with regard to the salience of the identity roles and severity of the dementia for each individual. Information was gathered from the participants, family members and staff regarding the most important lifetime role of the person, and other important identity roles in both the past and present (with information regarding a particular job that was important to the participant, important family members, specific activities or hobbies that they enjoy etc). Interventions were then tailored to the role identity, appropriate for the cognitive, physical and sensory abilities, and that provided a sense of purpose (e.g. a craft project centered on a family theme; creating a family tree). Control participants were only involved in traditional or usual activities.

Target Area: Anxiety, Depression, Stress & Adjustment

Teri, Logsdon, Uomoto & McCurry (1997) ***The Journals of Gerontology*** **52B(4): 159-166**	**PEDro score** - 5/10
Method/Results	Rehabilitation Program
Design: ➢ **Study type**: RCT. ➢ **Population:** Caregiver-patient dyads comprising n=72 community dwelling participants with probable Alzheimer's Disease (AD), who meet criteria for either major or minor depression. ➢ **Groups:** Pleasant events group (n=23); Problem Solving group (n=19); Typical Care Control (n=10); Wait-list Control Group (n=20)-no contact. ➢ **Setting:** Community setting. **Primary outcome measure/s:** ➢ Hamilton Depression Rating Scale (HDRS). ➢ Cornell Scale for Depression in Dementia (CSDD). **Secondary outcome measure/s:** ➢ Beck Depression Inventory (BDI) completed by caregivers on the patient's behalf. ➢ MMSE and Dementia Rating Scale to assess cognition. ➢ Record of Independent Living (RIL) for ADLs. ➢ Measures of caregiver mood and level of burden. **Result**: A significant reduction in depression was found for both active treatment groups (Pleasant Events and Problem Solving), when compared with either the Typical Care or the Wait List control. There were no statistical differences in post-treatment depression between the Pleasant Events and the Problem Solving groups. The Typical Care and the Wait List groups were not significantly different from each other. Improvements in caregiver mood were also found for the two active treatment groups when compared with the control groups. No differences were found on measures of patient cognition or functional status.	**Aim:** To reduce levels of depression in AD patients by educating their caregivers. **Materials:** Therapist manual and caregiver reader (available from authors). **Treatment plan/procedure:** ➢ **Duration:** 9 week program (9 contact hours in total) ➢ **Sequence:** For groups 1-3: 9 x 1hr session /week ➢ **Content:** - *Pleasant Events:* Caregivers are 1. Educated about depression in dementia and the importance of pleasant events; 2. Taught to identify, plan, and increase pleasant events; 3. Taught behavioural and problem solving strategies to increase pleasant events and alter contingencies related to depression and associated behaviour problems. - *Problem-Solving:* Caregivers are provided with education, advice and support, without focusing on pleasant events. Instead, the focus of this intervention is on problem-solving those patient depression behaviours of specific concerns to caregivers. - *Typical Care Control:* Caregivers are given general information, advice and support in their efforts to manage patient problems. No specific problem solving or behavioural strategies were implemented.

Target Area: Anxiety, Depression, Stress & Adjustment / Independent & Self Care ADL

Dennis, O'Rourke, Slattery, Staniforth & Warlow (1997) *British Medical Journal* 314(7087): 1071-1076	**PEDro score** - 5/10
Method/Results	Rehabilitation Program
Design: ➢ **Study Type**: RCT. ➢ **Population**: 417 patients with acute stroke: 50% males; M=67.8 years (No SD provided), represented 67% of all admissions (remainder not recruited because lived too far away). ➢ **Groups**: 2 groups: 1. Intervention by stroke family care worker (n=210). 2. Standard care (n=207). ➢ **Setting:** Inpatients and outpatients to a clinic. **Primary outcome measures**: ➢ Barthel index (completed by patient). ➢ Frenchay activities index (completed by patient and carer). ➢ Oxford handicap scale (patient). ➢ General health questionnaire (patient and carer). ➢ Social adjustment scale (patient and carer). ➢ Hospital Anxiety and Depression scale (patient and carer). ➢ Caregiver hassles scale (carer). ➢ Mental Adjustment to stroke scale (patient and carer). ➢ Patient satisfaction scale (patient and carer). **Secondary outcome measure/s:** ➢ None. **Results**: Patients with worker had greater social adjustment and satisfaction with care. Carers visited by care worker had better mood and expressed greater satisfaction with communication and support in their care.	**Aim**: To improve the physical, social and psychological status of stroke patients and their carers via contact with a stroke family care worker. **Materials**: None specified. **Treatment Plan:** ➢ **Duration:** 6 months. ➢ **Procedure:** Approximately 3.6 contacts in 6 months (range 0-17). ➢ **Content:** Social work trained care worker contacted families, identified unmet needs and tried to fill these from available resources (health, social services and voluntary agencies) plus provided counselling herself.

Target Area: Anxiety, Depression, Stress & Adjustment / Behaviour Problems / Multiple Problems

Kolanowski, Buettner, Costa & Litaker (2001) *Therapeutic Recreation Journal* 35(4): 220-235	**PEDro score** - 5/10
Method/Results	Rehabilitation Program
Design: ➢ **Study Type**: Cross over comparison study using participants as their own control (order of conditions randomly assigned). ➢ **Population**: Residents of nursing homes with dementia (40% male, M=89.4 years, SD=6.6, MMSE mean score=10.2; SD=7.1). ➢ **Groups**: One group only (participants served as their own controls). ➢ **Setting:** Nursing home. **Primary outcome measure/s:** ➢ Engagement: 1. Time S involved in activity 2. Intensity (from 0 "dozing" to 3 "physically/verbally engaging in activity). ➢ Affect: 1. Philadelphia Geriatric Center Affect Rating Scale (ARS). 2. Dementia Mood Picture Test (DMPT) (rate each of 6 faces to indicate mood). ➢ Dementia behaviours assessed using Cohen-Mansfield Agitation Inventory (CMAI) (carer rated). **Secondary outcome measure/s:** ➢ None. **Results**: Time on task, displays of positive affect greater during treatment. Also fewer days displaying dementia behaviours.	**Aim**: To select activities for patients with dementia that match skill level and personal interest so as to increase mood and decrease aggressive behaviours and agitation. **Materials**: MMSE, Neo Five factor personality inventory (N-5), Psychogeriatric Dependency Scale (PDS) (for assessing cognitive level and personality). Materials for activities depending on those chosen e.g. Materials for making "pleasure books" "feeling bag" materials for "reminiscent group". **Treatment plan:** ➢ **Duration:** 12 days. ➢ **Procedure:** 20 minutes sessions each day. ➢ **Content:** Patients assessed using MMSE, N-5 and PDS 3 treatment activities selected to match physical and cognitive skill levels and interests (latter categorised as those appealing to "mainstream consumers", "creative interactors", "introspectors", "homebodies").

Target Area: Anxiety, Depression, Stress & Adjustment / Interpersonal & Social Skills/ Quality of Life

Smith, Forster and Young (2004) ***Clinical Rehabilitation*** **18(7): 726-736**	**PEDro score** - 5/10
Method/Results	Rehabilitation Program
Design ➢ **Study Type**: RCT. ➢ **Population**: 170 patients with stroke. Patients excluded if had aphasia, no English or cognitive impairment and no carer. ➢ **Groups**: 1. Intervention (n=84, 54% male, M=75 years). 2. Control (n=86, 52% male, M=74 years). 3. And 97 carers. ➢ **Setting:** Inpatient stroke rehabilitation unit. **Primary Outcome Measure**: ➢ Knowledge of stroke. **Secondary outcome measure/s:** ➢ Hospital Anxiety and Depression Scale (HADS). ➢ London Handicap Scale. ➢ Barthel Index (for physical functioning). ➢ Frenchay Activities Index (for social functioning). ➢ Pond Scale (for satisfaction). **Results**: No change in knowledge, but significant change in HADS.	**Aim**: To educate patients and their families regarding stroke and adjustment. **Materials**: "Stroke recovery manual" including information on causes, consequences, recovery, financial benefit, services and information for carers. **Treatment Plan**: ➢ **Duration**: Not specified (effects evaluated after 3 and 6 months). ➢ **Procedure:** While in-patients, patients given manual and had meetings with members of multidisciplinary team every two weeks (20 minutes). ➢ **Content**: Discuss progress and develop rehabilitation goals. (Exact period not specified but effects evaluated at 3 and 6 months).

Target Area: Anxiety, Depression, Stress & Adjustment

Cole & Vaughan (2005) ***British Association for Behavioural and Cognitive Therapies*** **33: 89-102**	**SCED score -** *to be confirmed*
Method/Results:	Rehabilitation Program
Design: ➢ **Study Type**: SSD. AB with follow up, replicated across participants (A = baseline; B= treatment). ➢ **Participants**: 5 adults (age 51 years, age 72 years, age 83years, age 80 years, age 82 years) with Parkinsons Disease and depression. ➢ **Setting:** Community setting – movement disorder clinic. **Target behaviour measure/s**: ➢ Subjective rating of Mood level (visual analogue scale from 0 "very happy" to 10 "very low" also count of activity level. **Primary outcome measure/s**: ➢ Geriatric Depression Scale (GDS). ➢ Beck Depression Inventory ii (BDI-II). ➢ Parkinson's Disease Quality of Life Questionnaire (PDQL). **Results**: Reliable change seen in 4/5 patients on GDS, for 2 patients (with more severe depression prior to treatment) on BDI. No obvious trends in self-report (of mood) scale in any but one patient.	**Aim**: To use CBT to decrease depression in people with Parkinsons Disease. **Materials**: Self-help booklet "Coping with depression when you have Parkinsons' Disease" (Beck, 2000). **Treatment Plan:** ➢ **Duration:** 5-10 days of baseline followed by 7 weeks of treatment and assessment one month after. ➢ **Procedure:** One 60 minute session per week. ➢ **Content:** Following Beck (2000): Session 1: education and information on session structure; Sessions 2-5: behavioural work; Session 6: Problem solving and barriers to compliance with medical advice; Session 7; review.

Target Area: Anxiety, Depression, Stress & Adjustment / Behaviour Problems / Attention Problems / Interpersonal Psychosocial and Social Skills

Ducharme, Spencer, Davidson & Rushford (2002) *American Journal of Orthopsychiatry* 72(4): 585-595	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. Multiple baselines across participants with reversal (presents both single participant and group data). ➢ **Participants:** n=2 fathers with TBI. The study involves 3 children: Child 1A, 1B, 2 (Child 1A and Child 1B are siblings). ➢ **Setting:** Not stated. **Target behaviour measure/s:** ➢ Observation of compliance: defined as initiation within 10 seconds and completion within 40 seconds -measured by researcher (via observation and video record) and parent (checklist). ➢ Generalisation probes (2x level 3 and 2x level 4 requests delivered post treatment). **Primary outcome measure/s:** ➢ Culture free self esteem inventory (CSEI-2). ➢ Consumer satisfaction questionnaire. **Result**: Level 4 requests compliance increased from mean of 25% at baseline to 79% post-treatment (no statistical verification). Self-esteem in parents increased significantly.	**Aim:** To determine whether errorless compliance training for oppositional children of parents with TBI will improve compliance to requests. **Materials:** Data sheets with individualised lists of request. **Treatment plan:** ➢ **Duration:** 16.5-14.6 weeks (mean = 6 months). ➢ **Procedure:** Gave 4 requests, 3 times a day. ➢ **Content:** Used 24 requests (identified during baseline) in 4 categories from 1 = most likely to comply (e.g. turn on the TV) to 4 = least likely. Parents trained in request delivery and appropriate responding. Commenced with delivery of Level 1 requests until achieved 75% compliance; graduated to level 2 etc.

Target Area: Anxiety, Depression, Stress & Adjustment

Lincoln, Flannaghan, Sutcliffe & Rother (1997) *Clinical Rehabilitation* 11: 114-122	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study Type**: SSD. AB design, replicated across participants (A=baseline; B=treatment). Some group data presented. ➢ **Participants**: 19 adults (42% male, age 67 years, SD=13.8) with stroke identified as depressed. ➢ **Setting:** Stroke unit. **Target behaviour measure/s**: ➢ Beck Depression Inventory. ➢ Hospital Anxiety and Depression Scale. ➢ Barthel Index. ➢ Extended Activities of Daily Living. **Primary outcome measure/s:** ➢ No additional measures. **Results**: 4 patients showed consistent benefits (across 3 explicit methods for judging "benefit"), 6 patients showed some-minimal benefit and 9 showed no benefit. Individual change on functional status not mentioned but no change for group.	**Aim**: To use CBT to treat depression in stroke patients. **Materials**: None specified. **Treatment Plan**: ➢ **Duration:** The number and frequency of sessions individually determined but did not exceed 10 sessions in 3 months. ➢ **Procedure:** The number and frequency of sessions individually determined but did not exceed 10 sessions in 3 months. ➢ **Content** "Variety of CBT techniques" including distraction techniques, behavioural tests, graded task assignments, activity scheduling, identifying and challenging negative thought patterns.

Target Area: Interpersonal Psychosocial and Social Skills

Glang, Todis, Cooley, Wells & Voss (1997) ***Journal of Head Trauma Rehabilitation*** **12(2): 32-47**	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study Type:** Multiple baseline across participants. ➢ **Participant**: 3 males (age 8, 11, 13 years) with traumatic brain injuries (2 severe, one seemingly mild but functionally significant). ➢ **Setting:** School. **Target behaviour measure/s:** ➢ "Number of social contacts" observed at school per week (without adult intervention) **Primary outcome measure/s:** ➢ "Social inclusion" (likert scale). **Results**: Social contact increased in every participant (group statistics reported).	**Aim**: To increase social opportunities in boys with TBI. **Materials:** Audiovisual aids/video camera. **Treatment Plan**: ➢ **Duration:** about 18 weeks (unclear if ongoing) (including 4 weeks of baseline measures). ➢ **Procedure**: Initial one day training session followed by weekly telephone contact. ➢ **Content:** Train "facilitators" to follow 4 steps to increase social opportunities: 1. Gather information. 2. Recruit family/school staff/peers. 3. Team meeting. 4. Review meetings every 2-3 weeks.

Target Area: Interpersonal Psychosocial and Social Skills

O'Reilly, Lancioni & O'Kane (2000) ***Journal of Vocational Rehabilitation*** **14(3): 187-194**	**SCED score -** *to be confirmed*
Method/Results:	Rehabilitation Program
Design: ➢ **Study Type**: SSD. Multiple baseline across participants. ➢ **Participants**: males (age 20 and 30 years) with severe TBI living at home with parents and part-time employed. ➢ **Setting:** Community setting. **Target behaviour measure/s:** Videoed role plays with task analysis to identify "correct responses". **Primary outcome measure/s:** None **Results**: "Correct responses" increased for both targeted behaviours for both participants – not statistical verification.	**Aim**: To teach social skills problem solving. **Materials**: Room with table and chairs. **Treatment Plan**: ➢ **Duration:** Not specified – appears to be about 20 sessions (10 weeks) including 4 weeks baseline. ➢ **Procedure:** 2 sessions per week-length not specified. ➢ **Content:** 2 problematic social skills were identified for each patient (from 12 in the literature-e.g. "responding to criticism", "negotiation"). Task analysis for each was completed including verbal and nonverbal aspects. Participants were then trained on two scenarios using role play and feedback.

Target Area: Interpersonal Psychosocial and Social Skills

Braunling-McMorrow, Lloyd & Fralish (1986) *Journal of Rehabilitation* 52(1): 39-44	**SCED score** – *to be confirmed*
Method/Results:	Rehabilitation Program
Design: ➢ **Study Type**: SSD. AB design (A=baseline; B=treatment), with measures of generalisation at pretest and follow up. ➢ **Participants**: 3 young adults (age 18 years, age 20 years, age 27 years) with severe, chronic TBI. ➢ **Setting:** Rehabilitation Centre for head-injured adults. **Target behaviour measure/s:** ➢ Correct responses (as both "actor" and "reactor") to challenges posed in a "social skills" card game including: "compliments", "social interaction", "politeness" "criticism", "social confrontation" and "question/answers". **Primary outcome measure/s**: ➢ Videotaped interactions during meal times transcribed and scored for adequacy of same behaviours as above. ➢ House staff rated residents pre and post treatment on 15 behaviours (similar to above) on 5 point likert scale. **Results**: Suggest that participants improved on all measures (no statistical verification).	**Aim**: To teach social skills to people with TBI. **Materials**: A revised version of the social skills training program "Stacking the Deck" (Foxx & McMorrow, 1983), i.e. a game where players move 4 coloured pieces around a board to home. Number of spaces moved each turn defined by one of 48 cards. Each card requires player to verbally respond to one of 6 skill areas (8 examples of each) (see Primary outcome measures) before moving. Video camera also required. **Treatment plan**: ➢ **Duration:** 16 games. ➢ **Procedure:** Each game approx 30-60 minutes played 2-3 times per week. ➢ **Content:** Player only allowed to move (around board) if responded correctly to social skills challenge. If incorrect response, correct response was demonstrated.

Target Area: Attention Problems / Behaviour Problems / Cognitive Deficits

Selznick & Savage (2000) ***Behavioural Interventions*** **15(3): 243-260**	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. Multiple baseline across participants. ➢ **Participants:** n = 3 boys with impaired attention/ concentration 1. Participant 1: male, age 14 years, who suffered a TBI at 8 years of age (coma length was 2 weeks) 2. Participant 2: male, age 14 years, with an acquired brain injury from diabetic coma at age 11 (coma length 10 days). 3. Participant 3: male, age 14 years, who suffered a TBI at age 6 (no coma). ➢ **Setting:** School classroom. **Target behaviour measure/s:** ➢ Percentage of time of on-task behaviours. **Primary outcome measure/s:** ➢ None. **Results:** All participants showed increase percentage of time engaging in on-task behaviours (92-100%) across all treatment conditions and this was maintained at a similar rate at follow-up (no stats performed).	**Aim:** To increase on-task behaviours and self-monitoring of behaviour during math tasks. **Materials:** Algebra text book, self-monitoring record sheet, taped audio cues, tape player. **Treatment Plan** ➢ **Duration:** 1 school term (36 hours). ➢ **Procedure:** 1 hour session per day. ➢ **Content:** - Intervention took place in math practice sessions. - Participants were given a series of math problems and were taught 3 different self-monitoring methods. When participant head audio-cue they had to record either how many problems they had completed since the last audio cue, whether they were on task or their accuracy. - 5 phases: 1. Baseline 2. Self-monitoring (trained in all 3 methods) 3. Choice of method 4. Fading (withdrawal of self-monitoring) 5. Follow-up

Target Area: Memory Impairments / Attention Problems

Davis, Massman & Doody (2001) ***Alzheimers Disease and Associated Disorders*** **15(1):1-9**	**PEDro score –** 6/10
Method/Results	Rehabilitation Program
Design: ➢ **Study Type**: RCT. ➢ **Population:** n=37 people (43% male) with probable Alzheimers Disease. ➢ **Groups:** 2 groups: 1. Cognitive intervention (n=19; M=68.7 years, SD=3.9) 2. Waitlist (n=18; M=72.6 years, SD=7.6). ➢ **Setting:** Clinic, with some exercises conducted at home. **Primary outcome measure/s:** ➢ Neuropsychological test scores: WMS-R – Logical Memory; Visual Reproduction/ WAIS-R Digit Span/ Verbal fluency: phonemic and category/ finger tapping / Verbal Series Attention Test (VSAT). ➢ Geriatric Depression Scale (GDS). ➢ Quality of Life questionnaire (completed by carer). **Secondary outcome measure/s:** ➢ None. **Results**: No treatment effects between groups except that treatment groups reduced time on the VSAT. After treatment the WL group showed no change.	**Aim**: To use cognitive interventions to increase face-name recall and recall of personal information in people with Alzheimers Disease. **Materials**: Attention exercises (see below) Interest Inventory; Weekly compliance sheets (for carers); photos of staff members. **Treatment Plan** ➢ **Duration:** 5 weeks. ➢ **Sequence:** 1hours/week (+ 30 minutes homework 6 days/week). ➢ **Content:** - Test recall of 7 personal facts: trained on flash cards to recall facts that are not remembered. - Learn no.-object pairs e.g. "1-bun; 2-shoe" with increasing numbers. - Learn face name associations of staff members with verbal cues (e.g. "knee"="Naomi") 4) 6 home attention exercises per week e.g. sensory tasks (identify smells or music); attention maintenance (e.g. practice dual tasks) or memory (e.g. draw from memory).

Target Area: Memory Impairments/ Behaviour Problems/ Executive Functioning Deficits

Quayhagen, Quayhagen, Corbeil, Hendrix, Jackson et al (2000) ***International Psychogeriatrics*** **12(2): 249-265**	**PEDro score –** 6/10
Method/Results	Rehabilitation Program
Design ➢ **Study Type**: RCT. ➢ **Population**: 103 participant dyads 1. People with mild – moderate dementia (63% male, M=74.5 years; SE=0.7 2. Their carers (36% male, M=71.8 years; SE=0.8). ➢ **Groups** in 4 treatments: 1. Cognitive stimulation (n=21). 2. Dyadic Counselling (n=29). 3. Dual supportive seminar (n=22). 4. Early Day Care (n=16). 5. No treatment (n=15). ➢ **Setting:** Not stated. **Primary Outcome Measure/s** ➢ Composite scores of memory/delayed memory/ problem solving and verbal fluency (based on standard tests). ➢ Memory and Behavioural problems checklist-A (incidence) and B (stress associated with-for carers). ➢ Brief Symptom Inventory. ➢ Geriatric Center Morale Scale. ➢ Health Assessment Scale. ➢ Open ended questions post treatment. **Secondary outcome measure/s:** ➢ Caregiver outcome measures (including Marital Needs Satisfaction Scale; Brief Symptom Inventory; Geriatric Centre Morale Scale; Health Assessment Scale). **Results**: Group A showed some improvement on problem solving relative to others (p=.07). No other treatment effects for patients. Group C (carers) less negative coping styles than other groups. No other treatment effects for carers. (But note qualitative data).	**Aim**: To show that cognitively oriented treatment improves cognition while affectively oriented treatment improves affect in people with dementia and their carers. **Materials**: None specified. **Treatment Plan:** ➢ **Duration**: 8 weeks. ➢ **Sequence:** Group A: 1 hours x 5 times/week; Group B: not specified; Group C: 1.5 hours x 1/wk; Group D: 4 hours x 1/wk. ➢ **Content:** 1. *Group A*: Cog stimulation: memory provoking/problem solving/verbal fluency (using care-giver as agent). 2. *Group B*: Dyadic counselling for patient and carer: problem identification, stress reduction, frustration management, conflict resolution. 3. *Group C*: Dual supportive seminar: Group program focused on coping and relationships (patient and carer). 4. *Group D*: Early Day Care: Group program focused on group discussions, physical activity and recreation (patient) + 2 sessions for carer.

Target Area: Memory Impairments / Cognitive Deficits

Cheng, Chan & Yu (2006) ***International Journal of Geriatric Psychiatry*** **2: 611-617**	**PEDro score** - 5/10
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** RCT. ➢ **Population:** n=62 older persons with a diagnosis of mild to moderate dementia (any dementia condition included), who were able to play mahjong, aged between 64-99 years (mean=83.94, SD=7.58 yrs) ➢ **Groups:** 1. Twice a week group (n=33, 21% male). 2. Four times a week group (n=29, 83% male). ➢ **Setting:** Nursing homes in China. **Primary outcome measure/s:** ➢ Mini-Mental Status Examination. ➢ Digit Span Test: Digit forward span and sequence. ➢ Verbal Learning Test. **Secondary outcome measure/s:** ➢ None. **Result**: Gains in cognitive performance were reported for both groups, particularly for digit forward memory and verbal memory measures, where moderate to large effect sizes were reported. The pattern of change in scores, however, did not significantly differ between the groups (that is, the anticipated dosage effect did not exist).	**Aim:** To improve the cognitive functioning of persons with mild-to-moderate dementia. **Materials:** Mahjong tables and pieces. **Treatment plan/procedure:** ➢ **Duration:** 16 week program (max. of 96 hours total of playing time). ➢ **Sequence:** 75-90 min sessions either 2x or 4x per week for 16 weeks ➢ **Content:** Residents were assigned to mahjong tables of four people each, and played either two times a week or four times a week.

Target Area: Memory Impairments / Attention Problems / Multiple Problems

Van't Hooft, Andersson, Bergman, Sejersen, Von Wendt et al (2005) ***Brain Injury*** **19(7): 511-518**	**PEDro score** - 5/10
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** RCT. ➢ **Population:** n=38 children of mixed aetiology (but mainly TBI), 58% male, M=12.2 ±2.5 years, at least mild impairment of attention and memory (1SD below control mean on 20% of memory and attention tests). ➢ **Groups:** 1. Treatment: n=18, 67% male, TBI=12, encephalitis=1, anoxia=1, brain malignancy=4. 2. Control: n=20, 50% male, TBI=9, encephalitis=1, brain malignancy=10. ➢ **Setting:** Inpatient - children's hospital. **Primary outcome measure/s:** ➢ Auditory and visual RTs. ➢ Gordon Diagnostic System (to assess attention). ➢ Stroop test. ➢ Binary Choice test. ➢ Coding (WISC-III). ➢ Trail-Making test. ➢ Digit Span (WISC-III). ➢ 15-Word test. ➢ Rey-Osterrieth Complex Figure test. ➢ Rivermead Behavioural Memory test. **Secondary outcome measure/s:** ➢ None. **Result**: After training with the Amat-c programme, children showed significant improvements in most measures of attention and memory compared with the control group.	**Aim:** To improve memory and attention deficits in children. **Materials:** The Amsterdam Memory and Attention Training for children (Amat-c) programme (refer to paper), diary. **Treatment plan** ➢ **Duration:** 17 weeks (length of training > 59.5 hrs). ➢ **Procedure:** Daily 30 minute training sessions, one weekly reinforcement/therapeutic sessions (unspecified duration). ➢ **Content:** Three phases of exercises to train the following: - *Sustained attention:* eg., monitor the occurrence of a simple auditory or visual stimulus such as the ticking of a clock. - *Selective attention*: e.g., distinguishing between target and distractor stimuli, dividing attention between simultaneous stimuli, and alternatively activate responses. - *Mental tracking:* This last phase includes exercises in mental tracking, recall, and development of compensatory strategies for semantic and episodic recall (see paper).

Target Area: Memory Impairments

Chiaravalloti, DeLuca, Moore & Ricker (2005) *Multiple Sclerosis, 11*, 58-68	**PEDro score** - 5/10
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** RCT. ➢ **Population:** n=28 participants with MS, 39 % male, M=45.5 ±11.5 years, n=7 with mild impairment of memory (1-2 SD below control mean on Buschke Selective Reminder test), n=21 with moderate-to-severe impairment (more than 2 SD below control mean on Buschke Selective Reminder test). ➢ **Groups:** 1. Treatment: n=14, 36% male, M=45.14±13.78 years, education 14.62±2.71 years. 2. Control: n=14, 43% male, M=46±9.28 years, education 15.04±2.82 years. ➢ **Setting:** Community setting. **Primary outcome measure/s:** ➢ Hopkins Verbal Learning Test-Revised. ➢ Meta Memory Functioning Questionnaire. **Secondary outcome measure/s:** ➢ Beck Depression Inventory. ➢ State-Trait Anxiety Inventory. **Result**: The treatment group showed significantly greater improvement in performance than the control group on the Hopkins Verbal Learning Test-Revised following treatment. Participant evaluation of memory performance was also significantly greater in the treatment group than in the control group following treatment.	**Aim:** To improve new-learning deficits in participants with MS. **Materials:** Short stories containing target words that the participant is required to remember. **Treatment plan** ➢ **Duration:** 4 weeks, approximately 6 hours. ➢ **Procedure:** 2 sessions per week of approximately 45 minutes duration. ➢ **Content:** The Story Memory Technique (SMT) is used to teach participants to use visualization (sessions 1-4) and context (sessions 5-8) to learn new information (see paper for details).

Target Area: Memory Impairments / Attention Problems

Steingass, Bobring, Burgart, Sartory & Shugens (1994) ***Neuropsychological Rehabilitation*** **4(10): 49-62**	**PEDro score** - 5/10
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** RCT. ➢ **Population:** n=29 Alcoholic patients (male=24; female=5). ➢ **Groups:** 1. Treatment group=14. 2. Control group=15. ➢ **Setting:** Residential care centre. **Primary outcome measure/s:** Used for pre- and post-treatment assessment and as outcome measures. ➢ WMS. ➢ Categorised Verbal Memory Test. ➢ Colour-Word Association Test. ➢ Rey Figure Test. ➢ D-2 Test. **Secondary outcome measure/s:** ➢ None. **Result**: Treatment produced small but statistically significant improvement in immediate and delayed recall.	**Aim:** To train alcoholic patients in the use of internal memory strategies (eg, imagery, association). **Materials:** No details of the specific materials used in the training sessions are provided. **Treatment plan** ➢ **Duration:** 6 weeks, 12 hours. ➢ **Procedure:** 2 training sessions per week, 1hour/session. ➢ **Content:** - Sessions consisted of several training tasks (each lasting 1-20 minutes) administered in the same order to all patients: 1. Visualizing placing items in a shopping basket and then recalling order in which items were placed in the basket. 2. Name-face association. 3. Name-body features association. 4. Learning other patients' biographical data. 5. Letter-number and word-number association 6. Route learning on a map 7. Delayed recognition of learned pictures 8. Earning "lucky numbers" 9. Telephone number and birth date recognition 10. Traffic sign recognition 11. Picture scanning to identify odd features 12. Copying drawings - Imagery was also used extensively (eg., visualize your room and places in it where you could put things) as well as board games where the position of tokens on the board and 'paths' across the board had to be learned.

Target Area: Memory Impairments / Communication, Language, Speech Disorders

Kaschel, Della Sala, Cantagallo, Fahlboeck, Laaksonen et al (2002) ***Neuropsychological Rehabilitation*** **12(2): 127-153**	**PEDro score** – 5/10
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** RCT. ➢ **Population:** n=21, patients of mixed aetiology with mild memory problems (RBMT profile score >12). ➢ **Groups:** 1. Imagery intervention group n=9 (TBI=5, CVA=3). 2. Standard intervention group n=12 (TBI=7, CVA=4, Infection=4). ➢ **Setting:** Community setting – various centres. **Primary outcome measure/s:** ➢ RBMT (Logical Memory, immediate and delayed recall). ➢ Appointments Test (immediate and delayed recall). ➢ Memory Assessment Clinics Rating Scale (relatives' rating). **Secondary outcome measure/s:** ➢ d2 Test. ➢ Memory Assessment Clinics Rating Scale (self rating). ➢ RBMT Global Score. **Result**: Visual imagery group showed modest but statistically superior improvement on most primary outcome measures between commencement and end of treatment phase.	**Aim:** To evaluate efficacy of simple visual imagery and 'standard' interventions in rehabilitating mild memory impairment. **Materials:** TV monitor and video player. **Treatment plan/procedure** ➢ **Duration:** 24 weeks. ➢ **Procedure:** 4 week baseline; 10 week intervention comprising 30 single sessions of unspecified duration delivered at unspecified intervals; 12 week follow-up. ➢ **Content:** Visual imagery intervention: – *Stage 1*: Standardised imagery skill acquisition comprising 1. Recall of positive autobiographical memory episodes (eg, holidays) to set motivation for imagery training. 2. Exercises to develop ability to rapidly generate images of objects presented on video screen (6 levels of difficulty with 10 items per level). 3. Exercises to develop ability to rapidly generate images of actions presented on video screen (6 levels of difficulty with 10 items per level). – *Stage 2*: Skills acquired in Stage 1 applied in two domains of everyday life: written information and prospective memory, using items/situations in each domain specifically tailored for each individual. – *'Standard' Intervention:* Standard memory rehabilitation programme provided by the Centre they attended.

Target Area: Memory Impairments

Andrewes, Camp, Kilpatrick & Cook (1999) *Epilepsia* 40(11): 1535-1542	**PEDro score** - 5/10
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** RCT. ➢ **Population:** 100 people (gender not specified) undergoing epilepsy pre-surgery monitoring. ➢ **Groups:** 2 groups: 1. High information (n=50; M=35.2 years; SD=10.6). 2. Low information (n=50; M=34.2 years, SD=11.7). ➢ **Setting:** Community setting. **Primary Outcome Measures:** ➢ State-Trait Anxiety Inventory (STAI), ➢ Hospital Anxiety and Depression Scale (HADS), ➢ Concern about Epilepsy Monitoring Questionnaire (CAEMQ). **Secondary outcome measure/s:** ➢ None. **Results:** High information group significantly less depressed/anxious than low info group except on STAI.	**Aim:** To determine whether information can reduce anxiety in people undergoing pre-surgical monitoring for epilepsy. **Materials:** Information pamphlet and video. **Treatment plan:** ➢ **Duration:** One off. ➢ **Sequence:** One off. ➢ **Content:** Pamphlet contained information regarding various procedures for pre-surgical monitoring. Video depicted 2 patients (1M, 1F) being interviewed re: procedure with a positive outlook.

Target Area: Memory Impairments

Schmitter-Edgecombe, Fahy, Whelan & Long (1995) ***Journal of Consulting and Clinical Psychology*** **63(3): 184-489**	**PEDro score** - 5/10
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** RCT. ➢ **Population:** n=8, TBI patients more than 2 months post-trauma. ➢ **Groups:** 1. Treatment group (MNT)=4; 2. Control group=4. ➢ **Setting:** Not stated. **Primary outcome measure/s:** ➢ Laboratory memory tests: WMS-R (Logical Memory and Visual Reproduction). ➢ Laboratory based everyday memory tests: RBMT profile score. ➢ Retrospective reports of everyday memory failures: Everyday Memory Questionnaire (patient and family member). ➢ Observed reports of everyday memory failures during treatment: Everyday Memory Questionnaire (patient and family). ➢ Symptom distress: Symptom Check-list 90-R Global Severity Index. **Secondary outcome measure/s:** ➢ None. **Result**: Note book training group reported significantly fewer observed everyday memory failures that control group at end of treatment, but not at follow-up. No significant differences between groups found on other outcome measures.	**Aim:** To compare efficacy of Memory Notebook Treatment (MNT) incorporating both behavioural and learning principles, against group support therapy in improving memory. **Materials:** Note books, alarm wristwatches. **Treatment plan/procedure** ➢ **Duration:** 8 weeks, 16 hours. ➢ **Procedure:** 2 x 60-minute sessions per week and follow-up at 6 months. ➢ **Content:** *MNT Group* - Note books were structured into five sections: Daily Log, Calendar, Names, Current Work and Personal Notes. Intervention consisted of 4 treatment stages: 1. *Anticipation* (sessions 1-3) - define/discuss memory; identify individual's memory strengths and deficits; teach procedures for remembering names. 2. *Acquisition* (sessions 4-5) - teach purpose of notebook sections. 3. *Application* (sessions 6-13) - teach how to use notebook to schedule appointments; how to use Current Work and Personal Notes sections of Notebook; how identify main components of oral/written information; teach how to make brief accurate notes. 4. *Adaptation* (sessions 14-16) - teach how to use notebook for time management and customize it for personal needs.

Target Area: Memory Impairments

Ownsworth & McFarland (1999) *Brain Injury* 13(8): 605-626	**PEDro score -** 4/10
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** RCT. ➢ **Population:** n=20, 95% male, patients of mixed aetiology 4-37 years after acquired brain injury (TBI=15; tumour=2; stroke=1; infection=2). ➢ **Groups:** 1. Treatment group=10. 2. Control group=10. ➢ **Setting:** Community setting – brain injury support group. **Primary outcome measure/s:** ➢ Weekly percentage of dairy entries made during treatment phase. ➢ Number of memory problems reported daily. ➢ Number of times compensatory memory strategies utilized daily. **Secondary outcome measure/s**: ➢ Weekly POMS scores. **Result**: The DSIT diary utilization strategy reduced the frequency of memory problems experienced by participants more than the DO strategy. Mean n umber of weekly diary entries did no differ between groups. Psychological distress was reduced in both groups.	**Aim:** To compensate for everyday memory problems using two types of diary utilization strategies. The training strategies reflected bottom-up (*DO*: Diary Only Training) and top-down (*DSIT*: Diary and Self-Instructional Training) cognitive models of rehabilitation. **Materials:** Self-report, 15-item checklist to record frequency of occurrence of memory problems and frequency of utilization of compensatory memory strategies. Lined exercise book used as diary. Rivermead Behavioural Memory Test, WMS-R, POMS. **Treatment plan/procedure** ➢ **Duration:** DO group: 2 weeks baseline, 4 weeks of treatment. DSIT group: 6 weeks baseline, 4 weeks of treatment. ➢ **Procedure:** A single training session, given at beginning of treatment phase (duration unspecified). ➢ **Content**: - *DO Group:* teach participants a behavioural sequence for using the diary to compensate for everyday memory problems (details of behavioural sequence are not specified). - *DSIT Group:* teach participants a self-instruction strategy for using the diary to compensate for everyday memory problems. - The strategy (WSTC) consisted of four steps: 1. W= what are you going to do? 2. S=select strategy for the task 3. T=try out the strategy 4. C=check how strategy is working.

Target Area: Memory Impairments

Benedict & Wechsler (1992) ***Journal of Head Trauma Rehabilitation*** **7(4): 83-92**	**SCED score -** *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. Multiple baselines across behaviours, replicated across participants. ➢ **Participants:** n=2 with severe traumatic brain injury 1. Participant 1: Male, aged 30 2. Participant 2: Female, aged 23 ➢ **Setting:** Post-acute rehabilitation program. **Target behaviour measure/s:** ➢ Words correctly recalled on a list-learning task ➢ Ideas correctly recalled on paragraph recall task. **Primary outcome measure/s:** ➢ None. **Result**: One participant demonstrated statistically significant improvement in performance on the list learning task and paragraph recall task after specific training to improve performance on each of these tasks was introduced. Improvement on the paragraph learning task was, however, variable and unlikely to be clinically significant.	**Aim:** To improve recall on list learning and story learning tasks. **Materials:** None. **Treatment plan** ➢ **Duration:** 35 weeks, total contact hours unspecified. ➢ **Procedure:** Weekly memory training sessions of unspecified duration. ➢ **Content:** In the first 16-20 training sessions, the participant is taught the Method of Locus (MOL) strategy to improve recall on list learning tasks (see paper for details). In the reminding training sessions, the participant is taught the PQRST memory retraining strategy to improve performance on paragraph recall tasks.

Target Area: Memory Impairments / Interpersonal Psychosocial and Social Skills / Community re-entry & instrumental ADLs

Hoerster, Hickey & Bourgeois (2001), *Neuropsychological Rehabilitation, 11(3/4),* 399-427.	**SCED score -** *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. Multiple baseline across participants. ➢ **Participants**: n=4 residents with dementia who were identified as "verbal communicators"; paired with 4 full-time nursing assistants 1. Participant 1: 90 year old female with multi-infarct dementia, MMSE = 12 2. Participant 2 :88 year old female with Alzheimer's Disease, early Parkinson's Disease & right CVA, MMSE = 9 3. Participant 3: 89 year old female with organic brain syndrome, multi-infarct dementia, & right CVA, MMSE = 8 4. Participant 4: 83 year old female with Alzheimer's Disease and depression, MMSE = 8 ➢ **Setting:** Nursing home. **Target behaviour measure/s:** ➢ Number of factual utterances during 5 minute conversation (on-topic statements, off-topic statements, other statements, responses, and unintelligible statements) ➢ Frequency of nursing assistant behaviours in 5 min conversation (e.g. requests, assertions, directives, and responses) **Primary outcome measure/s:** ➢ Social validity rating **Results:** Increases in factual utterances increased for most residents, with more equitable turn-taking in conversation occurring. Effects were weaker for residents with more severe dementia. No statistical analysis was conducted.	**Aim:** To improve conversational skills between nursing home residents with dementia through the use of personalised memory books. **Materials:** Clear plastic sleeves and a ring binder to construct a 25 page memory book containing picture and sentence stimuli for each resident, personally relevant based on information from a questionnaire completed by a family member. **Treatment Plan:** ➢ **Duration:** Unclear. ➢ **Procedure:** Sessions varied according to participants' performance (9-12 sessions implemented with these participants). Timing of sessions not stated ➢ **Content:** weekly 5 minute conversational interactions occurred between participants and their paired nursing assistant. - During baseline, conversation occurred without the memory book available. - During treatment, each participant was trained in using the memory book in conversation. Residents were praised for spontaneously reading a sentence correctly and for elaborating on sentences. If the resident did not read spontaneously (within 5 sec), she was prompted to do some ("Read the sentence aloud"). If not spontaneous elaboration occurred within 30 sec of reading the sentence, a prompt was given ("Tell me more about that"). Training continued until the resident read each sentence at least once and elaborated on 30% of sentences in one session. Memory books were then introduced to the nursing assistants and residents were instructed to tell the nursing assistant about the pictures in the book.

Target Area: Memory Impairments/ Executive Functioning Deficits

Ehlhardt, Sohlberg, Glang & Albin (2005) ***Brain Injury*** **19(8): 569-583**	**SCED score -** *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. Multiple baselines across participants, with follow-up one month post-treatment. ➢ **Participants:** n=4, aetiology – TBI, coma duration > 1 month, severity-severe memory and executive impairment, years post-trauma=23.3 (SD=6.9). 1. Participant 1: Male, aged 48. 2. Participant 2: Male, aged 47. 3. Participant 3: Female, aged 58. 4. Participant 4: Female, aged 36. ➢ **Setting:** Community setting – Local transitional living programmes and support groups. **Target behaviour measure/s:** ➢ Number of correct steps completed in sequence on an e-mail task. ➢ Number of correct steps completed, regardless of sequence, on an e-mail task. ➢ Number of training sessions needed to reach mastery criterion (100% correct for 7/7 steps). **Primary outcome measure/s:** ➢ None. **Result**: Training enabled participants to learn a procedure for using an e-mail interface with 100% accuracy within 7-15 days. Treatment affect generalized to a novel e-mail interface and/or an unrelated computer game. Skills were maintained at one month post-training. Data was graphically presented but not statistically analysed.	**Aim:** To improve procedural memory in participants with memory and executive impairment. **Materials:** Computer software to simulate an e-mail interface (see paper for details). **Treatment plan** ➢ **Duration:** 7-15 days, number of total contact hours not specified. ➢ **Procedure:** Daily training sessions of unspecified duration. ➢ **Content:** Participants are trained to use a simulated e-mail interface to read and reply to e-mails from four hypothetical persons (doctor, counselor, dentist, friend). There were four categories of e-mail messages: billing, appointments, direction to appointments, invitation to go out. The training method (TEACH-M, see paper for details) emphasizes task analysis, errorless learning, ongoing assessment of task performance, cumulative review of acquired skills, and frequent practice of skills.

Target Area: Memory Impairments

Goldstein & Malec (1989) *Neuropsychology* 3(1): 9-16	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. Multiple baseline across behaviours, replicated across participants. ➢ **Participants:** n=6, 100% males, age M=55.17 (SD=8.08) years, range=41-64 years, aetiology – severe Korsakoff-type amnesia. ➢ **Setting:** Neuropsychiatric inpatient hospital **Target behaviour measure/s:** ➢ Correct recall of basic Orientation items such as the name of the Hospital. **Primary outcome measure/s:** ➢ None. **Result**: Individual participants demonstrated substantial variability, but the training was generally successful. Data was graphically presented but not statistically analysed.	**Aim:** To improve amnesic participant's free recall of specific information, namely answers to Orientation questions. **Materials:** None. **Treatment plan** ➢ **Duration:** Up to 10 days, total contact hours 1.6 (estimated). ➢ **Procedure:** Daily sessions of (estimated) 10 minutes duration. ➢ **Content:** Training is based on rote-learning (repeated rehearsal) of information. Participant is given the correct response to an item (eg, what is the name of this Hospital) and rehearses the answer 20 times. Training for the next item is commenced when participant has a correct free recall of item being trained (ie, probe testing prior to daily training session) on 4 of 5 consecutive days.

Target Area: Memory Impairments / Behaviour Problems

Zencius & Wesolowski (1991) ***Behavioral Residential Treatment*** **6(3): 155-164**	**SCED score -** *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. Multiple baseline across behaviours, replicated across participants 1. Participant 1: ABAC (A=baseline/withdrawal, B=Memory Checklist, C=Problem Solving), with follow-up 2. Participant 2: AB (A=baseline, B=Memory Checklist), with one month follow-up 3. Participant 3: ABA (A=baseline/withdrawal, B=Memory Checklist) ➢ **Participants:** n =3, aetiology – TBI, severity of impairment not specified 1. Participant 1: male, aged 38 years, 2. Participant 2: female, aged 24 years, 3. Participant 3: male, aged 24 years. ➢ **Setting:** Rehabilitation facility. **Target behaviour measure/s** ➢ Participants 1 & 3-percentage of steps in a task completed independently. ➢ Participant 2-frequency of prompts needed to complete a task. **Primary outcome measure/s:** ➢ None. **Result**: Strong treatment effect that was sustained for up to one month after withdrawal of treatment in one participant. Data was graphically presented but not statistically analysed.	**Aim:** To increase the percentage of steps correctly completed during wood-working tasks (Participants 1 and 3); to decrease the number of prompt needed to correctly complete grooming tasks (Participant 2). **Materials:** Wood-working equipment and materials (see paper). **Treatment plan** ➢ **Duration:** 5-16 days, total contact hours not specified. ➢ **Procedure:** Participants 1 and 3: 3-5 trials of treatment administered, but their periodicity or duration are not specified; Participant 2: daily treatment sessions of unspecified duration. ➢ **Content:** Participants were trained to use a memory checklist to help them complete their tasks. The memory Checklist consisted of an A4 sheet of paper with all the necessary task steps written on the left hand side and boxes for tick=marks on the right side.

Target Area: Memory Impairments / Behaviour Problems

Nolan, Matthews & Harrison (2001) ***American Journal of Alzheimer's Disease and Other Dementias*** **16(4): 251-254**	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. Multiple baseline across participants. ➢ **Participants:** n=3 females, age M=86.3 (SD=3.2) years, range=84-90, severe Alzheimer's dementia. ➢ **Setting:** Residential nursing home. **Target behaviour measure/s:** ➢ Ability to correctly identify own room within three minutes of being requested to do so. **Primary outcome measure/s:** ➢ None. **Result**: Participant's success rate in correctly identifying their room was markedly improved (100% for one participant) after the environmental intervention. Data was graphically presented but not statistically analysed.	**Aim:** To enable participants to locate and correctly identify their room in a nursing home. **Materials:** Photograph of participant, 30x2.5cm card with participant's name. **Treatment plan** ➢ **Duration:** See Content below. ➢ **Procedure:** See Content below. ➢ **Content:** The study reports on an environmental intervention (ie, the participant's picture and name are placed on the wall outside their room) and includes no treatment or training as such.

Target Area: Memory Impairments

Gianutsos & Gianutsos (1979) ***Journal of Clinical Neuropsychology*** **1(2): 117-135**	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. Multiple baseline across participants ➢ **Participants:** 4 patients of mixed aetiology, referred for memory training: 1. Participant 1: Female, age 16 years, right CVA, 7 weeks post onset. 2. Participant 2: Male, age 62 years, right CVA, moderate aphasia, 3 months post onset. 3. Participant 3: Male, age 20 years, congenital brain damage, seizure disorder and dyslexia. 4. Participant 4: Female, age 42 years, right CVA and surgery for aneurysm, seizure disorder and left neglect, 1.9 years post onset. ➢ **Setting:** Brain injured patients undergoing treatment. **Target behaviour measure/s:** ➢ Percent of words correctly recalled in each session. **Primary outcome measure/s:** ➢ None. **Result**: Intervention improved recall of words in all participants.	**Aim:** Examine efficacy of mnemonic training in improving verbal recall. **Materials:** Memory drum (with current technology, stimuli would be presented on computer screen). **Treatment plan/procedure** ➢ **Duration:** 18 sessions, with up to 45 trials (ie, presentations of 3 words-to-be-remembered). Maximum session duration was 1 hour. ➢ **Procedure:** A (baseline) – B (treatment) 1. For Participants 1 and 2: baseline= 6 sessions; treatment=12 sessions. 2. For Participants 3 and 4: baseline= 12 sessions; treatment=6 sessions 3. Baseline sessions: In each session, the three words-to-be-remembered had to be recalled after a delay during which either 0, 3 or 9 additional words were read (15 trials in each condition). Recall delay the same on all conditions. ➢ **Content:** Treatment sessions consisted of two phases: 1. *Practice phase*: trainer read 3 words and *assisted* participant to produce a 'mnemonic story' about each word. 2. *Test phase*: words-to-be-remembered presented using same protocol as in baseline sessions. Participant is asked to produce a 'mnemonic story' to facilitate recall of words.

Target Area: Memory Impairments

McLean, Stanton, Cardenas & Bergerud (1987), ***Brain Injury, 1(2),*** **145-159.**	**SCED score -** *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. ABA, replicated across participants (A =baseline/withdrawal; B = combined memory training and medication) ➢ **Participants**: sustained anoxia from CO poisoning 1. Participant 1: 22 year old male, seen 11 months post injury. CT scan was normal. On testing, obtained zero scores on delayed memory tasks on WMS 2. Participant 2 :38 year old male, 15 months post injury. CT scans showed abnormalities in paraventricular white matter. WMS quotient = 62; WAIS FSIQ = 74. ➢ **Setting:** Outpatient rehabilitation clinic **Target behaviour measure/s:** ➢ Participant 1: Number of correct and incorrect details recalled immediately after reading; Number of correct and incorrect details recalled 30 minutes after reading ➢ Participant 2: Number of correct and incorrect orientation questions; % words recalled on the Memory Span computer task **Primary outcome measure/s:** ➢ Wechsler Memory Scale ➢ Selective Reminding Test **Results:** For Participant 1, little change was seen on the immediate task, but a trend for improved correct responding and decreased incorrect responding on the delayed task was evident (no statistical analysis was conducted). When treatment was withdrawn, responding was similar to the initial baseline phase. For Participant 2, improvements were seen on all measures during the treatment phase compared to baseline phases (no statistical analysis conducted)	**Aim:** To improve memory functioning by combining drug treatment with a memory training programme. **Materials:** oral physostigmine and reading materials from the daily paper. **Treatment Plan:** ➢ **Duration:** Total time not stated. ➢ **Procedure:** 26 sessions in total, over 16 weeks ➢ **Content:** - *Participant 1*: Memory training included teaching the participant a study skills method using a self-instruction model: 1. the study skill method was modelled for the patient 2. the patient was talked through the method 3. the patient was instructed in talking himself through the method aloud 4. the patient was instructed in covertly talking himself through the study skills method - *Participant 2:* a similar behaviourally-oriented approach was used, but the focus was on training orientation skills, given the greater severity of his condition.

Target Area: Memory Impairments

Crosson & Buenning (1984) *Journal of Clinical Neuropsychology* 6(3): 287-301	SCED score - *to be confirmed*
Method/Results	**Rehabilitation Program**
Design: ➢ **Study type:** SSD. Roughly conforms to an ABA style design with follow up (A=baseline recall before memory strategies introduced, B=memory intervention (staggered with 3 strategies introduced), A=recall performance immediately following treatment, follow up 9 months following the end of memory training) ➢ **Participant:** A 32 year old well educated male, who suffered a TBI 2.5 months earlier. Neuropsychological testing revealed verbal memory deficits, together with some motor impairment. Problem-solving skills were well maintained. ➢ **Setting:** Outpatient rehabilitation. **Target behaviour measure/s:** ➢ Number of ideas recalled from paragraphs of verbal information. **Primary outcome measure/s:** ➢ Wechsler Memory Scale. **Result**: The patient progressed from demonstrating a severe impairment in recall to falling within normal limits on the WMS Logical Memory subtest. Examining the results for magazine paragraph recall, significant improvements were observed during the memory program compared to baseline performance. The mnemonic strategy was significantly more effective than the no strategy condition, and when compared with he feedback and concentration strategy. Similarly, the feedback strategy was more effective than the no strategy condition, and when compared with he feedback and concentration strategy. At 9 months post intervention the patient was no longer using the strategies, and a drop in memory performance was observed.	**Aim:** To improve recall of written information. **Materials:** High information paragraphs (23-58 ideas per paragraph) from current magazines (e.g. Time, Consumer Reports, National Geographic). **Treatment plan** ➢ **Duration:** 15 days (session length not specified, although minimal time involvement for the clinician). ➢ **Procedure:** Daily sessions at home with a friend for15 days; weekly review with the clinician. ➢ **Content:** The selected paragraphs are each read aloud once to the patient, and the patient writes down all that he/she can recall. The number of paragraphs read per day increases over time, in line with the introduction of three strategies for recall. Initially one paragraph is read per day, with no strategies given, then two paragraphs are read - one with no strategy provided, and a second where the patient reviews his/her performance from the first paragraph and is then reminded to concentrate prior to the second paragraph being read. After a week, a third paragraph is read each day, and the patient is given a mnemonic technique to assist recall with this paragraph (e.g. visualizing the content, using bizarre images, chaining). On the 10th day, a fourth paragraph is introduced, where a pause in reading is provided after every sentence and the patient is encouraged to ask a question about the material heard, that will help in remembering it..

Target Area: Memory Impairments/ Behaviour Problems

McKinlay & Hickox (1988) ***Journal of Head Trauma Rehabilitation*** **3(4): 64-72**	**SCED score -** *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. AB (A=baseline, B=intervention), with follow-up two weeks and one month post treatment, replicated across participants. ➢ **Participants:** n=4, 75% male (M=48, 41 and 23), 25% female age 40 years, TBI, with PTA duration M=6.1(SD=5.6) weeks (range 1-12.9 weeks). ➢ **Setting:** Not stated. **Target behaviour measure/s** ➢ Frequency counts of memory failures (Participants 1 and 2). ➢ Frequency counts of temper outbursts (Participants 3 and 4). NB: neither of the target measures is specifically defined. **Primary outcome measure/s:** ➢ None. **Result**: Strong-to-modest reductions in target behaviours were evident after treatment. Treatment effect was sustained at two month follow-up for the participants in the Memory training programme. Maintenance of treatment effect was less evident in the Anger Management programme. Data was presented in the text but not statistically analysed.	**Aim:** To reduce the number of memory failures; to reduce the number of temper outbursts. **Materials:** Daily Diary, Daily Activity Schedule, pin-board (see paper for details). **Treatment plan** ➢ **Duration:** Memory training: 17-20 weeks, total number of contact hours not specified. Anger management: 29-19 weeks, total number of contact hours not specified. ➢ **Procedure:** Periodicity and duration of treatment sessions are not specified (data for Target Measures is reported on a weekly basis). ➢ **Content:** - *Memory training:* participants are trained to use several memory aids, such as a diary and to use the PQRST method for structuring information in order to facilitate recall (see paper for details). - *Anger management:* uses a behavioural approach to identify triggers for temper outbursts and develop alternate responses to these situations. Participants are also provided with social skills and assertiveness training (see paper for details). Family members are used as co-therapists in both programmes.

Target Area: Memory Impairments

Crosson & Buenning (1984) *Journal of Clinical Neuropsychology* 6(3): 287-301	SCED score - *to be confirmed*
Method/Results	**Rehabilitation Program**
Design: ➢ **Study type:** SSD. Roughly conforms to an ABA style design with follow up (A=baseline recall before memory strategies introduced, B=memory intervention (staggered with 3 strategies introduced), A=recall performance immediately following treatment, follow up 9 months following the end of memory training) ➢ **Participant:** A 32 year old well educated male, who suffered a TBI 2.5 months earlier. Neuropsychological testing revealed verbal memory deficits, together with some motor impairment. Problem-solving skills were well maintained. ➢ **Setting:** Outpatient rehabilitation. **Target behaviour measure/s:** ➢ Number of ideas recalled from paragraphs of verbal information. **Primary outcome measure/s:** ➢ Wechsler Memory Scale. **Result**: The patient progressed from demonstrating a severe impairment in recall to falling within normal limits on the WMS Logical Memory subtest. Examining the results for magazine paragraph recall, significant improvements were observed during the memory program compared to baseline performance. The mnemonic strategy was significantly more effective than the no strategy condition, and when compared with he feedback and concentration strategy. Similarly, the feedback strategy was more effective than the no strategy condition, and when compared with he feedback and concentration strategy. At 9 months post intervention the patient was no longer using the strategies, and a drop in memory performance was observed.	**Aim:** To improve recall of written information. **Materials:** High information paragraphs (23-58 ideas per paragraph) from current magazines (e.g. Time, Consumer Reports, National Geographic). **Treatment plan** ➢ **Duration:** 15 days (session length not specified, although minimal time involvement for the clinician). ➢ **Procedure:** Daily sessions at home with a friend for15 days; weekly review with the clinician. ➢ **Content:** The selected paragraphs are each read aloud once to the patient, and the patient writes down all that he/she can recall. The number of paragraphs read per day increases over time, in line with the introduction of three strategies for recall. Initially one paragraph is read per day, with no strategies given, then two paragraphs are read - one with no strategy provided, and a second where the patient reviews his/her performance from the first paragraph and is then reminded to concentrate prior to the second paragraph being read. After a week, a third paragraph is read each day, and the patient is given a mnemonic technique to assist recall with this paragraph (e.g. visualizing the content, using bizarre images, chaining). On the 10th day, a fourth paragraph is introduced, where a pause in reading is provided after every sentence and the patient is encouraged to ask a question about the material heard, that will help in remembering it..

Target Area: Memory Impairments

Clare & Wilson (2004) ***Zeitschrift fur Gerontopsychologie & Psychiatrie*** **17(2): 109-117**	**SCED score -** *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. Paper states "multiple-baseline-across-items-design", however the sequencing of implementation and withdrawal of each memory technique is unclear. From the information provided the design is at least an ABA with follow up where A=baseline before treatment, B=each of the 4 errorless learning memory techniques, A=follow up after one week, then at 1, 3, and 6 months post ➢ **Participant:** A female, age 73 years, with a diagnosis of probable early stage Alzheimers Disease. Her premorbid IQ is average. Current memory abilities are significantly impaired. ➢ **Setting:** Not stated. **Target behaviour measure/s:** ➢ Number of correctly named faces. **Primary outcome measure/s:** ➢ No additional measures. **Result**: Significant improvements in name-face learning were found using spaced retrieval, mnemonic elaboration, and cueing with increasing assistance methods. For each of these methods, some level of improvement was maintained at follow up. While some increase were observed under the cueing with decreasing assistance condition, these were not significant, and any learning gains were not maintained. The greatest improvements were observed under the mnemonic condition (from 20% correct at baseline to 83% correct at post-intervention), although statistical comparisons between conditions were not reported on.	**Aim:** To improve memory for naming familiar faces using errorless learning techniques. **Materials:** Photos of familiar faces that the patient has difficulty naming (in this case 16 stimuli from the Famous Faces Test); Sheets of paper with increasing/decreasing letters of the person's name; a method of timing intervals (e.g. stopwatch). **Treatment plan** ➢ **Duration:** 16 training sessions (one for each name). ➢ **Procedure:** Twice weekly sessions (time per session not stated by appears to be >20 minutes). ➢ **Content:** All techniques begin by familiarizing the patient with written and spoken details of the name given. Patient is instructed not to guess, but only answer when the name is known. After the training trials, 10-mins of conversation follows, then 5 test trials are administered: - *Spaced retrieval*: name is tested gradually over increasing intervals of 30s, 1 min, 2 min, 5 min, 10 min. - *Mnemonic elaboration:* 5 training trials at 1 minute intervals. The patient and therapist generate a mnemonic (a verbal label linking the appearance of the individual with a sound of the initial letter of their name) which is repeated and rehearsed until clearly established. - *Cueing with increasing assistance* 5 training trials at 1 min intervals. A sheet is provided that shows the first name, but has blanks for the letters of the surname. Letters are added one at a time until the patient is able to complete the name, then a new sheets are given, removing letters one at a time, as for vanishing cues method. - *Cueing with decreasing assistance* 5 training trials at 1 min intervals. A sheet is given with the full name minus the last letter of the surname, then a sheet with the full name minus the last 2 letters and so on, until only the first name is given.

Target Area: Memory Impairments

Arkin (1992) ***Clinical Gerontologist*** **12(2): 77-96**	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. A1-B1-A2-B2-A3, with replication across participants. ➢ **Participants:** Two females patients, age 76 years, with early stage Alzheimer's disease. ➢ **Setting:** Not stated. **Target behaviour measure/s:** ➢ None. **Primary outcome measure/s:** ➢ Percent correct responses at post-treatment testing (A3) to questions that had never been answered correctly on baseline testing (A1) and had been rehearsed during intervention phases (B1 and B2). ➢ Percent correct responses at post-treatment testing (A3) to questions that had never been answered correctly on baseline testing (A1) and had not been rehearsed during intervention phases (B1 and B2). **Result**: Percentage of correct responses improved markedly after treatment in both participants and was maintained at one and two week follow-up.	**Aim:** To enhance recall of autobiographical and personally relevant information the participant had forgotten by means of interactive rehearsal of the information. **Materials:** Audio cassette recorder, video camera. **Treatment plan/procedure** ➢ **Duration:** Six consecutive days, 4.4 to 10.4 hours. ➢ **Procedure:** 2-4 training sessions per day, 22-26 minutes duration per session. Follow-up at one and two weeks after end of training. Initial & final treatment trials (A1 and A3) videotaped. ➢ **Content:** Information about participant's current and past personal history obtained from family member to formulate pool of questions. Participants tested by phone on all questions on three consecutive days. Questions categorized into 4 groups according to whether they had been answered correctly 3 times, 2 times, 1 time or 'never'. Questions from each of these four groups were randomly assigned to phases B1 or B2. Questions from the 'never' category allocated to phases B12 and B2 were randomly allocated to be used as items in the intervention (ie, be the participant of training) or not to be used be used in the intervention (ie, be control items not participant to training). Items used for the intervention were thematically grouped and compiled into a brief 3-part narrative. Each part of the narrative had 2-3 topic areas and included 4-8 pieces of information. Facts that that the participant would be subsequently tested on (ie, 'salient items') were repeated twice during the narrative. Participants were tested for knowledge of 'salient items at the end of each part of the narrative. A 'self-efficacy' pep-talk and a deep-breathing relaxation exercise were presented at the commencement of each training session and the first testing session.

 Note that these rehabilitation summaries reflect the current literature and the treatments are not necessarily endorsed by members of the PsycBITE™ Team

Target Area: Memory Impairments

Raskin & Sohlberg (1996) ***Journal of Head Trauma Rehabilitation*** **11(3): 32-49**	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. ABAB variant, with replication across participants. ➢ **Participants:** Two males (age 25 and 27 years) slightly over one year post TBI. Prospective memory ability less than 10 minutes. ➢ **Setting:** Outpatient neuropsychology clinic. **Target behaviour measure/s:** ➢ Performance accuracy on Prospective Memory Screening (PROMS) test. **Primary outcome measure/s:** ➢ Rivermead Behavioural Memory Test. ➢ PASAT. ➢ Attention Process Test. ➢ Tower of Hanoi. ➢ California Verbal Learning Test. **Result**: Treatment improves performance on the PROMS and there is some evidence that there is generalization to everyday tasks. Data was graphically presented but not statistically analysed.	**Aim:** To improve performance accuracy on the Prospective Memory Screening (PROMS) test. **Materials:** None. **Treatment plan:** ➢ **Duration:** Not clearly specified. ➢ **Procedure:** Phases A and B represent active treatment phases (A=treatment that will influence Target Variable; B=treatment that will not influence Target variable). Up to two sessions per week are given in phase A (number of sessions per week in phase B not specified) Target variable measured prior to first A phase (5 times), once between each phase, and once after the second B phase. ➢ **Content:** – Phase A consisted of training on prospective memory tasks – Phase B consisted of training on retrospective memory tasks (see paper for details).

Target Area: Memory Impairments

Lekeu, Wojtasik, Van der Linden & Salmon (2002) *Acta Neurologica Belgica* 102(3): 114-121	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. ABA (A=baseline/withdrawal, B=intervention) ➢ **Participants:** 2 patients with mild Alzheimer's disease: 1. Participant 1: Female, age 58 years 2. Participant 2: Male, age 82 years ➢ **Setting:** Cognitive rehabilitation centre. **Target behaviours:** ➢ Correct responses (stages realized). ➢ Blockages (stages where did not know what to do) in making a telephone call from a mobile phone. **Primary outcome measure/s:** ➢ Attainment of 100% correct responses (ie., successfully make a call) without cueing on two consecutive sessions. **Secondary outcome measure/s:** ➢ None. **Result**: Training enabled both patients to make calls correctly and reduce the frequency with which they had to consult an instruction card.	**Aim:** Teach patients how to use their own mobile phone in order to call somebody. **Materials:** Mobile phone, instruction card. **Treatment plan/procedure** ➢ **Duration:** Three months, 45-minute session per day, 1-2 times per week ➢ **Procedure:** Each training sessions consists of two stages: – *Stage 1*: Spaced-retrieval method used to train patients to turn phone over in order to look at instruction card pasted on back of phone. – *Stage 2*: Numerous practices at making a call using errorless learning techniques. ➢ **Content:** Instruction card illustrating the different steps required to make a phone call.

Target Area: Communication, Language, Speech Disorders

Togher, McDonald, Code and Grant (2004) *Aphasiology* 18(4): 313-335	**PEDro score** – 7/10
Method/Results	Rehabilitation Program
Design ➢ **Study type:** RCT. ➢ **Population:** n=20 male police officers who interact with people with severe TBI. ➢ **Groups:** 1. Conversational skills training group. 2. Control group who received weapons training at the same time. ➢ **Setting:** Training was carried out at the NSW Police Academy and telephone calls were completed with people with TBI living in the community. **Primary outcome measure/s:** ➢ Discourse analysis measures including the number of moves (units of meaning) in each interaction. ➢ Number of moves within each structural element of a service encounter interaction (e.g. Greeting, Service Initiation, Service Request, Service Compliance, Closing remarks, Goodbye). **Secondary outcome measures:** ➢ Duration of phone calls. **Result:** Communication training was effective in a trained group of police officers compared with a control group.	**Aim:** To improve the communication of police officers during service encounters with people with TBI. **Materials:** Communication training package. **Treatment plan/procedure** ➢ **Duration:** 6 weeks. ➢ **Procedure:** Once a week for 2 hours. ➢ **Content:** Training program consisted of 1. What is a TBI? 2. Communication in context. 3. Structure of telephone inquiries. 4. Specific techniques to close telephone inquiries, question asking strategies. 5. Practice with people with TBI during interviews. 6. Role plays using newly learned strategies.

Target Area: Communication, Language, Speech Disorders

Kagan, Black, Duchan, Simmons-Mackie and Square (2001) ***Journal of Speech, Language and Hearing Research*** **44(3): 624-638**	**PEDro score** – 6/10
Method/Results	Rehabilitation Program
Design ➢ **Study type**: RCT. ➢ **Population:** n=40 volunteers (87% female, 75% less than age 30 years). They interacted with 40 participants with aphasia who were predominantly male (63%) with a mean age of 70 years (SD=11). ➢ **Groups:** 1. Trained volunteers. 2. Untrained volunteers. ➢ **Setting:** Community-based aphasia centre. **Primary outcome measure/s:** ➢ Measure of Skill in Providing Supported Conversation for Adults with Aphasia [(M)SCA]. **Secondary outcome measure/s:** ➢ Measure of Participation in Conversation for Adults with Aphasia [(M)PCA]. **Result**: Trained volunteers scored significantly higher than untrained volunteers on ratings of acknowledging competence and revealing competence of their partners with aphasia. There was also a positive change in ratings of social and message exchange skills of people with aphasia, even though the individuals did not participate in the training.	**Aim:** To evaluate a training program entitled "Supported Conversation for Adults with Aphasia (SCA)" which involves volunteers interacting with individuals with chronic aphasia. The study tested whether training improves the conversational skills of volunteer, and if so, whether the improvements affect the communication of their conversation partners with aphasia. **Materials:** Measurement of communication was completed using the (M)SCA and the (M)PCA. Treatment materials included the SCA treatment protocol, which includes pictographic resources. **Treatment plan/procedure** ➢ **Duration:** The workshop was one day in length for the volunteers, and followed by a 1.5 hour hands-on session within a 2 week period. ➢ **Procedure:** The workshop included a conceptual/motivational module (1.25 hours), a technical module (2 hours), an integrative role play (1.5 hours) and an evaluation exercise (0.5 hour). ➢ **Content:** In the training, the technical section focused on acknowledging competence of the person with aphasia (e.g., keeping the talk as natural as possible). The section on revealing competence included 3 areas: 1. Ensuring the person with aphasia understands what is being communicated. 2. Ensuring the person with aphasia is given the opportunity to express what he or she knows, thinks or feels. 3. Verifying to ensure that the conversation is on-track from the perspective of the person with aphasia.

Target Area: Communication, Language, Speech Disorders

Katz & Wertz (1997) ***Journal of Speech, Language and Hearing Research*** **44(3): 624-638**	**PEDro score** – 6/10
Method/Results	Rehabilitation Program
Design ➢ **Study type**: RCT. ➢ **Population:** 55 people with aphasia (80% male, M=61.6-66.4 years) randomly allocated to one of three groups. ➢ **Groups:** 1. Computer reading group. 2. Computer stimulation group. 3. No-treatment group. ➢ **Setting:** Inpatient rehabilitation / Community setting. **Primary outcome measure/s:** ➢ Porch Index of Communicative Abilities (PICA). **Secondary outcome measure/s:** ➢ Western Aphasia Battery. **Result**: Significant improvement over the 26 weeks occurred on five language measures for the computer reading treatment group and on one language measure for the computer stimulation group, and on none of the language measures for the no-treatment group.	**Aim:** To examine the effects of computer provided reading activities on the language performance of people with chronic aphasia. **Materials:** Computer reading treatment software, which consisted of visual matching and reading comprehension tasks. Computer stimulation software (control condition) consisted of nonverbal games and cognitive rehabilitation tasks. **Treatment plan/procedure** ➢ **Duration:** 26 weeks. ➢ **Procedure:** 3 hours a week for 26 weeks. ➢ **Content:** The reading treatment software consisted of 32 activities divided into 232 sequentially arranged visual (matching and reading) tasks. Task structure and response requirements were consistent among tasks. All tasks used a standard, match-to-sample format that displayed two to five responses. Stimuli consisted of standard text characters (such as letters, numbers). There were 10 matching activities and 22 reading comprehension activities.

Target Area: Communication, Language, Speech Disorders

Denes, Perrazzolo, Piani & Piccione (1996) *Aphasiology* 10(4): 385-394	**PEDro score** - 6/10
Method/Results	Rehabilitation Program
Design ➢ **Study type**: RCT. ➢ **Population:** n=17 participants with global aphasia. ➢ **Groups:** Intensive treatment group (n=8, 62.5% male) and a regular treatment group (n=9, 67% male). ➢ **Setting:** Community setting. **Primary outcome measure/s:** ➢ Token Test (error score). ➢ Repetition. ➢ Written Language. ➢ Comprehension and profile level on the Aachen Aphasia Test. **Secondary outcome measure/s:** ➢ See primary outcome measures. **Result**: Both treated groups showed a significant improvement in all language modalities, with those in the intensive language treatment group having amore favourable outcome, including a tendency to evolve towards a more favourable type of aphasia.	**Aim:** To evaluate the effect of intensity of speech pathology intervention for people with global aphasia. **Materials:** Conversational treatment, retelling stories relating to the person's own experiences. **Treatment plan/procedure:** ➢ **Duration:** Regular treatment group had an average of 60 individual sessions (range 56-70) over a 6 month period; the intensive speech treatment had an average of 130 individual speech therapy sessions (range 94-160). ➢ **Procedure:** Each session was between 45 and 60 minutes and completed mostly on an outpatient basis. ➢ **Content:** Treatment approach was the same for both groups. It included a focus on restoring language in a conversational setting using all means at a patient's disposal such as speaking, gesturing, facial expression to stimulate conversation. The patient was taught about the different roles of speaker and listener. There was also a focus on comprehension in a conversational setting, using picture resources and working on comprehension of the meaning of a short story.

Target Area: Communication, Language, Speech Disorders

Ousett, Viallard, Puel, Celsis, Demonet and Cardebat (2002) ***Brain and Language*** **80(1): 14-20**	**PEDro score** – 5/10
Method/Results	Rehabilitation Program
Design ➢ **Study type**: RCT. ➢ **Population:** 8 anomic mild patients associated with probable mild Alzheimer's Disease matched with a control group of 8 participants matched according to MMSE scores and severity of anomia. ➢ **Groups:** 1. Treatment group: Lexical therapy group (62.5% male, M=67.7 ±12.9 years) 2. Control group who completed an occupational program (37.5% male, M=73.8 ± 7.5 years). ➢ **Setting:** Not stated. **Primary outcome measure/s:** ➢ Naming hits in picture naming of 120 nouns. **Secondary outcome measure/s:** ➢ Naming errors including the absence of production, semantic errors, and perceptual errors. **Result**: The Lexical Therapy group benefited significantly from the language therapy as shown by improvements in naming post treatment. There was no significant generalization to untreated items.	**Aim:** To examine the effect of lexical therapy compared to an occupational program (control condition) on the naming performance when naming black and white line drawings. **Materials:** A naming test which included 40 nouns that were reinforced both semantically and episodically during lexical therapy, 40 nouns that were reinforced only episodically and 40 nouns that were not treated during the program that included pottery, drawings and conversations during the same time and at the same rate for the control group. Treatment required the use of 8 written narratives which were texts presented on a computer screen. **Treatment plan/procedure** ➢ **Duration:** 5 months. ➢ **Procedure:** Each session lasted 45 minutes. The complete set of 8 narratives and definitions was presented twice to the participants according to the following schedule: 8 sessions (one session per week and one narrative per session); 2 weeks off; 8 sessions (one session per week and one narrative per session). ➢ **Content:** The lexical therapy protocol consisted of a sequence of 8 written narratives presented on a computer screen. The texts were read aloud by the participant and then by the examiner. After reading the test the participant was instructed to produce the lexical item corresponding to a definition that appeared on the computer screen. Twenty definitions were randomly presented in each session corresponding to the items in the naming test. In the case of no production or an erroneous response, a cue was randomly proposed by the computer program. Five cues were available including 3 linguistic cues (semantic category of the target item, the first syllable delivered verbally by the computer and the first grapheme; and 2 structural cues (the colour drawing and the specific sound (if any) associated with the item.

Target Area: Communication, Language, Speech Disorders

Pulvermuller, Neininger, Elbert, Mohr, Rockstroh, Koebbel & Taub (2001) ***Journal of Head Trauma Rehabilitation*** **32(7): 1621-1626**	**PEDro score** - 5/10
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** RCT. ➢ **Population**: n=17 adult, 71 % male, M=39-72 years, severity-mild to severe aphasia, aetiology - CVA. ➢ **Groups:** 1. Conventional language therapy (CL). 2. Constrain induced (CI) therapy. ➢ **Settings:** Not stated. **Primary outcome measure/s:** ➢ Aachen Aphasia Battery (AAB). ➢ Communicative Activity Log (CAL). **Secondary outcome measure/s:** ➢ None. **Result**: CI group showed significant improvement over time on the CAL and on 3 out of 4 subtests of the AAB, but the CL group only showed improvement on 1 subtest of the AAB.	**Aim:** To improve communication skills of aphasic patients. **Materials:** 32 picture cards (2 identical sets of 16 pictures). **Treatment plan:** ➢ **Duration:** CL-3-5 weeks (20-54 hours); CI-10 days (23-33 hours) ➢ **Procedure:** CL-session details not described; CI - 1 session/day for 3-4 hours. ➢ **Content** - *CL*: standard approach using exercises for naming, repetition, sentence completion etc. - *CI*: picture card game - played in small groups (2-3). Players given a set of picture cards, each player has to pick a card and then ask another player if they have the card with the same picture on it. Constraints were used to push participants to use verbal language. Constraints were along three dimensions: 1. Difficulty of the material. 2. Shaping and rules of the game. 3. Reinforcement contingencies imposed.

Target Area: Communication, Language, Speech Disorders

Friedman and Tappen (1991) ***Journal of the American Geriatric Society*** **39(7): 650-654**	**PEDro score** – 5/10
Method/Results	Rehabilitation Program
Design: ➢ **Study type**: RCT. ➢ **Population:** n=30 people with probable Alzheimer's Disease. ➢ **Groups:** 1. Walking. 2. Non walking. ➢ **Setting:** Nursing home. **Primary outcome measure/s:** ➢ The Communication Observation Scale (COS) developed to measure verbal and non-verbal communication in the cognitively impaired population. **Secondary outcome measure/s:** ➢ The Communication Assessment for the Cognitively Impaired Scale (CAS). **Result**: Communication performance improved significantly in the planned walking group over the conversation only group.	**Aim:** To evaluate whether a walking program would facilitate communication in people with probably Alzheimer's disease. **Materials:** Topics for discussion during walking and during conversation condition with the control group were determined in collaboration with the participants' families. **Treatment plan/procedure** ➢ **Duration:** Therapy lasted for 10 weeks. ➢ **Procedure:** Each session was 30 minutes and occurred 3 times a week. ➢ **Content:** ▪ Participants in the walking group were walked individually for 30 minutes, 3 times a week for 10 weeks. During the walk conversation consisted of topics that had had relevance for the participants at some point in their lives. ▪ The control group engaged in conversation for a similar amount of time each week in the same location as the planned walking intervention, however they were not walked.

Target Area: Communication, Language, Speech Disorders

Baumgartner, Sapir & Ramig (2001) *Journal of Voice* 15(1): 105-114	**PEDro score** – 5/10
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** RCT. ➢ **Population:** n=20 with Parkinson's Disease with moderate breathiness and hoarseness prior to treatment. ➢ **Groups:** 1. LSVT group (n=13, 85% male). 2. RET group (n=7, 71% male). ➢ **Setting:** Not stated. **Primary outcome measure/s:** ➢ Perceptual ratings of breathiness and hoarseness of a voice sample of the "Rainbow Passage". **Secondary outcome measure/s:** ➢ None. **Result:** Hoarseness and breathiness were improved following LSVT when compared to RET.	**Aim:** To improve breathiness and hoarseness voice quality characteristics using the Lee Silverman Voice Treatment (LSVT) and compare these to Respiratory Treatment alone outcomes. **Materials:** LSVT treatment program, RET program. **Treatment plan/procedure** ➢ **Duration:** 4 weeks. ➢ **Procedure:** Four 1 hour sessions per week. ➢ **Content:** ▪ *LSVT program:* Targets increased vocal effort to increase loudness. The aim is to maximize phonatory efficiency by improving vocal fold adduction. This is done by extremity pushing tasks during phonation tasks, such as maximum prolongation of "ah" and maximum fundamental frequency drills. Participants are encouraged to "think loud" during sustained phonation tasks, reading and conversational speaking tasks. Particular attention is placed on reminding participants to take deep breaths "to be loud". ▪ *RET program:* Targets increased respiratory muscle activity to increase respiratory volumes. Tasks include maximum inspiration and expiration, maximum prolongation of the voiceless fricatives /s/ and /f/, visual feedback of rob cage and abdomen excursions using the Respigraph system. Participants are encouraged to "breathe" just prior to each of the sustained phonations and during pauses while reading or performing conversational speaking tasks.

Target Area: Communication, Language, Speech Disorders

Tappen, Williams, Barry & DiSesa (2001) ***Clinical Gerontologist*** **24(3/4): 63-75**	**PEDro score** – 5/10
Method/Results	Rehabilitation Program
Design: ➢ **Study type***:* RCT. ➢ **Population:** n=55 nursing home residents with Alzheimers Disease (AD), M=71-101 years, mean=87 years. Majority of participants were moderate to severely demented (MMSE mean=11). Information on gender is not provided. ➢ **Groups:** 1. Conversation-only (n=19). 2. Walking exercise-only (n=18) 3. Combined group (n=18). ➢ **Setting:** Long term care facilities. **Primary outcome measure/s:** Picture Description Test including measures for: Total number of words used, total units of information and conciseness. **Secondary outcome measure/s:** None. **Result**: The conversation treatment without exercise was found to be the most effective approach in improving communication performance. While the number of words used declined across all groups, with no significant differences observed, significant improvements in the number of information units provided was found for the conversation treatment group, compared with declines for the other groups. Similarly, for the conciseness of responses, a significant difference was found between the conversation treatment and the other treatments (where no significant differences occurred between walking and combined groups). Mean conciseness improved in the conversation treatment, but declined in both of the other groups.	**Aim:** To improve verbal communication in nursing home residents with AD. **Materials:** None specified. **Treatment plan:** ➢ **Duration:** 24 hrs over 16 weeks ➢ **Procedure:** 3 x 30 min sessions/week for 16 weeks. ➢ **Content:** - *Conversation treatment:* is based on recommendations made for treating newly aphasic individuals, together with facilitative techniques for individuals with AD. Techniques were used in normal conversation rather than drills or practice. Participants were engaged in topics of personal interest and about objects and events within the immediate environment, with open-ended questions follow-up questions to maintain conversation. Conversations were structured as a reminiscence session, and patients were not corrected if errors were made. Instead interveners were encouraged to support or ad to factual errors or change the participant if the individual expressed emotion or concerns. Interveners were instructed not to talk down to the individual. - *Walking exercise:* involved self-paced independent or assisted walking for 30 minutes if possible, with as many rests as needed. Participants were not engaged in conversation during the sessions, but intervenors would responds to participants' attempts to communicate if they arose. - *Combined treatment:* involved both treatments simultaneously. Participants were encouraged to walk for as much of the session as possible and were engaged in conversation for as much of the time as could be tolerated, using the same protocol as in the conversation-only treatment.

Target Area: Communication, Language, Speech Disorders

Youmans, Holland, Munoz & Bourgeois (2005) *Aphasiology* 19(3/4/5): 435-450	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type**: SSD. Multiple baseline across behaviours, replicated across participants ➢ **Participants:** n=2 people with non fluent aphasia 1. Participant 1: Female, ages 43 years [MN] 2. Participant 2: Male, aged 60 years [FG]). ➢ **Setting:** Attended the university. **Target behaviour measure/s:** ➢ Percent script correct ➢ Number of errors produced ➢ Speaking rate. **Primary outcome measure/s:** ➢ No additional. **Result**: All scripts were mastered and scripted speech productions were judged to have become more automatic based on naturalness and stability of speech, increased speaking rate, and relatively errorless production. Automatic script production also generalized to novel conversation partners and novel cues.	**Aim:** To evaluate the acquisition of personally relevant short scripts. **Materials:** Participants generated personally relevant topics. Three of these were selected for which a script was written. Scripts were limited to 3 or 4 short relatively simple sentences. **Treatment plan/procedure** ➢ **Duration:** 25 sessions for MN and 26 for FG. ➢ **Procedure:** Sessions were 30-45 minutes three times weekly. ➢ **Content:** Script training involved a cueing hierarchy to train new material: phrase repetition, choral reading of phrases with the clinician and then independent production. When the participant could produce the newly trained phrase independently at least 20 times, then the next script phrase was added to previously mastered portions of the script. Participants also practiced at home for 15 minutes per day using audio cassettes of the mastered scripts. Once a script was mastered, generalization training tool place, where monologues were practiced in conversational forms with different conversation partners.

Target Area: Communication, Language, Speech Disorders

Fink, Brecher & Schwartz (2002), *Aphasiology, 16(10/11),* 1061-1086.	**SCED score -** *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** Multiple baseline across behaviours, replicated across participants. 3 were treated under "clinician-guided" (CG) therapy, 3 under "partially self-guided" (PSG) therapy. Some group data provided. ➢ **Participants**: n = 6 chronic aphasic individuals with moderate to severe naming impairments post left hemisphere CVA 1. Participant 1: 54 year old male, CG group 2. Participant 2: 64 year old male, CG group 3. Participant 3: 60 year old male, CG group 4. Participant 4: 59 year old female, PSG group 5. Participant 5: 63 year old male, PSG group 6. Participant 6: 63 year old male, PSG group ➢ **Setting:** Clinical setting **Target behaviour measure/s:** ➢ Number of correctly named targets **Primary outcome measure/s:** ➢ 339-item picture naming test ➢ Philadelphia Repetition Test (PRT) ➢ Philadelphia Oral Reading Test (PORT) **Results:** All subjects demonstrated improvements in acquisition of target words during treatment phases, with acquisition of the first set of words being well-maintained during the withdrawal phase. Most effect sizes were medium to large. Effects were greater on average for the CG group than the PSG group. On the PRT and PORT, scores were generally higher after training (with statistically significant gains for some participants)	**Aim:** To improve naming for chronically aphasic individuals with moderate-to-severe phonologically based impairment using a computerised cued-naming protocol. **Materials:** Computer, and Cued Naming Module from the software program MossTalk Words **Treatment Plan:** ➢ **Duration:** Up to 4 weeks (9 hours). ➢ **Procedure:** 3 weekly sessions (for CG the clinician is present at all 3; for PSG the clinician is present for only 1). Session length varied according to need, but typically 30-45 mins. Program length varied according to success, up to a maximum of 12 sessions ➢ **Content:** A 50 item customised naming list was created for each participant based on performance on a picture naming test. During baseline, participants named the 50 pictures without feedback. In treatment phase 1, 20 of these items were treated while a second set of 20 served as a control. In treatment phase 2, the second set was treated while treatment was withdrawn for the first set. Treatment involved the use of an individual cueing hierarchy, with cues presented up and down the hierarchy on each trial. The participant attempts to name the picture, if unsuccessful after 20 seconds a low powered cue is provided, followed by a more powerful cue until the word is produced correctly. Cues types included initial phoneme, sentence completion, and whole word, presented either in spoken or written form. Once correct, the participant repeats the word, and the cue hierarchy is reversed. Two conditions of instruction were used: - *Clinician- guided*: clinician guides patient through each session, selecting the cue, contributing feedback and encouraging self-cueing strategies - *Partially-Self-Guided*: patient works with clinician only once a week, at which point modality and entry point of cueing is established. Then patient works independently.

 Note that these rehabilitation summaries reflect the current literature and the treatments are not necessarily endorsed by members of the PsycBITE™ Team

Target Area: Communication, Language, Speech Disorders / Cognitive Deficits

Greenwald, Raymer, Richardson and Rothi (1995) *Neuropsychological Rehabilitation* 5(1/2): 17-49	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** Multiple Baseline across behaviours, replicated across participants. ➢ **Participants:** 1. Participant 1: male, age 66 years, 6 months post CVA with severe naming impairments. 2. Participant 2: female, age 71 years, 8 months post CVA, with severe naming impairments. ➢ **Settings:** None stated. **Target behaviour measure/s:** ➢ Percentage correct oral picture naming. **Primary outcome measure/s:** ➢ None. **Results:** Both participants showed improved oral naming during treatment to trained word sets and to a lesser extent this generalised to untrained lists.	**Aim:** To improve oral picture naming. **Materials:** 40 stimulus nouns (trained and untrained sets). **Treatment Plan:** ➢ **Duration:** ~18-20 treatment sessions for both sets of trained lists (27-40 hours). ➢ **Procedure:** Twice daily sessions of 45-60 minutes duration. ➢ **Content:** - Main program-oral naming to auditory definition – participants were trained to orally name an object after having been given an auditory definition. If incorrect, participants were given immediate feedback using a phonological cueing hierarchy. 1. Can you say the first sound? (if wrong give sound). 2. Can you say the first two sounds together (if wrong give sounds). 3. If wrong name – name given and participant repeats name. 4. Definition given again and asked to name word. 5. If still incorrect – therapist gives name. - Participant 1 trained first on list 1, then list 2. Participant 2- trained on list 2 then list 1. - Two other programs described in article.

Target Area: Communication, Language, Speech Disorders / Reading, Writing & Arithmetic

Kiran & Thompson (2003) *Journal of Speech, Language and Hearing Research*, 46(3): 608-622	SCED score – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type**: SSD. Multiple baseline across behaviours, replicated across participants. ➢ **Participants:** n=4 people with fluent aphasia (25% male, M=63-75 years). ➢ **Setting:** University speech and language clinic. **Target behaviour measure/s:** ➢ Naming of typical and atypical items within semantic categories. **Primary outcome measure/s:** ➢ Response to naming pictures of birds and vegetables. **Result**: Training on atypical exemplars resulted in generalization to naming of intermediate and typical items.	**Aim:** To evaluate acquisition of trained items and generalization to untrained items within and across word categories. **Materials:** 48 confrontation naming pictures from 2 categories: birds and vegetables and three distracter categories with 12 examples in each. **Treatment plan/procedure** ➢ **Duration:** Treatment was discontinued when naming accuracy of 7 of 8 items was observed for 2 consecutive sessions or when a total of 20 treatment sessions (10 probe sessions) was completed. ➢ **Procedure:** Once a day for 2 hours twice a week. ➢ **Content:** Participants performed the following steps for each of the 8 examples of the subset: 1. Naming the picture. 2. Sorting pictures by category. 3. Identifying semantic attributes applicable to the target example from a set of category features. 4. Answering yes/no questions pertaining to the semantic features of the target item.

Target Area: Communication, Language, Speech Disorders

Thompson, Shapiro, Ballard, Jacobs, Schneider & Tait (1997) ***Journal of Speech, Language and Hearing Research*** **40(2): 228-444**	**SCED score –** *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type**: SSD. Multiple baseline across behaviours, replicated across participants. ➢ **Participants:** n=2 agrammatic aphasic male participants (ages not given). ➢ **Setting:** Not stated. **Target behaviour measure/s:** ➢ Percent correct noun phrase movement structures during sentence production ➢ Percent correct wh-movement structures during sentence production. **Primary outcome measure/s:** No additional **Result**: Generalisation patterns were constrained to the type of movement: training of wh-movement structures resulted in generalized production of untrained wh-movement structures without influencing production of noun phrase movement structures. Aspects of sentence production in narrative contexts were also improved in treatment.	**Aim:** To establish the efficacy of sentence production training for agrammatic aphasic individuals **Materials:** Using 15 sets of transitive verbs, 15 active sentences of the form noun phrase-verb-noun phrase were developed; All sentences were semantically reversible and used animate nouns. Nouns and verbs were no more than 2 syllables in length. Picture stimuli using black and white line drawings were used. An additional set of stimuli were developed to present the constituent grammatical elements in written form (font =18). **Treatment plan/procedure** ➢ **Duration:** S1 received a total of 42 treatment sessions (21 weeks) and S2 received 36 sessions (18 weeks) ➢ **Procedure:** There were 2 sessions weekly. ➢ **Content:** Four sentence types were treated in this study; Wh-questions, Object-cleft sentences, passive sentences and participant raising sentences. Following baseline of all sentence types, one sentence type, relying on either noun phrase or wh-movement was trained. The generalized production of wh-questions was trained, followed by participant raising structures and passive sentences. The order of the training was counterbalanced for S2. Participants were taken through the steps that emphasized the lexical and syntactical properties of the active declarative form of target sentences. Participants were taught to: 1. Point to the verb in each sentence and to the noun phrases representing the thematic roles of the verb. 2. Move the proper sentence constituents to form the target sentence structure. 3. Produce the surface form of the targeted sentence type.

Target Area: Communication, Language, Speech Disorders

Kiran, Thompson & Hashimoto (2001) *Aphasiology* 15(9): 855-876	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. Multiple baseline across participants. ➢ **Participants:** n=2 participants (males) with severe oral reading and naming deficits; M=62-67 years. ➢ **Setting:** Community setting, attending clinic. **Target behaviour measure/s**: ➢ Responses to the probes of the 20 items (10 trained and 10 untrained) were tested on oral reading, oral naming, written naming and writing to dictation oral naming. **Primary outcome measure/s:** ➢ No additional. **Result:** Participants successfully acquired trained reading targets and generalized to untrained reading items, oral and written naming of trained items, and writing to dictation of trained and untrained items.	**Aim:** To develop a model based treatment arising from the cognitive neuropsychological model of language processing to improve severe oral reading and naming deficits and focusing on maximizing generalization. **Materials:** 20 items in each of the following modalities: oral naming, written naming, writing to dictation and oral reading. **Treatment plan/procedure** ➢ **Duration:** 36 treatment session for the first participant and 30 for the second participant. ➢ **Procedure:** Once a day for 1 hour twice a week. ➢ **Content:** Treatment steps for each word included: 1. Oral reading of the word. 2. Repetition of the word. 3. Oral spelling of the word. 4. Selection of the letters of the target word from distractors. 5. Identification of target word letters presented randomly. 6. Reading the letters of the target word.

Target Area: Communication, Language, Speech Disorders

Beeson, Rising & Volk (2003) ***Journal of Speech, Language and Hearing Research*** **46(5): 1038-1060**	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type**: SSD. Multiple baseline across behaviours, replicated across participants. ➢ **Participants:** n=8 individuals with severe aphasia (62.5% males, M=64-78 years). ➢ **Setting:** Not stated. **Target behaviour measure/s:** ➢ Number of words spelled correctly. **Primary outcome measure/s:** ➢ Selected sub-tests of the PALPA (Written Lexical Decision, Word-to-Picture, Verbal Repetition, Picture Naming, Writing to Dictation) Pyramids and Palms Test. ➢ WAB Aphasia Quotient. ➢ Direct copy of words, writing of Lower Case letters as Upper Case letters, writing of Upper Case letters as Lower Case letters. **Result**: At the study's completion, all of the participant's productions of the target words were very intelligible. There was an overall maintenance probe accuracy of 78.2%, approximating the correct productions of the target words outside the clinic. Treatment effect very good improvement in spelling of trained words for four participants, with effect sustained for up to three months after cessation of intervention. Modest improvement in three participants; no improvement in one participant. Some evidence that spelling improved for non-trained words (generalization). The f statistic calculated to determine treatment effect size	**Aim:** To evaluate the application of copy and recall treatment (CART). **Materials**: 20 picturable words chosen with input from family members, ranging in length from 2 to 9 letters with an average word length between 4.2 and 5.5 letters. To represent each word a line drawing or photograph was obtained or created and affixed to an index card. Word lists were divided into four sets of target words with 5 words in each set. **Treatment plan/procedure** ➢ **Duration:** The participant received 4-5 months of treatment. ➢ **Procedure:** Sessions were once weekly for one hour. ➢ **Content:** The CART protocol used repeated copying and recall trials for each target word. Each hour long session followed a similar format: The probes for trained and untrained sets were obtained, homework was reviewed to check for completeness and accuracy and training of the current word set using CART was implemented. Participants were given homework packs at the end of each treatment which involved the participant copying the target words 20 times each day on the lines provided then cover all written words and attempt to recall the speaking of target words.

Target Area: Communication, Language, Speech Disorders

Wambaugh, Linebaugh, Doyle, Martinez, Kalinyak-Flizsar & Spencer (2001) ***Aphasiology*** **15(10-11): 933-950**	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type**: SSD. Multiple baseline across behaviours, replicated across participants. ➢ **Participant:** n=3 males with aphasia (M=55-71 years). ➢ **Setting:** Not stated. **Target behaviour measure/s:** ➢ Percentage of pictures named correctly. **Primary outcome measure/s:** ➢ No additional. **Result**: All participants showed a positive response to both types of cueing hierarchies (i.e. semantic cueing and phonologic cueing) and one participant who had a predominantly phonological level deficits responded in a superior way to the semantic treatment.	**Aim:** To compare two cueing treatments for naming deficits following aphasia. **Materials:** Four sets of pictures of line drawings of objects consisting of 12 items each plus the cueing hierarchies. **Treatment plan/procedure** ➢ **Duration:** The program extended for 100 sessions for Participant 1, 86 sessions for participant 2 and 90 sessions for participant 3. ➢ **Procedure:** Sessions were three times weekly. ➢ **Content:** Both treatments used a response contingent cueing hierarchy. ▪ *Semantic cueing treatment* is designed to strengthen semantic associations ▪ *Phonological treatment* facilitates phonological processing.

Target Area: Communication, Language, Speech Disorders

Hopper, Holland & Rewega (2002) ***Aphasiology*** **16(7): 745-761**	**SCED score –** *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. Multiple baseline across participants ➢ **Participants**: 1. Couple 1: male, age 76 years, following CVA with Broca's aphasia (WAB=37.4), wife age 70 years. 2. Couple 2: male, age 41 years, following CVA with Broca's aphasia (WAB = 21.3), wife age 39 years. ➢ **Setting:** Not stated. **Target behaviour measure/s:** ➢ Percentage of main concepts successfully communicated. **Primary outcome measure/s:** ➢ Communication Activities of Daily Living-2 (CADL-2) tool and social validation measure. **Results** Variability in improvement of % of main concepts successfully communicated for both couples but there was a general trend towards improvement. Couple 1 showed improvement in CADL-2 but couple 2 did not.	**Aim:** To improve intra-couple communication via conversational coaching. **Materials:** Videotaped stories. **Treatment Plan:** ➢ **Duration:** 1 instructional session + 10 treatment session. ➢ **Procedure:** Not specified. ➢ **Content:** – *Baseline*: The partner with aphasia watched a video story and then had to discuss this with his partner – *Instructional session*: Couple and therapist watched a video-taped baseline session together. Therapist pointed out any facilitative strategies used by the couple and other strategies. Participants then selected their preferred strategies. – *Treatment sessions*: Partner with aphasia and therapist watched a video and then discussed this with their partner. The therapist intervened when communication broke down and coached the couple on using effective strategies.

Target Area: Communication, Language, Speech Disorders

Wambaugh, (2004) ***Journal of Medical Speech-Language Pathology*** **12(2): 77-97**	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type**: SSD. Multiple baseline across behaviours, replicated across participants. ➢ **Participants:** n =2 with apraxia and aphasia 1. Participant 1: Male, aged 54 years 2. Participant 2: Female, aged 48 years. ➢ **Setting:** Not stated. **Target behaviour measure/s:** ➢ Percent correct production of target sounds when reading words and phrases ➢ Percent correct production in sentence repetition and sentence completion. **Primary outcome measure/s:** ➢ No additional. **Result**: Treatment resulted in increased accuracy of production of treated sounds in trained words and untrained words. Response generalization to untrained exemplars of trained sounds was strong and mirrored acquisition effects. This showed that training a relatively few exemplars of a sound with sound production treatment may be sufficient for promoting generalized production of that sound in contexts similar to those used in training.	**Aim:** To evaluate stimulus generalization effects of sound production treatment. **Materials:** Treatment and probe stimuli were devised on an individual basis for each of the speakers. For speaker 1, 20 mono and bisyllabic words were chosen to represent both syllable-initial /v/ and syllable -initial /r/-blends. The 20 /v/ words were embedded as the second word of a semantically plausible phrase. The /r/-blends were not embedded in phrases and included a variety of blends. Ten items from each group were used in training and remaining items were never trained, but used to assess response generalization. For Speaker 2, 20 syllable final "sh", syllable initial /z/ and syllable final "th" words were embedded in two and three word phrases. All of the words were monosyllabic, with the exception of two, two syllable /z/ words. **Treatment plan/procedure** ➢ **Duration:** Treatment for speaker 1 extended for 50 sessions and for speaker 2, 32 sessions. ➢ **Procedure:** Sessions were three times weekly. ➢ **Content:** Treatment was designed to facilitate correct production of the specific sounds target for intervention. Treatment combined modeling, repetition, minimal pair contrast, integral stimulation (i.e., watch me, listen to me, say it with me), articulatory placement cuing and feedback. The treatment was applied in a response-contingent hierarchy. That is, subsequent steps of the hierarchy were utilized only on an incorrect response.

Target Area: Communication, Language, Speech Disorders

Coelho (1990) *Journal of Communication Disorders* 23(6): 383-400	SCED score – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type**: SSD. Multiple baseline across behaviours, replicated across participants. ➢ **Participants:** n=2 with moderate to severe non-fluent aphasia. 1. Participant 1: Male, aged 67 years 2. Participant 2: Female, aged 57 years ➢ **Setting:** Not stated. **Target behaviour measure/s:** ➢ Number of sign combinations and single signs produced during a picture description task. **Primary outcome measure/s:** ➢ No additional. **Result**: The participants rapidly acquired a vocabulary of single signs as well as nine sign combinations made up of these single signs. They were less proficient at producing the signs to describe pictured scenarios.	**Aim:** To evaluate a training program for teaching manual signs to facilitate communication. **Materials:** Eighteen single manual signs were presented for training, taken from either Amer-Ind or ASL. Signs were selected that represented various critical elements within each picture scenario such as agents (e.g., man, woman), actions (e.g., steal, scream) and objects (e.g., purse, TV, radio). **Treatment plan/procedure** ➢ **Duration:** Treatment for both speakers extended for 17 sessions. ➢ **Procedure:** There were 2 X 45 minute sessions weekly. ➢ **Content:** Training proceeded in three stages. The first stage was production of single signs, the second was production of sound combinations and the third was describing pictures using sign combinations previously acquired.

Target Area: Communication, Language, Speech Disorders

Beeson & Egnor (2006), *Journal of the International Neuropsychological Society, 12,* 816-827.	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. Multiple baseline across behaviours, replicated across participants ➢ **Participant**: 1. Participant 1: 60 year old male, 67 months post stroke, WAB quotient = 62.9 2. Participant 2: 72 year old female, 61 months post stroke, WAB quotient = 64.2 ➢ **Setting:** Either in participant's home or at university clinic **Target behaviour measure/s:** ➢ Number of words correctly named ➢ Number of words correctly written **Primary outcome measure/s:** Additional measures from the PALPA: ➢ Writing to dictation ➢ Written naming ➢ Repetition ➢ Oral naming **Results:** Participant 1 demonstrated improvement for the 3 sets of treated words and maintained improvement throughout the treatment phase. In response to CART + Repetition, his performance yield very large effect sizes in written and spoken naming. Effect size for Repetition only was large for spoken naming. Participant 2 demonstrated improvement for written naming for the 3 treated word sets, but did not reach criterion for spoken naming. Very large effect sizes occurred for written naming in response to CART + Repetition. Only small effect sizes were found for spoken naming (for either CART + Repetition or Repetition only). For both participants, little change was seen on untrained targets.	**Aim:** To improve spelling in combination with spoken naming in patients with acquired aphasia **Materials:** 40 common and proper nouns (including names of family members, friends, street names, common objects etc); augmentative/alternative communication (AAC) device including an array of 4.4 cm buttons with audio-recording. **Treatment Plan:** ➢ **Duration:** approx 20 hours ➢ **Procedure:** 2 sessions/week for 10 weeks. Session length not stated (although homework sessions of similar procedure were said to take 30-60 minutes) ➢ **Content:** In each session 40 words were probed at the beginning of the session, homework was reviewed, and 10 words were targeted for treatment (5 for CART + Repetition; 5 for Repetition Only treatment). 3 sets of words were treated in succession. - *CART + Repetition:* 20 targets presented for participant to orally name and then write the name. Participant was then cued to press button on the AAC device, repeat the spoken model, and attempt to write the target again. For target items being treated, corrective feedback was provided, with further opportunities to achieve correct spoken production, or write the stimulus correctly. Naming and writing tasks were completed 3 times for each target, followed by 3 recall trials. Homework involved a similar format. - *Repetition only*: as above but without the written production of the target items. After spoken repetition, the clinician engaged the participant in conversation for 30 seconds, and then recall was prompted. This sequence was completed 6 times for each item. Homework consisted of attempting to orally name targets, listening to the AAC recording and repeating the word. - Daily homework was given

Target Area: Communication, Language, Speech Disorders

Wambaugh, Kalinyak-Fliszar, West & Doyle (1998) *Journal of Speech, Language, and Hearing Research* **41(4): 725-743**	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. Multiple baseline across behaviours and participants. ➢ **Participants:** n=3 males with sound production difficulties post-CVA 1. Participant 1: age 53 years, 20 months post-onset, with a WAB score of 30. 2. Participant 2: age 52 years, 33 months post-onset, with a WAB score of 29.3. 3. Participant 3: age 63 years, 67 months post-onset, with a WAB score of 31.2. ➢ **Setting:** Quiet room. **Primary outcome measure/s:** ➢ Sound production. **Secondary outcome measure/s:** ➢ None. **Results:** All participants increased sound production accuracy to 90% on their first target sound; improvement was also seen on the subsequent targeted sounds and the generalisation sounds to varying degrees (no stats performed).	**Aim:** To increase correct production of targeted sounds. **Materials:** Audio tape recorder, relevant word lists. **Treatment Plan** ➢ **Duration:** Up to 45 sessions (~45 hours). ➢ **Procedure:** 15 sessions (45-60 minutes per session) for each of the three targeted sounds. ➢ **Content:** - Three target behaviours (three sounds) were chosen from pre-treatment assessments. Participants were trained on 10 words that contained the targeted sound, using traditional treatment methods and minimal contrast treatment. Minimal contrast pairs (pairs of morphemes that differed by only one sound segment) were used in a treatment hierarchy. - There are 5 steps in the treatment hierarchy-if the participants could repeat the sound correctly then the therapist moved onto the next sound. If not, the therapist would go through each step until the sounds was repeated correctly. - Step 1: Modelling-therapist says word pair and then participant must repeat. - Step 2: Modelling + Visual Cue/imitation-therapist says word pair whilst pointed to printed letters of the sounds and participant asked to repeat word pair. - Step 3: Integral Stimulation-therapist instructs participant to "Watch me, listen to me and say it with me". - Step 4: Modelling with silent juncture/imitation-therapist says separates the target sound from the rest of the word (r..ip). - Step 5: Articulatory Placement/Modelling-therapist provided verbal articulatory placement instructions to the participant and models sound.

Target Area: Communication, Language, Speech Disorders

Avent (1997) ***Journal of Medical Speech-Language Pathology*** **5(1):9-26**	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type**: SSD. Multiple baseline across behaviours, replicated across participants ➢ **Participants:** n=8 participants with aphasia (37.5% male, M=20-78 years). ➢ **Setting:** Not stated. **Target behaviour measure/s:** ➢ Number of words and number of content information units. **Primary outcome measure/s:** ➢ Ability to recall and retell a story. **Result**: Cooperative group treatment was effective in improving the content of narrative and procedural discourse in 3 aphasic participants, with the remaining participants showing slight improvement or no change. Greater change was noted in those with mildly impaired people who could produce about 20 or more appropriate content words or more per minute. No statistics were used.	**Aim:** To evaluate the application of Cooperative Group Treatment in small groups of people with aphasia. **Materials:** Ten procedural and 10 narrative paragraphs approx 100-120 words in length, plus a picture stimulus for each paragraph. These were divided into 4 sets – 2 treatment sets and 2 generalisation sets of five paragraphs each. **Treatment plan/procedure** ➢ **Duration:** Treatment extended for 17 to 18 sessions, including the baseline sessions. ➢ **Procedure:** Length of sessions is not stated. ➢ **Content:** The treatment sequence was as follows: 1. The clinician reads the story. 2. Clinician and participants review story and compile a list of 8-10 key words and phrases. 3. Recaller practices telling the story. When cueing is needed the facilitator provides specific cues. The clinician prompts as necessary. 4. Recaller practices telling the story in 1 minute and 5. 5. Facilitator and clinician provide feedback to the recaller to improve performance.

 Note that these rehabilitation summaries reflect the current literature and the treatments are not necessarily endorsed by members of the PsycBITE™ Team

Target Area: Communication, Language, Speech Disorders

Whitney & Goldstein (1989) ***Journal of Speech and Hearing Disorders*** **54(4): 576-586**	**SCED score –** *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. Multiple baseline across participants. ➢ **Participants:** n=3 males with mild aphasia post CVA, aged 61-65 years. ➢ **Setting:** Clinician's office. **Target behaviour measure/s:** ➢ Frequency of disfluencies in speech – (pauses, revisions or repetitions; the most frequent was chosen as the first target behaviour). **Primary outcome measure/s:** ➢ Boston Diagnostic Aphasia Examination (BDAE). **Results:** All participants showed decrease in target behaviours. For participant 1 and 2 this generalised to non-target behaviours. (No statistics performed).	**Aim:** To decrease disfluencies in speech. **Materials:** 40 colour Norman Rockwell posters; list of typical memorable experiences, counter, audio tape recorder. **Treatment Plan** ➢ **Duration:** Varied between participants ~20-30 sessions (10-22.5 hours. ➢ **Procedure:** 30-45 minute sessions of unspecified frequency. ➢ **Content:** The program involved 4 steps: 1. Therapist counted occurrences of target behaviours from 1 baseline session. 2. Participants listened audiotapes of another baseline session and were instructed to press a counter each time they heard a target behaviour. If they did not press the counter within 3secs they were given verbal feedback. Participants progressed to the next stage after 80% accuracy of monitoring on three consecutive sessions was met. 3. Participants were asked to self-monitor while describing Norman Rockwell posters. Therapists monitored also. Participants progressed to the next stage after 80% accuracy of monitoring on three consecutive sessions was met. 4. Independent self-monitoring – participants self-monitored without feedback or reinforcement from the therapist.

Target Area: Communication, Language, Speech Disorders

Wambaugh & Thompson (1989) ***Journal of Speech and Hearing Disorders*** **54(4): 509-525**	**SCED acore** – *to be confirmed*
Method/Results	Rehabilitation Program
Design ➢ **Study type:** SSD. Multiple baseline across behaviours and participants. ➢ **Participants:** n=4 Broca's aphasic participants, post-CVA. 1. Participant 1: male, age 59 years, 48 months post onset; WAB quotient = 61.2. 2. Participant 2: female, age 65 years, 156 months post-onset, WAB quotient = 51.0. 3. Participant 3: female, age 61 years, 20 months post-onset, WAB quotient = 55.8. 4. Participant 4: male, age 54 years, 27 months post-onset, WAB quotient = 47.9. ➢ **Setting:** Not stated. **Primary outcome measure/s**: ➢ Correct production of "what" and "where" questions. **Secondary outcome measure/s:** ➢ Generalisation measures (non-treated stimulus), prompted interviews and novel social dyads. **Results:** General improvement across behaviours and participants. Participant 1 & 4 improved to 60% for "what" questions and 80% for "where" items. Participant 2 & 3 improved to 80% accuracy in both "what" and "where" questions. Variable results for the generalisation measures.	**Aim:** To in increase correct use of "what" and "where" questions in participants speech. **Materials:** 40 story items; audiotape with task instructions; audiotape recorder. **Treatment Plan:** ➢ **Duration:** 30 sessions ➢ **Procedure:** 15 sessions for each behaviour of unspecified duration ➢ **Content:** - Modelling, forward chaining and response contingent verbal feedback were used. - Participants were presented with a story and had to complete the story with the correct "wh" question (what or where). If they are correct they are given positive verbal feedback. If not correct, then they are given a second chance, if still not correct then the therapist models with a forward chaining procedure (therapists says the correct response and the participant repeats this). - In each session 5 stories were presented in random order 5 times for a total of 25 trials per session. - Multiple baseline-one "wh" question type treated and then the other.

Target Area: Communication, Language, Speech Disorders / Reading, Writing & Arithmetic

Cherney (1995) ***Topics in Stroke Rehabilitation*** **2(1): 57-67**	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type**: SSD. Multiple baseline across behaviours, replicated across participants. ➢ **Participants:** n=2 people with chronic Broca's aphasia 1. Participant 1: Female, aged 25 years [CT] 2. Participant 2: Male, aged 42 years [PO] ➢ **Setting:** Not stated. **Target behaviour measure/s:** ➢ Correct responses per minute during oral reading of sentences. **Primary outcome measure/s:** ➢ Responses to oral reading probe of 10 randomly selected sentences from each of 3 groups of 30 sentences each. **Result**: For both participants there were increases in reading accuracy of oral reading of treated materials, with maintenance of performance following termination of treatment. However, generalization to oral reading of untreated material and other oral language tasks were evident only for the aphasic patient with severe apraxia of speech.	**Aim:** To evaluate the application of an oral reading treatment program. **Materials:** 90 sentences randomly divided into 3 groups. **Treatment plan/procedure** ➢ **Duration:** CT had between 35 and 40 sessions and PO had 36 sessions. ➢ **Procedure:** Sessions were 3 times per week. ➢ **Content:** The Oral Reading for Language in Aphasia (ORLA) treatment is based on a stimulation approach in which repetitive multimodality stimulation is presented to elicit a response. Sentences or paragraphs are read aloud first in unison with the clinician and then independently.

Target Area: Communication, Language, Speech Disorders

Wambaugh & Martinez (2000) *Aphasiology* 14(8): 851-871	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type**: SSD. Multiple baseline across behaviours. ➢ **Participants:** Participant 1: male, aged 38 years with mild to moderate apraxia of speech. ➢ **Setting:** Not stated. **Target behaviour measure/s:** Accuracy of consonant production: ➢ Percentage of words produced without any sound errors. ➢ Percentage of total consonants produced correctly in the correct position within the target word. **Primary outcome measure/s:** ➢ None. **Result**: Positive sound changes were noted for trained and untrained words.	**Aim:** To evaluate treatment of multisyllabic words using a combination of metronomic rate control and hand-tapping. **Materials:** 120 words were used, comprising 5 groups: 1. 40 three syllable words with primary stress on the first syllable. 2. 40 three syllable words with primary stress on the second syllable. 3. Group 3A – 10 three syllable words with primary stress on the third syllable. 4. Group 3B – 20 four syllable words. 5. Group 3C – 10 words beginning with clusters of 3 consonants. One half of the words were designated as treatment items and the remaining half were designated as response generalization items. **Treatment plan/procedure** ➢ **Duration:** Treatment for the participant extended for 26 sessions ➢ **Procedure:** Sessions were three times weekly of one hour in length. ➢ **Content:** Treatment was applied to 3 syllable words with primary stress on the first syllable while generalisation was measured to: 1. Untrained exemplars. 2. 3 syllable words with different stress patterns. 3. 4 syllable words. 4. s-blend words. During treatment, the speaker was trained to produce three syllable words in rhythm with a metronome and in conjunction with hand tapping.

Target Area: Communication, Language, Speech Disorders

Maas, Barlow, Robin & Shapiro (2002) *Aphasiology* 16(4-6): 609-622	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type**: SSD. Multiple baseline across behaviours, replicated across participants. ➢ **Participants:** n=2 patients: 1. JS, age 50 years, female with non fluent aphasia and moderate to severe apraxia of speech. 2. NP, age 69 years, female with mixed aphasia and moderate to severe apraxia of speech. ➢ **Setting:** Not stated **Target behaviour measure/s:** ➢ Percent correct on word and nonword repetition test. **Primary outcome measure/s:** ➢ No additional. **Result**: Training complex items is more effective than training single items for at least some patients.	**Aim:** To evaluate whether treatment of complex syllables is more effective than treatment of single syllables. **Materials:** Treatment word lists-20 monosyllabic singleton nonwords and 20 singleton complex nonwords, Generalization probes consisting of 20 simple and 20 complex real words and 10 complex and 10 simple nonwords. **Treatment plan/procedure** ➢ **Duration:** Treatment was complete when the entire set of 20 treatment items had been completed with clinician feedback and self generated feedback. ➢ **Procedure:** Not stated. ➢ **Content:** Treatment involved modeling, articulatory placement cues and reading. Clinician read target non-words out loud and asked the patient to repeat them. After each production feedback was provided. When successful, patients were asked to repeat the word several times, with a maximum of 5 reps per item. When it was incorrect, feedback was provided, clinician repeated the item and a 2nd attempt was made by the patient. After 5 sessions in each treatment phase, a variation was introduced where patients were asked to repeat targets once and then indicate whether this was correct or not.

Target Area: Communication, Language, Speech Disorders

Drew & Thompson (1999), *Journal of Speech, Language, and Hearing Research, 42(4),* 972-989.	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. Multiple baseline across behaviours and participants. ➢ **Participants**: n = 4 participants with severe picture-naming problems post-CVA. 1. Participant 1: 56 year old man, PALPA oral naming 8% correct 2. Participant 2: 59 year old woman, PALPA oral naming 22% correct 3. Participant 3: 51 year old man, PALPA oral naming 40% correct 4. Participant 4: 47 year old man, PALPA oral naming 17% correct ➢ **Setting:** Not stated **Target behaviour measure/s:** ➢ Percent correct naming of food or clothing items **Primary outcome measure/s:** ➢ Total errors (by error type) per phase **Results:** Improvements in both trained and untrained items were observed for 2 of the 4 participants. Improvements were seen in the remaining participants when treatment focused on the phonological form of the word. No statistical analysis was conducted on the percent correct naming. Analysis of the error types however, showed significant change in patterns for Participant 1 and 4 when comparing pre-treatment measures and post-additional measures.	**Aim:** To improve naming of nouns **Materials:** 60 4x6 inch cards with black and white drawings of nouns (30 of food, 30 of clothing; foil categories of animals and vehicles). 3x5 inch cards with category names printed in block capitals **Treatment Plan:** ➢ **Duration:** 40-45 sessions (time per session not specified) ➢ **Procedure:** 2 sessions per day, 2-3 times /week. Treatment discontinued when 40% or more improvement noted between baseline and treatment probes. Follow up at 9 weeks post intervention. ➢ **Content:** Semantic based treatment consisted of 3 parts: 1. a series of directed sorting tasks – participant sorts 45 pictures. Participants make decisions about targets in terms of structural, perceptual and functional characteristics, and sort according to how alike or different are the picture. Feedback on any errors was provided. 2. semantic judgement – questions relate to structural, perceptual or functional characteristics of the target items and are either yes/no (e.g. "Is it used to tell time?") or either/or (e.g. "is it worn indoors or outdoors?"). Errors were corrected verbally 3. definition-to-picture matching task – participant points to a target picture out of an array of five, following a definition read by the examiner. - no phonological information was made available - Where treatment was not effective, an additional semantic treatment including both orthographic and phonological information. Tasks were similar to the semantic treatment, but the word form was incorporated.

Target Area: Communication, Language, Speech Disorders

Kendall, Johnson, McNeil & Small (1998), *Aphasiology, 12(7/8),* 587-600.	**SCED score –** *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. Multiple baseline across behaviours. ➢ **Participant**: Participant 1: 42 year old female who sustained a left hemisphere ischaemic stroke at age 25. Reading comprehension with grade equivalence of 12.8 for vocabulary words and 9.2 for paragraph comprehension ➢ **Setting:** Not stated **Target behaviour measure/s:** ➢ Response time for each verbal response ➢ Percentage accuracy on word lists **Primary outcome measure/s:** Additional measures for generalisation purposes included – ➢ Nonstandardised Homophone List ➢ Gates MacGinitie Vocabulary ➢ Reading-Revised Token Test **Results:** Improved performance on the C-rule was observed following treatment commencement, with performance on untreated G-rule showing generalisation effects. Maintenance of acquisition effects were observed. No statistical analysis was conducted.	**Aim:** To improve reading in a patient with chronic phonological dyslexia. **Materials:** 3 x 5 inch cards, to visually present words. 4 word lists comprising real and nonsense words appropriate for eliciting the "c-rule" and the "g-rule". List 1: 10 simple real words (one-syllable nouns, high concreteness, frequency, imagery, meaningfulness); List 2: 20 simple nonwords (one-syllable); List 3: 10 difficult real words(2-3 syllable nouns, low concreteness, low imagery); List 4: 20 difficult nonwords (2-3 syllables). **Treatment Plan:** ➢ **Duration:** 22 hours ➢ **Procedure:** 11 x 2 hr treatment sessions ➢ **Content::** focus on improving usage of grapheme to phoneme correspondence rules via systematic exposure to exemplars of each rule. Instruction on pronunciation was administered for 6 treatment sessions for the first rule (c-rule), 5 treatment sessions for the second rule (g-rule). Rules were not taught explicitly, but through exposure. Participant is presented with a nonword exemplar. When an error occurred, the participant is given a phonetic cue, if unsuccessful then told a real word that begins in the same way, if still unsuccessful, the participant repeats the correctly produced nonword. During each treatment session, the list words are visually presented once on a card and the participant is asked to "say this word" and then "write this word".

Target Area: Communication, Language, Speech Disorders

Freed, Marshall & Frazier (1997) ***Aphasiology*** **11(4-5):365-372**	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type**: SSD. Multiple baseline across behaviours. ➢ **Participant:** Participant 1: male, age 24 years with severe apraxia and aphasia following a left CVA. ➢ **Setting:** Not stated. **Target behaviour measure/s:** ➢ % correct of target words. **Primary outcome measure/s:** ➢ Ability to verbally produce the target words without cues. **Result:** At the study's completion, all of the participant's productions of the target words were very intelligible. There was an overall maintenance probe accuracy of 78.2%, approximating the correct productions of the target words outside the clinic.	**Aim:** To evaluate the application of Prompts for Restructuring Oral Muscular Phonetic Targets (PROMPT) Treatment in the training of a core vocabulary of 30 functional words and phrases. **Materials:** 30 functional words and short phrases divided into 6 treatment sets of five items each. **Treatment plan/procedure** ➢ **Duration:** The participant received treatment and maintenance sessions over a 41 week period. ➢ **Procedure:** Sessions were twice weekly of 50 min duration. ➢ **Content:** The treatment sequence was as follows: The clinician verbally presented a target word from a treatment set, and the participant, JS tried to repeat it. If incorrect, PROMPT cues were used which are tactile cues to provide the person with sensory input regarding place of articulatory contact, extent of mandibular opening, voice, tension, relative timing of segments, manner of articulation and coarticulation. Approximately 20 trials for each of the five target words were completed in each session. Once each week, treatment probes were administered to measure the participant's ability to verbally produce the target words without cues.

Target Area: Communication, Language, Speech Disorders

Rose, Douglas & Matyas (2002) ***Aphasiology*** **16(10-11): 1001-1030**	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type**: SSD. Multiple baseline across conditions. ➢ **Participant:** Participant 1: female, aged 68 years, with left frontoparietal subarachnoid haemorrhage and mild conduction type aphasia. ➢ **Setting:** Not stated. **Target behaviour measure/s:** ➢ Number of items correctly named. **Primary outcome measure/s:** ➢ No additional. **Result**: The use of iconic gesture significantly facilitated picture naming. Pointing, visualization and cued articulation produced negligible change from baseline rates. Clinically and statistically significant treatment rates were found for all 3 treatment conditions, with only marginal differences between conditions.	**Aim:** To examine the comparative facilitation effects of gesture production and visualization processes on object naming skills, and to compare the effectiveness of three types of treatment, gesture, verbal and combined verbal plus gesture, for word production deficits arising from impairment at the level of phonological access and encoding. **Materials:** 80 black and white drawn objects. **Treatment plan/procedure** ➢ **Duration:** 3 months in duration. ➢ **Procedure:** Unclear. ➢ **Content:** ▪ *Verbal treatment* involved the participant identifying the number of syllables in the target, the first phonemes of syllables in error, rearranging written syllable anagrams of the target, identifying which syllables contained the primary stress and finally copying a verbal model if required. ▪ *Gesture training* involved iconic gesture and cued articulation ▪ *Combined treatment* involved a combination of both modalities.

Target Area: Communication, Language, Speech Disorders / Community re-entry & Instrumental ADL's / Memory Impairments

Andrews-Salvia, Roy & Cameron (2003) ***Journal of Medical Speech-Language Pathology*** **11(1): 51-59**	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. Multiple baseline across behaviours, replicated across participants. ➢ **Participants:** n=4 females, age 90-96 years, with severe dementia: Probable Alzheimers=1; Senile Dementia=1; Not specified=2. ➢ **Setting:** A residential unit. **Target behaviour measure/s:** ➢ Number of on-topic facts stated by participant in first 2.5 minutes after prompted by therapist to talk about her life/family/day. **Primary outcome measure/s:** ➢ None. **Result**: Notable increment for all participants in the number of on-topic facts uttered by the participants when use of the Memory Book was introduced for a specified topic of discourse.	**Aim:** Increase the frequency of on-topic facts stated during discourse about a specified topic. **Materials:** Memory Book, tape recorder, video camera **Treatment plan/procedure:** ➢ **Duration:** Six weeks, 2.25 to 6.75 hours. ➢ **Procedure:** Three sessions per week for a total of 18 sessions. Duration of sessions 7.5-22.5 minutes. All sessions were audio recorder or videotaped. ➢ **Content:** Memory Book (MB) was compiled from information obtained from relatives. MB contained factual statements, photographs and drawings related to two topic areas: Topic 1= "My Life"; Topic 2 ="My Family". Topic 3="My Day" used as control and not included in MB. Sessions started with prompt from therapist: "Tell me about you life/family/day".

Target Area: Communication, Language, Speech Disorders / Reading, Writing & Arithmetic

Clausen & Beeson (2003) ***Aphasiology*** **17(6/7): 625-644**	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program

Design:

- **Study type:** SSD. Multiple-baseline design across behaviours, replicated across participants.
- **Participant:** 4 participants (75% male) with severe Broca's aphasia following stroke. Patients were at least 5-8 years post-stroke, with at least high school level education. All participants used their left hand for writing (2 premorbidly left handed, 2 with hemiparesis in their dominant right hand). Participants were aged 61 to 72 years.
- **Setting:** University clinic or patient's home.

Target behaviour measure/s:

- Number of correctly written words during group sessions.
- Number of correctly written words during individual sessions (treatment and follow up only).

Primary outcome measure/s:

- Number of trained words used in conversation with new person.

Result: Large treatment effects were observed for all participants:

- *Participant 1-2*: Spelling improved in both individual and group sessions. Large effect sizes were noted in the group session when comparing baseline to treatment.
- *Participant 3:* Also demonstrated large treatment effect sizes across time, but typically performed better in group sessions than in individual sessions, but required a higher level of verbal cues to make written responses.
- *Participant 4:* Showed large improvement in performance during group sessions, and independently expanded his written vocabulary beyond the target words in the study.

Aim: To improve written spelling and facilitate the pragmatic use of written words in patients with severe aphasia.

Materials: A list of proper and common nouns, with corresponding pictures (line drawing or photograph) attached to index cards, paper for participant to write responses, scoring forms (see Appendix A of the paper), homework sheets.

Treatment plan:

- **Duration:** 15 weeks (28 contact hours).
- **Procedure:** 1 hr weekly individual sessions for 13 weeks+ 1 hr weekly group sessions for 15 weeks**,** with homework set for 6/7 days a week.
- **Content:** Word lists were created around the themes: biological information, family, employment history, hobbies/interests, favourite foods, & restaurants:
  - *Individual sessions* comprised a writing probe (images depicting words were presented in random order with a verbal request to write the name), clinician-directed writing treatment for the word set (using Copy and Recall Treatment – CART – protocol), review of homework (with attention drawn to errors, and prompting for self correction), and conversational practice where the participant responds in writing (e.g. Tell me about your family. Who is George? – for the word "brother"). Homework consisted of copying words 20 times per day.
  - *Weekly group sessions* for participants to practice conversational use of their written words. Conversation was structured around target themes, and was facilitated by a clinician. Participants wrote answers to questions directed by the clinician, and showed their response to everyone. No pictured stimuli were used.
  - Once words were mastered in group sessions, a conversation with an unfamiliar person was arranged, where the new person was given the list of topics, but told not to volunteer information unless asked.

Target Area: Communication, Language, Speech Disorders

Hux, Rankin-Erickson, Manasse & Lauritzen (2000) ***Augmentative and Alternative Communication*** **16(3):186-196**	**SCED score –** *to be confirmed*

Method/Results	Rehabilitation Program
Design: ➢ **Study type**: SSD. Treatment phase only. ➢ **Participants:** n=2 people: 1. Participant 1: Female, aged 18, with TBI. 2. Control participant: female, aged 28. ➢ **Setting:** Not stated. **Target behaviour measure/s:** ➢ Accuracy score for read sentences. ➢ Accuracy score for novel sentences **Primary outcome measure/s:** ➢ No additional. **Result**: All 3 systems performed with greater accuracy when used by a speaker without dysarthria, and the Dragon NaturallySpeaking and the Microsoft Dictation achieved equivalent or higher recognition scores than the VoicePad Platinum.	**Aim:** To evaluate speech recognition accuracy percentages following 5 training sessions using each of 3 systems: Dragon NaturallySpeaking, Microsoft Dictation and the VoicePad Platinum. **Materials:** 20 sentences (10 read out from the ASSIDS and 10 novel sentences). These were read out to three speech recognition systems (Microsoft Dictation, Dragon NaturallySpeaking, and VoicePad Platinum) and the training materials published with each system were used. **Treatment plan/procedure** ➢ **Duration:** The TBI participant received 21 1 hour sessions. ➢ **Procedure:** 2-3 sessions a week over an 8 week period. ➢ **Content:** Training sessions followed the procedures recommended for each system. The speaker read a few sentences and the system provided feedback regarding the acceptability of volume and voice quality.

Target Area: Communication, Language, Speech Disorders

Francis, Riddoch & Humphreys (2001) *Aphasiology* 15(8): 749-766	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type**: SSD. ABACA (A=baseline/withdrawal, B=implicit access therapy, C=auditory access therapy). ➢ **Participant:** Participant 1: male, aged 71 years with word meaning deafness. ➢ **Setting:** Normal therapy setting not stated, but indicates that most therapy was undertaken at home. **Target behaviour measure/s:** ➢ Percentage of words correctly defined. ➢ Percentage of words correctly spelled. **Primary outcome measure/s:** ➢ Number of words learnt after each week of therapy. **Result**: Improvement was noted following both types of therapy, although improvement on the explicit access therapy was more durable and appeared to be due to a direct effect on the audition-semantics link rather than compensation (as occurred with implicit access therapy). Word meaning deafness is amenable to treatment.	**Aim:** To examine the effectiveness of two auditory processing therapies (implicit and explicit) in the treatment of word meaning deafness. **Materials:** 78 words were selected from an initial group of 120 words. The 78 words were divided into 3 groups of 26, matched as far as possible for frequency and the participant's ability to define them. One group of words was assigned to the implicit auditory processing condition, one to the explicitly auditory processing condition, and the final group was left untreated. **Treatment plan/procedure** ➢ **Duration:** Baseline occurred on 3 separate occasions, then there was 3 weeks of implicit auditory access therapy, a 2 week withdrawal of treatment, 3 weeks of explicit auditory access treatment, another withdrawal of 2 weeks and then a final assessment. ➢ **Procedure:** Sessions were once weekly for one hour and additionally the participant completed practice at home which was documented in a diary. ➢ **Content:** The tasks across the two therapies were identical except for the modality of presentation. ▪ *Implicit access therapy* involved reading definitions of each of 26 words after reading these, and then completing written semantic judgment tasks where the participant matched the 26 target words to a another word in a triad that was closest in meaning to the target. ▪ *Auditory access therapy* involved reading and listening to definitions and repeat a word aloud several times while thinking of its meaning. Another part of this treatment was written and auditory semantic judgments where the participant was required to make semantic matches on triads of words. The triads were also recorded on to a tape and the participant was required to listen to the tape while reading the same words and then to make his judgment.

Target Area: Communication, Language, Speech Disorders

Beeson (1999) ***Aphasiology*** **13(91-11): 767-785**	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type**: SSD. Multiple baseline across behaviours. ➢ **Participant:** Participant 1: male aged 78 years with severe Wernicke's aphasia. ➢ **Setting:** Formal therapy setting not stated, but some home-directed components included. **Target behaviour measure/s:** ➢ Number of words spelled correctly. **Primary outcome measure/s**: ➢ No additional. **Result**: The participant responded to the writing treatment protocol with item-specific improvement in single word writing.	**Aim:** To evaluate the application of a written treatment protocol, using a cueing hierarchy to re-establish single word writing to facilitate communication. **Materials:** The treatment protocol included arrangement of anagram letters (i.e., scrambled component letters). The component letters of target words were provided in 72 -point font on heavy paper. There were 2 sets of nouns (n=6 each) and 2 sets of verbs (n=5 each). **Treatment plan/procedure:** ➢ **Duration:** 4 treatment phases. The first phase was 10 weeks, the second was over the summer, the third was 8 weeks and the fourth was 6 weeks. ➢ **Procedure:** In phase one, sessions were twice weekly for 10 sessions. In phase two, the participant completed homework sheets which he returned every 5-7 days over the summer. In phase three he received treatment weekly for 8 sessions and in phase four he undertook 6 weeks of self directed practice. ➢ **Content:** Anagram and copy treatment involves arrangement of anagram letters (i.e. scrambled component letters) followed by repeated copy of the target words. The participant also was administered Copy and Recall Treatment (CART). The CART protocol used repeated copying and recall trials for each target word.

Target Area: Communication, Language, Speech Disorders

Biedermann, Blanken & Nickels (2002) *Aphasiology* 16(10/11): 1115-1136	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. ABA with follow up (A=baseline/withdrawal, B=intervention, follow up one week after treatment completed) ➢ **Participant:** A male, age 59 years, with severe global aphasia and anomia and dense right hemiplegia following a CVA. Treatment commenced 13 years post onset of aphasia. ➢ **Setting:** Not stated. **Target behaviour measure/s:** ➢ Number of errors and number of words correctly named for homophones, semantically and phonologically related words, and unrelated words. **Primary outcome measure/s:** > No additional measures. **Result**: Steady improvements in naming were observed. A significant decrease in errors for treated homophones was found on both daily pre-test and post-test measures during treatment. Significant effects were only short-term however, as the treatment effect was no longer significant 1 week post treatment. Some generalization to untreated homophones also occurred initially, but was not retained at follow up. Generalisation did not extend to any other types of words.	**Aim:** To improve naming ability using an intensive picture-naming training with phonological cues. **Materials:** Concrete nouns depicting homophones. Materials sourced from Snodgrass and Vanderwart (1980) and private material. **Treatment plan:** ➢ **Duration:** 10 days (total duration approx. 10 hrs). ➢ **Procedure:** Daily 1 hr sessions (pre-assessment, 10 mins to treat each set of words, post assessment each session). ➢ **Content:** Naming of homophones was treated using the following cue hierarchy in each session: 1. Giving the initial phoneme. 2. Tapping the syllable number. 3. Giving the target word for repetition.

Target Area: Communication, Language, Speech Disorders

Bourgeois (1992) ***Journal of Speech and Hearing Research*** **35(6): 1344-1357**	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. Multiple baseline across behaviours, replicated across participants. ➢ **Participants:** n=9, age range=67-93, 67% male, aetiology – Alzheimer's disease=7, multi infarct dementia=1, unspecified dementia=1, severity=mild – moderate dementia. ➢ **Setting:** Family home or day care centre. **Target behaviour measure/s:** ➢ Number of correct, on-topic statements made during conversations with conversation partners. **Primary outcome measure/s:** ➢ None. **Result**: Patient learned to use the Memory Wallets and the frequency of correct on-topic utterances during the intervention phase increased compared with baseline. For three patients, the effect was maintained for up to 30 months post-intervention. Data was graphically presented but not statistically analysed.	**Aim:** To improve conversational skills in persons with Alzheimer's disease. **Materials:** Thirty 7.6x12.7 cm cards Tape recorder and countdown timer. **Treatment plan** ➢ **Duration:** Between 24 and 9 sessions, with a total of 2.25 to 6 contact hours. ➢ **Procedure:** One session 5 to 7 days per week. Each session 15 minutes duration. Three 5 minute probe sessions per week. ➢ **Content:** Patient is encouraged to use a "Memory Wallet" during a conversation with a conversation partner. The Memory Wallet is divided into three topics: My Family, My day, My Life. There are 10 cards for each topic showing either relevant photos/drawings or simple declarative sentences providing information about either the patient's family, the patient's daily activities or biographical information.

Target Area: Communication, Language, Speech Disorders

Beaton, Peeler & Harvey (2006) ***Behavioral Interventions*** **21: 1-12**	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. ABCDEAE withdrawal (A=baseline/ withdrawal, B=DRI1, C=DRI2, D=DRI and Feedback, E=DRI3). ➢ **Participant:** A 75 year old female diagnosed with probable Alzheimer's Disease, referred for concerns regarding irrational speech. ➢ **Setting:** Respite centre. **Target behaviour measure/s:** ➢ Percentage of time intervals that contained irrational statements. ➢ Percentage of time intervals that contained rational statements **Primary outcome measure/s:** ➢ No additional measures. **Result**: The intervention was not successful in reducing irrational statements, but increases were seen in the replacement behaviour – rational statements. During intervention phases, both irrational and rational statements increased compared to baseline (although no statistical analysis was conducted). Both irrational and rational statements were highest in the DRI3 phase. A reversal to baseline resulted in a return to baseline levels for rational statements, suggesting experimental control over this behaviour.	**Aim:** To increase the socially appropriate speech and decrease the irrational speech of patients with Alzheimer's Disease (AD). **Materials:** No specific materials for most sessions. During DR3 phase any materials required for conducting preferred activity (e.g. in this case, scarves). **Treatment plan:** ➢ **Duration:** Number of weeks not specified. 60 sessions in total across all phases (approx. 20 hours total). ➢ **Procedure:** 1-2 x 20 min sessions per day, 2-3 times per week. ➢ **Content:** – *DRI 1:* Differential reinforcement of incompatible behaviour, where social reinforcement (e.g. praising) is contingent on rational statements and removal of attention (e.g. eye contact and verbal interaction until irrational statement stopped for 10s) is contingent on irrational statements. – *DR1 2:* Differential reinforcement of incompatible behaviour, as above, but where social interactions were simplified (e.g. "yes" or "no" responses required only) and delivered at a slower rate (e.g. pausing an extra 10s before beginning a new interaction). – *DRI and Feedback:* The same procedure as "DR1 2" except the therapist spoke to the participant about preferred topics where possible, and when irrational statements were made, the therapist would give feedback ("no" in a calm, neural tone, withdraw eye contact and face opposite direction to participant). – *DRI3:* The same procedure as "DR1 2" except the therapist would engage participant in a preferred activity instead of just sitting side by side during sessions.

Target Area: Communication, Language, Speech Disorders / Executive Functioning Deficits / Interpersonal Psychosocial & Social Skills / Multiple Problems

Sohlberg, Sprunk & Metzelaar (1988) ***Cognitive Rehabilitation*** **6(4): 36-41**	**SCED Score –** *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type**: SSD. Multiple baseline across behaviours (verbal initiation and response acknowledgement). ➢ **Participant**: Participant 1: male, age 38 years, with severe TBI. ➢ **Setting**: Outpatient treatment program **Target behaviour measure/s:** ➢ Verbal initiation and response acknowledgement (see paper for details). **Primary outcome measure/s:** ➢ None. **Results**: Verbal initiation increased from baseline during active self-monitoring intervention but decreased once intervention changed to the second behaviour (but remained above baseline levels). Response acknowledgement remained relatively stable during baseline and behaviour 1 intervention but increased during self-monitoring intervention.	**Aim:** To increase verbal initiation of conversations (behaviour 1) and response acknowledgement (behaviour 2) during group therapy. **Materials:** Cards with a star, cards with a circle and a self-monitoring record sheet. **Treatment Plan:** ➢ **Duration:** Not specified. ➢ **Procedure:** 1 training session of unspecified duration and self-monitoring recorded for an unspecified length of time ➢ **Content:** – Self-monitoring technique was used – Participant was instructed on the benefits of initiating conversations in group therapy. When given a card with a star on it, participant was to ask himself "Am I initiating conversation?" and had to record yes/no. – A similar technique was used for the second behaviour. This time participant received a card with a circle on it, which cued him to ask himself "Am I acknowledging other people's talking?", he then recorded ye/no.

Target Area: Communication, Language, Speech Disorders

Lennox & Brune (1993) *Brain Injury* 7(5): 449-454	**SCED Score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design ➢ **Study type**: SSD. Multiple baseline across settings (bedroom, study and dining room). ➢ **Participant:** Participant 1: male, age 27 years, with severe TBI (4 month coma). ➢ **Setting:** Not stated. **Target behaviour measure/s:** ➢ Complete request – any request with a pronoun, verb and noun. ➢ Incomplete request – request that was not a complete sentence. **Primary outcome measure/s:** ➢ None. **Results**: Percentage of complete requests increased to nearly 100% across all three settings.	**Aim:** To improve communication, specifically making complete requests. **Materials:** None specified. **Treatment Plan:** ➢ **Duration:** Not specified. ➢ **Procedure:**15 min testing session then 15 min training session. ➢ **Content:** – *During baseline*: all requests for objects were reinforced with the object requested. – *Treatment*: Incidental teaching – only complete requests were reinforced with the object requested. Incomplete requests were followed with a two-step training procedure: 1. Participant was cued with "what do you want?', then given object. 2. Participant was given the cue again with modelled appropriate answer "I want an apple".

Target Area: Communication, Language, Speech Disorders / Memory Impairments

Graham, Patterson, Pratt & Hodges (2001) ***Neuropsychological Rehabilitation*** **11(3-4): 429-545)**	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. Single participant pre-/post design ➢ **Participant:** Participant 1: 59 year old male with semantic dementia (marked word-finding difficulties, comprehension difficulties, preserved insight). ➢ **Setting:** Family home **Target behaviour measure/s:** ➢ None. **Primary outcome measure/s:** ➢ Category fluency. **Result**: Production of difficult to retrieve words improved with intervention, but improvement disappeared when intervention withdrawn.	**Aim:** improve production of difficult-to-retrieve words **Materials:** individually tailored word and picture notebooks **Treatment plan/procedure** ➢ **Duration:** 10 weeks. Practice sessions done unsupervised at participant's home. Maximum duration of session is 30 minutes per day. ➢ **Procedure:** - *Memory training:* Baseline assessment of category fluency on non-practiced categories. - Two weeks practicing name retrieval of 100 objects from Set 1 and Foil1 categories (see below). - Assessment of category fluency for 6 categories practiced in previous two weeks and six non-practiced categories (Set 2 and Foil 2, see below). - Rehearse Set 2 and Foil 2 categories fro two weeks, cease practicing Set 1 and Foil1 categories. - Assessment of category fluency for categories in Set 1, Set 2, Foil 1 and Foil 2, as well as four non-practiced categories (Set 3, see below). - Cease rehearsal of all categories for six weeks. ➢ **Content:** Participant practices self-developed technique. The Oxford English Picture Dictionary is used to practice 'retrieving' names of pictured objects in a given category. Name of object is only looked at in dictionary if it cannot be spontaneously retrieved. Fluency for 26 noun categories. Practiced Categories: - *Set 1*: Herbs & Spices; Chocolate Bars; TV Shows; Magazines & Newspapers. - *Set 2*: Breakfast Cereals; Musical Groups; Stones and Gems; Makes of Cars. - *Set 3*: Names of Companies; Names of Charities; Names of Mountains; Rivers. Non-practiced Categories: - *Foil 1*: Famous Sites; Trees. - *Foil 2*: Drinks; Diseases.

Target Area: Executive Functioning Deficits

Hewitt, Evans & Dritschel (2006) *Neuropsychologia* 44(8): 1468-1474	**PEDro score** - 5/10
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** RCT. ➢ **Population:** n=30 adults, 67% male, M=16-64 years, severity - severe (PTA > 24 hours), aetiology - TBI. ➢ **Groups:** ➢ **Setting:** Not stated. **Primary outcome measure/s:** ➢ Everyday Descriptions Task (EDT). **Primary outcome measure/s:** ➢ Rivermead Behavioural Memory Test (RBMT). ➢ Speed and Capacity of Language Processing Test (SCOLP). ➢ The Hayling Test. ➢ The Brixton Test and the Modified Six Elements Test. **Result**: Group 2 improved over time on EDT variables but group 1 did not.	**Aim:** To improve planning and problem-solving abilities. **Materials:** None specified. **Treatment plan:** ➢ **Duration:** 30 min session. ➢ **Procedure:** Group 1- no training; Group 2- 1x30 minute session. ➢ **Content**: - *Phase 1*: both groups asked 8 questions using the EDT format (participants describe how they would plan activities). - *Phase 2*: neuropsychological tests were administered to both groups. Group 1 was then given a 30 min break, whilst group 2 had 30 mins of training. Training involved participants being told to use specific examples from their memory to help solve current tasks and a cue card was placed in view for the rest of the program with "Try to think of a specific time and place where you carried out a similar activity in the past" printed on it. - *Phase 3*: Both groups were asked another set of 8 questions using the EDT format.

Target Area: Executive Functioning Deficits / Movement & Motor Problems

Gauggel, Leinberger & Richardt (2001) ***Journal of Clinical and Experimental Neuropsychology*** **23(3) 351-361**	**PEDro score** – 5/10
Method/Results	Rehabilitation Program
Design: ➢ **Study type***:* RCT. ➢ **Population:** Patients who suffered either a closed head injury or a cerebral vascular accident. An orthopedic control group was also recruited, but is not discussed in this summary. For participants in the two brain injured groups M=42±14 years. Gender breakdowns were not provided. Head injury patients in the two groups were similar for length of coma. ➢ **Groups:** Specific and high goal group (n=32), "Do your best" goal group (n=30). ➢ **Setting:** Inpatient rehabilitation. **Primary outcome measure/s:** ➢ Performance on a choice reaction time task (time taken and number of errors). ➢ 7 item questionnaire on goal commitment. **Secondary outcome measure/s:** ➢ None. **Result**: All groups performed at a low error rate. A significant Goal x Block interaction was found (wherein error rate decreased for the high, specific goal group but increased slightly for the "do your best" goal group). A significant Goal by Block interaction was found also found for time taken, wherein participants with a specific, high goal responded more quickly than participants with a "do your best" goal. Goal commitment was relatively high in the group with high, specific goals.	**Aim:** To increase motivation and improve performance on tasks using specific and high set goals, which direct attention to specific aspects of the task and mobilize effort. **Materials:** Computer, software for a reaction time task. **Treatment plan:** ➢ **Duration:** 1 hr. ➢ **Procedure:** 1 session of 1 hr duration. ➢ **Content:** Participants completed 3 practice blocks and then 8 treatment trials of a reaction time task. After completing 4 treatment blocks feedback was given on their times. After this: – *Specific and high goal group*: goals were set on the basis of a percentage improvement from the baseline performance (ie. 20% decrease in RT). Participants were told a specific speed to work towards, and given feedback after each block. If they met the goal, they were told to repeat this, if they did not reach the goal they were encouraged to reach the goal next time. – *Control group*: participants were told to respond as fast as possible during each block. No further feedback about their performance was given.

Target Area: Executive Functioning Deficits / Cognitive Deficits

Fasotti, Kovacs, Eling & Brouwer (2000) *Neuropsychological Rehabilitation* 10(1): 47-65	**PEDro score** – 5/10
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** RCT. ➢ **Population:** n =22 (68% male, severe to very severe TBI with slowed processing speed, age 18-45 years). ➢ **Groups:** 1) Experimental Group – TPM (n=12, M=26.1 years; SD=8.1). 2) Control Group – concentration training (n=10; M=30.1 years, SD=5.5). ➢ **Setting:** Not stated. **Primary outcome measure/s:** ➢ Observation checklist to assess the use of the strategies when performing a new story task. ➢ Neuropsychological tests of memory, attention and reaction time including: Rey 15 word test, Rivermead Behavioural Memory Test, PASAT, Auditory Concentration Test, and visual reaction time measures. **Secondary outcome measure/s:** ➢ Psychosocial well-being questionnaires and measures of general activity (number of social contacts and leisure activities). **Result**: Treatment was effective compared to the concentration training, with both an increased number of steps taken to reduce time pressure and a greater level of managing performance after training for the Experimental Group vs Control group. Some significant increases in attention and memory scores over time were found for the TPM group, but not for the control group. No significant group differences were found for psychosocial measures.	**Aim:** To improve information processing by teaching skills in Time Pressure Management (TPM) to compensate for mental slowness. **Materials:** 9 videotaped short stories of 1-4 mins, videoplayer, TV, a cassette recorder, an audio tape with recorded radio broadcasts (i.e. music and news), and a telephone. **Treatment plan:** ➢ **Duration:** 2-3 weeks (mean length of training 7.4 hrs). ➢ **Procedure:** Up to3 sessions/wk, 1hr/session. ➢ **Content:** - *Experimental Group*: Based on models of Ylvisaker et al (1987) and Meichenbaum (1977, 1980). 9 short stories are administered to enable teaching TPM strategies (e.g. a scenario is given: "imagine you are outside a railway station in a strange town and you ask a passerby the way to the tourist office". The videotape shows a man giving directions. The patient is asked to repeat as much as possible). Strategies are taught using self-instructional methods in 3 stages: 1. Awareness of errors and deficits (given feedback). 2. Acceptance and acquisition of the 4-step TPM strategy. 3. Application and maintenance in more challenging circumstances (e.g. more distracting environments). The training focuses on time pressure and its negative effects on task performance. - *Control Group:* the same 9 short stories are administered, with four generic suggestions given to recall information. No mention of time pressure is given.

Target Area: Executive Functioning Deficits / Multiple Problems

Webb & Glueckauf (1994) ***Rehabilitation Psychology*** **39(3): 179-188**	**PEDro score** - 5/10
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** RCT. ➢ **Population**: n=16 adults with a diagnosis of TBI (GOAT ≥ 80), 88% male, M=27.4 years (1.9). ➢ **Groups:** Two groups based on participant's level of involvement in goal setting: 1. High Involvement (HI). 2. Low Involvement (LI). ➢ **Setting:** Inpatient rehabilitation / community setting. **Primary outcome measure/s:** ➢ Goal Attainment Scaling. **Secondary outcome measure/s:** ➢ None. **Result**: Both groups improved from pre to post testing but, there was no statistical difference between HI and LI group at post-treatment. However, at follow-up the HI group had maintained more goals whilst the LI group had returned to pre-treatment levels (between group stats performed).	**Aim:** To examine whether the level of participant involvement in goal preparation effects specific rehabilitation outcomes. **Materials:** Goal blocks, specific goal worksheets. **Treatment plan:** ➢ **Duration:** 8 weeks (8 hours total). ➢ **Procedure:** 1 session (1 hour) per week. ➢ **Content:** There were the three parts to the therapy. 1. *Orientation*: Both groups were given a detailed explanation of the goal setting process but more input expected from the HI than the LI group. 2. *Goal Setting*: Participants in both groups prioritized their goals (HI on wooden blocks and LI on paper), goals were behaviourally operationalised and goal attainment scaling performed. 3. *Goal Monitoring*: HI group taught the Goal Assessment technique, which includes reviewing goals, monitoring and rating own goal progress and completing a goal follow-up diary. LI group monitored goals but not using the above technique.

Target Area: Executive Functioning Deficits

Suzman, Morris, Morris, & Milan (1997), *Journal of Behaviour Therapy and Experimental Psychiatry, 28(3),* 203-212.	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. Participant 1: AB design; Participants 2-3: multiple baseline across participants, replicated across Participants 4-5. ➢ **Participants**: n = 5 African-American students 1. Participant 1: 8 year old boy with TBI (GCS = 7; bilateral frontal and cerebellar contusions). Mild intellectual disability 2. Participant 2: 9 year old girl with TBI (GCS = 7; coma length 2 days; right frontal contusions). Borderline intellectual abilities. 3. Participant 3: 6 year old girl with TBI (CT unremarkable). Low average intellectual ability 4. Participant 4: 11 year old boy with brain hemorrahge secondary to arteriovenous malformation. Borderline intellectual abilities 5. Participant 5: 7 year old boy who suffered an open head injury (GCS = 9; multiple contusions). Borderline intellectual ability ➢ **Setting:** Classroom **Target behaviour measure/s:** ➢ % errors on computerised problem solving task (Think Quick) **Primary outcome measure/s:** ➢ Rey-Osterrieth Complex Figure Test (RCFT) ➢ Porteus Maze Test ➢ Wisconsin Card Sorting Test ➢ Word Fluency Test **Results:** All students showed a trend toward fewer errors. Errors decreased almost immediately following treatment (although no statistical analysis was conducted on this data). Pre-post comparison on outcome measures showed significant improvements on the RCFT and Word Fluency test.	**Aim:** To remediate problem solving deficits in children with acquired brain impairment. **Materials:** puzzles, games (e.g. checkers, Clue Jr., Mastermind and activity books), cardboard stop sign, self-evaluation chart, "stop and think" dollars, other reinforcers (e.g. stickers, baseball cards etc) **Treatment Plan:** ➢ **Duration:** up to 26 days per student (17-18 hrs /student) ➢ **Procedure:** 3 x40 min sessions /week for each student ➢ **Content:** A multicomponent cognitive-behavioural training program was implemented, consisting of: 1. *self-instruction training (SIT)*- 5 self-directed statements were learned that provide a thinking strategy and serve as a guide for the process of problem solving. Based on Kendell and Braswell "Stop & Think" program. SIT statements are taught through modelling, shaping, and fading of statements from overt verbalisations from the clinician. 2. *self-regulation training (SRT)* – skills in establishing a goal, monitoring whether one has met the goal, and rewarding oneself upon achievement of the goal. 3. *metacognition training* –techniques taught to help identify when facing a problem and what to do to solve the problem, using the 4 step metacognitive model of learning of Brown, Campione and Day. 4. *attribution training* – taught to identify the connection between effort and successful performance 5. *reinforcement* – "stop and think" dollars were provided to children when achieving correct solutions to problems, using SIT and SRT strategies, using appropriate metacognitive questions, selecting appropriate attributional statements, and completing homework assignments

Target Area: Executive Functioning Deficits

Cicerone and Giacino (1992) ***NeuroRehabilitation* 2(3): 12-22**	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design ➢ **Study type:** SSD. Multiple baseline across participants. ➢ **Participants**: n=6, M=18-44 years, 100% male, 5 TBI and 1 brain tumor, 5 severe injuries, all had impaired planning and self-monitoring. ➢ **Setting**: Inpatient rehabilitation facility. **Target behaviour measure/s:** ➢ Errors on Tower of London task. **Primary outcome measure/s:** ➢ Wisconsin card sorting test score ➢ Tinker Toy Test score. **Results:** Treatment successful for 5/6 participants (stats performed).	**Aim:** To improve planning skills, particularly to reduce errors on tests of executive function **Materials:** Tower of London test **Treatment Plan:** ➢ **Duration:** 10-20 hours over 5-9 weeks. ➢ **Procedure:** Not specified. ➢ **Content:** Participants were taught self-instructional training whilst performing the Tower of London (TOL) task. There were 3 stages: 1. Verbalise moves on training task before and after actual performance. 2. As above but now only whispering. 3. As above but now just talking to self. No specification of how many TOL trials were completed each treatment session.

Target Area: Executive Functioning Deficits

Honda (1999) *Topics in Stroke Rehabilitation* 6(1): 15-22	**SCED score -** *to be confirmed*
Method/Results	Rehabilitation Program
Design ➢ **Study type:** SSD. Multiple baseline across participants. ➢ **Participants**: n=3, age 65-73 years, 67% male, all ACoA aneurysms, impairments on executive functioning measures. ➢ **Setting**: Not stated. **Primary outcome measure/s:** ➢ Wisconsin card sorting test. ➢ Tinker Toy test. **Secondary outcome measure/s:** ➢ Good Samaritan Hospital Center for Cognitive Rehabilitation Executive Functions Behavioral Rating Scale (BRS). ➢ Trail Making Test (TMT). ➢ Weschler Adult Intelligence Scale – Revised (WAIS-R). **Results:** 2 participants showed improvement on Tinker Toy test after PS training. General improvement overall on BRS, TMT and WAIS-R (not stats performed).	**Aim:** To improve planning skills, particularly to reduce errors on tests of executive function. **Materials:** Tower of Toronto test, Raven's progressive matrices and physical therapy video. **Treatment Plan:** ➢ **Duration:** 18 weeks (44 hours). ➢ **Procedure:** 2 sessions per week (1hour; Self-instructional and problem solving) or 2 sessions per day-5 days/week (20 minutes; physical set changing). ➢ **Content:** - Used three main methods: 1. Self-instructional (SI) procedure. 2. Problems solving (PS) training. 3. Physical set changing (PSC) exercise. - The three training methods were given sequentially to the participants for 6 week periods: 1. Participant 1 – SI (6 weeks) → PS (6 weeks) → PSC (6 weeks). 2. Participant 2 – PS → PSC → SI. 3. Participant 3 – PSC → SI → PS. - *SI procedure* – using the Tower of Toronto participants must say out loud their plan/strategy before and during the task training (this gradually fades out in 3 steps). - *PS training* – used ravens standard progressive matrices. 5 stages: 1. Analyse the problem. 2. Solve by parity of reasoning. 3. Verbally describe their solution. 4. Evaluate solution. 5. Retry (if needed). - *PSC Exercises* – participants followed exercise video tape.

Target Area: Insight & Awareness

Zhou, Chittum, Johnson, Poppen, Guercio & McMorrow (1996), *Journal of Head Trauma Rehabilitation, 11(1),* 51-61.	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. Multiple baseline across behaviours, replicated across participants. ➢ **Participants**: 1. Participant 1: 30 year old male with a severe anoxic brain injury incurred 2 years prior to the study. He suffered severe memory deficits, reduced frustration tolerance, passive resistance to therapy sessions, and poor awareness, 2. Participant 2: 32 year old male with a severe TBI incurred 18 months earlier. Impairments in memory, attention, and insight, with verbal and physical aggression 3. Participant 3: 31 year old male with a severe TBI, incurred 10 years earlier. Numerous cognitive impairments and behaviour problems. ➢ **Setting:** Activity room at the participants' residence (within a residential community-based facility) **Target behaviour measure/s:** ➢ Percentage of correct responses to questions from each category. **Primary outcome measure/s:** ➢ Competency Rating Scale (CRS). **Results:** The game format helped increase participants' knowledge. All participants increased their percentage of correct responses to questions concerning acquired brain impairment in each category when feedback and game incentives were provided. No statistical analysis was conducted.	**Aim:** To increase participant's knowledge of acquired brain impairment and its consequences using a game format **Materials:** Game materials – 108 question and answer cards, die, and game board (modified Trivial Pursuit board). Copies of the game materials and competency rating scale can be obtained from the author. **Treatment Plan:** ➢ **Duration:** 35 sessions (35 hours) ➢ **Procedure:** 3 x 1hr sessions/week. ➢ **Content:** 1. Six categories of "residuals" were targeted: behaviour, emotion, cognition, communication, physical and sensory. Questions concerned terminology, effects of residuals on a person's life, and potential compensatory strategies for each category of residual (e.g. "What difficulty might you have if you cannot remember information presented a few seconds ago?") 2. During each game, participants were asked 3questions from each category (18 questions each), read aloud by the instructor. Each card indicated the number of spaces (1-6) that the player could move on the game board. 3. During the baseline phase, players were allowed to move their pieces regardless of their answers, and no feedback was given. 4. In phase 1, players were required to provide correct answers for questions in the behaviour and emotion categories. 5. In phase 2, the cognitive and communication categories were added. 6. In phase 3, the physical and sensory categories were added. 7. Corrective feedback was provided for all questions during phases 1-3.

Target Area: Insight & Awareness / Behaviour Problems / Cognitive Deficits

Chittum, Johnson, Chittum, Guercio & McMorrow (1996), *Brain Injury, 10(10),* 763-778.	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. Multiple baseline across behaviours, replicated across participants. ➢ **Participants**: n = 3 males (aged 19, 23, 56) who had sustained TBI, and experienced a variety of cognitive and behavioural disturbances ➢ **Setting:** Rehabilitation facility **Target behaviour measure/s:** ➢ Percentage of correct responses per game session ➢ Percentage of correct response during generalisation probes **Primary outcome measure/s:** No additional **Results:** The game format helped increase participants' knowledge. Participants were able to increase their number of correct responses during game sessions and generalisation probes. No statistical analysis was conducted.	**Aim:** To increase participant's knowledge of their individual strengths and barriers related to acquired brain impairment using a combination of discussion and a game format. **Materials:** Game cards, die, game pieces, game board (see paper for game board design), and prizes. **Treatment Plan:** ➢ **Duration:** Unclear. ➢ **Procedure:** 35 sessions conducted in total, including baseline and follow up probes. Each session at least 20 mins in duration. 12 sessions appear to have been conducted focussing on cognitive deficits; up to 19 sessions focussing on behavioural deficits. ➢ **Content:** 1. Each session included a brief review and discussion of concepts (15-20 mins) followed by the game. The rules of the game were explained during the first 3 sessions. 2. Participants moved along the game board, and tokens were provided to participants for correct responses to questions. If an incorrect response was given, feedback was provided to facilitate learning. 3. Questions related to participants' individual cognitive and behaviour deficits, or application-level questions (where the participants would be asked to explain what he would do in a specific situation). 4. Several spaces on the board also allowed for "Fun Cards", which contained non-confrontive, sometimes humorous requests (e.g. "make a funny face"), provided to intersperse the level of demand placed on participants. 5. Tokens could be cashed in at the end of sessions for various prizes

Target Area: Behaviour Problems

Remington (2002) ***Nursing Research*** **51(5): 317-323**	**PEDro score** - 7/10
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** RCT. ➢ **Population:** n=68; 13% male, M=82.4 years (62-99 years), severity of dementia ranged from mild (4%) to severe (53%). ➢ **Groups:** o Calming Music (n=17). o Hand Massage (n=17). o Calming Music + Hand Massage (n=17). o Control (n=17). ➢ **Setting:** Nursing home. **Primary outcome measure/s:** ➢ Cohen-Mansfield Agitation Inventory (CMAI). **Secondary outcome measure/s:** ➢ None. **Result**: Significant differences between the control and other 3 groups, which showed marked decrease in agitated behaviour. No differences between any of the treatment groups. On the CMAI subscales, differences found on the Physical Nonaggression scale, but not Physical Aggression or Verbal Aggression subscales. Effects were sustained up to an hour following exposure.	**Aim:** To reduce agitation in nursing home residents, using calming music and hand massage techniques. **Materials:** Portable compact disc player, New Age arrangement of Pachelbel's Cannon in D. **Treatment plan:** ➢ **Duration:** Length of therapy: 1 session; total contact time: 10 mins. ➢ **Procedure:** A single 10 min exposure. ➢ **Content:** Therapies conducted either in the resident's room or a familiar lounge room. ▪ *Calming Music group:* Played the New Age version of Pachelbel's Cannon in D, which has 32 beats per min, instead of 88-108 beats in the original orchestral arrangement. Played at a volume between 'piano' and 'mezzo-forte'. ▪ *Placebo Hand Massage group:* Received 5 mins of massage per hand, using the protocol of Snyder et al (1995), with slow strokes, even rhythm, and light pressure on the back of the hand, palm and fingers. ▪ *Combined group:* Received the massage while listening to the music.

Target Area: Behaviour Problems / Independent & Self Care ADLs / Multiple Problems

Gitlin, Corcoran, Winter, Boyce & Hauck (2001) *The Gerontologist* **41(1): 4-14**	**PEDro score** – 6/10
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** RCT. ➢ **Population:** n=171 with Alzheimer's disease or related disorder, 34% male, caregivers 27% male, age 60.48 years (SD=13.75). ➢ **Groups:** o Experimental: Caregiver Intervention (n=93); o Control: Usual care (n=78). ➢ **Setting:** Family home. **Primary outcome measure/s:** ➢ 3 for person with dementia. ➢ Behaviour problems. ➢ Activity of daily living (ADL) dependency. ➢ Instrumental ADL dependency. ➢ 6 for caregiver. ➢ Self-efficacy (for behaviour problems, ADL and IADL dependency). ➢ Upset (for behaviour problems, ADL and IADL dependency). **Secondary outcome measure/s:** ➢ None. **Result**: Found less decline in patient IADL dependency in the CT group; but no effects for the caregiver variables.	**Aim:** To improve caregiver self-efficacy and caregiver upset in management of behaviour problems and dependency in people with Alzheimer's disease. **Materials:** No equipment; occupational therapists delivered the treatment and received 20 hours of training. **Treatment plan:** ➢ **Duration:** Length of therapy: 12 weeks; total contact time: 7.5 hours. ➢ **Procedure:** 5 sessions – 1 per fortnight, 90 mins per session. ➢ **Content:** Intervention took place in the caregiver's home. ▪ *Session 1*: develop a targeted plan to address aspects of daily care that were problematic for the caregiver. ▪ *Subsequent sessions*: included education, role play, direct observation, feedback about techniques used by caregiver, mutual problem solving, environmental stimulation, task breakdown, strategies provided, strategies refined, new recommendations, cognitive restructuring.

Target Area: Behaviour Problems

Lyketsos, Lindell Veiel, Baker & Steele (1999) *International Journal of Geriatric Psychiatry* 14(7): 520-525	**PEDro score** – 6/10
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** RCT with cross-over design. ➢ **Population:** n=15, 7% male, M=80.8 years (SD=8.7), Mini-Mental State Examination score 6.4 (SD=6.8), aetiology probable Alzheimer's disease (12/15) and 3/15 with vascular dementia. ➢ **Groups:** o BLT group o Placebo group No information reported on sample size per group. It is also noted that 8/15 patients completed the study. ➢ **Setting:** Nursing home. **Primary outcome measure/s:** ➢ Sleep – log of sleep between 8pm and 8am. ➢ BEHAVE-AD. ➢ Cornell Scale for Depression. **Secondary outcome measure/s:** ➢ None. **Result**: Increased sleep occurred in the BLT condition from M=6.4 (SD=2.07) to M=8.1(SD=1.93). No significant decrease in BEHAVE-AD score. No significant decrease in depression.	**Aim:** To decrease agitated behaviours in people with dementia, using Bright Light Therapy (BLT). **Materials:** Specified "Bright Lights" and a quiet room for administration. **Treatment plan** ➢ **Duration:** Length of therapy: 4 weeks; total contact time: 28 hours. ➢ **Procedure:** 1 session per day (mornings), with 1 hour per session. ➢ **Content:** ▪ *BLT group:* 10,000 Lux full spectrum lamp at 3 feet. Patients instructed to keep eyes open and in the direction of the light source, with instructions repeated every 15 mins. Supervised by a staff member. ▪ *Placebo group:* Identical condition to BLT except for a dim, digital, low frequency blinking light positioned in the middle of the position of the BLT.

Target Area: Behaviour Problems

Medd & Tate (2000) ***Neuropsychological Rehabilitation*** **10(2): 185-201**	**PEDro score** - 6/10
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** RCT with cross-over. ➢ **Population:** n=16, 88 % male, mean age 35.88 years (SD=12.40), 82% traumatic brain injury, post-traumatic amnesia duration 0-84 days. ➢ **Groups:** o Experimental: Anger Management (n=8). o Control: Wait-List (n=8) received treatment after post-test. ➢ **Setting:** Home/community. **Primary outcome measure/s:** ➢ State-Trait Anger Expression Inventory (STAXI). ➢ Anger logs. **Secondary outcome measure/s:** ➢ Self-esteem Inventory. ➢ Hospital Anxiety and Depression Scale. ➢ Patient Competency Rating Scale. **Result**: Treatment was effective compared to no treatment on STAXI subtest (Anger Expression-Out); within participant improvement also occurred on STAXI-Trait Anger and STAXI-Anger Control.	**Aim:** To improve anger management in people with acquired brain impairment, using cognitive-behaviour therapy. **Materials:** Manual-based anger management program (AMP). **Treatment plan** ➢ **Duration:** Length of therapy: 5-8 weeks; total contact time: 5-8 hrs. ➢ **Procedure:** 1 session per week, 1hour per session. ➢ **Content:** The AMP was originally developed by Lussick and Dawson (1993, unpublished). It uses a cognitive-behaviour approach to therapy, based on the stress inoculation training principles of Novaco (1975). The AMP was originally developed for a group program and was adapted for individual therapy in the present study. Structure of sessions were as follows: 1. Psychoeducation about the principles of brain injury and causes of anger. 2. Presentation of a model of anger, including trigger events. 3. Increase awareness of anger feeling and responses in the person's life. 4. Developing strategies to manage anger: (i) relaxation training, (ii) self-talk, (iii) cognitive challenging, (iv) assertiveness training, (iv) distraction, (v) time-out methods.

Target Area: Behaviour Problems

Woods, Craven & Whitney (2005) ***Alternative Therapies in Health and Medicine*** **11(1): 66-74.**	**PEDro score** – 6/10
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** RCT. ➢ **Population:** n=57, 19% male, M=81.04 years (67-93 years), Alzheimer's disease, Mini-Mental State Examination M=5.85 (SD=7.24). ➢ **Groups:** o Therapeutic Touch (n=19). o Placebo Therapeutic Touch (n=19). o Control (n=19). ➢ **Setting:** Nursing home. **Primary outcome measure/s:** ➢ Modified Agitated Behaviour Rating Scale. ➢ Focusing on 6 behavioural symptoms: restlessness, vocalization, searching / wandering, escape restraints, tapping / banging, pacing / walking. **Secondary outcome measure/s:** ➢ None. **Result**: Significant differences between Therapeutic Touch and Control groups for restlessness and vocalization, but no differences between Placebo and experimental groups.	**Aim:** To reduce behavioural symptoms of dementia, using a nonpharmacological treatment (Therapeutic Touch). **Materials:** None. **Treatment plan:** ➢ **Duration:** Length of therapy: 3 days; total contact time: 42 mins. ➢ **Procedure:** 2 sessions per day (morning and afternoon); 5-7 mins per session. ➢ **Content:** ▪ *Therapeutic Touch:* Administered by therapists trained in the procedure (5-8 years of training with the originators of Therapeutic Touch). Specifically, a series of gentle movements are performed on the neck and shoulders in which the mental intentions of the therapist is paramount and includes: 1. Mental intention to assist the participant. 2. Centering (quieting) by the therapist. 3. Focus on the wholeness of the person with dementia. 4. Concluding with resting of the practitioners hands on the person's shoulders and directing thoughts of balance towards them. ▪ *Placebo Therapeutic Touch:* Simulated the movements of therapeutic touch, but instead of adopting the mental set of Therapeutic Touch, the practitioner performed serial 7s. ▪ *Control:* Received routine care.

Target Area: Behaviour Problems / Anxiety, Depression, Stress & Adjustment

Baker, Bell, Baker, Gibson, Holloway et al (2001) *British Journal of Clinical Psychology* **40(Pt 1): 81-96**	**PEDro score** - 5/10
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** RCT. ➢ **Population:** n=50, 50% male, 78 years (49/50> 60 years); Mini-Mental State Examination score range 0-17; Alzheimer's Disease, vascular dementia or mixed. ➢ **Groups:** o Experimental (n=25) received multisensory stimulation (MSS); o Control (n=25) received activity sessions. ➢ **Setting:** Participants lived in the family home and attended a day centre ≥2 days per week. **Primary outcome measure/s:** ➢ 12-item rating scale (INTERACT). **Secondary outcome measure/s:** ➢ REHAB. ➢ Behaviour Mood and Disturbance Scale. ➢ Clifton Assessment Procedures for the Elderly. ➢ Mini Mental State Examination. **Result**: Statistical analysis demonstrated that both groups improved on 6/12 INTERACT variables; between-group comparisons showed the MSS group improved more than Activity group on 1/12 variables, as well as improved behaviour in the home setting, the activity group improved more than the MSS group on 2/12 variables. Effects were not maintained at 1 month follow-up.	**Aim:** To improve behaviour, mood and cognition in people with dementia, using multisensory stimulation (MSS, also known as Snoezelen) vs activity sessions. **Materials:** Written guidelines to standardize the sequence of the sessions for both groups in terms of preparation, observation, approaching participant, introduction, carrying through, winding down, and subsequent sessions (see Baker et al., 1998). **Treatment plan:** ➢ **Duration:** Length of therapy: 4 weeks; total contact time: 4 hours. ➢ **Procedure:** 2 sessions per week; 30 minutes per session ➢ **Content:** ▪ *MSS group:* Interventions were based on the observations of the effects of sensory deprivation Solomon et al., 1961). Sessions encompassed the following: 1. Special efforts to stimulate all senses, except taste. 2. Presentation of unpatterned, nonsequential stimuli. 3. Use of a nondirective, enabling approach, following the patient's lead. ▪ *RET program:* Targets increased respiratory muscle *Activity group:* Interventions were similar to those used in MSS condition, but did not have the above 3 features and additionally made intellectual/physical demands specific to the activity.

Target Area: Behaviour Problems

Bourgeois, Shultz, Burgio & Beach (2002) ***Journal of Clinical Geropsychology*** **8(1): 53-73**	**PEDro score** - 5/10
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** RCT. ➢ **Population:** n=63 caregivers of people with probable Alzheimer's disease (details below). ➢ **Groups:** o Patient change group: n=22, patients 50%, male, M=75.86 years (SD=7.84), Mini-Mental State Examination score M=10.27 (SD=7.26), primary caregiver age 73.41 years (SD=7.05), 50% male. o Self-change group: n=21, patients 57% male, Mini-Mental State Examination score M=12.43 (SD=7.70), primary caregiver age 73.95 years (SD=6.34), 43% male. o Control group (n=20). ➢ **Setting:** Family home. **Primary outcome measure/s:** ➢ Problem Behaviour Tracking form, BEHAVE-AD. ➢ Caregiver mood (single item rating). **Secondary outcome measure/s:** Caregiver strain, anger, anxiety, self-efficacy, stress, depression, health. **Result**: Statistical analysis demonstrated the two treatment groups improved in reduced problem behaviours (in the patient-change group) and improved mood (in the self-change group). Treatment effects maintained at 3 and 6 month follow-ups.	**Aim:** To improve patient problem behaviours and carer coping skills in people with Alzheimer's disease, using carer-training to: o Change patient behaviour (patient-change group), vs o To improve their own coping skills (self-change group), vs o Attention control. **Materials:** Procedures manual. **Treatment plan:** ➢ **Duration:** 12 weeks intervention; total contact time 13 hours. ➢ **Procedure:** 1 session training in collecting data using Problem Behaviour Tracking (PBT), 1 x 3-hour workshop, 1 session/week for 10 weeks: 60 mins/session. ➢ **Content:** ▪ *Patient-change group:* Workshop consisted of general behavioural principles as they apply in dementia (antecedent- behaviour- consequences model), an overview of the individual therapy sessions, and review of PBT data collected in the previous week; individual sessions followed the same format: review previous week's PBT, discuss any difficulties, review any medication changes, and other individualized instruction re managing behaviour ▪ *Self-change group:* Workshop consisted of training in 3 self-change strategies (pleasant events scheduling, problem solving, relaxation techniques), an overview of the individual therapy sessions, and review of PBT data collected in the previous week; individual sessions followed the same format: review previous week's PBT, review any medication changes, and other individualized instruction re the 3 self-change strategies.

Target Area: Behaviour Problems / Memory Impairments

Gerdner, Buckwater & Reed (2002) ***Nursing Research*** **51(6): 363-374**	**PEDro score** – 5/10
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** RCT. ➢ **Population:** n=237 caregivers of people with dementia, Global Deterioration Scale score ≥4 (ie, moderate or greater decline) in 87 %, caregiver age 64.8 years (SD=13.8), 26% male, hours of care/week 58%, care recipient age 76.6 years (SD=8.7), Alzheimer's disease in 67%, other type of dementia 12%. ➢ **Groups:** o Experimental group: Caregiver Training (CT) n=132; o Comparison group (n=105). ➢ **Setting:** Family home. **Primary outcome measure/s:** ➢ Frequency of problem behaviours. ➢ Caregiver's responses to behaviours. **Secondary measure/s:** ➢ Effect on patient's activities of daily living and caregiver's responses. **Result**: Used regression analyses to examine the intervention effects. Significant effects found for 3/4 outcome measures	**Aim:** To improve management of behaviour problems in people with dementia, using caregiver training (CT) program vs routine clinical contact. **Materials:** Nil reported. **Treatment plan** ➢ **Duration:** Length of therapy: 2 weeks; total contact time: 4 hours. ➢ **Procedure:** 2 visits. ➢ **Content:** ▪ *CT group*: An individualized care plan was developed using the Progressively Lowered Stress Threshold (PLST) model (Hall & Buckwalter, 1987). A typical plan included structured routine, provision of regular rest breaks, modifying of the environment. Techniques were taught and written summaries provided. ▪ *Comparison group:* 2x1 hour visits in which routine information was provided on referrals for community based services, case management, and support groups.

Target Area: Behaviour Problems

Toseland, Dielhl, Freeman, Manzanares, Naleppa et al. (1997) ***Journal of Applied Gerontology*** **16(1): 31-50**	**PEDro score** – 5/10
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** RCT. ➢ **Population:** n=88, 14% male, M=87.8 years (SD=5.95), errors on Short Portable Mental Status Exam M=7.43 (SD=2.10). ➢ **Groups:** o Validation Therapy (n=31). o Social Contact (n=29). o Usual care (n=28). ➢ **Setting:** Nursing home. **Primary outcome measure/s:** ➢ Multidimensional Observational Scale for Elderly Subjects (MOSES) – subscales: self-care, disorientation, depression, irritability, withdrawal. ➢ Cohen-Mansfield Agitation Inventory (CMAI). ➢ Geriatric Indices of Positive Behaviour (GIPB). ➢ Minimum Data Set (MDS). **Secondary outcome measure/s:** ➢ None. **Result**: Significant decrease in depression scale of MOSES for Validation Group; both Social and Validation groups showed decrease in verbal aggression on CMAI. Authors concluded there is "limited support for the effectiveness of validation therapy for nursing home residents with dementia".	**Aim:** To reduce problem behaviours and increase positive interactions in nursing home residents, using Validation Therapy vs Social Contact. **Materials:** Manual of activities for Social Contact group. **Treatment plan:** ➢ **Duration:** Length of therapy: 52 weeks; total contact time: 104 hours. ➢ **Procedure:** 4 sessions per week; 30 mins per session. ➢ **Content:** ▪ *Validation Therapy group:* A multicomponent intervention to encourage people with dementia to continue communicating by using memory fragments and other aspects of intact cognitive, affective and motoric functions. Group leaders were given training and ongoing supervision during the project. Group interaction is highly interactive and relatively structured. Uses 4 x 5 -10 min segments as follows: 1. Start by fostering warm greetings, holding hands and singing a song. 2. Interaction by focusing on topics and reminiscing. 3. Program activity. 4. Passing out refreshments and closing the group. ▪ *Social Contact:* 1 activity conducted each meeting following a manual with 54 activities in 8 categories: music, art, literature and writing, dance / exercise, games / trivia, holiday / event planning, discussion and other group activities. ▪ *Usual Care:* Participated in social and recreational program offered by the facility.

Target Area: Behaviour Problems

Camberg, Woods, Ooi, Hurley, Volicer et al (1999) *Journal of the American Geriatrics Society 1999* **47(4):446-452**	**PEDro score** - 5/10
Method/Results	Rehabilitation Program

Design:

- **Study type***:* RCT (cross over design).
- **Population:** n=55 nursing home residents with Alzheimers or related dementias (ADRD) who display at least one agitated or withdrawn behaviour per day. Participants were from 9 nursing homes, and had severe cognitive impairment and low functional ability 22.8% were male, with M=82.7 years, SD=7.5 years.
- **Groups:** Simulated Presence tape; Placebo tape; Usual Care.
- **Setting:** Nursing homes.

Primary outcome measure/s:

- Scale for the Observation of Agitation in Persons with Dementia (SOAPD).
- Positive Affect Rating Scale (PARS).
- Visual analog scales for agitation (AVAS) and withdrawal (WVAS).
- Facial diagrams of mood (FACE).
- Staff observation log (SOL).
- Staff ratings using short form of Cohen-Mansfield Agitation Inventory (SCMAI).
- Staff ratings using Multidimensional Observation Scale for Elderly Subjects (MOSES).

Secondary outcome measure/s:

- None.

Result: Based on staff observation logs, a significant reduction in agitation was found for the Simulated Presence group when compared with both the Placebo and the Usual care; and a significant reduction in withdrawal when compared with usual care. Simulated Presence therapy was superior to the placebo group in producing a happy expression. No group differences were found for agitation or withdrawal however when observations were made by a non-participant observer.

Aim: To enhance well-being and reduce agitated and withdrawn behaviours among nursing home residents with Alzheimer's Disease by simulating a live telephone call from a family member.

Materials: Information packet for family members containing a memory inventory form, conversational guidelines and an instructional audiotape, the personalized, interactive audio tape for the patient, headset, auto-reverse tape recorder, hip pack.

Treatment plan:

- **Duration:** 17 days.
- **Procedure:** 30 minutes to train nursing staff; tape administered at least twice /day during the weekdays when agitated or withdrawn behaviour is exhibited.
- **Content:**
  - *Simulated Presence*: An audio tape is recorded, containing a live telephone conversation with a family member/surrogate. The conversation is designed to be rich in selected memories and positive emotions.
  - *Placebo*: An audio tape of a person reading emotionally neutral articles from the newspaper.
  - *Usual care*: Routine behavioural management interventions (e.g. redirection, physical restraints).

Target Area: Behaviour Problems

Judge, Camp & Orsulic-Jeras (2000) ***American Journal of Alzheimers Disease and Other Dementias*** **15(1): 42-46**	**PEDro score -** 5/10

Method/Results	Rehabilitation Program
Design: ➢ **Study type:** Group comparison (non-RCT). ➢ **Population:** n=19 people (42% male, M=81 years; SD=8.7) with dementia (MMSE from 7-24) ➢ **Groups:** 2 groups: 1. Montessori program (n=9) 2. Standard treatment (n=10). ➢ **Setting:** Adult day care. **Primary outcome measure/s:** ➢ Observation of behaviour during 4 x 10 minute windows (2 in am, 2 in pm) at pre-test and post-test (4 and 8 months). Behaviour classified as "engagement (constructive or passive) vs non-engagement or self-engagement **Secondary outcome measure/s:** ➢ None. **Results**: Those involved in the Montessori program had greater active engagement (during the program) than those in standard treatment but no differences between groups during other times.	**Aim:** To improve environmental and social engagement in people with dementia by employing a Montessori based program. **Materials:** QAR: 2 page stories with memory aids (e.g. cue cards); Memory Bingo (playing cards with questions and other cards with answers). **Treatment Plan:** ➢ **Duration:** Ongoing (effects tested 4 and 8 months post treatment onset). ➢ **Sequence:** 45-60 minutes twice per day. ➢ **Contents:** Group activities included: 1. QAR (Question Asking Reading). 2. Memory Bingo. 3. Individual activities: either acting as a mentor to young children (for participants with less severe dementia) or individual work with assistant to maximise remaining skills (for those with more advanced dementia).

Target Area: Behaviour Problems / Communication, Language, Speech Disorders / Interpersonal & Social Skills

Schloss, Thompson, Gaja & Schloss (1985) ***Applied Research in Mental Retardation*** **6(3): 269-282**	**SCED score -** *to be confirmed*
Method/Results:	Rehabilitation Program
Design: ➢ **Study Type**: SSD. Multiple baseline across behaviours, replicated across participants. ➢ **Participants**: 2 males (age 20 and 21 years) with subdural hematoma secondary to MVAs. ➢ **Setting:** Community setting – clinic at university. **Target behaviour measure/s:** ➢ Videotaped conversations scored for the presence of 3 behaviours: (1) complimenting others (2) Asking others questions about themselves and (3) Telling others about self. ➢ Tapes also scored for "subjective evaluation" i.e. variety of social competence measures (on a scale 1-5) including: eye contact; speech fluency: intonation; affect; content; balance and overall conversational ability. **Primary outcome measure/s:** None **Results**: Relative to a cohort of 10 healthy men and women without injuries the 2 men with TBIs behaviours (1) and (2) came within normal range and (3) dropped below normal range. Subjective evaluation scores changed significantly from pre to post treatment.	**Aim**: To improve conversational skills by training participants to self-monitor the frequency of particular social behaviours (see outcome measures). **Materials**: Video camera, female confederates for the conversations, video player, mechanical counter. **Treatment plan**: ➢ **Duration:** About 22 sessions (after 6 sessions of baseline). ➢ **Procedure:** 30 minute training sessions every second day (Mon, Wed, Friday). ➢ **Content:** Participants told that purpose of sessions was to learn and practice recording one of the 3 target behaviours. They were given videoed examples and practice in identifying these (never told what a desirable rate might be). Following this had to self-monitor during actual conversations with confederates using mechanical counters to start and then just covertly.

Target Area: Behaviour Problems

Aeschleman & Imes (1999) ***Journal of Rational-Emotive and Cognitive Behavior Therapy*** **17(1): 51-65**	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. Multiple baseline across participants. ➢ **Participants:** 5 males (20-30 years old) with moderate-severe TBI. ➢ **Setting:** Residential facility **Target behaviour measure/s** ➢ Observation of impulsive behaviours: verbal; gestural; physical and other; as recorded by trained recorders during 1.5 hours early and late in the day and 2 hours during day activities. ➢ Role play probes (participant rated on 9 dimensions of self-control). **Primary outcome measure/s:** ➢ None. **Result**: Behaviour remained highly variable but mean "impulsive behaviours" fell from 8.4 (baseline) to 3.3 (no stats). Role playing ratings also increased over time (no stats).	**Aim:** To use stress inoculation program to decrease frequency of impulsive behaviour. **Materials:** Behaviour diary, Self-control rating scale (SCRS); quizzes to test knowledge of: 1. Self control. 2. Self statements. 3. Applications 4. Relaxation tapes. **Treatment plan:** ➢ **Duration:** 10 weeks. ➢ **Sequence:** 20 sessions x 50 minutes x 3 times/week. ➢ **Content:** Progressive sessions (supplemented with homework): 1. Identification and characterisation of problem behaviours. 2. Relaxation training. 3. Self instructional training. 4. Coping skills training. 5. Role playing of tasks. 6. Anger management. 7. Generalisation.

Target Area: Behaviour Problems / Interpersonal Psychosocial & Social Skills

Brotherton, Thomas, Wisotzek & Milan (1988) ***Archives of Physical Medicine and Rehabilitation*** **69(10): 827-837**	**SCED score:** *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study Type**: SSD. Multiple baseline across behaviours, replicated across participants. ➢ **Participant:** 4 participants, 3 males, age 22-27 years, 1 female age 20 years, all with severe traumatic brain injury (coma from 10-17 days). ➢ **Setting:** Community setting. **Target behaviour measure/s**: ➢ "Blind" rating of 31 specific videotaped behaviours - carefully defined (e.g. speech fluency, topic interest). **Primary outcome measure/s:** ➢ None. **Results:** Social contact increased in each participant (group data presented).	**Aim**: To remediate specific social skills, i.e. 3-4 specific behaviours identified during baseline assessments from a potential list of 10. **Materials**: One way mirror; video camera. **Treatment Plan**: ➢ **Duration**: 3 weeks (baseline) plus 9 weeks treatment (approx). ➢ **Sequence**: Maximum of 18 x 40-60 minute sessions (variable) 2-3 per week. ➢ **Procedure**: Approx 10 x 40 min baseline sessions (3 times per week) followed by a maximum of 18 x 60 min treatment sessions (2 times per week). ➢ **Content**: Participant was given a period of free interaction in which s/he determined the direction of the conversation (with a male and female trainer sitting adjacent). Following this participant had to enact 8-10 scenarios with trainers. After scenario enactment the participant had a 30 minute training session including verbal instruction/modelling/ behavioural rehearsal/video feedback/social reinforcement.

Target Area: Behaviour Problems

Mottram & Berger-Gross (2004) ***Paediatric Rehabilitation*** **7(2): 133-143**	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. Multiple baseline across participants. ➢ **Participant:** 3 single participants (plus 2 control groups of 3 disruptive and 2 appropriate children). o Participant 1: male, age 8 years, hydrocephalus, delayed milestones, WISC III 80, met DSM-IV criteria for Oppositional Defiant Disorder. o Participant 2: male, age 6 years, severe traumatic brain injury with prolonged coma, bifrontal haemorrhages, WISC III 83 and subsequent diagnosis of Attention Deficit Hyperactivity Disorder. o Participant 3: male, age 14 years, viral encephalopathy with protracted coma, ventilatory support and seizure disorder. Moderate mental retardation (IQ 50). Exhibited oppositional features and had restricted social interactions and routinized verbalizations described as similar to Autism Spectrum Disorder. ➢ **Setting:** After school day care centre. **Target behaviour measure/s**: ➢ Disruptive classroom behaviours. ➢ Operationally defined as negative student behaviours using the BASC Student Observation System (SOS). **Primary outcome measure/s:** ➢ None. **Result**: Effect sizes (using no assumptions technique with criterion of $\geq$2.07 as large effect) calculated for BASC-SOS percent of disruptive behaviours. Large effect sizes found for each participant (11.95, 10.77, 13.47 respectively) and small effect (<0.9) for controls. Effects maintained over a 2-week withdrawal period.	**Aim:** To reduce disruptive behaviours in children with acquired brain impairment during an after-school program. **Materials:** A behavioural package (see Content below); rehabilitation therapists and counselors of the program received training packages (60 and 90 mins respectively). **Treatment plan:** ➢ **Duration:** Length of therapy: varied for participants – range 4-6 weeks; total contact time: 60-100 hours ➢ **Procedure:** 3 hours/day for 33, 27 and 20 days for the respective participants ➢ **Content:** Intervention administered in the context of the Institute for Child Development program. Treatment implemented during the 3-hour schedule of the after-school program consisting of supervised homework in a classroom of the hospital. Elements of the program were as follows: 1. Program rules. 2. Token economy. 3. Response cost. 4. "Mystery motivators".

Target Area: Behaviour Problems

Doyle, Zapparoni, Connor & Runci (1997) *International Psychogeriatrics* 9(4): 405-422	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. AB (A=baseline before treatment, B=intervention). Follow up=after 3 to 9 months. ➢ **Participant:** 12 nursing home residents with severe dementia and noisemaking behaviours. 5 residents died before completion or were withdrawn. Data is presented for the remaining 7 (14% male, M=71-88 years). Some residents had additional hearing or visual impairments, psychiatric conditions (e.g. F8 had schizophrenia) or language restrictions (e.g. F1 spoke no English). ➢ **Setting:** Long term care facility. **Target behaviour measure/s:** ➢ Specific noisemaking behaviours (e.g. yelling or shouting, whistling, singing, banging doors and tables). **Primary outcome measure/s:** ➢ No additional measures. **Result**: Noisemaking was significantly reduced in 2 female patients. For F1, although noise reduction was not perceived by staff, frequency of noise making was reduced by 20%, p = .05. These improvements, however, were not maintained at follow up. For F8, a noticeable drop in noise making was perceived by staff, p = .03. This reduction remained at follow up. For 3 other female patients (F4, F10, F12), some reductions in noisemaking were observed, however these were not significant and in some cases were limited to certain situations. No discernable reductions were noted for 2 patients (F2, M11). Combined analysis of the 6 residents with sufficient data showed a significant overall effect of the interventions.	**Aim:** To reduce noisemaking behaviours in long-term care residents with severe dementia using contingent reinforcement of quiet behaviour and environmental stimulation. **Materials:** Music, headphones, CD/tape player, tapes of familiar voices or talking books, scents, different materials and objects for tactile stimulation, food rewards. **Treatment plan** ➢ **Duration:** Approx 4-5 weeks in total (2 weeks intervention). ➢ **Procedure:** 1 week pilot testing to determine nature of noisemaking behaviour and design appropriate recording schedule; A: observation 4x 30 min periods for 5-9 days consecutive days scheduled at 10am, 12pm, 2pm, 4pm; B: 10-14 days of intervention. ➢ **Content:** Interventions were individually tailored to the patient, but included three elements: 1. Reinforcement of quiet behaviour using tailored rewards (e.g. favourite food) and extinction of noisy behaviour by ignoring noise. 2. Distracting patients with music, conversation, touch or visual aids. 3. Providing extra stimulation through social interaction, music, tapes of familiar voices, pleasant smells, tactile stimulation of different types of materials and objects and massage. *F1*: Received massage, aromatherapy, Arabic music, soft object engagement, contingent food rewards for quiet. *F2*: Received social interaction, assisted walking. *F4*: Received afternoon massage, object engagement, music *F8*: Received contingent attention and massage, music, more time in the day room, *F10*: Received music, talking books, tapes of family's voices, contingent reinforcement of quiet, comforter, soft balls *M11*: Received music, assisted walking, activity board *F12*: Received walks outside, watching TV, one-to-one interaction.

Target Area: Behaviour Problems / Independent & Self Care ADL

Beattie, Algase & Song (2004) ***Ageing & Mental Health*****, 8(2): 109-116**	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. ABABA (A=baseline/withdrawal, B=intervention), replicated across participants. ➢ **Participants:** n=3, individual details not provided, 33% male with probable Alzheimer's disease. ➢ **Setting:** Nursing Home. **Target behaviour measure/s:** ➢ Table-leaving frequency (tally). ➢ Duration of sitting at the table (timed with stop-watch). ➢ Amount of food consumed (weighed before and after meal). **Primary outcome measure/s:** ➢ Body weight (used scales). **Result**: No graphed data provided. Statistical analysis demonstrated: significant reduction in table-leaving behaviours in 2/3 patients during intervention; significant increase in length of time sitting at the table in all patients; significant increase in food consumed in 2/3 patients; no increase in fluid intake in any patient; no increase in weight.	**Aim:** To decrease wandering during meal times and increase food consumption in people with Alzheimer's disease, using a behavioural communication intervention. **Materials:** Stop-watch, scales. **Treatment plan:** ➢ **Duration:** Length of therapy: 2 weeks; total contact time: 3 hrs 20 mins (+ monitoring in baselines/withdrawal phases 8 hrs 20 mins). ➢ **Procedure:** 5 sessions per week; 20 minutes per session at evening meal. ➢ **Content:** ▪ Systematic reinforcement of sitting-at-table behaviour using 2 communication strategies: 1. focused conversation about the meal, eating and social comments re meal-time experience, using the Heron Six-category Intervention Analysis (HSCI). 2. specific elements of social behaviour (e.g., smiling, eye contact). Additionally, systematic stopping of table-leaving behaviour was implemented whenever it occurred. ▪ Therapists were trained against a gold standard in recognizing HSCI elements and pacing mealtime conversation. ▪ Intervention was administered in the first 20 mins of each evening meal.

Target Area: Behaviour Problems

Alderman & Knight (1997) ***Brain Injury*** **11(2): 79-101**	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. Multiple baseline across behaviours, replicated across participants. ➢ **Participants:** o Participant 1 (described in this summary): male, age 58 years, brain injury from motor vehicle accident, 2 years post-trauma, coma ~ 3 months, -> mild L hemiplegia, poor memory and executive functions, severe behavioural dyscontrol. o Participant 2: female, age 35 years, with ruptured posterior communicating artery aneurysm, 3 years post-trauma. WAIS-R score fell into the "impaired range", severe impairment on verbal and nonverbal memory tests, as well as executive tasks. Presented with episodes of agitation and disinhibition. ➢ **Setting:** Inpatient behavioural unit. **Target behaviour measure/s:** ➢ Throwing things. ➢ Shouting (above normal conversational tone). **Primary outcome measure/s:** ➢ None. **Result**: Graphed data presented, supported by statistical analysis. Significant reduction of the target behaviours, which by the end of the program were almost absent, but reduction in these behaviours were substituted by other undesirable behaviours (increased swearing and sexual comments to female staff members). These latter behaviours also successfully treated using DRL. All behaviours maintained up to 18 month follow-up.	**Aim:** To increase independence in learning and performing daily showering routine in a patient with traumatic brain injury by using differential reinforcement of low rates of responding (DRL). **Materials:** Nil required. **Treatment plan:** ➢ **Duration:** Length of therapy: 12 weeks; (total hours not reported). ➢ **Procedure:** 5 sessions per week during morning hygiene (showing) routine. ➢ **Content:** ▪ Differential reinforcement of low rates of responding (DRL) program. After baseline was taken of both target behaviours (throwing and shouting), a DRL program was introduced for throwing (while shouting continued to be baselined). ▪ A target of 16 occasions of throwing things per session was set as the upper limit not to be exceeded. This was easily achievable given previously collected data. At the end of the hygiene program, he earnt a reinforcer of his choice if the frequency of target behaviours did not exceed criterion. This information was presented to him in verbal and written form immediately before he entered the bathroom. ▪ Additionally, he was given feedback approximately each 5 mins regarding his frequency of the target behaviour and reminders of the target behaviours and reward. Praise also given if target behaviours were below the target. When the target was met, it was reduced by 2 for the next session. ▪ After he met criterion of $\leq$2 throws on several occasions, the program included the next target behaviour, shouting, using a similar DRL procedure.

Target Area: Behaviour Problems

Feeney & Ylvisaker (2003) ***Journal of Head Trauma Rehabilitation*** **18(1): 33-51**	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. ABAB reversal (A=baseline/withdrawal, B=intervention), replicated across participants. ➢ **Participants:** o Participant 1: male, age 7 years, severe traumatic brain injury, 2 years post-trauma, Wechsler Intelligence Scale for Children III 79, behaviour deteriorated when enrolled in first grade class. o Participant 2: female, age 6 years, severe traumatic brain injury, 2 years post-trauma, Wechsler Intelligence Scale for Children III 102, 3 months after return to school behaviour deteriorated. ➢ **Setting:** School classroom. **Target behaviour measure/s:** ➢ Aggressive behaviours, operationally defined with Aberrant Behavior Checklist (e.g., boisterous, impulsive, difficult to control, disruptive). **Primary outcome measure/s:** ➢ None. **Result**: Data presented graphically, no statistical analysis conducted. For Participant 1, dramatic reduction of frequency and intensity of challenging behaviours in the 2 treatment phases, increase in withdrawal phase. No change in percentage of school work completed, but ranges were smaller in the treatment days, "indicating that the intervention had the effect of eliminating the bad days …"). Results were replicated in the second participant.	**Aim:** To reduce frequency and intensity of aggressive behaviours and increase percentage of school work completed in children with traumatic brain injury by, using operant procedures (implementation of positive behavioural supports, as opposed to reaction to consequences). **Materials:** Nil required. **Treatment plan:** ➢ **Duration:** Length of therapy: 16 days (Participant 1), 12 days (Participant 2); total contact hours: not specified, but treatment was implemented throughout the school day (estimated at 6 hrs/day)-hence ?96 hours (Participant 1), ?72 hours (Participant 2). ➢ **Procedure:** NA – teachers implementing treatment during the school day. ➢ **Content:** Paper describes 7 components of the Behaviour Supports: 1. Daily routine. 2. Positive momentum (eg. start with easy tasks/student preferred activity). 3. Reduction of errors (eg. Staff provide modeling and assistance). 4. Escape communication (eg. Train in use of positives "I'm done"). 5. Adult communication style. 6. Graphic advance organizers (students provided with photographic cues). 7. Goal-plan-do-review – a map of the sequence of activities.

Target Area: Behaviour Problems

Schlund & Pace (1999) ***Brain Injury*** **13(11): 889-897**	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. Multiple baseline across participants. ➢ **Participants:** o Participant 1: male, age 33 years, traumatic brain injury, 4 years post-trauma, mild neuropsychological impairments. o Participant 2: male, age 27 years, traumatic brain injury, 9 years post-trauma, mild neuropsychological impairments. o Participant 3: male, age 48 years, traumatic brain injury, 4 years post-trauma, mild neuropsychological impairments. ➢ **Setting:** Medical day program. **Target behaviour measure/s:** ➢ Participant 1: 1. Pseudo-seizures. 2. Stepping out of wheelchair. 3. Physical/verbal aggression. ➢ Participant 2: 1. Physical/verbal sexual inappropriateness. 2. Physical/verbal aggression. ➢ Participant 3: 1. Noncompliance with program rules. 2. Uncooperative behaviour. 3. Suicide threats. **Primary outcome measure/s:** ➢ None. **Result**: Graphed data are provided but no statistical analyses were conducted. Treatment appeared efficacious: Mean baseline scores for the 3 participants were 2, 3.5 and 5.1 respectively; after introduction of feedback mean scores were 0.7, 1.7, 0.2 respectively.	**Aim:** To reduce maladaptive behaviour in people with traumatic brain injury, by using feedback. **Materials:** Nil required. **Treatment plan:** ➢ **Duration:** Length of therapy: 11 weeks (9 weeks for Participant 2, 7 weeks for Participant 3); total contact time: not specified. ➢ **Procedure:** 1 session per week. ➢ **Content:** All staff recorded frequency of any of the targets behaviours. In treatment phase, participants met with psychologist and reviewed and discussed data sheets. In baseline phase, met with psychologist to discuss adjustment issues related to their disability, progress towards their personal rehabilitation goals, and effectiveness of their behavioural strategies in reducing rates of maladaptive behaviours.

Target Area: Behaviour Problems

Slifer, Cataldo, Babbit, Kane, Harrison & Cataldo (1993) ***Archives of Physical Medicine and Rehabilitation*** **74(8): 810-817**	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. Multiple baseline across participants. ➢ **Participants:** o Participant 1: male, age 10 years, intractable seizures -> right hemispherectomy, 36 days post-surgery, Full Scale IQ 59. o Participant 2: male, age 10 years, traumatic brain injury, Glasgow Coma Scale (GCS) score 8, 32 days post-trauma, Full Scale IQ 75. o Participant 3: male, age 15 years, traumatic brain injury, GCS score 14, 12 days post-trauma, Full Scale IQ 64. o Participant 4: female, age 16 years, traumatic brain injury, GCS score 3, 106 days post-trauma, Full Scale IQ <40. ➢ **Setting:** Inpatient paediatric neurorehabilitation unit. **Target behaviour measure/s:** ➢ Verbal agitation. ➢ Physical aggression. ➢ Physical disruption. ➢ Noncompliance. **Primary outcome measure/s:** ➢ None. **Result**: Graphed data provided, but no statistical analysis conducted. An increase in compliance with medical and rehabilitation programs, especially for Participants 2 and 3 (virtually 100%), but not Participant 1 whose response was variable.	**Aim:** To decrease aggression and noncompliance in adolescents with acquired brain impairment, using differential reinforcement of appropriate behaviour (DRA). **Materials:** Nil required. **Treatment plan:** ➢ **Duration:** Length of therapy approximately 4 weeks for Participants 1-3; 4 months for Participants 4; total contact time: not specified ➢ **Procedure:** No therapy sessions per se; rather behaviours observed at ward level. Individual staff members provided with record forms to document all instances of 1. following rules and 2. disruptive behaviours ➢ **Content:** Uses DRA. Staff trained in the procedures, using didactic teaching sessions with examples, modeling, and observed in their implementation of corrective feedback. Components included: o Positive reinforcement of cooperative attendance and socially appropriate behaviour with immediate verbal praise and contingent access to preferred activities at midpoint (15 mins) and end (30 min) of therapy. o Ignoring disruptive or inappropriate behaviour and withholding all social interaction other than interrupting behaviour and prompting appropriate alternative. o Response cost implemented for disruption, aggression or noncompliance after a warning (loss of preferred activity or token saved to have access to preferred activities.

Target Area: Behaviour Problems

Slifer, Tucker, Gerson, Sevier, Kane et al (1997) *Brain Injury* 11(12): 877-889	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. Multiple baseline across participants. ➢ **Participants:** Text implies that patients sustained traumatic brain injuries. o Participant 1: female, age 16 years, Glasgow Coma Scale (GCS) score 3, in post-traumatic amnesia (PTA) when therapy commences at 16 days post-trauma on admission to rehabilitation. o Participant 2: female, age 17 years, GCS score 8, in PTA when therapy commences at 13 days post-trauma on admission to rehabilitation. o Participant 3: female, age 16 years, GCS score 4, in PTA when therapy commences at 65 days post-trauma and 43 days after admission to rehabilitation. ➢ **Setting:** Inpatient paediatric neurorehabilitation unit. **Target behaviour measure/s:** ➢ Attendance at therapy sessions. ➢ Disruptive behaviours – physical aggression, verbal/physical threats of aggression, yelling, grabbing at objects/people, throwing things, refusal to cooperate with instructions, resistance to physical care. **Primary outcome measure/s:** ➢ None. **Result**: Graphed data provided, but no statistical analysis conducted. Appeared to be an increase in therapy attendance which was high, disruptive behaviour decreased, but agitation remained at low to moderate levels.	**Aim:** To decrease disruptive behaviour and increase therapy attendance in adolescents with acquired brain impairment, using operant procedures. **Materials:** Nil required. **Treatment plan:** ➢ **Duration:** Length of therapy: Participant 1 28 days (+ 22 days of baseline), Participant 2 10 days (+ 15 days of baseline), Participant 3 24 days (+ 48 days of baseline); total contact time: not specified. ➢ **Procedure:** No therapy sessions per se; rather each patient assigned a behavioural assistant 24 hours per day and behaviours observed at ward level. ➢ **Content:** The behavioural assistant had a specified role: to maintain a quiet and calm environment and implement the behavioural protocol for disruptive behaviour. Therapy was divided into compliance training with minimal demands (baseline) and compliance training with usual therapy demands implemented a variable number of days after the patient emerged from PTA as follows: o Attend therapy – a reminder 10 mins before and prompt at 5 min intervals. o In therapy, increasingly challenging tasks presented along with positive reinforcement. o Disruptive behaviour ignored.

Target Area: Behaviour Problems

Wesolowski, Zenicus & Rodriguez (1999) *Behavioral Interventions 14*: 163-170	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. Multiple baseline across participants. ➢ **Participants:** All participants described as having "significant frontal lobe damage" following traumatic brain injury: o Participant 1: Male, 19 years o Participant 2: Male, 16 years o Participant 3: Male, 24 years ➢ **Setting:** Vocational training program. **Target behaviour measure/s:** ➢ Unauthorized breaks. **Primary outcome measure/s:** > None. **Result**: Graphed data provided, but no statistical analysis conducted. All 3 participants showed reduction in unauthorized absconding: at baseline had means of 2.3, 2 and 4 unauthorised breaks per day respectively and at the end of treatment all had 0 unauthorised breaks, maintained at 6 and 12 month follow-ups.	**Aim:** To decrease the frequency of leaving the vocational site without authorization in people with traumatic brain injury, using noncontingent escape. **Materials:** Written sheet (8.5 x 11 inches) with times of scheduled minibreaks written in large letters and posted at each person's workstation. **Treatment plan:** ➢ **Duration:** length of therapy: Participant 1 40 days, throughout the training program 9am-3.30pm; total contact time: 260 hours. ➢ **Procedure:** No therapy sessions per se; rather therapy procedures applied throughout the training program ➢ **Content:** Vocational instructors were initially trained in ignoring participants when they left the worksite and praising them for returning on time from their breaks. Used noncontingent escape, by explaining to participants that they would have minibreaks occurring for 10 mins each hour. The schedule of minibreaks was written onto the paper and posted onto the workstation. The vocational instructor prompted the participant to take his break if this was not self-initiated.

Target Area: Behaviour Problems

Zencius, Wesolowski & Burke (1990) ***Behavioral Residential Treatment*** **5(3): 143-147**	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. Multiple baseline across settings (speech pathology, physiotherapy, social interaction sessions). ➢ **Participant:** Participant: Male, 24 years, traumatic brain injury, frontal and temporal injuries, Full Scale IQ 76, poor interpersonal and communication skills and unable to set realistic goals. ➢ **Setting:** Residential rehabilitation facility. **Target behaviour measure/s:** ➢ Frequency of profanities. **Primary outcome measure/s:** ➢ None. **Result**: Graphed data provided, but no statistical analysis conducted. Profanities in each of speech therapy, physiotherapy and social interaction settings reduced from M~6 per day to M=0.5, and after treatment to near zero in all settings.	**Aim:** To decrease frequencies of profanities in a man with traumatic brain injury, using a visual cue as a reminder. **Materials:** Sheet of white paper (8.5 x 11 inches) with the word "swearing" written at the top with a red marker pen. **Treatment plan:** ➢ **Duration:** Length of therapy: 27 days during 3 therapy classes, each class of 1 hour duration; total contact time across all 3 settings: 71 hours (26 hours for Setting 1). ➢ **Procedure:** Setting 1: 1 class per day, 1 hour per class. ➢ **Content:** Whenever the participant used a profanity, the white sheet of paper was held up in front of him and the clinician scored an "X" on it. Clinicians were instructed to do or say nothing more.

Target Area: Behaviour Problems

Turner, Green & Braunling-McMorrow (1990) *Behavioral Residential Treatment* 5(1): 15-27	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. Multiple baseline across settings (clinical sessions, group house, activity times). ➢ **Participants:** Participant: male, age 21 years, traumatic brain injury, 2.5 months in coma, 6 months post-trauma. ➢ **Setting:** A group home. **Target behaviour measure/s:** ➢ Verbal behaviour-operationally defined verbal aggression, suggestive sexual comments, personal comments ➢ Physical behaviours-operationally defined physical aggression, touching females. **Primary outcome measure/s:** ➢ None. **Result**: Graphed data provided, but no statistical analysis conducted. Appeared to be reduction in target behaviours.	**Aim:** To decrease aggressive behaviour in a man with traumatic brain impairment, using differential reinforcement of low rates of behaviours (DRL) **Materials:** Nil required. **Treatment plan** ➢ **Duration:** Length of therapy: 5 months; total contact time: not specified. ➢ **Procedure:** Number of sessions and duration not specified. ➢ **Content:** Staff members were trained in target behaviour definitions and how to record the same. If the patient exhibited frequencies of the target behaviour at or below specified criteria for a specified time period he was awarded points towards a weekly goal ($10). The clinician met with the participant daily to review data, total the points, and give feedback. Specifically, he was required to maintain $\leq$5 target behaviours/hour was awarded 50 points; if no target behaviours occurred was awarded 100 points. Criterion for target behaviours gradually decreased and finally set at 12 target behaviours/week.

Target Area: Behaviour Problems

Gardner, Bird, Maguire, Carreiro & Abenaim (2003) ***Journal of Head Trauma Rehabilitation 18(1):*** **52-74**	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program

Design:

- **Study type:** SSD. Modified ABCA (A=baseline/withdrawal, B=multicomponent intervention, C=3 distinct phases of fading), replicated across participants
- **Participants:**
  1. Participant 1: 12 year old male, with "right hemisphere dysfunction syndrome" (confirmed with MRI scan), anxiety disorder, attention deficit hyperactivity disorder, obsessive compulsive disorder and severe learning disabilities. Neuropsychological assessment confirmed moderate diffuse cerebral dysfunction, particularly right hemisphere and frontal dysfunction.
  2. Participant 2: 13 year old male, with left temporal mesial scerosis, seizure disorder, oppositional defiant disorder, major depression and learning disabilities. Educational testing showed below-level achievements on academic attainment skills
- **Setting:** Special education residential school.

Target behaviour measure/s:

- Challenging behaviours operationally defined as aggression (punching, kicking, biting etc).
- Destroying property (throwing furniture, breaking objects etc).
- Pica behaviour, fecal smearing, and Insertion of objects into his body cavities.

Primary outcome measure/s:

- None.

Result: Data for challenging behaviours presented graphically, but no statistical analyses conducted. For both participants there was a dramatic reduction in target behaviours with the introduction of the multicomponent treatment intervention, which were maintained in the subsequent phases of staff fading.

Aim: To decrease challenging behaviours (aggression and property destruction).

Materials: Nil required.

Treatment plan:

- **Duration:** Length of therapy: approximately 3 years, operating continually within the residential school. The multicomponent intervention (Phase 1) was in operation for 20 weeks, followed by 3 phases of variable duration (in total approximately 70 weeks for Participant 1 and 50 weeks for Participant 2) of fading procedures, and a withdrawal/maintenance phase of approximately 50 weeks and 35 weeks for Participants 1 and 2 respectively.
- **Procedure:** No therapy sessions per se; program in continual operation.
- **Content:**
  - *Multicomponent intervention:* the following elements were included:
  1. Functional communication training.
  2. Antecedent management.
  3. Contingency management, including differential reinforcement of other behaviours (DRO), differential reinforcement of alternative behaviours (DA), as well as contingent reinforcement procedures.
  4. Crisis management.
  - *Subsequent phases:*
  1. Fading of staff cues.
  2. Staff reduction, medication changes.
  3. Staff reduction, medication changes, increased independence (including family training and visits).

Target Area: Behaviour Problems

Alderman, Fry & Youngson (1995) *Neuropsychological Rehabilitation* 5(3): 193-221	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** 1. Procedure 1 (Response cost): ABAB (A=baseline/withdrawal, B=intervention). 2. Procedure 2 (Self-monitoring): ABCDE (A=baseline, B=spontaneous self-monitoring, C=prompted self-monitoring, D=independent self-monitoring and accuracy reward, E=independent self-monitoring and differential reinforcement of low rates of responding (DRL)). ➢ **Participant:** female, age 21 years, 13 months after Herpes simplex encephalitis. ➢ **Setting:** Inpatient behavioural unit. **Target behaviour measure/s:** ➢ Patient's inappropriate self initiated utterances. **Primary outcome measure/s:** ➢ None. **Result**: Response Cost treatment successful in reducing target behaviour but did not generalize to other settings. Self-Monitoring training also reduced target behaviour and generalized to settings outside the treatment centre.	**Aim**: Implement classical behaviour management techniques (based on positive reinforcement and extinction principles) to reduce frequency and duration of patient's (inappropriate) self-initiated utterances. **Treatment plan/procedure (1: Response cost)** ➢ **Materials:** Tokens ➢ **Duration:** 34 interventions (length unspecified) conducted within daily group rehabilitation sessions, Monday to Friday. ➢ **Procedure:** 1. A1=baseline (9 *sessions*); B1= treatment (5 *sessions*); 2. A2=withdrawal (10 *sessions*); B2=treatment (10 *sessions*) 3. Each *session* consisted of four 15-minute daily trials. ➢ **Content:** A1 and A2 phases: Time out on the spot (TOOTS) from positive reinforcement applied to each occurrence of target behaviour (ie, self-initiated verbal utterances) B1 and B2 phases: for each occurrence of target behaviour, TOOTS applied during trials 1 and 3. Response Cost is applied during trials 2 and 4 of each treatment *session*. (Response Cost= patient loses a token from a 'bank' of 60 for each self-initiated utterance. If sufficient tokens remain at end of day, they can be exchanged for reward). **Treatment plan/procedure (2: Self-monitoring)** ➢ **Materials:** Digital counter ➢ **Duration:** 92 days, but duration of treatment is variable because transition from one *Stage* of training to the next is contingent on performance in the previous *Stage*. ➢ **Procedure:** Five Stages of training with variable number of 20-minute sessions. ➢ **Content:** Stage1 – Baseline; Stage 2 – Spontaneous SM; Stage 3 – Prompted SM; Stage 4 – Independent SM and patient rewarded for accuracy of SM; Stage 5 Independent SM and DRL. Patient's self-initiated utterances are monitored by therapist and patient in Stages 2-5 of training.

Target Area: Behaviour Problems

Alderman & Ward (1991) ***Neuropsychological Rehabilitation*** **1(1) 65-80**	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type**: SSD. ABACACD; A=no treatment; B=response cost; C=modified response cost; D= modified response cost and cognitive overlearning. ➢ **Participant:** Participant 1 – female, age 36 years, one year post infection with herpes simplex encephalitis. Marked behavioural problems – specifically constant multiple repetition of stereotyped verbal phrases. ➢ **Setting:** Inpatient rehabilitation. **Target behaviour measure/s:** ➢ Multiple repetitions of stereotyped verbal phrases. **Primary outcome measure/s:** ➢ None additional. **Results:** All 3 treatments better than baseline. No difference between B & C, but CD more effective. Effects maintained at 3 months post treatment.	**Aim:** To reduce multiple repetitions of stereotyped verbal phrases. **Materials:** Money or token. **Treatment plan:** ➢ **Duration:** 154x15 min trials over 51 days=38hr 30mins (including A sessions). ➢ **Procedure:** 4x15 minute sessions per day, five days a week. ➢ **Content:** – A (5x15 min sessions). – B (25x15min sessions) given money (50 pence), lost money if repeated target sentence (1 pence /sentence). Received reward if had enough money (36 pence) at the end of 15 minutes. – A (baseline until no trend in the frequency of repetitive speech evident). – C (32x15 min sessions)–Same as B but only got reward if had 46 pence at end. – A (baseline until no trend in the frequency of repetitive speech evident). – CD (30x15 min sessions). C as above; cognitive overlearning–each time sentence repeated Ss had to repeat "I must not repeat myself" for one minute.

Target Area: Behaviour Problems

Alderman & Burgess (1994) ***Neuropsychological Rehabilitation*** **4(1): 31-48**	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. ABAB (A=baseline/withdrawal, B=intervention). ➢ **Participant:** Participant 1: male, age 39 years, Herpes Simplex Encephalitis 32 months previously, severe cognitive impairment, particularly dense global amnesia and behavioural disturbance characterized by general lack of inhibitory control and severe dysexecutive syndrome. ➢ **Setting:** Inpatient behavioural unit. **Target behaviour measure/s** ➢ Verbal abuse: including swearing and derogatory remarks, either directed at examiners or non-directed. ➢ Rhyming: spontaneous singing and repetition of verse. **Primary outcome measure/s:** ➢ None. **Result**: Graphed data presented, supported with statistical analysis using time-series analyses. Response cost procedures showed a dramatic reduction in the target behaviours, with small increase in the withdrawal phase, and virtually zero responding when response-cost reinstated.	**Aim:** To reduce severe verbal and physical aggression in a man with encephalitis, and compare treatment methods: o Time out, o Differential reinforcement of incompatible behaviour (DRI) and o Response cost. The second intervention (DRI) indicated that some aspects of his verbal behaviour may be remediable and these were targeted in the 3rd intervention (response cost), described below. **Materials:** Response cost incentives (money) and rewards (cigarettes). **Treatment plan:** ➢ **Duration:** Length of response cost intervention: 16 weeks; total contact time: 80 hours (+ 1 week for each of baseline and withdrawal = 5 hours each). ➢ **Procedure:** 5 sessions per week; 1 hour per session. ➢ **Content:** ▪ Each session split into 2 x 30 mins trials. A range of activities were undertaken in the sessions: orientation exercises, psychometric testing, card and board games – all of which were changed every 15 mins. At the beginning of each session, the patient was given 50 x 1 pence pieces in 5 piles of 10 pence. ▪ It was explained that at the end of the session money could be exchanged for a cigarette, but money would be lost by singing, shouting or swearing. Each time a target behaviour occurred the experimenter would intervene and prompt him to state what he had done. If unable to verbalise the response, the experimenter informed him that he had shouted/swore/sung and prompted him to hand over one of the coins. ▪ The "cost" of the cigarette initially fixed at 18 pence, which was estimated from previous data that it was sufficiently low to ensure success at the end of the initial trial. The target was increased by 2 pence following any trial on which he achieved the target.

Target Area: Behaviour problems

Persel, Persel, Ashley & Krych (1997) ***Brain Injury*** **11(10): 751-760**	**SCED Score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design ➢ **Study type:** SSD. ABAB; A=no treatment; B=non contingent reinforcement (NCR) ➢ **Participant:** Male, age 40 years, following TBI with severe aggressive and behavioural problems. ➢ **Setting:** Inpatient rehabilitation facility **Target behaviour measure/s:** ➢ Recordings of self-injurious behaviour (SIB). ➢ Recordings of physical aggression (PA). ➢ Self-injury trauma (SIT) scale. **Primary outcome measure/s:** ➢ None. **Results:** PA and SIB levels decreased during intervention and remained at a relatively low level at follow-up (no stats performed).	**Aim:** To decrease self-injurious behaviour and physical aggression. **Materials:** None specified. **Treatment Plan:** ➢ **Duration:** 17 weeks. ➢ **Procedure:** See below. ➢ **Content:** NCR-attention was given on a fixed-time schedule which was not dependent on behaviour. Attention was given every 30 mins between waking and 11am and from then on every hour until bedtime. Attention was a 3 minute conversation.

Target Area: Behaviour Problems / Community Re-entry & Instrumental ADLs / Interpersonal, Psychosocial & Social Skills

O'Leary (2000) *Behavioral Interventions* 15(3): 205-216	SCED score – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. ABA (A=baseline/withdrawal, B=intervention), replicated across participants. ➢ **Participant:** Data not presented for individual participants: 5 males, aged 21-42 years, with brain injuries 4 months-5 years previously. All had histories with verbal and physical aggression, with 2/5 additionally being aggressive pre-injury. ➢ **Setting:** Inpatient rehabilitation unit. **Target behaviour measure/s:** ➢ Incidents of verbal or physical aggression- operationally defined. **Primary outcome measure/s:** ➢ None. **Result**: Graphed data presented; no statistical analyses conducted. Treatment effects varied across participants, but were clearly effective for most participants by the end of training. Treatment effects were maintained during withdrawal.	**Aim:** To reduce verbal and physical aggression in patients with traumatic brain injury. **Materials:** Written materials, role-plays, audiotapes, group discussion and lecture. **Treatment plan:** ➢ **Duration:** Length of therapy: 10 weeks; total contact time: 20 hours (+10 weeks of baseline and 10 weeks of withdrawal). ➢ **Procedure:** 2 sessions per week, 1hour per session. ➢ **Content:** ▪ Two themes to the program were addressed each week: the first session addressed coping skills and managing everyday stress, the second session targeted anger management strategies drawing upon the work of Goldstein and Glick (1993). ▪ *Coping skills* sessions covered the following: 1. Stress and its sources. 2. Coping and its consequences. 3. Developing lists of pleasant activities. 4. Relaxation training. 5. Anger management exercises. 6. Role plays of coping strategies. ▪ *Anger management* sessions covered the following: 1. Goals of anger management and the antecedent-behaviour- consequences model (ABC). 2. Awareness of anger and training in anger reducers, use of hassle logs. 3. Understanding anger and its triggers. 4. Reminders. 5. Self-evaluation (self-rewarding and self-coaching). 6. Thinking ahead ("IF-THEN"). 7. Identifying and changing anger-provoking behaviours. 8. Implementing new behaviours.

 Note that these rehabilitation summaries reflect the current literature and the treatments are not necessarily endorsed by members of the PsycBITE™ Team

Target Area: Behaviour Problems

Fyffe, Kahng, Fittro & Russell (2004) ***Journal of Applied Behavior Analysis*** **37(3): 401-404**	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. ABAB reversal design where A1=baseline before treatment, B1=implementation of functional communication training (FCT) and extinction of reinforcing behaviour, A2=withdrawal of interventions, B2=re-implementation of interventions. ➢ **Participant:** Male, age 9 years, with a diagnosis of TBI and seizure disorder. He suffers severe speech impairment (using picture cards to communicate wants) and uses a wheelchair for ambulating. ➢ **Setting:** Residential care facility. **Target behaviour measure/s:** ➢ *Inappropriate sexual behaviour* (ISB): Defined as frequency of touching or attempting to touch others in the area of the groin, buttocks or breasts during sessions. ➢ *Appropriate communication*: Defined as frequency of unprompted handing of the "attention" card to the experimenter during sessions. **Primary outcome measure/s:** ➢ No additional measures. **Result**: Although no statistical analyses were reported, FCT plus extinction reduced ISB across both treatment phases, with an overall reduction of 94% in ISB. Appropriate communication using the attention card was also observed.	**Aim:** To reduce inappropriate sexual behaviours (ISB) by implementing functional communication training (FCT) and extinguishing the social attention that had been reinforcing the inappropriate behaviour. **Materials:** Velcro attention card. **Treatment plan:** ➢ **Duration:** A1: 7 sessions; B1=5 sessions; A2=4 sessions; B2=26 sessions (total intervention time=10.3 hrs). ➢ **Procedure:** 20 mins per session (details regarding the interval between sessions-e.g. number of sessions per day or per week-are not provided). ➢ **Content:** – *A (baseline):* During the 20 minute sessions, the patient would receive a brief reprimand (5 sec) when demonstrating ISB. – *B (intervention):* The patient was taught to hand the experimenter an attention card through graduated guidance prompting procedure. On receiving the card, the experimenter would give 30 seconds of attention. ISB was ignored or blocked. Following the withdrawal and return to treatment, the FCT reinforcement schedule was thinned, restricting access to attention card while maintaining a low level of ISB in a given session.

Target Area: Behaviour Problems

O'Reilly, O'Kane, Byrne & Lancioni (1996) ***The Irish Journal of Psychology*** **17(3): 258-268**	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. Multiple baseline across settings (1=physiotherapy; 2=occupational therapy). ➢ **Participant:** A female, age 36 years, with a moderate to severe brain injury following a brain haemorrhage. She suffered short term memory loss, distractibility, and showed marked confabulation and perseveration in her speech. Therapy was conducted in a post-acute rehabilitation facility. ➢ **Setting:** Post-acute rehabilitation facility. **Target behaviour measure/s:** ➢ Frequency of patient's verbal abuse, and frequency of appropriate explanatory statements made by the therapists. **Primary outcome measure/s:** ➢ No additional measures. **Result**: Immediate and consistent decreases in verbal abuse occurred once the intervention was implemented in physiotherapy sessions (from 83.3%-96.6% to 36% of intervals). Reductions from baseline also occurred when introduced into occupational therapy sessions (from 96.6% to 13%). No statistical analysis was conducted. Therapists reported that the intervention provided increased manageability of the participant and did not interfere with the actual goals of the therapy sessions.	**Aim:** To reduce verbal abuse during therapy by increasing the predictability of therapeutic interventions (and decreasing potential confusion by the patient). **Materials:** No specific materials required. **Treatment plan:** ➢ **Duration:** 3 weeks: Baseline observations for 5 days (9am to 5pm); intervention occurs as part of OT and PT session 5 days / week for 2 weeks. ➢ **Procedure:** 5 days/ week during physiotherapy and occupational therapy sessions). Length of sessions is not stipulated, but appears to be a part of the regular session length. ➢ **Content:** During each therapy session, each single interaction is explained, as if it were a novel situation to maximize the participant's awareness. The therapist explains the nature of a given interaction or gains approval from the participant regarding the interaction that is about to begin. These explanations are given in a slow calm voice e.g. "I'm going to help you put your hand splint on now."/ "Is that ok?"

Target Area: Behaviour problems

Pace, Ivancic & Jefferson (1994) ***Journal of Applied Behavior Analysis*** **27(2): 301-305**	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. ABABAB (A=baseline demands condition and B=demand fading condition). ➢ **Participant:** male, age 49 years, who suffered a traumatic brain injury 9 months earlier. The impact of his injury was such that he required supervision for daily activities, suffered anterograde amnesia and behavioural problems including chronic use of obscene comments and occasional severe physical aggression and property destruction. ➢ **Setting:** Community setting – supervised group home. **Target behaviour measure/s:** ➢ Frequency of obscenity (where obscenity was defined as socially proscribed language, abusive and/or aggressive verbalizations, or any loud vocalization). **Primary outcome measure/s:** No additional measures. **Result**: Demand fading resulted in an immediate decrease in obscenity, remaining at near-zero levels as the number of demands was increased. Abrupt increases in number of demands (back to baseline) however, resulted in returns to higher levels of obscenity. Note: no statistical analysis was conducted.	**Aim:** To treat behavioural problems which have been maintained by negative reinforcement. **Materials:** No specific materials described. **Treatment plan:** ➢ **Duration:** 42 sessions (total time = 11 hours) ➢ **Procedure:** 5 min daily training sessions ➢ **Content:** – During the A phases, 3 conditions were examined: 1. Demand involving simple requests (e.g. put on your shoes) every 15 seconds where praise is given following compliance and overt capitulation (e.g. Ok you don't have to do it) follows obscenity. 2. Social disapproval involving verbal disapproval following obscenity during work or leisure activities. 3. Conversation where obscenity was ignored and experimenter noncontingently initiated social conversation every 15 seconds. – During B phases, simple requests were made but the initial rate of demand presentation was reduced (demand fading) and continuous noncontingent social conversation was introduced.

Target Area: Behaviour Problems

Gardiner, Furois, Tansley & Morgan (2000) *Clinical Gerontologist* 22(1): 31-40	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. ACABACA for Participant 1; ABACA for Participant 2 (A=baseline behaviour, B=book intervention, C=music intervention). ➢ **Participant:** 1. Participant 1: male, age 67 years, who suffered a TBI and subsequent CVA. His communication was limited, he was wheelchair bound, and was reportedly aggressive and physically assaultive 2. Participant 2: male, age 72 years, with Alzheimer's Disease who constantly paced throughout the nursing home. ➢ **Setting:** Nursing home. **Target behaviour measure/s:** ➢ Disruptive Behavior Rating Scale (DBRS). **Primary outcome measure/s:** ➢ No additional measures. **Result**: Some evidence was found for each intervention. For Participant 1, disruptive behaviour was reduced both during and following the Book intervention (while behaviour during treatment was not *significantly* lower than the baseline period, in the period immediately following this intervention he demonstrated significantly less disruptive behaviour). The following music intervention resulted in a significant increase in his disruptive behaviour, which was again reduced by the Book intervention. For Participant 2, implementation of the Music intervention significantly reduced behaviour compared with the baseline period. A non-significant decrease in behaviour was also observed when comparing the second baseline with the book intervention period. When the effectiveness of these two approaches was examined for Participant 2, no significant difference emerged (interpreted as both interventions being effective for this patient).	**Aim:** To reduce disruptive behaviors in agitated, demented elderly patients. **Materials:** Picture books, rhythm instruments, autoharp, ukuleue. **Treatment plan:** ➢ **Duration:** 9 week period (intervention 4-5 hours; monitoring in baseline/withdrawal phases 2 ½ hrs). ➢ **Procedure:** A: 10 x 10 min observations over 2 weeks; B: 10 x 30 min sessions over 2 weeks (10 min observation without treatment, 10 min treatment/observation; 10 min post-treatment observation); A: 5 x 10 min observations over 1 week; C: 8 x 30 min sessions over 2 weeks (10 min observation without treatment, 10 min; treatment/observation; 10 min post-treatment observation); A: 10 x 10 min observations over 2 weeks. ➢ **Content:** - *Book intervention*: Picture books about outdoor life were presented for participants to look at, and selected portions of the text were read aloud by a neuropsychologist, with some conversation about the contents of the pictures and text. - *Music intervention*: singing brief country western songs, and involving participants in music production with rhythm instruments, autoharp and ukulele. Conducted by a neuropsychologist with training in music therapy.

Target Area: Behaviour Problems / Executive Functioning Deficits / Cognitive Deficits /Delusions, Delirium, Psychotic Disorders

Dayus & van den Broek (2000) *Neuropsychological Rehabilitation* 10(4) 415-427	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program

Design:

- **Study type:** SSD. ABA (A=baseline swearing before treatment, B=self-monitoring training (in two stages), A=swearing 12 weeks post treatment).
- **Participant:** male, age 51 years, 9 years following two brain haemorrhages. Imaging revealed changes in the frontal lobes, left basal ganglia, and infarction in the head of the caudate nucleus on the right. Neuropsychological assessment suggested executive difficulties and marked memory impairments. He suffered from 3 delusion confabulations which resulted in rapid escalations of rage, during which time he would swear profusely, followed by rapid settling of mood.
- **Setting:** Inpatient setting to initiate treatment (first 18 sessions), followed by outpatient sessions.

Target behaviour measure/s

- Total number of swear words per session, recorded by the therapist.
- Difference score between the therapist's and the patient's tally of swear words per session.
- Total number of outbursts relating to each of his 3 delusions per session.

Primary outcome measure/s:

- No additional measures.

Result: Treatment appeared effective compared to baseline. Swearing declined substantially following implementation of SMT. In addition, the patient's accuracy in monitoring his swearing improved during treatment and was maintained at follow up. References to his delusions declined during SMT, with some increase again during follow-up (although not to previous baseline levels, and now with diminished affect). No statistical analysis however was conducted.

Aim: To reduce delusional confabulations and associated swearing using self-monitoring training.

Materials: Two hand-held clickers, timer.

Treatment plan:

- **Duration:** 51 sessions in total (approx 27.3 hrs intervention; 6.6 hrs baseline/withdrawal).
- **Procedure:** A1: 1x 40 min session per day for 5 days; B: daily sessions for 41 sessions; A2: 1x 40 min session per day for 5 days.
- **Content:**
  - *A:* structured interview with the same therapist, covering 8 neutral topics (e.g. hobbies, current affairs). Both patient and therapist record the number of swear words emitted during the interview on hand-held clickers.
  - *B:* structured interviews continue, but every 5-minutes scoring on the clickers is compared. If the patient's score is within $\pm$ 25% of the therapist's, praise and encouragement is given, and if this is achieved on 7/8 intervals, a cigarette is awarded. Once this level of accuracy is consistently achieved, the discrepancy level in scoring is reduced to $\pm$ 10%, with the same rewards delivered.

Target Area: Behaviour Problems

Ouellet & Morin (2004) ***Archives of Physical Medicine and Rehabilitation*** **85(8): 1298-1302**	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program

Design:

- **Study type:** SSD. ABA (A=baseline/withdrawal, B=intervention).
- **Participant:** Participant 1: male, age late 30's years, traumatic brain injury with 5-7 days post-traumatic amnesia. Significant neuropsychological impairments at 1 month post-trauma in nonverbal intelligence, processing speed, attention, visuo-spatial organization, immediate verbal memory. At time of therapy, still receiving outpatient rehabilitation. Met criteria for mixed insomnia.
- **Setting:** Family home.

Target behaviour measure/s:

- Recorded in sleep diary:
  1. Sleep onset latency.
  2. Time awake after initially fell asleep.
  3. Total sleep time.
  4. Total wake time.
  5. Sleep efficiency.

Primary outcome measure/s:

- None.

Result: Graphed data presented; no statistical analyses conducted. Treatment appeared effective and maintained at 1 and 3 month follow-ups:

1. Sleep onset from 47 mins pretreatment to 18 mins post-treatment.
2. Time awake after initially fell sleep from 85 mins pretreatment to 28 mins post-treatment.

Aim: To improve sleep in a patient with traumatic brain injury, using a cognitive-behavioural approach.

Materials: "A manualized multifactor intervention" (Morin, 1993; see content below).

Treatment plan:

- **Duration:** Length of therapy: 8 weeks (+5 weeks baseline, 2 week post-treatment monitoring, 1 and 3 month follow-ups); total contact time: not specified.
- **Procedure:** 8 weekly face-to-face therapy sessions. Length of sessions not specified.
- **Content:** The multifactor intervention included the following elements which were adapted for application to TBI (refer to paper for further details):
  1. Stimulus control.
  2. Sleep restrictions.
  3. Cognitive therapy.
  4. Sleep hygiene education.

Target Area: Behaviour Problems / Executive Functioning Deficits / Movement & Motor Problems

Hanlon, Clontz & Thomas (1993) *Neuropsychological Rehabilitation* 3(1): 63-76	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. ABABA; A-no treatment, B-behaviour inhibition treatment. ➢ **Participant**: female, age 53 years, following CVA, marked behavioural dyscontrol. ➢ **Setting:** Inpatient rehabilitation. **Primary outcome measure/s:** ➢ Involuntary exhalations, vocalizations and oral-facial dyskinesia. **Secondary outcome measure/s:** ➢ Neurobehavioural Cognitive Status Examination. ➢ Rivermead Behavioural Memory Test. **Results**: Treatment appeared effective across behaviours (no statistics performed).	**Aim:** To inhibit involuntary behaviours. **Materials:** Straw. **Treatment Plan:** ➢ **Duration:** 11 sessions (~3.5 hours). ➢ **Procedure:** 1 session (20 minutes) per day. ➢ **Content:** 1. Principle of treatment was to introduce positive behaviours, which were incompatible with the negative target behaviours. Used systematic verbal cueing to engage in behaviour incompatible with target behaviour (made to bite on straw to stop engaging in behaviours). 2. If participant engaged in behaviour they were told to bite on the straw.

Target Area: Behavioural Problems

Knight, Rutterford, Alderman & Swan (2002) *Brain Injury* 16(1): 75-87	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design ➢ **Study type:** SSD. ABA (Case 1-A=DRl, B=DRL + self-monitoring, C=not treatment; Case 2-A=no treatment, B=DRL, A=no treatment; Case 3-A=no treatment, B=self-monitoring program, A=no treatment). ➢ **Participants:** n=3, age 19-53 years, 67% male, 2 TBI and 1 CVA, impairments on executive functioning measures. ➢ **Settings:** Inpatient rehabilitation facility. **Primary outcome measure/s:** ➢ Off-task, perseverative verbal comments. **Secondary outcome measure/s:** ➢ No additional. **Results:** All cases showed improvement following interventions (no stats performed).	**Aim:** To reduce perseverative verbal comments; Case 1-reduce egocentric verbal comments; Case 2-reduce verbal comments during daily hygiene routine; Case 3-reduce verbal comments whilst eating. **Materials:** Counter/clicker. **Treatment Plan:** ➢ **Duration** 1. Case 1 – 36 weeks (36 hours) 2. Case 2 – 38 days 3. Case 3 – 42 days ➢ **Procedure:** 1. Case 1 – 1 hour session per week 2. Case 2 – 1 session per day of varying duration 3. Case 3 – 1 session per day of varying duration ➢ **Content** 1. Case 1 – 1. Stage 1: received Differential Reinforcement of Low Rates of Responding (DRL). This is when the less frequent occurrence of a negative target behaviour is reinforced. The participant was given a target number of words not to exceed each hour; if he did not exceed this limit then he was given a monetary reward. 2. Stage 2: Self-monitoring was introduced. Here the participant was only rewarded if his recordings of his behaviour were within 50% of those made by the staff. Stage 3- same as stage 1. 2. Case 2 – DRL strategy solely implemented. 3. Case 3 – received self-monitoring program. Involves the participant monitoring their own behaviour and uses positive reinforcement. 5 stage program used: 1. Baseline measured. 2. Self-monitor verbal output. 3. External prompting to monitor output. 4. Return to self-monitor but with reinforcement. 5. DRL.

 Note that these rehabilitation summaries reflect the current literature and the treatments are not necessarily endorsed by members of the PsycBITE™ Team

Target Area: Behaviour problems

Watson, Rutterford, Shortland, Williamson & Alderman (2001) ***Brain Injury*** **15 (11): 1003-1015**	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. ABC (A=baseline observation of aggression before treatment, B=DRL intervention, C=DRI intervention). ➢ **Participant:** Male, age mid-30 years, with brain injury following a gunshot to the head 10 years prior. He underwent right frontal and temporal lobectomies, and may have suffered additional brain injury when he contracted meningitis with hydrocephalus. He developed epilepsy, left sided hemiplegia, and severe behavioural problems with aggression. Neuropsychological assessment revealed global cognitive impairment. He was an inpatient in a specialist neurobehavioural unit for several years. ➢ **Setting:** Inpatient rehabilitation. **Target behaviour measure/s** ➢ Verbally abusive behaviours (shouting, swearing, threatening well being) as measured by the Overt Aggression Scaled Modified for Neurorehabilitation (OAS-MNR). **Primary outcome measure/s:** ➢ No additional measures. **Result**: Significant improvements in the level of aggressive behaviour were observed. Despite increased expectations and demands, frequency of aggression and mean ratings of severity on the OAS-MNR significantly reduced. The patient was able to move out of the units into a satellite group home.	**Aim:** To reduce chronic aggressive behaviour following severe head injury using a Differential Reinforcement of Low rates of responding (DRL) intervention. **Materials:** Star stickers and a star wall chart, tangible rewards that are meaningful to the patient. **Treatment plan:** ➢ **Duration:** A: 11 day observation period; B: 425 days intervention. ➢ **Procedure:** Intervention ran for 5 days per week (Mon-Fri) for 85 weeks. ➢ **Content:** Each morning the patient is informed of his opportunity to earn stars throughout the day if he has not been aggressive more than a specified number of times during 4 time periods. The program begins with a target level that is easily achievable. Target levels are then reduced as the program progresses. At the end of each period the patient is given feedback regarding his performance and reminded about the aims of the program. Social praise and a star are given when the patient improves. If behaviour does not improve, the patient is encouraged to do better next time. When aggressive outbursts occur, staff are instructed to withdraw attention (TOOTS technique). If all 4 stars are earned in the day, a tangible reward is provided.

Target Area: Behaviour Problems

Bird, Alexopoulos, Adamowicz (1995) *International Journal of Geriatric Psychiatry* 10(4): 305-311	**SCED score** – *to be confirmed*
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** SSD. Multiple baseline across participants ➢ **Participants:** o Participant 1: male, age 83 years, Mini-Mental State Examination score 9, mixed Alzheimer's disease and vascular dementia. o Participant 2: female, age 73 years, Mini-Mental State Examination score 12, probable Alzheimer's disease. o Participant 3: male, age 62 years, Mini-Mental State Examination score 18, post-anoxia dementia. ➢ **Setting:** Various – family home, nursing home, day care centre. **Target behaviour measure/s:** ➢ Participant 1: urinating in corners. ➢ Participant 2: entering other people's bedrooms. ➢ Participant 3: toilet demands. **Primary outcome measure/s:** ➢ None. **Result**: Graphed data reported, but no statistical analysis conducted. Effective reduction in target behaviours. Dramatic in Participants 1 and 2.	**Aim:** To reduce occurrence of problem behaviours in people with dementia, by teaching a cue using spaced retrieval techniques **Materials:** Unique to each participant: use of large coloured signs as cues, portable beeper, notices. **Treatment plan:** ➢ **Duration:** length of therapy: varied among participants – generally 1 or 2 sessions; total therapy contact time: 2-3 hours. ➢ **Procedure:** 1 or 2 sessions of 1-3 hours per session. ➢ **Content:** ▪ *Participant 1*: 2x1 hour sessions. Setting – family home. Trained to associate a cue (large coloured sign) with the location of the toilet. Training initially verbal and later conducted in situ. Family asked to assist in strengthening the association by testing him occasionally throughout each day. ▪ *Participant 2*: 1x2 hour session. Setting – Nursing Home. Trained to associate a cue (large red "stop" sign) with stopping and walking away. Initial trials were verbal ("what does this sign mean?"). Later trials at expanding intervals were combined with fading cues to ensure she retrieved the association in situ with sign placed at eye height on door frames. Appendix to the paper provides 5 cues for fading. ▪ *Participant 3:* 1x3 hour session. Setting – day-care centre. Taught to associate portable beeper with going to the toilet. Initial trials verbal and combined with fading cues. Later trials, when most subsidiary cues were faded, he was permitted to visit the toilet.

Target Area: Fatigue & Low Work Tolerance

Kim, Lee, Jung, Park, Moon et al (2004) ***The American Journal of Chinese Medicine*** **32(5): 771-778**	**PEDro score** - 6/10
Method/Results	Rehabilitation Program
Design: ➢ **Study type:** RCT. ➢ **Population:** n=30 stroke patients with persistent insomnia of more than 3 days in a row. ➢ **Groups:** 1. Real acupuncture group (n=15, 53% male, M=65.1± 9.0 years). 2. Sham acupuncture group (n=15, 60% male, M=68.3 ± 10.4 years). ➢ **Setting:** Inpatient (Stroke Center). **Primary outcome measure/s:** Measures of sleep quality, morning sleepiness, ability to concentrate or function during the day, well being or quality of life: ➢ Morning Questionnaire (MQ). ➢ Insomnia Severity index (ISI). ➢ Athens Insomnia Scale (AIS). **Secondary outcome measure/s:** ➢ None. **Result**: Compared with the sham group, the real acupuncture group showed greater improvement across the three primary outcome measures. Real acupuncture participants reported improved sleep quality, greater ability to concentrate and less morning sleepiness compared with the sham participants.	**Aim:** To reduce post-stroke insomnia using acupuncture. **Materials:** Dong bang sterile disposable acupuncture needles, skin tape. **Treatment plan:** ➢ **Duration:** 2 days (total contact hours not provided). ➢ **Procedure:** 1 session of applying needles (time requirements not specified); 2 review sessions ➢ **Content:** - *Real acupuncture:* intradermal acupuncture treatment with 4 needles inserted on Shen-Men (He-7) and Neir-Kuan (EH-6) in both arms. Each needle is taped on to fix it persistently for 2 days. - *Sham group*: Needles are laid down on the same points, but do not penetrate the skin.

Target Area: Fatigue & Low Work Tolerance

Oken, Kishiyama, Zajdel, Bourdette, Carlsen et al (2004) *Neurology* 62(11) : 2058-2064	**PEDro score** – 6/10
Method/Results	Rehabilitation Program

Design:

- **Study type***:* RCT.
- **Population:** n=57 study completers, 7% male. All had clinically definite participants of Multiple Sclerosis, with an Expanded Disability Status Score $\leq$ 6.0.
- **Groups:**
  1. Iyengar yoga group (n=22, M=48.8$\pm$10.4) years.
  2. Exercise class group (n=15, M=49.8$\pm$7.4) years.
  3. Wait list control group (n=20, M=48.4$\pm$9.8) years.
- **Setting:** Community setting.

Primary outcome measure/s:

- Measures of attention (Stroop Color and Word Test, a shifting attention task, modified Useful Field of View task).
- Measures of alertness (Standford Sleepiness Scale, Profile of Mood States subscales, EEG frequency analysis).

Secondary outcome measure/s:

- Mood: State-Trait Anxiety Inventory, POMS and CESD-10 for depression.
- Fatigue: Multi-dimensional Fatigue inventory (MFI), and Energy and Fatigue Subscale of SF-36.
- Quality of life: SF-36 Health Survey.
- Basic physical measures of flexibility and balance.

Result: Treatment using either the yoga or exercise class was effective in improving fatigue (as measured by the MRI General Fatigue score and the SF-36 Energy and Fatigue scale) when compared with the control group. No significant effects were observed however for cognitive function, alertness, mood, or on the physical measures included.

Aim: To enhance cognitive function, fatigue, mood and quality of life through yoga or aerobic exercise.

Materials: For yoga: chair; for exercise: stationary exercise bicycle during sessions and for home, Swiss ball.

Treatment plan:

- **Duration:** 26 weeks (39 contact hours in total for yoga).
- **Procedure:** 90 min session per week for yoga, weekly session for exercise group (no set length specified).
- **Content:**
  - *Iyengar Yoga:* Some modifications to a usual yoga class such that all poses were supported either a chair or by having the participant on the floor/against a wall. 19 poses were instructed in total (although not all each week), each held for approximately 10-30 seconds with rest periods between poses of 30 seconds to 1 minute. Breathing for concentration and relaxation was emphasized during the session. Each class ended with a 10 minute deep relaxation, using progressive relaxation, visualization and meditation techniques while the participant is lying down. Home practice was encouraged and an instruction booklet was given
  - *Exercise group*: 5 mins of stretching of cycling muscles for 15-30 seconds while breathing. Bicycling at the 2-3 or very light to moderate intensity (ie able t o converse during the session). Periodically, exercising on the Swiss ball was provided as an option, as well as some arm, trunk and balance work while cycling. Participants bicycle until they fatigue or reach their personal goal. 5 minutes of stretching at the end. Exercise at home on bicycles or other modes of exercise was encouraged.

Target Area: Fatigue & Low Work Tolerance / Anxiety, Depression, Stress & Adjustment / Quality of Life

Egner, Phillips, Vora & Wiggers (2003) *NeuroRehabilitation* 18(2) : 125-133	**PEDro score** – 5/10
Method/Results	Rehabilitation Program
Design: ➢ **Study type***:* RCT. ➢ **Population:** n=27 patients with advanced Multiple Sclerosis and an Expanded Disability Status Scale score of ≥ 7, M=46 9.0±years, 37% male. ➢ **Groups:** 1. Video (n=9). 2. Telephone group (n=11). 3. Standard care (n=7). ➢ **Setting:** In-home sessions delivered via telephone or video. **Primary outcome measure/s:** ➢ Fatigue Severity Scale (FSS). ➢ Quality of Well-Being Scale. ➢ Center for Epidemiologic Studies Depression Scale (CES-D). **Secondary outcome measure/s:** ➢ None. **Result**: No significant differences were observed between the groups immediately post intervention, however some improvements were noted for the video group compared with other groups at 6 months and beyond. Significantly lower fatigue scores emerged for the video group compared with the other groups at 6 months and 18 months. Improvements in quality of life measures were observed in the video group at 12 months, but with no other significant differences. Overall depression scores were generally lower for the video group than for other groups but this was not significant.	**Aim:** Primarily to prevent pressure sores in people with severe mobility impairments, by providing education, however secondary aims regarding impact upon levels of depression and fatigue. **Materials:** Telephone, video equipment run over the Plain Old Telephone System. **Treatment plan:** ➢ **Duration:** 9 weeks (approx 4hrs direct contact). ➢ **Procedure:** 5 weekly sessions then 2 fortnightly sessions, of around 30-40 mins each. ➢ **Content:** 1. *For groups 1 and 2,* in-home, individual education and counseling sessions were delivered via telephone or video by a rehabilitation nurse. The same protocol was followed for video and phone groups. Education sessions included review of skin care, nutrition, bowel and bladder routines, psychosocial issues and equipment needs. 2. For *group 3* (standard care) the regular follow-up offered by the rehabilitation facility was received.