The Ecological Validity of the Delis-Kaplan Executive Function System Sorting Test

by

Shai Lael Van der Karré Betteridge

Volume I

Submitted for the degree of Doctor of Psychology (Clinical Psychology)

Department of Psychology
School of Human Sciences
University of Surrey

July 2003

© Shai Lael Van der Karré Betteridge 2003
COPYRIGHT STATEMENT

No part of this portfolio may be reproduced in any form without written permission of the author, except by the University of Surrey Librarian for legitimate academic purposes.

© Shai Lael Van der Karré Betteridge, 2003
ACKNOWLEDGEMENTS

I would like to thank Dr. Brian Solts for all his support and kindness as my clinical tutor. I would also like to thank Avron Moss and Mick Finlay for their supervision and advice with regards to my major research project.

In addition, I am extremely grateful to all my placement supervisors: Dr. Anna Inwicki, Dr. Mary Manning, David Cotson, Dr. Anna Piccotto, Marion Holdsworth, Dr. Catherine Dooley, Dr. Martin van den Broek, Dr. Claire Wilson and Dr. Mary Hill, for making my clinical placements educational and really enjoyable.

A special thanks goes to my family and friends for supporting me.
# TABLE OF CONTENTS

## ACADEMIC DOSSIER
Overview ...................................................................................................... 1

## ADULT MENTAL HEALTH ESSAY:
*Compare and contrast Cognitive-behavioural and Psychoanalytic concepts of depression in adults, and the evidence underlying each of these models.* ................................................................................................................ 2

## PEOPLE WITH LEARNING DISABILITIES ESSAY:
"All challenging behaviour in individuals with learning disabilities has a communicative function and can be explained by deficits in communication skills". Critically discuss this proposition .......................................................... 31

## CHILDREN AND ADOLESCENTS AND FAMILIES ESSAY:
*Discuss the argument that assessing and treating specific learning disabilities in children is properly the task of educational rather than clinical psychologists.* .......................................................................................... 56

## OLDER ADULTS ESSAY:
"Dementia cannot be cured, it takes its course". Critically evaluate with a discussion of known theories of causes and treatment approaches ......................................................................... 77
CLINICAL DOSSIER
Overview .................................................................................................................. 95

CLINICAL PLACEMENT SUMMARIES – Overview of clinical experience gained whilst training on the Doctorate in Clinical Psychology:

- Core placement - Adult Mental Health ................................................................. 96
- Core placement - People with Learning Disabilities ............................................. 96
- Core placement - Child, adolescent and family ................................................... 97
- Core placement - Older Adults ............................................................................ 97
- Specialist placement – Neurorehabilitation ......................................................... 98
- Specialist placement – Forensic ........................................................................... 98

CLINICAL CASE REPORT SUMMARIES

- Core placement - Adult Mental Health ................................................................. 99
- Core placement - People with Learning Disabilities ............................................. 102
- Core placement - Children, adolescents and families ........................................ 105
- Core placement - Older Adults ............................................................................ 107
- Specialist placement – Neurorehabilitation ......................................................... 110
# RESEARCH DOSSIER

## Overview

114

### SERVICE RELATED RESEARCH PROJECT - An evaluation of psychosis relapse prevention training for community mental health team (CMHT) staff

115

Ref. No.:  

<table>
<thead>
<tr>
<th>Abstract</th>
<th>116</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>117</td>
</tr>
<tr>
<td>Methods</td>
<td>121</td>
</tr>
<tr>
<td>Results</td>
<td>125</td>
</tr>
<tr>
<td>Discussion</td>
<td>130</td>
</tr>
<tr>
<td>References</td>
<td>133</td>
</tr>
</tbody>
</table>

### Appendices

| A | Evaluation of training questionnaire | 137 |
| B | The reminder letter | 141 |
| C | Letter thanking the Trainee for presenting the results to the service | 142 |

### QUALITATIVE RESEARCH PROJECT - An exploration of 2nd year trainee clinical psychologists’ experiences of their dual status as clinicians and postgraduate students, with a focus on potentially conflicting aspects

143

Ref. No.:  

| Introduction | 144 |
| Methods | 145 |
| Analysis | 149 |
| Discussion | 154 |
| References | 156 |

### Appendices

| A | Interview schedule | 158 |
| B | Interview transcript | 159 |
| C | Example of memos | 166 |
MAJOR RESEARCH PROJECT – The Ecological Validity of the Delis-Kaplan Executive System Card Sorting Test

Ref. No.

Abstract ................................................................................................. 173

1.0 Introduction ........................................................................................... 174

2.0 Methods ................................................................................................. 202

3.0 Results ................................................................................................... 215

4.0 Discussion .............................................................................................. 226

References ............................................................................................ 237

Appendices

A Information Sheet ................................................................................. 257

B Consent Form ........................................................................................ 259

C Dysexecutive Questionnaire (DEX) ..................................................... 260

D The Community Integration Questionnaire (CIQ) .............................. 262

E Adapted version of the International Classification of Functioning
Disability and Health Checklist (AICFC) ........................................... 266

F World Health Organization Disability Assessment Schedule II
(WHODAS-II) ...................................................................................... 268

G The Social Functioning Scale (SFS) ................................................... 275

H Disability Rating Scale ......................................................................... 284

I Re-categorization of participants’ diagnostic information .................. 285

J Letters stating ethical approval ........................................................... 287

LOG OF RESEARCH EXPERIENCE ........................................................ 290
ACADEMIC DOSSIER

OVERVIEW

This section contains four essays relating to the core client groups studied during the first and second years of training. Collectively these essays critically examine the theory and practice of a range of psychological approaches to various difficulties experienced across the life span.
"Compare and contrast cognitive-behavioural and psychoanalytic concepts of depression in adults, and the evidence underlying each of these models".

December 2000

Year I
Compare and contrast cognitive-behavioural and psychoanalytic concepts of depression in adults, and the evidence underlying each of these models

Before attempting to compare and contrast 'Cognitive-behavioural and psychoanalytic concepts of depression' it is first necessary to clarify what these rather broad terms will be taken to refer to. Each paradigm has evolved over time and today incorporates several different theorists' perspectives. As a result there are differences and disagreements even within each paradigm. Therefore, it is not possible in this discussion to adequately reflect the extent of each paradigms concept of depression.

Although such names as Freud (1917) for the psychoanalytic approach, and Beck (1967) for the Cognitive-behaviour approach are often referred to as the founding fathers, they were by no means the first theorists to contribute to the development of these perspectives. In terms of the psychoanalytic approach the notion of unconscious processes within neurosis was not original to Freud (Ellenberge, 1970). In fact, some of the earliest concepts of depression were proposed by Abraham (1911) who considered depression to be a blockage of libido. Freud's prominence within the psychoanalytic paradigm is really due to his ability to bring such ideas together into a comprehensive theory of mind. In a similar way a number of theorists have contributed to the development of the cognitive behavioural approach (Bandura, 1977; Ellis, 1962; Michenbaum, 1975), but Beck's (1970; 1976) Cognitive Therapy is probably the name most synonymous with it today. Furthermore, Beck's (1976) cognitive model was primarily conceptualised in order to understand and treat depression. It is for these reasons that Freud (1917) and Beck's (1967, 1979, 1983, 1996) concepts of depression will form the bases of this discussion.

'Depression' is a multi-faceted term encompassing a range of experiences from a transient 'sad mood' to clinically significant mood disorders. It is the latter that is of interest here and more specifically the mood disorder classified as 'Major-Depressive-Disorder' according to DSM-IV (American Psychiatric Association, 1994). Major-Depressive episodes are characterised by symptoms such as anhedonia and low mood, and are distinguished from manic episodes which are classified as a Bipolar-Disorder. Although both theorists (Beck, 1967; Freud, 1917) have attempted to explain Bipolar-Disorder in the context of their theories, they both developed their conceptualisations based on the symptomology of Major-Depressive-Disorder (Freud, 1917; Beck, 1979). Furthermore, Major-Depressive-Disorder is also been more extensively tested within
the research literature (Fennell, 1989). Thus, for the purpose of this discussion ‘depression’ will be taken to refer to Major-Depressive-Disorder.

Both Freud (1917) and Beck’s (1967, 1979) conceptualisation of depression sprung from the common goal of seeking to develop effective psychotherapeutic treatment. Although both theorists advocate different therapeutic practices (the scope of which will not be covered in this discussion), they both formulated their hypotheses at two distinct levels. Firstly, at the descriptive level an explanation of the symptom pattern is offered. The second level refers to causation. Clearly an effective conceptualisation of depression would have to address issues at both of these levels in order to constitute a proficient model. Thus, by examining the evidence for the similarities and differences between Freud (1917) and Beck’s (1967, 1979, 1983, 1996) descriptive and causal hypotheses the relative strengths and weaknesses of each model will be revealed. However, it is first necessary to briefly describe Freud (1917) and Beck’s (1967; 1983) concepts of depression.

**Freud’s Psychoanalytic Concept of Depression:**

Although Freud’s (1917; 1923; 1933; 1930) contributions have formed the foundations on which other theorists (Arieti & Bemporad, 1978; Bowlby, 1969; Klein, 1932; Malan, 1979) have built, Freud’s own writings advanced often divergent conceptualisations with no indication whether new formulations superseded the old. This obviously makes Freud’s work difficult to empirically test. Furthermore, Fisher and Greenberg argue that “even when one can specify that a particular variable plays a large role...that variable is often so vaguely defined as to defy functional replication” (Fisher & Greenberg, 1996, p19). Yet, it is important to remember that Freud made no claim that his conceptualisations were supported by empirical evidence, in fact Freud stated that:

*Our material, apart from such impressions as are open to every observe, is limited to a small number of cases...We shall, therefore, from the outset drop all claim to general validity for our conclusions*  
(Freud, 1917, p251).
Freud (1917) postulated his main hypotheses about the process of depression in his paper comparing ‘mourning and melancholia’. At the descriptive level Freud proposed that like mourning, depression occurs in response to “the loss of a loved object” (Freud, 1917, p253). However, in depression “the object has not perhaps actually died, but has been lost as an object of love” thus “there is a loss of a more ideal kind” (Freud, 1917, p253). In this sense the lost object might be either a person or an “abstraction...such as one’s liberty [or] an ideal” (Freud, 1917, p252). Furthermore Freud suggested that unlike mourning this loss is withdrawn from consciousness so that the depressed person might know “whom he has lost but not what he has lost in him” (Freud, 1917, p254).

Freud noticed that in depression the distinguishing symptom is “a lowering of self-regarding feelings to the degree that finds utterance in self-reproaches” (Freud, 1917, p252). In order to explain this symptom, Freud draws on his theory of psychic energy (the energy that powers psychological activities like thinking). The theory assumes that our wish to fulfil bodily needs or ‘instincts’ necessitates attachment to an object that satisfies the need. The libido or sexual energy (understood in his later works to be more like life energy) can be satisfied by the person focusing affection on an object. Freud proposes that people who make a narcissistic object choice (that is invest psychic energy in an object because of it’s strong resemblance to the self) subsequently develop a strong fixation on the object. If the loved object causes a real or slight disappointment then the object-relationship is “shattered”, and ambivalent feelings can develop towards the now abandoned object.

Because of the strong narcissistic identification with the object the libido can not simply divert it’s energy onto a new object as normal, but instead regresses to the oral phase of libidinal development. At the oral phase the ego wants to incorporate the object “into itself...by devouring it”. Thus the “free libido” is “withdrawn into the ego” in an attempt to “establish an identification of the ego with the abandoned object..., the result of which is that in spite of the conflict with the loved person the love-relation need not be given up” (Freud, 1917, p258). However, both the positive and negative aspects of the object are incorporated into the ego. This creates a split of the ego that reflects the ambivalent feelings towards the object. Thus the ‘self-reproaching’ exhibited by depressed people actually reflects anger directed at the lost object, whilst symptoms of weight loss and poor appetite are seen as evidence that the ego has incorporated the object “into itself...by devouring it” (Freud, 1917, p258).
With regards to causation it follows logically from Freud’s (1917) description of the process of depression that people who make a narcissistic object choice, develop a strong fixation on the loved-object and ambivalent feelings towards the object, are predisposed to developing depression following the loss of the object (Freud, 1917). Freud suggests that frustrating experiences in the first year of life mediates a narcissistic orientation, whilst early frustration in parental relationships is the prototype for an extreme superego and unusually ambivalent relationships. Whether or not such ambivalence leads to symptoms of ‘self-reproaching’ is believed to be mediated by the severity of an individual’s superego. Freud also identified fixation or regression to the oral stage of development as a predisposing factor in depression suggesting that people who have ‘oral’ personality traits are more prone to developing depression. People with an oral orientation have a tendency to be either “optimistic, dependent, generous and elated or...pessimistic, depressed and aggressive” (Reber, 1985, p496). Thus in summary as Fisher and Greenberg (1996) point out:

*It should be underscored that unusual degrees of “oral fixation”, “ambivalence”, and “narcissism”, conceptualized as derivatives of early negative experiences, are regarded as necessary preconditions for depression to be triggered by losses in the adult years*  
(Fisher and Greenberg, 1996, p23-24)

**Beck’s Cognitive-Behavioural Concept of Depression:**

Beck (1976) broke away from the psychoanalytic tradition when he proposed at the descriptive level that depression results when people holding dysfunctional assumptions about the world or themselves are exposed to a critical incident that activates their dysfunctional assumptions. Once activated an upsurge of negative automatic thoughts about themselves, the world and the future occurs, which Beck (1967) labelled the ‘cognitive triad’. Such negative thoughts are hypothesised to result in current events, predictions about the future, or recollections of the past all being interpreted in some way as a personal loss or deprivation. In turn such cognitions lead on to the development of behavioural, motivational, affective and somatic depressive symptoms. This process is circular. As the depressive symptoms develop negative automatic thoughts become more intense and rational thoughts decrease, this in turn increases the pervasive depressed mood, and thus people think more negative thoughts and experience more depressive symptoms.
Beck (1987) does not claim that 'cognitions cause depression', in fact he argues that "such a statement would be akin to saying that 'delusions cause psychosis' " (Beck, 1987, p.10). Instead he suggests that some people are predisposed to depression due to the interaction of innate patterns of information processing (or protoschemas) with relevant life experiences, which causes them to form faulty "superordinate schematic constellations that reflect personality orientations or modes" (Beck, pp.81, 1996). Beck (1983) proposes that there are two key types of personality mode relevant to depression. Firstly, people with sociotropic personality characteristics. They are socially dependent and value positive interactions with others, including the need for intimacy and nurturance. They fear rejection by others and seek gratification by pleasing others and avoiding disapproval. In contrast the autonomous personality is associated with an emphasis on independence, achievement and freedom of choice. They fear failure and derive gratification from mastery and accomplishment of goals.

Beck (1983) argues that these personality 'modes' can predispose a person to develop depression in the event of an acute or chronic environmental stressor. Examples of such precipitating stressors include "a series of losses of close relatives...[or] a loss of an ability or attribution considered... to be the only mechanism for obtaining social supplies or attaining his goals" (Beck, 1983, pp.267). More importantly though, Beck (1983) proposes that these personality characteristics influence the type of stressor that a person will be vulnerable to, and the type of depressive symptoms that develop. For example, the autonomous depression is believed to be precipitated by events perceived to involve loss of personal independence and failure to achieve goals. Furthermore, it is characterised by withdrawal from people and a tendency to be highly self-critical, with cognitive distortions that centre around personal incompetencies. In contrast, the sociotropic type is precipitated by loss of a significant person and is characterised by feelings of loneliness, with cognitive distortions focusing on issues of social undesirability (Blatt & Maroudas, 1992).

Thus in essence, Beck (1983,1987) accounts for the etiology of depression through a 'cognitive diathesis-stress' model. Beck (1983) proposes that 'sociotropy' and 'autonomy' are the two main personality modes associated with depression, and that these interact with congruent life events to precipitate a depressive reaction (Clark & Steer, 1996).
Evaluation of the Descriptive levels of both models:

At a descriptive level there are some key similarities between Freud's (1917) psychoanalytic and Beck's (1967, 1970, 1976) cognitive-behavioural concept of depression. This might be expected given that both approaches were founded upon clinical observations. Nevertheless, both approaches draw particular attention to the same aspect of symptomology. Both Freud (1917) and Beck (1967; 1976) place emphasis on the role of negative cognitions, particularly the negative self-referent thinking. However, for Freud the cognitive elements of the musts, shoulds, and oughts that Beck (1967; 1976) identifies as dysfunctional assumptions are the result of a harsh superego. In contrast to Freud (1917) Beck (1976) claims that:

Cognitions...represent varying degrees of reality distortion...The typical depression cognitions can be categorized according to the ways in which they deviate from logical or realistic thinking.

(Beck, 1967, pp.233-234)

Freud (1917) does not accept that negative cognitions are distorted, he argues that "it is merely that he [the depressed person] has a keener eye for the truth than other people who are not melancholic" (Freud, 1917, pp.255).

Various studies have supported Freud's view with the finding that depressed people may be more realistic than non-depressed people in a range of their perceptions and judgements (Alloy & Abramson, 1979, 1988; Alloy, Abramson, & Viscusi, 1981; Alloy, Albright, Abramson & Dykman, 1990; Alloy & Clements, 1992; Langer, 1975; Layne, 1983). Nevertheless, there is also evidence to support the existence of cognitive distortions in depression (Dobson & Franche, 1989). For example, depressed patients have been shown to recall feedback on an interaction as more negative than controls (Gotlib, 1983), and to overestimate self-punishments and underestimate self-reinforcements during a learning task (Gotlib, 1981).

Yet, a more recent review of studies exploring cognitive distortions (Haaga et al, 1991) concluded that the thought processes of depressed people are biased in a negative direction rather than distorted. There has since been an abundance of studies that have provided further support for this assertion (Golib et al., 1993; Golib & Hammen, 1992; Segal & Ingram, 1994; Teasdale et al.,
2000; Williams et al., 2000). Interestingly since this recent wealth of evidence against the concept of cognitive distortions Clark and Beck (1999) claim that “the phrase ‘distortion of reality’...does not refer to a deviation from some standard of ‘objective reality’ but rather a tendency for showing a systematic negative bias” (Clark & Beck, 1999, pp.178).

The evidence in favour of negative biases also inadvertently lends support to Freud’s (1917) view that “depressed persons may actually be seeing things more ‘truthfully’ than do non-depressed, who are inclined to impart an illusory glow of optimism to their interpretations” (Fisher & Greenberg, 1996, pp.59). Freud’s view is comparable with the cognitive-behavioural view that “all information processing is at best a biased approximation of reality” (Clark & Beck, 1999, pp.64). Thus, both Freud (1917) and Beck (1967) are in agreement that ‘normal’ cognitions are biased or distorted.

Fundamentally, Freud (1917) does not view negative self-referent cognitions as distorted because he believes them to be a symptomatic representation of unconscious conflict, whilst for Beck (1976, 1979) they are an indication of dysfunctional schemas. Although, Beck (1996) also recognises that they may occur “outside of awareness” (Beck, 1996). In fact Beck (1996) points out that:

much of the cognitive processing...occurs out of awareness... In general, the nonconscious processes occur as an automatic, practically reflex, immediate response. (Beck, 1996, p21)

Both Freud (1917) and Beck’s (1976; 1988) emphasis on the role of the unconscious mind is supported by scientific evidence that has found a large proportion of our cognitive processing and decision making does not enter consciousness (Brewin, 1989; Power & Brewin, 1994). However, it is obviously somewhat more difficult to test empirically what both theorists propose happens in the unconscious mind.

**Evaluation of the causative level of both models:**

**Precipitating factors:**

Silverman (1976, 1983) used subliminal stimulation to test Freud’s hypothesis that depression results from turning unconscious aggressive feelings towards oneself. Silverman (1976, 1983)
predicted that participants' depression should deepen if their unconscious aggressive wishes were activated. As predicted, participants' depressive feelings increased after subliminal exposure to aggressive material, but did not change when exposed to stimulus arousing other feelings. Silverman (1976, 1983) interprets his findings as support for Freud's hypothesis, but it could be argued that such results can be interpreted within a cognitive-behavioural framework. For example, if a depressed person holds a negative view of themselves, the world and the future then exposure to subliminal aggressive material might mesh with their dysfunctional assumptions and therefore increase depressive symptoms.

However, whether or not such cognitive processes could occur unconsciously is unclear because Beck (1996) argues that although "the initial cognitive process is generally outside awareness...the products [such as interpretation] frequently proceed into awareness" (Beck, 1996, p21). Beck's (1996) notion that the cognitive process whereby dysfunctional assumptions "mould the flow of information into the cognitive products" (Beck, 1996, pp.21) occurs outside of awareness has been partly supported. Evidence has shown that dysfunctional cognitions can be inaccessible to depressives until they are activated by stimuli that meshes with their depressogenic schemas (Segal et al, 1995). Although it is well established that cognitions can mediate depressive symptoms (Goodwin & Williams, 1982; Oei & Free, 1995), there is also evidence to suggest that negative information presented subliminally might activate depressive symptoms. Strauman (1989) found that depressed participants experienced an increase in dejected mood when the discrepancies between their actual and ideal self-states were activated using covert priming techniques.

Considering the above evidence, it becomes clear that there is some support for both Beck and Freud's view of the unconscious processes in depression. Furthermore, Beck's assertion that negative cognitions mediate depression has also been supported (Goodwin & Williams, 1982; Strauman,1989). Yet, it can not be categorically concluded from Silverman's (1976, 1983) findings that depressed people experience introjected anger because that would be assuming that introjected anger increases depression.

In an attempt to establish whether introjected anger mediates depression Fisher and Greenberg (1996) conducted a comprehensive review of more the fifty research studies that have explored the role of introjective hostility in depression. They found that seventy-two percent of the
studies that used specialised laboratory tasks reported that, the amount of hostility directed inwardly was either higher in people who were depressed or it predicted shifts in levels of depression reported. However, only forty-four percent of the studies that were questionnaire based supported the hostility-inward hypothesis. Furthermore, they present evidence from a thirteen year longitudinal study that found depressive symptoms in girls but not boys were predicted by the presence of intropunitive personality traits in childhood (Block, Gjerde, & Block, 1991). Fisher and Greenberg (1996) conclude from their findings that “self-directed hostility is a significant etiologic factor in becoming depressed” (Fisher and Greenberg, 1996, pp.49).

In contrast to Freud’s central role of self-directed aggression in the process of depression Beck (1967) made no formal attempt to explain intropunitive hostility within his model, and merely implies that self-directed aggression might be secondary to depression. For example, Beck (1967) suggests that self-directed aggression is a feeling of bitterness, resentment (Balint, 1952) or a breakdown of self-esteem (Bibring, 1953) as a result of depression. Beck concludes that there is “little consensus...whether aggression is primary or secondary to the problem of depression” (Beck, 1967, pp.249), but recent research such as the longitudinal study by Block, Gjerde, and Block (1991) indicates that intropunitive hostility may play a primary role in the causation of depression.

At the causation level, both approaches propose a role for ‘loss’ in the development of depression, although this has proven somewhat difficult to test empirically. The difficulty emanates from the fact that ‘loss’ is taken to have several meaning. For Freud (1917), loss may refer to a real loss of a person or an abstraction like “liberty” or an “ideal”. Similarly for Beck (1983) loss can be either the loss of “close relatives” or the loss of “an ability or attribute”.

Despite the complexity of what both theorists propose ‘loss’ to be, Fisher and Greenberg’s (1996) review of the literature indicated that the majority of research has only looked at loss of significant family figures. A number of studies have claimed to evaluated Freud’s suggestion that suffering losses early in life predisposes people to become depressed if they experience a loss as an adult. Yet, most of the studies only conducted correlations between childhood loss and depression. Not surprisingly no rigorous support was found for Freud’s hypothesis (Crook & Elliot, 1980; Lund et al., 1986; Tennant et al., 1980, Wortman & Silver, 1992). Only study
considered the interaction between childhood loss, and current loss. They found the degree of depression was positively related to the severity of loss (O’Neil et al., 1987).

Beck and Freud differ in their justification for how ‘loss’ causes and maintains depression. Beck (1967; 1976) argues that it is the interpretation of future events and feelings as losses that maintains the depression through a vicious circle, whereby thoughts reinforce the beliefs and in turn increases the depressive symptoms (Clark & Beck, 1989). In contrast, Freud (1917) proposes that the internalisation of the ambivalent feelings towards the object result in an unconscious conflict that emanates and maintains depressive symptoms. Some evidence has been presented in support of Beck’s hypothesis with regards to how loss mediates depression (Clark & Beck, 1989), whilst Freud’s emphasis on the unconscious processes has meant that it alludes empirical evaluation.

Predisposing Factors:
In terms of each approaches’ hypothesis regarding predisposing factors, both perspectives highlight various aspects from a person’s early experiences. Although, Beck’s (1983) model essentially concentrates “on the here-and-now factors” (Beck, 1983, pp.268) he briefly outlines how a person’s early experiences can contribute to the onset of depression. In particular he highlights “developmental traumas...[and] inadequate personal experiences” (Beck, 1983, pp.267) as possible predisposing factors. Beck suggests that such experiences cause people to develop negative attitudes or schemas about themselves, the world and the future. Beck (1967) argues that “these attitudes (or concepts) may...persist in a latent state like an explosive charge ready to be detonated by an appropriate set of conditions” (Beck, 1967, pp.227). The idea that cognitions can be latent until activated has also been suggested as the reason why people who have recovered from depression do not exhibit negative cognitions. Various research has shown that people who have recovered from depression can be primed to exhibit negative cognitions, therefore demonstrating that negative cognitions can remain hidden until activated (Gotlib & McCann, 1984; Miranda & Person, 1988; Miranda & Person, & Byers, 1990; Segal et al, 1988, 1995; Teasdale & Dent, 1987).

In comparison, Freud (1917) also claimed that early experiences such as the death of a parent, can induce vulnerability to depression that lays dormant until activated by further experience of loss. However, as discussed earlier this hypothesis has only been supported by one empirical study
Freud also insinuated that certain types of parent-child interactions are responsible for predisposing people to depression. Even though Freud did not elaborate about the specific types of interactions that were involved, retrospective studies asking depressed adults to recall their parental relationships, have found that depressed people reported lower maternal and paternal support, restricted nurturance, and that parents used more negative/punitive child-rearing styles in comparison to controls (Blatt & Hommann, 1992; Burbach & Borduin, 1986). Moreover, these findings have been validated by family members and independent records (Brewin et al., 1993). Nevertheless, the specificity of these childhood experiences to depression is questionable as similar experiences are reported among various categories of psychiatric patients (Bornstein and O’Neil, 1992).

Clearly such parental relationships might be quite traumatic, and as such equally support Beck’s (1976) emphasis on ‘developmental trauma’ as well as Freud’s (1917) identification of parental relationships as predisposing factors in depression. Furthermore Fisher and Greenberg (1996) argue in their review of the literature that:

*If we take the positive findings seriously, they suggest that depressogenic parents behave ambivalently or contradictorily vis-a-vis their children...Conceivably, this might foster the ambivalent style of attachment in their children that Freud thought typical of individuals inclined to depression.*

(Fisher & Greenberg, 1996, pp.32-33)

Research which has attempted to formally measure ambivalence in a variety of diagnostic groups and controls consistently reports that ambivalence scores are selectively elevated in the depressed (King & Emmons, 1990; Raulin, 1984). Such findings would appear to lend weight to Freud’s assertion that ambivalence is the fundamental precondition for the development of depression. However, Freud’s belief that it is the ambivalent feelings towards the object that prevent the person’s experience of loss being dealt with appropriately remains unsubstantiated.

In contrast to Freud’s focus on ambivalence, Beck (1983) suggested that the extent to which early experiences predispose someone to depression depends fundamentally upon their personality structure. Beck argues that:

*If at a given time the autonomous personality cluster predominates, that person will have a specific set of sensitivities; the factors precipitating a depression will be related to these
sensitivities. Similarly, the socially dependent type will show an idiosyncratic set of sensitivities and precipitating factors.

(Beck, 1983, pp.278)

Freud also highlighted the role of personality in the development of depression through his focus on the 'narcissistic' and "oral character" type. However, Beck places more emphasis on the causative role of personality traits in dictating the type of depressive symptoms that are experienced. According to Beck's (1983) model it can be hypothesised that the precipitants of depression will reflect a specific congruence between sociotropy and negative interpersonal events and autonomy and negative achievement events. A number of studies have tested this hypothesis with the result that most have found a significant interaction between sociotropy and negative interpersonal events, but not for autonomy and negative achievements (Beck et al., 1983; Clark et al., 1992; Clark, Purdon, & Beck, 1994; Nietzel & Harris, 1990; Robins & Block, 1988; Robins, 1990; Rude & Burnham, 1993).

Fundamentally, both theorists draw attention to certain personality traits that render a person susceptible to the development of depression. Interestingly, Beck's sociotropic and autonomous personality modes are remarkably similar to the polar ends of Freud's "oral character". For example, oral orientation is characterised by "concern about dependency-independency... passivity-activity... [and] special attitudes about closeness and distance to other -being alone versus attachment to the group" (Fisher & Greenberg, 1996, pp.25). In comparison Beck's Sociotropic personality is associated with "social dependency.. [and] passive-receptive wishes", whilst the autonomous personality is associated with "independence...freedom of choice, [and] action " (Beck, 1983, p272).

Although, Freud (1917) developed his concept of an 'oral character' based on limited clinical observations various studies have since claimed to provided support for his assertion that oral fixation renders the individual vulnerable to depression. In particular a number of studies have demonstrated that oral characteristics are positively associated with pessimism (Fisher & Greenberg, 1985) and depression (Bornstein et al, 1985; O'Neil & Bornstein, 1990). The passive and dependent aspects of the oral character have also been found to be positively associated with depression in numerous studies (Birchnell & Kennard, 1983; Brewin & Furnham, 1987; Cofer & Wittenborn, 1980; Dobson & Shaw, 1986; Greenberg & Bornstein, 1988; Hirschfeld & Klerman, 1979; Hirschfeld et al., 1983; Hirschfeld et al., 1977; Hirschfeld et al., 1989; Klein, 1989;
Matussek et al, 1985; Paykel et al., 1976; Pilowsky, 1979; Reich et al., 1987; Richman & Flaherty, 1985; Warren & McEachren, 1983; Whiffen & Sasseville, 1991). Given the similarity between oral characteristics and the sociotropy-autonomy characteristics, it is premature to conclude that the above evidence is proof of the role of oral fixation. All that can be concluded is that there is a link between constellations of personality traits and depression.

**Discussion:**

Although at first glance both theorists appear to present very different concepts of depression, in fact closer examination has revealed that Beck’s model is similar to Freud’s in some areas. In essence, both perspectives suggest that certain personality characteristics predispose people to depression, if the relevant emotions and cognitions are activated by experiencing a perceived ‘loss’ of some kind. Thus, in this sense the fundamental similarity between the two approaches is their emphasis on the meaning of an ‘experience’ for the individual.

Essentially, Beck’s model has built on Freud’s initial postulations. While Freud refers to the phenomena of the libido, ego and superego as the mechanisms that are involved in the development and mediation of depression, Beck offers a way of understanding the mechanics of such constructs through his application of the information processing model. For example, Beck’s model can be seen to elaborate Freud’s role of the superego in depression by proposing that it is the person’s schema’s or ideals that mould what is processed to create a person’s negative view of reality. In effect, Beck has simulated the effect of providing an exploded diagram to some of the mechanisms of depression that Freud conceptualised.

However, some aspects of Beck’s model are weak in comparison to Freud’s. For example, Beck does not adequately address ‘intropunitive hostility’ or ‘ambivalence’, despite both of these factors being identified as characteristics of depression within the empirical literature (Fisher & Greenberg, 1996; King & Emmons, 1990; Raulin, 1984). Moreover, intropunitive hostility has also been identified as a predisposing factor to depression for women (Block, Gjerde, & Block, 1991). Such evidence clearly suggests that these factors need to be accounted for in a model of depression. Although Freud does address these phenomena in his model, the abstract nature of his conceptualisations have to date defied empirical substantiation.
Apart from 'intropunitive hostility' and 'ambivalence', research also strongly supports the involvement of 'dependency' and 'passivity' characteristics in depression. Interestingly dependency and passivity are the characteristics Beck associated with Sociotropc personality which is also the personality type he associated with women. This might be related to the finding that intropunitive hostility in childhood predisposes women to depression in adulthood (Block, Gjerde, & Block, 1991). Thus, through the review of the evidence for both theorists' models it has become clear that certain factors should be given more weight than others in a conceptualisation of depression. Yet, neither Freud or Beck's model seem able to adequately account for all the available evidence.

Clearly there is a need to amalgamate the best aspects of the psychoanalytic and cognitive-behavioural perspective in order to advance a conceptualisation of depression that can account for the observed phenomena. However, in today's social climate, in which cost-effectiveness and objectively measurable outcomes is the order of the day, there is often a resistance to incorporate those aspects that cannot be explicitly measured or tested. Although, Interpersonal Psychotherapy for depression (Klerman, et al., 1974) has been proposed as an amalgamation of the best parts of psychoanalytic and cognitive behavioural approaches (Frank & Spanier, 1995), it was originally developed in a research context with the specific aim that outcome could be explicitly measured. As such the amalgamation of Cognitive behavioural and psychoanalytic concepts fundamentally refers to their therapeutic techniques rather than the theoretical concepts upon which these are based.

Although the prominence of Freud and Beck has partly been due to their ability to offer tangible methods of treatment for depression, it is important to remember and recognise the conceptualisations from which such therapies were born. As stated earlier an effective conceptualisation of depression will incorporate explanation at the descriptive and causal level. From this review of the literature one might argue that Beck's causal hypothesis contains some gaps. Specifically Beck is unable to account for all of the observed presentations of depression. In contrast, Freud appears to offer some explanation, albeit vague and somewhat disjointed. While this might appear as a criticism of Beck it is perhaps important to remember that anything that is objectively measurable will be open to more empirical testing and thus more criticism.
Nevertheless, Freud has probably suffered the most criticism for the simple facts that his concepts defy empirical examination. Fruitless exercises to test constructs such as 'loss' should pose as evidence that the vagueness of such constructs will always render designs that are not all-inclusive, inconclusive. However, that is not to say Freud's concepts are incorrect. The fact that Freud is able to offer some explanation (albeit controversial) for most observable characteristics of depression should not be brushed aside easily, rather current research should be seeking to develop Freud's conceptualisation in the way that Beck has. Thus, it seems important that in the current social climate psychology does not shy away from exploring philosophical constructs of depression that appear to defy today's demands. Especially if future psychological concepts of depression are to have as great an impact as Freud and Beck's conceptualisations of depression.
References


“All challenging behaviour in individuals with learning disabilities has a communicative function and can be explained by deficits in communication skills. Critically discuss this proposition.

July 2001

Year I
"All challenging behaviour in individuals with learning disabilities has a communicative function and can be explained by deficits in communication skills". Critically discuss this proposition.

In order to critically discuss the above proposition it is necessary to explore the validity of its assertions. Essentially this raises two questions, does all challenging behaviour in individuals with learning disabilities have a communicative function? If so, can challenging behaviour be explained by deficits in communication skills? Through a critical exploration of the theoretical propositions and relevant evidence base that provide answers to these questions, a critical discussion of the above proposition will unfold. However, before a critical discussion can even begin, it is first necessary to clarify how some of the potentially contentious terminology will be understood in the context of this essay.

'Learning disabilities' is perhaps the term with most consensus about its meaning due to its origin from a long line of terms seeking to establish a correct and humane definition of the conditions to which it refers (cf. Sinason, 1986). Currently 'learning disabilities' is the contemporary term of choice within the United Kingdom's health and social services (Emerson, 1995). The term is taken to be synonymous with 'Mental Retardation', which is the term used for diagnostic purposes (cf. American Psychiatric association, 2000; World Health Organisation, 1992). Therefore, in accordance with the Diagnostic and Statistical Manual of Mental Disorders Fourth Edition Text Revision, learning disabilities will be taken to refer to people with "subaverage general intellectual functioning that is accompanied by significant limitations in adaptive functioning. [with an] onset...before age 18" (APA, p 41, 2000).

The term 'challenging behaviour' has generated endless debate regarding its definition (Emerson et al., 1987; 1994; Department of Health, 1995 Mansell, 1993; Thurman, 1997). Currently though, Emerson's (1995) definition is perhaps the most frequently cited (Thurman, 1997), and as such will be the basis from which challenging behaviour will be understood here. He states that challenging behaviour is:

Culturally abnormal behaviour of such an intensity, frequency or duration that the physical safety of the person or others is likely to be placed in serious jeopardy, or behaviour which is likely to seriously limit use of, or result in the person being denied access to, ordinary community facilities.

(Emerson, p4-5, 1995)

Emerson's definition highlights that "challenging behaviours are viewed as social constructions defined by their social impact" (Emerson, Moss & Kiernan, p38, 1999). As Blunden and Allen (1987) point out the term 'challenging behaviour' essentially "emphasises
that such behaviours represent challenges to services” rather than people with learning disabilities (Blunden & Allen, 1987, p14). In fact, Lowe and Felce (1995) found in their investigation of operational definitions of challenging behaviour that the severity of a challenging behaviour was determined by the level of social disruption it caused.

Whether a particular behaviour will be seen as challenging or not seems to depend on “complex interactions between what the person does, the setting in which it is done and how his or her behaviour is interpreted or given meaning” (Emerson, Moss, & Kieman, p38, 1999). However, the instability of challenging behaviour as a construct poses a problem to any empirical attempts to measure it. Stansfield and Cheseldine (1994) found extreme variability in staffs’ ratings of clients’ challenging behaviour. They reported that:

One person’s distracting behaviour is another’s disruptive behaviour, thus indicating the role of the interactor in the definition of the… challenging behaviour”

(Stansfield & Cheseldine, p12, 1994)

Allen (2000) argues that because of such variations in operational definitions, the validity of comparisons between empirical studies is questionable. For example, Allen argues that “differences in terminology can in themselves explain apparent differences in reported rates of aggressive behaviour” (Allen, p42, 2000). Thus it seems important to consider such variability in the way challenging behaviour is operationally defined when reviewing the evidence base.

Communication is by far the most controversial concept to define, and yet the most crucial term to understand in order to critically discuss the above proposition. As an area of much contentious debate and little consensus, it is not possible to fully reflect the difficulties inherent in the concept of communication in this discussion (cf. Van der Gaag, 1993). Nevertheless it is necessary to highlight that the validity of the proposition under discussion here may vary enormously depending upon which definition of communication is used.

Essentially there are two different camps regarding what communication can be taken to refer to. The first is the pragmatic perspective, which proposes that all behaviour is communicative (Donellan et al., 1984). This perspective is best portrayed through Watzlawick, Beavin, and Jackson’s (1967) description of communication. They argue that:

No matter how one may try, one cannot not communicate. Activity or inactivity, words or silence all have message value: they influence others and these others, in turn, cannot not respond to these communications and are thus themselves
communicating. It should be clearly understood that the mere absence of talking or of taking notice of each other is no exception to what has just been asserted”

(Watzlawick, Beavin & Jackson, 1967, p49)

The basic premise of this perspective is that all behaviour has a “functional message” (Donellon et al., p282 1984).

The second perspective proposes that only intentional behaviour is communicative. In contrast to the pragmatic perspective Ambalu (1997) argues that “Strictly speaking the child who cries out in pain is not communicating, although others around him will interpret his cry as evidence of his pain” (Ambalu, 1997, p15). Ambalu goes on to explain that communication:

Is an active inferential process, such that successful communication does not depend only on the listener’s recognising the meaning of the message conveyed, but also on his inferring the speaker’s meaning and understanding his intentions.

(Ambalu, 1997, p15)

The idea inherent in this perspective is based on an understanding of human behaviour put forward by Sperber and Wilson (1995), which recognises that “we typically conceptualise behaviour in terms not of what is happening physically, but of its underlying intentions” (Ambalu, 1997, p15).

It seems that to accept either of these definitions is to over simplify the complexity of what communication is. To accept the pragmatic definition is to use ‘Communication’ and ‘behaviour’ as synonymous terms. This is obviously a vacuous argument, because while communication is innate in behaviour, behaviour can also be seen as conveying more than just a communicative function. As Durand (1990) points out “behaviour can be seen as having a purpose, meeting a need, constituting a communicative act and containing message content” (Durand, p 23, 1990). In contrast, to neglect the unintentional communication such as reflexive responses like crying or making particular facial expressions, which provide cues for action to others is equally over simplistic. Thus for the purpose of this discussion communication will be defined in learning theory terms, whereby non-intentional communication is any “reflexive responses...that may provide cues for action to [others]”, while intentional communication is “any deliberate action that has the function of social influence” (Remington, p232, 1998).
Does all challenging behaviour in individuals with learning disabilities have a communicative function?

In order to decide whether all challenging behaviour in individuals with a learning disability has a communicative function or not, it is necessary to review what other possible functions it may have. A large proportion of the theoretical debate with regards to this issue has been dominated by the behaviourist paradigm, therefore the current discussion will begin from this stance.

Through the evolution of behaviourism, the view of challenging behaviour has changed from being something to be 'eliminated', to something that serves a 'function', and from this the idea was born that the function of challenging behaviour is communicative (Carr et al, 1994). This idea took root following Carr's (1977) intimation that challenging behaviour in individuals with learning disability has multiple sources of motivation that can be sequentially related. Carr (1977) identified five ways in which challenging behaviour is hypothesised to be motivated.

Firstly, challenging behaviour may be driven by positive social reinforcement, which is delivered contingent upon performance of the behaviour. Secondly, via negative reinforcement, whereby the behaviour is maintained by the termination or avoidance of aversive stimulus. Thirdly, challenging behaviour may be a means of providing self-stimulation. Fourthly, it could be organically determined, as a consequence of abnormal neurochemistry or brain damage. Finally, such behaviour could be a response to personality conflicts as detailed by psychodynamic theorists (cf. Bychowski, 1954; Greenacre, 1954; Hartman, Kris, & Loewenstein, 1949; Sinason, 1986).

Carr proposed the question “what, if any, are the relationships between the different motivational sources?” (Carr, p812, 1977). In answer to his question he described how a sequential relationship might develop:

Children suffering from Lesh-Nyhan syndrome may...initially mutilate their fingers and lips as part of a reaction to a biochemical abnormality. In time, however, such behaviour evokes much attention from parents and care staff. At this point, the behaviour may be...under social control.

(Carr, p813, 1977)

Carr’s assertion that biologically driven challenging behaviour becomes socially motivated is inadvertently supported by reports showing that medication is the least effective treatment for
challenging behaviour (Brylewski & Duggan, 1999; Didden, Duker & Korzilius, 1997). Further research has built on Carr's argument by demonstrating that not only can challenging behaviour have multiple social determinants but also these may co-exist so that they serve multiple functions. For example, Iwata et al (1982) found that self-injurious behaviour may be primarily associated with either positive reinforcement, negative reinforcement or a combination of self-stimulatory, positive and negative reinforcement.

In the search to find functional equivalencies to challenging behaviour that served multiple social functions a few seminal studies began to hypothesise a link between challenging behaviour and communication, based on the knowledge that language too may serve multiple social functions (Donnellan et al., 1984; Iwata, et al., 1982; Schuler & Goetz, 1981). However, Carr and Durand (1985a) were the first to formally outline "a general theory of severe behaviour problems...conceptualized as primitive forms of non-verbal communication"(Carr & Durand, p220, 1985a).

Influenced by literature from philosophy (Plato, 1960; Rousseau, 1979) that suggests non-verbal behaviour such as crying is a primitive form of communication, Carr & Durand (1985a) proposed that:

If a [person] is retarded and fails to acquire speech or acquires only minimal levels of communicative speech, then one would expect that the primitive behaviours would remain. Such behaviours might then constitute the major, if not only means of communication.

(Carr & Durand, p 2 3 1 , 1985a)

Carr and Durand (1985a) go on to present evidence that problematic non-verbal behaviour can serve a social-communicative function in individuals with a learning disability, and thus by definition they argue it is a primitive form of communication (Brownlee and Bakeman, 1981, Kranner, 1943; Reichle & Yoder, 1979; Schaeffer, 1978). Based on this knowledge they hypothesise that:

If behaviour problems are social-communicative in nature, then one would anticipate that intervention programmes stressing broad communication training could have the effect of replacing behaviour problems. Specifically, a communication hypothesis would predict that as a [person] acquires more sophisticated and effective means of communication (e.g., speech or sign language), primitive communicative responses (e.g., behaviour problems) should decline.

(Carr & Durand, p245, 1985a)
Their hypothesis has been supported by various reports of the effective reduction of challenging behaviour in both children and adults with learning disabilities following the implementation of communicative interventions (Bird et al., 1989; Bradshaw, 1998; Carr & Durand, 1985b; Rowland & Treece, 2000; Symons, Fox & Thompson, 1998; Thurman, 1997). In a review of the empirical literature, Mirenda (1997) found that of twenty-two studies evaluating communicative interventions in a total of fifty-two people, interventions were found to be successful in eighty-five percent of the participants. Implicit in the finding that training communication alternatives reduces challenging behaviour, is the assumption that these results confirm that challenging behaviour has a communicative function.

However, various methodological weaknesses inhibit any firm conclusions with regards Carr and Durand’s (1985a) hypothesis. For example, the majority of these studies are either single case studies (Bradshaw, 1998; Symons, Fox & Thompson, 1998; Thurman, 1997) or small-number designs (Bird et al., 1989; Carr & Durand, 1985a; Rowland & Treece, 2000; Steege et al., 1990). In fact, the largest sample only consisted of five people (Durand & Kishi, 1987), two of whom the intervention proved unsuccessful for. There are also a number of confounding variables in some of the studies (cf. Mirenda, 1997). For example, Rowland & Treece, (2000) were simultaneously treating clients with medication, whilst Thurman’s (1997) case was of a client who had just been resettled in the community. Thus the observed changes in Thurman’s (1997) case could be attributed to the wider environmental changes this client experienced. One study never even formally measured changes in challenging behaviour but drew conclusions based on staff reports (Bradshaw, 1998).

All of these studies investigated high frequency challenging behaviour despite the fact that epidemiological evidence indicates that the average rate of aggression in people with learning disabilities is one incident every two weeks (Kessler et al., 1984). Whitaker, (2000) found that interventions such as Functional Communication Training (FCT), which are based on functional analysis may be ineffective with low frequency challenging behaviours. Until low frequency behaviours are empirically investigated it is clear that the generalisation of the effectiveness of FCT to all challenging behaviour is unfounded.

Such results would seem to intimate that the proposition, “all challenging behaviour in individuals with learning disabilities has a communicative function” has not been adequately empirically proven. Nevertheless it has not been disproved either. Furthermore, It is important to remember that Carr and Durand (1985a) never claimed that all challenging behaviour has a communicative function. They only proposed that the communicative hypothesis applies to
“socially motivated behaviour problems” (Carr & Durand, p219, 1985b). In this context challenging behaviour can only be expected to have a communicative function when another person mediates its reinforcement. This insinuates that it is first necessary to establish that some form of reinforcement mediates the challenging behaviour. However, studies that have opposed the communication hypothesis with evidence of challenging behaviours that do not have a social-function have met the criticism that the observer just did not recognise the function of the behaviour (Reichle & Wacker, 1993).

The major problem with any attempt to empirically evaluate the communication hypothesis lies in the difficulty of operationalising the construct of ‘communicative function’. This difficulty is further expounded as part of another methodological criticism that underpins the whole foundation of the communication hypothesis (Carr & Durand, 1985a). Namely, that the functional analysis assessment methods have been found to have poor agreement (Oliver, 1991; Toogood & Timlin, 1996). This has huge implication with regards to the validity of any empirical study claiming to support the communication hypothesis. Communicative interventions are hinged on the principle of correctly identifying what the challenging behaviour communicates. However, if the communicative function of a person’s challenging behaviour is dependent upon the method of assessment used, then what certainty is there that the perceived function is in fact the person’s intended communicative function? It may be that the behaviour is not communicative at all, or that there is some other mechanism at work here that could equally account for the observed changes following communicative interventions.

One possibility is that communicative interventions are nothing more than deferential reinforcement of a functionally equivalent behaviour. From this perspective the client may have no communicative intent at all. Thus in essence, it could be argued that the communication hypotheses has just re-invented the behaviourist focus on functional behaviour (Reichle & Wacker, 1993) using terminology suited to the current social climate, in which cognition and consciousness are deemed most important to our understanding of human nature (Malik, 2001). In this way the communication hypothesis enables the behaviourist approach to shake off its early criticisms for being too mechanistic (Reber, 1985).

An alternative and more controversial suggestion is that proposed by psychodynamic theorists such as Sinason (1992). Sinason (1986) argues that challenging behaviour represents “a defence against trauma”, and the observed deficits in communication skills are often “secondary handicap” that protect the person from the memory of trauma (Sinason, 1986, p135). Sinason (1986) details two case studies to illustrate how a person’s communication
skill will improve once they have begun to work through their trauma. Thus from this perspective challenging behaviour may represent internal unconscious conflict rather than a simple communicative function. Nevertheless, psychodynamic concepts are also difficult to operationalise and therefore test empirically.

Clearly, it is currently impossible to establish whether challenging behaviour has a communicative function. A fact which the proponents of the communication hypothesis assert themselves:

> It is likely that we will never be able to demonstrate definitely that a particular child intended to ask for assistance or attention by means of his or her misbehaviour

(Carr & Durand, 1985, p125)

Nevertheless, based upon the evidence that the communication hypothesis only claims to explain socially-motivated challenging behaviour, it can be concluded that there is no theoretical support or empirically based evidence for the proposition that ‘all’ challenging behaviour has a communicative function. Despite the fact that the communication hypothesis believes that even organically driven challenging behaviour can come to be maintained via social-motivates. However, this does not disprove the proposition that all challenging behaviour can be explained by deficits in communication skill. Evaluation of the theoretical and empirical support for this part of the proposition may enable a more fruitful discussion.

*Can challenging behaviour be explained by deficits in communication skills?*

Although the communication hypothesis recognises that multiple sources of motivation may cause challenging behaviour, they essentially propose that a deficit in communication skill is the primary factor maintaining this behaviour (Carr & Durand, 1985). There is a substantial amount of support for this hypothesis, which essentially indicates that poor communication skills are closely linked with increased rates of challenging behaviour (Bird et al., 1989; Bott, Farmer & Rohde, 1997; Blunden & Allen, 1987; Chamberlain, Chung & Jenner, 1993; Chung et al., 1995; Gould, 1977; Quinz, 1986). Recently though, evidence has emerged that contradicts the purported association. For example, McLean, Brady and McLean (1996) found that more able communicators exhibited higher levels of aggression. They discuss the possibility that their finding could be due to a failure to distinguish between verbal and non-verbal aggression. Nevertheless, verbal aggression is an example of challenging behaviour that is not related to a deficit in communication.
Moreover, as communication impairment is part of the criteria for a diagnosis of severe mental retardation (cf. American Psychiatric association, 2000; World Health Organisation, 1992), and prevalence of challenging behaviour increases with the severity of learning disability (Read, 1998), it is to be expected that an association exists between communication deficits and challenging behaviour. However, just because communication difficulties and challenging behaviour co-exist, it does not necessarily follow that one causes the other. Thus in order to evaluate the validity of the assertion that challenging behaviour can be explained by deficits in communication skills, it is necessary to evaluate alternative explanations that can also account for the association between communication deficits and challenging behaviour.

**Biological Factors:**
Proponents of the biological explanations of challenging behaviour do not accept that the presentation of challenging behaviour is maintained by a communication deficit (Dimitropoulos, Butler and Thompson, 2001). They argue that the link between communication deficits and challenging behaviour is purely biological because of the fact that learning disabilities are largely biological in origin (c.f. Deb, 1998; Dimitropoulos, Butler and Thompson, 2001; Murphy, 1999). Challenging behaviours such as aggression and self-injurious-behaviour (SIB) are known to be part of the symptomology for many genetic disorders like Smith-Magenis (Finucane, Dirrigl, & Simon, 2001), Tourettes (Finlay & Bernal, 1995), Lesh-Nyhan, and Prader-Willi syndrome (Deb, 1998). Therefore, it is proposed that biological disorders cause abnormalities in the brain that trigger various forms of challenging behaviours (Deb, 1998).

There are two areas of research that provide support for this argument. Firstly, it is well known that damage to the frontal lobes can result in aggression, disinhibition, impulsivity, as well as communication deficits (Carroll, 1994; Deb, 1998; Malloy et al., 1998; Wood, 1987). Secondly, there is evidence that aggression and SIB are linked to alterations in dopaminergic, serotonergic, and opioid neurotransmitter systems (Emerson, et al., 1995 Murphy, 1999). Such evidence throws light on the apparent ineffectiveness of pharmacological interventions, because commonly prescribed antipsychotic medication only suppresses dopaminergic activity. This research has lead to medication being prescribed based on the presumed underlying neurobiological process of challenging behaviour. As a result, promising findings are emerging (Emerson et al, 1995). For example, naltrexone an opiate antagonist has been found to reduce the frequency of SIB by half in people with learning disabilities (Symons, Fox & Thompson, 1998).
Olson & Houlihan (2000), provide further evidence of a biological link for SIB in people with learning disabilities. In their review of behavioural treatments for Lesh-Nyhan syndrome they reported that SIB often appears to be involuntary. For example, one study reported that when a particular child was unrestrained “the boy would often hold his hands behind his wheelchair in an attempt to prevent the SIB” (Olson & Houlihan, 2000, p214). Moreover, studies that used behavioural interventions to treat SIB found that a reduction in the target behaviour results in an increase in other SIB (Olson & Houlihan, 2000). This ‘symptom substitution’ would seem to indicate that there is a biological drive to exhibit SIB that is always active.

Through the investigation of epilepsy and specific genetic syndromes behavioural observations have been made that would appear to challenge the communication hypothesis more directly. For example, Chung and Cassid, (2001) and Deb and Hunter (1991) both found that epileptic patients displayed more challenging behaviour than other patients, despite the fact that both groups of patients had similar communication skills. Dimitropoulos, Butler and Thompson (2001) have presented a more direct challenge to the assertion that communication deficits mediate challenging behaviour. They point out that if the communication hypothesis is correct “one might expect that delayed language skills in children with Prader-Willi syndrome might lead to frustration and more frequent use of tantrums as a means of communication”(Dimitropoulos, Butler and Thompson, 2001, p48). However, their investigation of 105 children did not support this prediction. Dimitropoulos and colleagues (2001) found that rather than tantrums increasing at the time of when their language was most obviously delayed, they increased when the eating disorders became more severe. This would seem to indicate that the behaviours are either biologically driven or caused by increased anxiety and frustration as a secondary reaction to the interplay between the biological drive and their environment (Deb, 1998).

Environmental factors:
The interaction of neurological or biological deficits with a person’s immediate environment can produce challenging behaviour (Deb, 1998). For example, “an apathetic person with learning disabilities who lacks initiative because of damage to their frontal lobes may manifest maladaptive behaviour when put under stress of normal social integration” (Deb, 1998, p387). Although environmental triggers generate such behaviours, they are not perceived to be socially-motivated. This is reflected by the fact that in terms of clinical practice, it is widely accepted that management of such challenging behaviours focuses on the adaptation of the environment to minimise the triggers rather than modifying the persons
behaviour (Snyder & Nussbaum, 1998). In view of the fact that many of the communicative interventions involve major environmental adaptations, the reported reductions in challenging behaviour can not solely be attributed to communication deficits (Bradshaw, 1998; Thurman, 1997).

However, a pragmatic view might argue that behaviours triggered by environmental settings are supportive of the communication hypothesis. For instance, they would argue that poor ‘communication skills’ cause the person frustration. Communication skills here is defined in pragmatic terms, thus essentially refers to the persons repertoire of behavioural mechanisms which they use to make the environment meet their needs (c.f. Donnellan et al., 1984).

An alternative perspective is that the environment itself is responsible for producing challenging behaviour. For example, a person with a learning disability might exhibit aggression as a reaction to unreasonable environmental constraints. Allen (2000) points out that:

> Given the often inappropriate and dysfunctional environments within which many persons with intellectual disability are forced to live, their expressions of anger and aggression may be viewed as a legitimate response to unacceptable conditions.

(Allen, 2000, p52)

In accordance with Allen’s (2000) view, such behaviours are appropriate communications, therefore they cannot be explained by communication deficits. Although, in clinical practice problems of this sort can be misinterpreted as the client failing to communicate, when in actual fact it may be staff failing to provide an adequate communicative environment (Mirenda, 1997). However, bearing in mind the definition of challenging behaviour as ‘culturally abnormal behaviour’, if such responses are deemed ‘legitimate’ behaviours then they cannot truly be defined as challenging. Nevertheless it is worth highlighting the environment itself as a potential cause of challenging behaviour, particularly given the fact that Bouras & Drummond (1992) found that most referrals to a psychology learning disabilities service had environmental problems (i.e. residential placement and daytime activities problems) in addition to the reason for referral.

**Psychiatric disorders**

Another alternative explanation to the idea that communication deficits account for challenging behaviours in individuals with learning disability, is the idea that challenging behaviour is indicative of psychiatric disorders. It has been empirically demonstrated that
psychiatric disorders are generally under-diagnosed in people with learning disability (Allen, 2000), and the co-morbidity of challenging behaviour and psychiatric disorders is well documented (Allen, 2000; Bouras & Drummond, 1992; Emerson, Moss, & Kieman, 1999; Moss et al., 2000). In fact, Moss and colleagues (2000) have recently shown that the severity of challenging behaviour increases with increased prevalence of psychiatric symptoms.

Emerson, Moss, & Kieman, (1999) propose that challenging behaviour may represent the atypical features of psychiatric disorders. Indeed, King (1993) found that some forms of SIB may constitute the atypical presentation of obsessive-compulsive disorder. While, Meins (1995) has demonstrated that “aggression, SIB, stereotypes, screaming and spontaneous crying” are all atypical symptoms of depression in people with learning disabilities (Meins, 1995, p45). Furthermore, he reported that atypical symptoms occur more frequently in people with severe learning disability. Thus the assumption here is that psychiatric symptomology is biological in nature.

However, the validity of studies that claim to have identified atypical symptomology is questionable because it is often “impossible to apply [standardised diagnostic] criteria” for a psychiatric disorder to severely learning disabled individuals (Meins, 1995, p44). With the addition of unusual symptomology, it is very difficult to reliably conclude that a person even has a particular psychiatric disorder according to standardised criteria. Furthermore, the counter argument is that so called atypical symptoms are actually a secondary feature of psychiatric disorders. These are thought to develop as a result of people’s communication deficits making it difficult for them to verbalise their feelings. For example, physiological symptoms of depression such as sleep and appetite disturbances might result in aggressive behaviour around these areas (Emerson, Moss, & Kieman, 1999). This view indicates that deficits in communication skills can be a mediating factor in the development of challenging behaviour.

The relationship between motivational sources

In contrast to Carr's view of a sequential relationship between the motivating sources, Symons, Fox and Thompson (1997) propose that multiple sources can be active at the same time. This is in keeping with the findings of Iwata (1982). Symons and colleagues argue that some forms of challenging behaviour may have “a social function”, whilst other forms in the same person can be “regulated neurochemically” (Symons, Fox, & Thompson, 1997, p274). Through their single-case study design they identified “biologically-mediated” challenging behaviour as
those behaviours that had no relation to any social antecedents or consequences, which was contrasted with "social-mediated" behaviours that did exhibit such relations.

Discussion:
Through an exploration and evaluation of the relevant theory and evidence base supporting and contesting the proposition under critical discussion here, it has become clear that the proposition can neither be rejected nor accepted in its entirety. Essentially though, reviewing the theoretical development of the communication hypothesis, revealed that the proposition is an inaccurate representation of what the theory proposes (Carr & Durand, 1985a). Contrary to the proposition's claim that "all" challenging behaviour in individuals with learning disabilities has a communicative function, the theory only ever purported to explain socially motivated challenging behaviour. In view of this fact empirical testing has made no attempt to test "all" challenging behaviour. Thus it can be concluded that there is no theoretical or empirical support for the assertion that "all" challenging behaviour in individuals with learning disabilities has a communicative function and can be explained by deficits in communication skill.

Part of the difficulty in being able to reach a definitive decision regarding the validity of the proposition, is due to the lack of an operational definition for the term 'communicative function'. The inability to agree an operational definition of this term is inherent in the difficulties encountered when trying to define communication. Without clear guidelines as to when behaviour does not have a communicative function, it is impossible to overcome the criticism that is directed at opposing research. Namely that, findings of behaviour that is not socially motivated "may have failed to identify the specific situations correlated with the problem behaviour" (Reichle & Wacker, 1993, p.14). Until this concept can be defined in a manner that is meaningful, any firm conclusions regarding the proposition will always be alluded.

Furthermore, in clinical practice, if a communicative function can not be identified for a challenging behaviour, adhering to the idea that the social function of the behaviour may have been missed, could be potentially very dangerous. For example, Finlay and Bernal (1995) describe the case of a man with a learning disability, who's challenging behaviour was discovered to be symptomatic of Tourettes syndrome but had been assumed to be socially-motivated for most of his adult life.
By turning the proposition on its head, and seeking to confirm, or refute its validity via the assertion that challenging behaviour can be explained by deficits in communication skills, more meaningful conclusions have been drawn. In particular, through the discussion of alternative explanations to the communication hypothesis it has become clear that there is a wealth of evidence to support the distinction between biologically and socially mediated challenging behaviours (Deb, 1998; Finlay & Bumal, 1995; Olson & Houlihan; Symons, Fox, & Thompson, 1997). Furthermore, there is also evidence that these may co-exist at any one time in the same person (Symons, Fox, & Thompson, 1997). Finlay and Burnal’s (1993) case study further illustrates this point. They report that because of the man’s communication deficits he was unable to report the involuntary nature of his tics. In this case the communication deficit is a mediating factor, while the primary factor explaining the challenging behaviour is the Tourettes syndrome. Obviously then, deficits in communication skills may be one of many motivational factors that can explain the presentation of challenging behaviour in people with learning disabilities.

Having established that the communication hypothesis can not account for all challenging behaviour, and that communication deficits may only be one of many motivational sources that cause the behaviour, the proposition under discussion here would appear to have poor validity. Primarily the proposition is too simplistic to be useful. While the idea of conceptualising the process of behavioural interactions as communication is helpful, it is also perhaps somewhat dangerous, because in clinical practice it has the potential to lead people to ignore other factors that might be key to an understanding of a persons challenging behaviour.

Moreover, such evidence also brings into question the clinical usefulness of this approach. As Emerson (1993) points out “there is clearly a chance that the emphasis upon communicative acts may unnecessarily narrow the choice of intervention procedures” (Emerson, 1993, p186). To illustrate Emerson’s point it is worth considering hypothetically how Finlay and Burnal’s (1993) case study might have been handled if a communicative approach had been applied. For example, the man used to lock himself in his room or find a toilet if he felt that he was about to exhibit tics. According to the communication hypothesis such behaviour might be seen as communicating “I want to be on my own”, and indeed this would be correct. However, the communicative intervention would aim to help this man develop a socially appropriate way to communicate that he wanted to be on his own. This would only be addressing the mediating factor, namely communication deficit. Thus this approach severely limits the consideration of any alternative interventions and fundamentally fails to detect the underlying biological mechanisms primarily motivating the behaviour.
Clearly there is some value in the communication hypothesis and thus the proposition discussion here. However, rather than as an explanation of challenging behaviour in its own right, its value is as another piece of the jigsaw puzzle that needs to be considered as part of the ‘bigger picture’ when assessing challenging behaviour in people with learning disabilities. The complex interplay between multiple motivational sources of challenging behaviour means that “no one theoretical approach to intervention will be applicable across all forms of challenging behaviour” (Emerson, 1998; p.128). Through the current critical discussion it has become apparent that research is continuously identifying new motivational sources of challenging behaviour. Yet what is needed is a motivational model of challenging behaviour that begins to expound the relationship between mediating, moderating and primary sources of motivation. It seems as though despite over two decades of research, behaviourists have yet to answer Carr’s seminal question “what, if any, are the relationships between the different motivational sources?” (Carr, p812, 1977).
References:


"Discuss the argument that assessing and treating specific learning disabilities in children is properly the task of educational rather than clinical psychologists".

December 2001
Year II
Discuss the argument that assessing and treating specific learning disabilities in children is properly the task of educational rather than clinical psychologists.

In view of the importance of evidence-based practice within the profession of psychology, any attempt to discuss the above argument raises the question; who can most effectively meet the assessment and treatment needs of children with specific learning disabilities? Through a review of the literature regarding best practice in the assessment and treatment of these children, the various camps of support for and disagreement with the above argument will emerge. Fundamentally though, any conclusions regarding agreement or disagreement with the argument, hinges on what is perceived as 'properly' the educational or clinical psychologist's role in working with children with specific learning disabilities. There are three sources of evidence that can be drawn on to evaluate what is perceived as 'properly' their role. Firstly, that which is denoted in government policy and British Psychological Society (BPS) guidelines. Secondly, through examination of what Clinical and educational psychologists actually do, and thirdly, by drawing on current research.

However, before a discussion can ensue regarding the above argument it is first necessary to define the various terms. This task alone could incur considerable debate, as the definition of specific learning disabilities is an area of much controversy (Kaufman & Kaufman, 2001; Ogilvy, 1995). Specific learning disabilities is an American term, which is generally taken to refer to children who experience difficulties performing specific academic tasks with the proficiency attained by peers (cf. Kaufman & Kaufman, 2001). This term is synonymous with the term 'specific learning difficulties', which is used in the United Kingdom (Reason, 2001). Beyond this rather broad definition there is little consensus about what can be understood by these terms. As a result, terms such as 'assessment' and 'treatment' can be taken to mean various things dependent upon how 'specific learning disabilities' is defined. Furthermore, whether assessment and treatment of specific learning disabilities is perceived as an Educational or Clinical Psychologist's role might depend upon what is being referred to as 'assessment' and 'treatment', and indeed 'specific learning disabilities'. The circularity of this dilemma suggests that initially, issues around defining specific learning disabilities need to be explored.

An area of less confusion is what educational and clinical psychologists are. These terms are most commonly used to refer to divisions of professional psychology, particularly in the United Kingdom. Therefore, the BPS definition of a Clinical and Educational Psychologist will be used for the purpose of this essay. The BPS states that a clinical psychologist:
Aims to reduce psychological distress and promote psychological well-being. They work with people with mental or physical health problems which might include anxiety and depression, serious and enduring mental illness, adjustment to physical illness, neurological disorders, addictive behaviours, childhood behaviour disorders, personal and family relationships. They work with people throughout the life-span and with those with learning disabilities

(BPS, 2000, p3).

In contrast, the BPS states that educational psychologists:

Are concerned with children’s learning and development, working primarily in schools with teachers and parents. They carry out a wide range of tasks with the aim of enhancing children’s learning and enabling teachers to become more aware of the social factors affecting teaching and learning.

(BPS, 2000, p3)

These definitions also relate to Psychologists who practice internationally, although in America educational psychologists are more similar to the professional body referred to as School Psychologists. In view of the interchangeable use of American and English terms within the statement under discussion, evidence regarding the practice of psychologists in the field of specific learning disabilities from America and the United Kingdom will be drawn upon for the purpose of this essay.

**Defining specific learning disabilities**

The development of the term specific learning disabilities is difficult to explain, fundamentally because issues of assessment and treatment are intertwined in its definition. Therefore in order to review the debate in this area it is necessary to digress briefly into some of the historical and theoretical context from which the term was born. In turn this will set the scene for the debate that will unfold regarding the argument under discussion in this essay.

The term ‘specific learning disability’ (SpLD) was originally coined in 1957 by an American, Samuel Kirk, as a means to bring together work being conducted on children with various learning difficulties (Shepherd, 2001). Subsequently, the term was incorporated into federal law (1977). The definition reads:

‘Specific learning disability’ means a disorder in one or more of the basic psychological processes involved in understanding or using language, spoken or written, that may manifest itself in an imperfect ability to listen, speak, read, write,
spell or do mathematical calculations. The term includes such conditions as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. The term does not apply to children who have learning problems that are primarily the result of visual, hearing, or motor disabilities, of mental retardation, of emotional disturbances, or of environmental, cultural, or economic disadvantage.

(Federal Register 42, 1977, p.60 582)

This definition was shaped by the work of Strauss (1947) who believed that brain damage could affect a specific mental activity, and consequently disrupt learning on tasks that required that activity. For example, a short-term memory problem might present as a mathematics disorder. Strauss demonstrated that these learning problems could be corrected by providing a special learning environment designed to ameliorate the problem. Strauss’ ideas prompted discussion about special education and thus the need to recognise SpLD as a diagnostic category in federal law.

Clearly, what underpins the federal definition of SpLD is Strauss’ concept of treatment. However, just as the definition of SpLD was about to become law, new research findings suggested that special education did not work (Kavale & Forness, 1985). This led to the addition of the aptitude/achievement discrepancy criterion, which reads:

The child has a severe discrepancy between achievement and intellectual ability in one or more...areas related to communication skills and mathematics abilities

(Federal Register 42, 1977, p.65 083)

This definition criterion was based on the observations of Bateman (1965). She noted that “children who have learning disorders are those who manifest an educationally significant discrepancy between their estimated intellectual potential and actual level of performance” (Bateman, 1965, p.220).

Strauss’ neuropsychological perspective is still influential today. For example, Silver (1999) has detailed an extensive description of how specific learning disabilities might occur in any of the areas concerned with mental activity. For instance, he suggests that a reading disorder might be caused by difficulty organising the way the shape of letters are seen. According to Silver (1999) this might also impact on the child’s ability to see numbers and therefore simultaneously result in arithmetic difficulties. Thus he concludes that such problems would indicate a visual perception disability.

A contrasting view, although equally influential in terms of its contribution to the area of definition, was the perspective of Hinshelwood (1917) and Orton (1937). Their observations
of children who failed to learn specific skills involved in reading whilst still being competent in relative areas of arithmetic, led them to reason that such dysfunction was directly related to basic cognitive processes in reading. Thus a child’s disability was a reading disability, writing disability, or arithmetic disability, not a visual perception disability. The Hinshelwood and Orton perspective is reflected in the way learning disorders are classified in the Diagnostic and statistic Manual of Mental Disorders (DSM-IV-TR; American Psychiatric Association, 2000). DSM-IV-TR presents four learning disorders: reading; mathematics; written expression; and learning disorder not otherwise specified. Each disorder is identifiable as a discrepancy between the child’s achievement and chronological age and measured intelligence. Although each is presented as a distinct disorder, it is recognised that it is relatively rare for a mathematics or written expression disorder to be found without a reading disorder (DSM-IV-TR; American Psychiatric Association, 2000).

In a similar process to the development of the term in America, the United Kingdom’s Green paper on ‘Children with Specific Learning Difficulties’ (1972) advised the use of the term specific learning difficulties in place of terms such as dyslexia (Bryans, 1985). This term built upon the 1981 education act which defined a child as having a learning difficulty if “he has a significantly greater difficulty in learning than the majority of children his age” (Bryans, 1985, p18). However, the continued use of the term dyslexia in research and by the public at large prompted subsequent national policy documents to introduce compromise phrases such as ‘specific learning difficulties (for example dyslexia)’ (Reason, 2001).

The most extensive definition in British policy has been provided by the ‘Code of Practice on the identification and assessment of special educational needs’ (DfE, 1994). This states that, a specific learning difficulty may be identified by evidence in accordance with the following criteria:

i. There are extreme discrepancies between attainment in different core subjects...

ii. Expectations of the child...are significantly above his or her attainment...

iii. There is clear recorded evidence of clumsiness; significant difficulties of sequencing or visual perception; deficiencies in working memory or significant delay in language functioning.

iv. There is evidence of problems...associated with specific learning difficulties, such as severe emotional and behavioural difficulties...

(DfE, 1994, paras 3.60)
Clearly the British criteria are much broader and more inclusive than the American definitions, but as Frederickson and Reason (1995) point out "to invite LEAs [Local Educational Authorities] to pick and mix from the potpourri of criteria offered...is to guarantee inconsistencies in definition across the country" (Frederickson and Reason, 1995, p197).

Through this historical transgression it becomes clear that the central tenet with regards the definition of SpLD is the concept that a discrepancy exists between these children's achievement and ability. However, this discrepancy model has been criticised for defining SpLD in terms of how they are identified rather than what they are (Ogilvy, 1994; Shepherd, 2001). This criticism highlights once again the difficulty in separating issues of assessment and treatment from any definition of SpLD. Another problematic issue with regards defining SpLD, is whether a definition should be restricted to reading, writing and arithmetic problems (Ogilvy, 1994). It has been suggested that the diagnostic criteria for SpLD should also include social skills deficits (Gresham & Stephen, 1989), perceptual-organisation subtypes (Sermrud-Clikeman & Hynd, 1990), and dysrationalia, which is an "inability to think and behave rationally despite adequate intelligence" (Stanovich, 1993, p503).

As Kaufman and Kaufman (2001) concluded "it is apparent that consensus about SpLD cannot easily be achieved, that lack of agreement has consistently led to controversy, and that such controversies are as alive today as they were 30 or 40 years ago" (Kaufman & Kaufman, 2001, p433-434). Clearly, the acceptance of any one definition is fraught with difficulties, yet it will not be possible to adequately cover all of the difficulties that can be classified as a SpLD within the current discussion. In light of the fact that Literacy problems are the most commonly reported (Fleischner, 1994; Swanson, 1999), have the greatest impact on academic performance and are the most widely researched area of SpLD (Carr, 1999), the remainder of this discussion will predominantly focus on specific reading disorders.

Assessment:

Silver (1999), who draws on the neuropsychological model, argues that assessments should take the form of a ‘psychoeducational evaluation’ which consists of “psychological and educational testing administered by psychologists and educational diagnosticians...The psychological assessment may consist of a neuropsychological or a clinical psychological evaluation” (Silver, 1999, p89). These evaluations have three parts. Firstly an IQ test to assess
the level of intellectual functioning and type of cognitive style used. Secondly a battery of
achievement tests are used to clarify the level of skills in reading, writing, and mathematics.
Thirdly, a test series that assesses each aspect of information processing.

Silver (1999) does not accept that a discrepancy between intellectual potential and
performance automatically diagnoses a child as having a SpLD. He argues that if a
discrepancy is observed further tests of processing should be given to clarify whether a SpLD
is present. In accordance with his belief that specific areas of mental activity are responsible
for the presentation of SpLD, Silver (1999) suggests that this further assessment should be
conducted by those who are specialists in that area. For example, he explains that “if the
disabilities are in motor areas [for example dysgraphia], an occupational therapist may
perform further studies. If the disabilities are in the language areas [for example dyslexia], a
speech and language therapist may do further assessments” (Silver, 1999, p89).

In contrast Kaufman & Kaufman (2001) envisage that a psychologist should be responsible
for the assessment of SpLD. They provide an extensive review of the available SpLD
assessment procedures, which included norm-referenced tests, neuropsychological assessment
batteries and the more recently developed dynamic assessments. Dynamic assessment
methods are reported to be becoming increasingly more popular in the assessment of SpLD
(Feuerstein & Feuerstein, 2001). Lidz (1995) explains that:

The most definitive feature of a dynamic approach to assessment is its interactive
nature...The examiner becomes an active part of the assessment and functions as an
assessment tool, responding to observations and inferences about the learner...in a
way to reveal learning processes and facilitate change.

(Lidz, 1995, p143-144)

Despite various pros and cons to each method of assessment Kaufman & Kaufman (2001)
concluded that use of the three methods in conjunction was the best way to achieve what they
perceived as the goals of assessment with SpLD. These goals are, firstly to identify the
person’s intra-individual profile of assets and deficits. Secondly to facilitate a better
understanding of the child’s cognitive or neuropsychological functioning verses academic
functioning, and thirdly to translate test profiles into educational intervention.

The fact that funding for assessment for educational intervention is often controlled or
ddictated by government, LEAs, or schools, it is necessary to evaluate what their policies and
procedures set out, in terms of who should be responsible for such assessments.
Within the U.K one of the most influential documents has been the Special Educational Needs (SEN) Code of Practice (DfE: Department for Education and Employment, 1994). This document gives guidance to LEAs on how to assess eligibility for special educational needs. It sets out a five-staged approach whereby SpLD are identified through monitored intervention. The model advocates that an Educational Psychologist becomes involved in an advisory capacity to the school at stage two while the school implements advised procedures and monitors change. If the child’s performance does not improve, then stage three is implemented, which involves the Educational Psychologist consulting with the child, parents and staff. Further status quo would lead to stage four, in which the Educational Psychologist is requested to “provide up to date psychological assessment information in the form of advice to the LEA for statutory assessment” (Educational Psychology Service, 1998, p11). Stage five involves schools monitoring those children who have been granted a statement of special educational need through their individual education plan.

In contrast, American federal law recognises a diagnosis of SpLD as a category for entitlement for special education. Three identification criteria: discrepancy between a measure of aptitude and measure of achievement; exclusion of certain causes for the discrepancy between aptitude and achievement; and need for special education (Shepherd, 2001, p7). However, it is also recommended that School Psychologists perform these assessments.

It is clear from both government documents in the U.K and the U.S that the assessment of SpLD is perceived as the role of the Educational Psychologist. Within the U.K this might be attributed in part to the fact that “educational psychologists are largely employed by LEAs” (BPS, 2000, p11). Essentially, the current position of educational psychologists reflects the shift in theoretical thinking about the conceptualisation of SpLD within government policy. For example, the 1981 Education act, which conceptualised SpLD as a ‘difficulty with learning’ was a dramatic shift from the 1944 Education Act’s medical concept of a “disability of mind or body”. The 1944 Act assumed that: “difficulties were a result of either early experiences, genetic abnormalities or a failure to form proper relationship with parents...and that the responsibility of dealing with or treating such pupils lay with the child guidance clinic made up of a tripartite team of psychiatrist, educational psychologist and psychiatric social worker” (Bryans, 1985, p17). As Bryans (1985) points out, “the 1981 education act...effectively transfers erstwhile medical functions into the province of the education service thereby increasing the decision making power of...educational psychologist” (Bryans, 1985, p20).
In contrast to the Educational Psychologist’s position, the clinical psychologist is still very much a part of services that adhere to a medical model. Nevertheless, the U.K SEN Code of Practice (1994) does recognise that a Clinical Psychologist might have a role to play at stage three of the assessment process, when schools might “consult specialists when they take action on behalf of a child” (DfE, 1994, p7). Such specialist intervention might be required to address secondary problems that occur as a result of SpLD. For example, it is well documented that children with SpLD are more likely to have associated mental health problems such as emotional and behavioural difficulties (Adams, Snowling, Hennessy & Kind, 1999; DfE, 1994; Frampton, Yude, & Goodman, 1998; Lindsay & Dockrell, 2000). However, as the SEN Code of Practice states, “provisions of specialist services may vary depending on local resources” (DFE, 1994, p8). Thus whether a child is assessed as having a SpLD need is dictated by service provision rather than the child’s actual needs. Norwich raises the point that “when a child has a special educational need it is a need for some provision” (Norwich, 1995, p30). He argues that assessment needs to distinguish between ‘needed provision’, which is what is ideally good enough, and ‘available provision’, being what is affordable financially (Norwich, 1992).

In reality the domination of the discrepancy model within the definition of SpLD translates directly into the way it is assessed both in America and the U.K. Most education agencies in the U.S use the federal definition and eligibility criteria, and employ School Psychologists to conduct these assessments (Shepherd, 2001). Such assessment most commonly involves psychometric measures such as the Wechsler Intelligence Scale for Children (WISC: Wechsler, 1989). For example when assessing a reading disorder the child’s IQ is used to predict the expected score on a reading test. The difference between the expected score and the actual reading score is then calculated in order to work out how unusual the size of the discrepancy is in relation to standardised data (Reason, 1998). However, educational agencies develop their own regulations. Consequently, there is variability between states and within school districts with regards the size of the discrepancy that is required to define SpLD (Shepherd, 2001).

Reason (1998) points out that although a discrepancy model is not advocated formally in U.K policy, research has shown that educational psychologists are looking for discrepancies between overall IQ and literacy attainment when gauging eligibility to limited public resources (Aston, 1996; Frankenberger & Fronzaglio, 1991; Pumfrey, 1996; Pumfrey & Reason, 1992). McNab (1994) argues that “deciding that a child’s specific difficulties are unusually discrepant from his or her ability is quite separate from any identification of
specific learning difficulties. The decision is being used as a criterion of eligibility...consequently, a statistic...becomes the deciding factor” (Reason, 1998, p75).

It has also been highlighted that educational psychologists are being put under pressure to tailor their advice from their assessments to the available provisions (Lindsay & Colley, 1993). These sentiments are echoed in the experiences reported by School Psychologists:

If a student needs help and a teacher needs relief and special education is all we have, we use it regardless of the message in the assessment data...specific learning disability is an explanation for learning problems in school and the fact that, as we use it, the name is nothing more or less than an unrestricted ticket to special education.

(Shepherd, 2001, p9)

While much of the literature suggests that educational psychologists are responsible for the assessment of SpLD, this is not the experience of all clinical psychologists. Sclare (2001), a Clinical Child Psychologist points out that the service in which she works is experiencing increasing pressure from schools and health care professionals to conduct neuropsychological assessments on children referred for underachievement. Sclare (2001) went on to say: “We [Clinical Child Psychologists'] are concerned about the lack of co-operation between the educational Psychology Service and Child Mental Health Services in detailing children’s problems in school settings and providing narrative data about their attainments and abilities” (Sclare, 2001, personal communication). It seems that this increased pressure upon Clinical Child Psychology Services is due in part to the local Educational Psychology Services policy not to conduct neuropsychological assessments (Hart, 2001). This policy was implemented due to the high percentage of ethnic minorities in the area and the known cultural biases of the WISC (Hart, 2001). Currently this Educational Psychology Service advocate the use of dynamic assessment to assess SpLD (Hart, 2001).

The question is raised, how representative is the experience of these regional Psychologists? This question is obviously more difficult to answer reliably. Certainly, similar reports are made in other Clinical Child Psychology departments. For example, Hammond-Whatt (2001) a Clinical Child Psychologist from a department in a suburban district reports receiving regular referrals from GPs for assessment of SpLD in children from private schools. Hammond-Whatt (2001) claims that this is because the private schools have less established relationships with the Educational Psychologist because of their independent status. Although these personal communications cannot be generalised to the general population of clinical
psychologists working in children’s services, it is worth noting the distinct lack of vocalisation from clinical psychologists in the literature on this subject. In light of the anecdotal evidence discussed it seems that this might be an area in need of research.

Although these personal communications must be interpreted with extreme caution, similar frustrations have been vocalised in the literature by educational psychologists. Norwich (1995) describes “EPs as the professional group with a key role in identifying pupils with SENs” (Norwich, 1995, p29). However, he argues that “psychology in education also needs to renew its links with other areas of applied psychology, such as clinical... psychology” (Norwich, 1995, p34). Norwich goes on to point out how the two professions are similar in their application and use of psychological schemes, but he also claims “educational psychologists have much to learn from how these other applied areas go about doing, using sharing and giving away psychology” (Norwich, 1995, p35).

It seems as though there are three points of view in response to the argument under discussion here. Firstly, those who agree with the statement that assessing and treating SpLD is properly the task of an Educational Psychologist, secondly those who reject this view, and thirdly those who feel that multi-agency working needs to be facilitated between Educational and clinical psychologists. Norwich appears to be arguing that despite their skills, educational psychologists have not been as effective as clinical psychologists at disseminating their knowledge. Norwich (1995) indicates that this might be due to their extensive involvement in statutory assessments which prevents them engaging in other activities. It is reported that over the last five years Educational Psychologist involvement in stages 4-5 has increased by 40% (Kelly & Gray, 2000). The pressure on educational psychologists to perform the discrepancy-based assessment of SpLD is still largely justified on the grounds of the need for special educational interventions for these children. However, this assertion was bought into question almost as soon as Strauss (1947) created the idea (Shepherd, 2001). Clearly, it is necessary to evaluate the current evidence base with regards the treatment of SpLD to see if it can provide any more weight to this practice.

**Treatment:**

Both in the United Kingdom and in America it is recognised that the “treatment of choice for specific learning disabilities... is special education” (Silver, 1999, p89). It has been estimated that the provision of special education services in America is a multibillion dollar enterprise
each year, yet the empirical data on which treatment programs are best has been described as "distressingly thin" (Hindshaw, 1992, p896).

From his review of the literature Hindshaw (1992) concludes that: "virtually no evidence is available regarding long-term efficacy of special educational efforts, and only a handful of well-controlled short-term investigations have yielded promising leads" (Hindshaw, 1992, p896). Despite the continued contribution of neuropsychological models in the assessment of SpLD, Hindshaw reports that interventions that were aimed at ameliorating basic perceptual processes or psychological processes based on the premise that these processes underlie SPLD, were the most ineffective. In contrast, those interventions that provide instruction in the precise academic skills that are deficient, such as phonetic word decoding have been more effective (Hindshaw, 1992).

Since Hindshaw’s (1992) review, many studies have confirmed the effectiveness of structured teaching for children with SpLD (Oakland, Black, Stanford, Nussbaum, & Balise, 1998; Tessoldi, 2000). Essentially there are two methods that are advocated. Firstly, phonetic teaching - this involves explicit teaching of the correspondence between the letter symbols and their sound (Ogilvy, 1994; Reason, 1998; Vellutino, Scanlon, Sipay, Small, Pratt, Chen & Denckla, 1996). The second method is multi-sensory teaching, which makes use of all the different channels that are involved in reading at the same time, for example, vision, hearing, touch and movement (Ogilvy, 1994; Reason, 1998). Studies that have compared the two methods report that neither is more successful than the other (Berninger, Abbott, Zook, Ogier, Lemos-Britton, & Brooksher, 1999; Torgesen, 2001). In fact Swanson (1999) found from a meta-analysis of 92 intervention outcomes, that "a combined instructional model that includes components of strategy and direct instruction" produced the best results (Swanson, 1999, p521).

Irrespective of the type of instructional method used it is envisaged that teachers should administer these interventions. Dockrell and McShane (1993) point out that the psychologist’s assessment and advice provide "the teacher with an entry point to intervention" (Dockrell & McShane, 1993, p205). Essentially the logic of teachers being responsible for treatment of SpLD is twofold. Firstly, they are in the best position to implement these interventions, particularly in view of DfE’s emphasis on inclusion of children with special educational needs in mainstream school (DfE, 1994). The second issue relates to the fact that effective intervention has traditionally proven to be uneconomical. For example, the most effective reported intervention was the Marie Clay Reading Recovery programme (Clay, 1993a,
This was introduced into Britain in 1993 but has now been phased out due to its high cost (approximately £1000 per child). A large part of the cost was involved in training the specialist teachers. Therefore the use of interventions that can be administered by standard schoolteachers is particularly desirable.

Recently, Nicolson, Fawcett, Moss, Nicolson, & Reason (1999), reported the results of an early reading intervention that was administered by untrained teachers and proved to be extremely successful with effect sizes equal to the Marie Clay Reading Recovery programme. The intervention used a monitored-intervention approach. This involved giving intervention for three months whilst monitoring progress. Those who had failed to progress were given additional targeted support. Interestingly this Model is similar to the theoretical structure of the SEN Code of Practice guidelines for the assessment process of statutory assessment discussed earlier.

The various findings of these treatment studies have important implications when considering the role of psychologists in the treatment of SpLD. If, in accordance with the SEN Code of Practice, Psychologists are to play an advisory role to teachers and schools, then who has the most appropriate knowledge and skills to advise of best practice in treatment? It could be argued that by virtue of their relative training, clinical psychologists have more knowledge and skills in the area of perceptual and psychological processes, whilst educational psychologists have more knowledge and skills of the instruction of academic skills. Certainly, the BPS approved curriculum for an educational psychology postgraduate qualification advocates teaching on “literacy and learning in primary and secondary aged pupils” (UCL Department of Educational Psychology, 2001, p7), which is not advocated in clinical psychology training (UCL Department of Clinical Psychology, 2001). Furthermore, an Educational Psychologist is likely to have more insight into what is practical in terms of setting up interventions in schools due to their prerequisite of experience as a teacher (BPS, 2000).

This view appears to be echoed in the SEN Code of Practice itself, which recommends that educational psychology services be drawn upon to “provide advice to teachers (e.g. on teaching techniques and strategies)” (DfE: 1994, p18). The Code of Practice points out that:

The educational psychologist can be a very important resource for the school. The psychologist’s knowledge of the school and its context is key. Through regular consultation with schools educational psychology services can provide help in...devising problem solving strategies...including techniques for managing
behaviour...In addition...the educational psychologist can...develop knowledge and skills for school staff and assist with projects to raise achievement and promote inclusion.

(DfE, 1994, p18)

Clearly the current evidence would seem to support Dockrell and McShane’s argument that “who should be responsible for the intervention...to a large extent...is a political policy issue...On the whole, policy makers decide” (Dockrell & McShane, p204).

Continuing to follow this line of argument, it can be seen that the role of clinical psychologists with regards the treatment of SpLD is focused more on the secondary difficulties that are often comorbid (for example, behavioural, emotional and family problems; Adams, Snowling, Hennessy & Kind, 1999; DfE, 1994; Frampton, Yude, & Goodman, 1998; Lindsay & Dockrell, 2000). The Code of Practice states that “some children...identified as having SEN...may benefit from referral to CAMHS [Child and Adolescent Mental Health Services]...CAMHS can...provide advice, support and consultation to family” (DfE, 1994, p18 : 10.5). Given the BPS definition of clinical psychologists as people who work with “childhood behaviour disorders, personal and family relationships” (BPS, 2000, p4), and their extensive training in psychological interventions (BPS, 2000; UCL Department of Clinical Psychology), it can be deduced that their role involves treating the secondary problems of children with SPLD. However, with Child Clinical Psychology services rapidly expanding they are becoming more involved at a primary level and at schools (Marziller & Hall, 1999). Thus it might be expected that clinical psychologists would begin to see more children with SpLD before they have been identified within the school system or at least before an Educational Psychologist has assessed them.

Discussion:

The evidence review throughout this discussion can most appropriately be summarised by Reason (2001), who argues that SpLD “are best identified through monitored intervention. Whether this is undertaken by educational or clinical psychologists does not matter as long as they have the knowledge, skills and contacts necessary” (personal communication, 2001). If Reason’s opinion is accepted, and consideration is given to the SEN Code of Practice, which specifies “special educational needs...will...be met in mainstream school”(DfE, 1994; p2), then it might be concluded that educational psychologists have the necessary contacts to assess SpLD. Furthermore, the intervention techniques that have been shown to be effective
with SpLD are generally incorporated into an Educational Psychologist's training, not a clinical psychologist’s. This indicates that educational psychologists are best placed to provide the consultancy role to teachers, regarding the recommendation of best practice for treatment. Moreover, DfE policy stipulates that an Educational psychologist is responsible for the assessment and diagnosis of SpLD, which in turn translates into them also being responsible for any decision regarding the provision of treatment for these children. Therefore, in summary it is likely that an educational psychologist has the most appropriate knowledge and skills to ensure that best practice is achieved in the assessment and treatment of SpLD.

This is not to say that a clinical psychologist does not have the necessary skills. To the contrary, the very nature of Clinical training requires that they are first and foremost trained as scientist-practitioners, which means that have the capacity to problem-solve in a meticulous fashion (BPS, 2000). In particular, the generic training of the clinical psychologist means that there are many skills that they can draw upon, not least the extensive training they receive in the use of psychometric assessment techniques. Such skills are obviously transferable to many situations and clinical populations. However, with the current shift towards educational psychologists using dynamic assessments it is likely to change this position, as clinical psychologists currently receive no training in this area.

However, the question is not who can do assessment and treatment of SpLD, but who should ‘properly’ do this work. Through the review of the literature it has become clear that educational psychologists have the more specialist skills and knowledge necessary to meet the primary needs of children with SpLD, while clinical psychologists seem more suitably equipped to meet the secondary needs of these children. With regards ‘contacts’ though, in theory Educational Psychologist are in the best position to meet the needs, yet it seems that in practice this may not be the case (Hart, 2001; Sclare, 2001). With the increasing expansion and reshaping of child and family services it seems that clinical psychologists are becoming increasingly involved in working with schools (Marzillier & Hall, 1999). It is hard to know what impact this will have in the future, but it seems that this is more a case of clinical psychologists trying to meet unmet needs rather than evidence-based practice. Thus to return to the initial stance of this essay, which was to evaluate the argument from the perspective of evidence based practice it seems that the only conclusion that can be reached is that it is ‘properly’ the role of the Education Psychologist. However, this is not to negate the fact that multidisciplinary working is much needed in this area.
References:


Educational Psychology Service (1998). Working with your educational psychologist. Wandsworth. Education Department.


UCL Department of Educational Psychology (2001). *MSc Educational Psychology*. www.ucl.ac.uk.


“Dementia cannot be cured, it takes its course”. Critically evaluate with a discussion of known theories of causes and treatment approaches.

July 2002
Year II
'Dementia cannot be cured, it takes its course'.
Critically evaluate with a discussion of known theories of causes and treatment approaches

Before it is possible to even begin evaluating the statement that 'dementia cannot be cured, it takes its course', it is first necessary to deconstruct the terminology used. For instance, the term 'dementia' is a contentious topic in itself, which continues to be hotly debated (cf. Gustafson, 1996, Edgar & Morris, 1993). Its definition cannot be easily summarised, and so this discussion will begin by addressing the impact that different definitions might have on the validity of the above statement. Once a working definition is identified, the discussion will focus on critically evaluating the above statement. Essentially, the statement raises two questions. Firstly, can dementia be cured? Secondly, does it just 'take its course'? These questions will be answered by evaluating the current evidence base regarding the theories of causation and treatment approaches for dementia. Through the discussion process that will ensue, the accuracy or inaccuracy of the above statement will be demonstrated.

What is dementia?

The term dementia has a long history and its meaning has changed over time (cf. Berrios, 1990; Lyman, 1989). Today, Dementia is defined as “a generic term used to characterize acquired, intellectual (cognitive) impairment, usually but not exclusively, resulting from pathological degeneration of cortical and/or subcortical cerebral structures” (Beaumont, Kenealy, Rogers, p258, 1999). While this definition is accurate, its attempt to try and encapsulate all the possible characteristics of dementia, results in it becoming a little vague. The difficulty is that within the literature the term ‘dementia’ is used in two different ways. Either to refer to specific clinical conditions with presumptive pathology (such as vascular dementia), or as a descriptor of a syndrome characterized by intellectual and behavioural dysfunction, irrespective of aetiology.

Lishman (1987) argues that the term ‘dementia’ should only refer to specific clinical conditions, although he claims that it is more appropriate to talk about ‘the dementias’, since there are a number of dementing illnesses. According to Lishman, an illness should only be classified as a dementia if it is known to involve irreversible intellectual deterioration, caused by widespread progressive brain pathology. Authors (Jorm, 1987; Moniz-cook, 1998, Marshall, 1998) who advocate this usage of the term include conditions such as Alzheimer’s Disease, Creutzfeldt-Jakob Disease, vascular, and Lewy body dementia, to name just a few.
However, they exclude "treatable dementia", for example those that result from brain tumour, vitamin B12 deficiency, hypothyroidism and subdural haematoma (Edgar & Morris, p5, 1993). The key distinction here is that the excluded conditions produce dementia that may be reversible. Within this school of thought, a dementia that appears degenerative but improves spontaneously or following treatment is referred to as "pseudodementia" (Gustafson, p23, 1996). If this definition of dementia is accepted within the current discussion, then the answer to the question ‘can dementia be cured’ would appear to be no.

However, the second usage of the term, that defines dementia as a syndrome and thereby nothing more than a cluster of symptoms, includes all of the above forms of dementia irrespective of their believed pathology or prognosis. This is the definition advocated by the Diagnostic and Statistic Manual Fourth edition Text Revision (DSM-IV-TR; American Psychiatric Association, 2000) which states "the DSM-IV definition of dementia,... is based on the pattern of cognitive deficits and carries no connotation concerning prognosis" (American Psychiatric Association, p152, 2000). According to DSM-IV-TR:

...dementia is the development of multiple cognitive deficits... The cognitive deficits must be sufficiently severe to cause impairment in occupational or social functioning and must represent a decline from a previously higher level of functioning.


The current discussion will adopt this definition, because despite extensive research the exact aetiology of most dementia (such as Alzheimer’s disease) is still unknown (Bradshaw & Mattingley, 1995). Furthermore, its diagnosis is still based largely upon behavioural symptoms as part of a mental health classification system (cf. American Psychiatric Association, 2000; Gustafson, 1996; Erkinjuntti, 1999; Ringholz, 2000; Strokes, 2000;). In view of these facts, it seems logical that dementia is defined as a syndrome.

Obviously the DSM-IV-TR definition encapsulates a large array of different forms of dementia and it would be impossible to give equal weight to each within the constraints of the current discussion. Therefore, the focus will largely be upon Alzheimer’s disease (AD), as it accounts for approximately 70% of all dementia (Zurad, 2001). However, in some instances other forms of dementia will also be drawn upon in order to effectively critically evaluate the statement under discussion.
Can dementia be cured?

Before addressing this question it is essential to clarify what is understood by the term 'cured'. A cure is generally defined as "any procedure or treatment that restores health" (Reber, 1985). In this sense a condition may be considered cured if its symptomology has been extinguished, and the sufferer has been restored to their previous level of health. It is generally accepted that a natural deterioration in health occurs with old age, and Dementia is a disease associated with old age (Gustafson, 1996; Wood, 1999; Edelstein, Northrop, Staats, 1998). This raises the question, 'what would be an appropriate level of health to constitute the definition of a treatment as a cure for dementia?' Clearly this is an unanswerable question at the present time, but it creates a grey area within which research regarding the search for a cure has to work. Moreover, it is an issue that should be kept in one's mind whilst critically evaluating the literature surrounding theories of causation, and the subsequent treatment approaches that have been developed.

The search for a cure for AD has largely dominated much of the evidence base regarding dementia, and as a result various medications are now available for the treatment of the disease. Most of these medications have been developed through theoretical expeditions exploring the dominant theories of causation. Davies (2000) argues that what is known about the causation of AD is that by definition, the process of the disease must lead to the formation of two types of lesions in the brain, namely neurofibillary tangles, and neuritic plaques. Therefore, he claims that any proposed theory of Alzheimer's disease must incorporate an explanation of the formation of both plaques and tangles in order to be complete.

Various neurological mechanisms have been implicated in the formation of these plaques and tangles (cf. Khachaturian & Mesulam, 2000). Research has shown that one cause is specific mutations in certain genes but this can only account for 0.5% of cases (Davies, 2000). To date the most comprehensive theory has been offered by Selkoe (2000), who proposes that AD is caused by the cerebral accumulation and cytotoxicity of amyloid β-protein (which is a unique amino-acid peptide that occurs in the blood vessels and brain). Selkoe's hypothesis proposes that amyloid β-protein is progressively accumulated in the cerebrum, which causes a complex multicellular cascade that results in alterations to neurotransmitters, and thus impairs memory and cognitive functioning.

Many neurotransmitter systems are known to be affected by AD but degeneration in the colinergic system occurs earlier and more consistently than in other systems. These changes
are closely correlated with the presence of the plaques and tangles (Zurad, 2001). Much of the current research has been dominated by investigation into this system (Thompson, MacDonald, Coates, 2001; Leber, 1996). It is known that colinergic markers (which are enzymes responsible for the synthesis and degradation of a neurotransmitter called acetylcholine \([\text{ACh}]\)) are decreased in the brains of persons with AD (Davies & Maloney, 1976). The loss of these markers is particularly prominent in the cortex and hippocampus that are involved in memory and cognition. It is the decrease in ACh dependent neurotransmission that is thought to lead to the cognitive and functional deficits that define Alzheimer’ disease (Zurad, 2001).

Early attempts at treating AD by using precursors of ACh were unsuccessful. More recently research began exploring how to block the activity of cholinesterases that degrade Ach at the synaptic junction. Within the last four years three colinesterase inhibitors have been licensed in the United Kingdom for use in mild to moderate AD (O’Brien & Ballard, 2001). Several large, multicentre, randomised, double blind, placebo controlled trials have demonstrated that these medications have improved cognitive function, global outcome, and activities of daily living (Rogers, Farlow, Doody, Mohs, & Friedhoff, 1998; Corey-Bloom, Anand, Veach, 1998; Rosler, Anand, Cicin-Sain, Gauthier, Agid, Dal-Bianco, 1999; Raskind, Peskind, Wessel, Yuan, 2000; Thompson, MacDonald, Coates, 2001). There is also evidence that they improve psychotic symptoms and apathy (Tariot, solomon, Morris, Kershaw, Lilienfeld, Ding, 2000).

However, Burns, Eve and Page (1999) point out that these “new drugs for Alzheimer’s disease are not cures – their effects are probably best described as modest” (Burns, Eve and Page, p478, 1999). In a review of the current treatment trials O’Brien and Ballard (2001) found that the mean effect of drug over placebo represented an improvement in cognition roughly equivalent to 6-12 months of natural decline in untreated patients. When the drug is withdrawn the clinical gain is reversed: Therefore, they concluded that these drugs do not significantly modify the disease (O’Brien & Ballard, 2001).

Currently the position within the literature certainly seems to echo the sentiment voiced by O’Brien and Ballard (2001) that “the aetiology of Alzheimer’s disease remains unknown, and no treatments reverse or stabilise the disease” (O’Brien & Ballard, p123, 2001). This is a position that is reflected regarding many of the dementias that result from degenerative diseases (Bradshaw & Mattingley, 1995; Beaumont, Kenealy, & Rogers, 1999; Lezak, 1995; Edgar & Morris, 1993; Ringholz, 2000). Nevertheless, there are those that are reversible. For
example, early intervention in any of the conditions named above as ‘treatable dementias’ or conditions such as Wilson’s disease may result in reversal of the dementia process (Beaumont, Kenealy, & Rogers, 1999). However, Wilson’s disease is rare, and known to be caused by an inherited failure to adequately process the small amounts of copper that are ingested in food. Therefore, it is not representative of the majority of dementias.

What seems to have been lost in the search for a cure for AD, is that these new medications have generated a great degree of hope “that at least a partial solution to the tragedy of Alzheimer’s disease is likely in the next 20 years” (Breitner, p577, 1999). Breitner concluded in his review of the current developments in the treatment of Alzheimer’s that:

“the means may soon be at hand to effect dramatic reductions in the morbidity of AD ...The end of AD is not ‘nigh’, therefore, but it is within the scope of distant vision”

(Breitner, p584, 1999).

Through this brief review of the literature regarding medical interventions and theories of causation, it has become clear that currently there is no means of returning sufferers of AD or most other dementias to their previous level of health. However, the claim that ‘there is no cure for dementia’ is not totally accurate. It has been demonstrated above that some forms of dementia are reversible, although this is not the norm. Furthermore, it is clear that current researchers are confident that they are drawing ever closer to some means of a cure.

Is the search for a cure a wild goose chase?

In opposition to the optimism expounded by those searching for a cure, Morris highlights that the search may be a wild goose chase because it is still unclear “whether AD is a single condition or a set of closely related disorders” (Morris, p24, 1996). If AD does have multiple aetiology it would explain the extreme variability that is reported in clinical trials between samples and their treatment responses. Moreover, until there is some way to distinguish between different aetiologies (if they do exist), the statistical power of any research investigating new treatments will be masked by the non-responders.

The fact that AD cannot truly be diagnosed until autopsy means that there is always the possibility that a percentage of all research participants are not suffering from AD at all (Gray & Sala, 1996). Indeed, as early as 1989 Lyman reported that neuropathological analysis at autopsy often revealed a misdiagnosis of AD. More recently, Downs (2000) found that at autopsy most people aged over 65 have some of the neuritic plaques and neurofibrillary tangles
that are characteristic of Alzheimer's disease, irrespective of whether they had cognitive impairments prior to death. Clearly, these studies bring into question the validity of the whole theoretical bases for medical treatments of AD.

Lyman (1989) takes this criticism one step further and argues that the whole concept of searching for a cure is problematic because it assumes that a medical model can best explain dementia. She argues that the application of the medical model to mental illnesses such as dementia is not based upon scientific evidence, rather it was simply employed to support the expansion of "medical turf and professional dominance" (Lyman, 598, 1989). Lyman explains that this process began during the 19th Century, when psychiatry was established as a medical speciality, despite the fact that there was no scientific evidence of somatic origin or medical treatment for most mental illnesses. Within this context, the first specific classification of dementia was made, which was a reference to 'early senility'. In fact, until recently senility in old age was considered to be within the normal range of behaviour. Lyman (1989) argues "now there is biomedical ownership of these recently discovered diseases of old age which are attributed to biological causes and subject to medical treatment" (Lyman, p598, 1989). Indeed, Lyman's view is supported by the fact that despite the growth in diagnosable disorders (cf. American Psychiatric Association, 2000; 1952), and the development of medications for the management of many disorders (i.e. depression, schizophrenia), there are still no cures for any of the mental health disorders. Thus this would seem to suggest that the search for a medical cure for dementia is likely to be a fruitless exercise.

Obviously Lyman’s argument is a little extreme, and not well supported, in view of the current developments in neuropathological research (O'brien & Ballard, 2001). Nevertheless, a shift from the medical model's tunnelled focus for a cure seems to be occurring in the dementia literature. For example, Zeisel and Raia (2000) suggest that "a new paradigm is needed that focuses on minimizing the symptoms of AD and related dementias rather than focusing only on a search for a cure" (Ziesel & Raia, p331, 2000). However, far from rejecting the medical model, they suggest a 'mind-brain approach' to the treatment of dementia that draws upon neuropsychology and psychology. They point out that 'incurable' does not mean 'untreatable'. As with other chronic diseases such as diabetes, cancer, and degenerative arthritis, curative remedies do not exist. They argue that by thinking about AD as a treatable, although incurable disease it “can bring tens of millions of people worldwide back to the realm of the living, who our limited thinking had condemned to a limbo in which they
were merely waiting to die" (Ziesel & Raia, p332, 2000). While their argument is persuasive it raises the question; is dementia treatable or does it just take its course?

**Does dementia just ‘take its course’?**

In accordance with the Webster lexicon (1987) the phrase ‘take its course’ is taken to refer to being “allowed to evolve naturally” (Webster, p224, 1987). In the context of the above statement, this phrase seems to insinuate that dementia has a natural process of development, that cannot be interrupted, but does it? As there appear to be a few forms of dementia that are reversible, essentially it could be argued that dementia does not just ‘take its course’. However, concluding this on the basis of only a few rare cases would be a weak argument. Instead it is necessary to evaluate this part of the statement by focusing on irreversible dementia.

Certainly much of the literature is littered with terminology such as the ‘early stages’, which imply a staged process to the development of dementia (Bernat, 1996). DSM-IV-TR states that the course of dementia may be “progressive, static, or remitting...The mode of onset and subsequent course of dementia also depends on the underlying aetiology”. As DSM-TV-TR points out, different types of dementia may have very different courses. For instance, it is widely accepted that vascular dementia is characterized by a stepwise and fluctuating course often with rapid changes, whilst AD is usually of a slow progression. Obviously it is not possible to review all of the various courses of different types of dementia, so AD will be explored by means of an example.

AD is classified as a ‘stage-concurrent’ progressive degenerative disorder because it is generally accepted that people suffering from AD pass through a sequence of symptoms (Erkinjuntti, 1999). In the early stages the clinical hallmarks are reported to be, impairment of episodic memory and corresponding atrophy in the medial temporal lobes. Behavioural problems often develop in the moderate stages, and the final stages are usually marked by the dementing patient being placed in a nursing home (Braak & Braak, 1991; Woods, 2001).

However, the literature is also full of exceptions that contradict the above model. For example, there are striking discrepancies between the results of different studies with regards the age of onset, rate of decline, and the development of specific cognitive and functional deficits (Beaumont, Kenealy, & Rogers, 1999; Morris, 1996; Erkinjuntti, 1999). Morris
Older Adults Essay – Academic Dossier

(1996) found in his review of the literature, that language dysfunction had been associated with late onset, early onset, and some found no relationship at all. A longitudinal study conducted over four years found that there was considerable inter-individual variation in patterns of decline. They concluded that “it may be necessary to reconsider the conception that AD is a homogeneous condition which follows a uniform course” (Dastoor, & Cole, 1985-1986).

It would seem from this review of the research that the course of dementia is an idiosyncratic process, yet staged models still dominate most of the theoretical literature and treatment protocols (Midence & Cunliffe, 1996). Lyman (1989) argues that the use of the staged model was created by the medicalization of dementia, and it functions primarily as a comfort to carers by enabling them to believe that they have some control over an uncontrollable disease. Lyman (1989) believes that the most stressful aspects of caring for a person suffering from dementia is losing them long before they actually die. She explains that “a model of stage-like disease progression can make more tolerable the difficult role of caring for and deciding future care for a demented loved one” (Lyman, p599, 1989).

It is debatable how helpful the staged model really is to carers and dementing patients, because once the label of Alzheimer’s disease is applied, even normal behaviour is interpreted in terms of disease stages. The result may be a self-fulfilling prophecy of impairment (Gubrium, 1975; Gubrium & Lynott, 1987; Lyman, 1988, 1989; Smithers, 1977). Lyman perceives the problem being based on the fact that “most of the research on dementia gives little consideration to social factors affecting disease progression” (Lyman, p599, 1989). This is a sentiment that has been frequently vocalised by others in the literature (Bond, 1992, Downs, 2000).

Recently, advocates of the medical model of dementia have begun to recognise that variation in the course of dementia may be caused by social factors (Stokes, 2000; Ziesel & Raia, 2000). For instance DSM-IV-TR point out that the course or apparent severity of an individual’s disease may appear to vary depending upon a person’s social circumstances. For example, a person with executive functioning difficulties may present with impaired work performance if he does a complex job, but may have unimpaired work performance if his job is less demanding. Furthermore, they recognise that a person’s level of disability also depends on the individual’s “available social supports” (DSM-IV-TR: American Psychiatric Association, p152, 2000).
The implication that environmental and social factors mediate the course of AD has triggered much research interest, and has resulted in the development of various interventions to address these factors. Research has identified several environmental/lifestyle factors that seem to delay the onset of AD. These include oestrogen replacement therapy, anti-oxidant vitamins, Histamine H2 blocking drugs, red wine (Breitner, 1999), and anti-inflammatory drugs (Pasinetti, 1996). Interventions involving most of these factors are still experimental but the results are promising. In contrast, interventions addressing known social factors that mediate the course of AD are more advanced. For example, it is known that AD patients living with highly distressed caregivers may exhibit higher frequencies of behaviour problems and agitation (Dunkin & Anderson-Handley, 1998). As a result interventions have been developed to target carers, in order to reduce their stress and facilitate them to improve their ability to manage the dementing patient. By definition such interventions are aimed at improving the degree of support the patient receives from the relationship with the carer, thus reducing the behavioural and psychological symptoms.

Interventions for carers have included support groups and psychoeducative groups on issues such as behaviour problems and coping strategies (Kasl-Godley & Gatz, 2000; Morris & Wood, 1992; Haupt, Kager & Janner, 2000). Outcome studies of these interventions have reported favourable results in terms of improving caregivers’ abilities (Morris & Wood, 1992), as well as significantly improving the demented patients’ behavioural symptoms (Haupt, Kager & Janner, 2000). Such improvements suggest that these interventions could alter the course of an individual’s decline by reducing the amount of behavioural symptoms they present with at a given time. Behavioural symptoms are the main cause of a dementing patient being moved into a nursing home (Erkinjuntti, 1999), and the move to residential care is often taken as the marker of the move into the final stages. Therefore by improving the relationship between the carer and patient it is likely that they will remain in the community for longer, thus slowing the course of the AD (Erkinjuntti, 1999). Obviously these potential gains are only hypothetical at the moment, as no longitudinal outcome studies have been conducted yet. Nevertheless the initial results are certainly promising.

There is also a wide array of psychosocial interventions that have been developed for use with the dementing patient to reduce behavioural and psychological symptoms. These include Psychodynamic and Cognitive-Behavioural Therapy approaches, which appear helpful in the early stages to assist individuals to build coping strategies, reduce stress and reorganize the self to incorporate the disease process. For mild to moderate stage individuals, Reminiscence and Life Review techniques are reported to provide dementing patients with interpersonal
connections. For late stage individuals, Behavioural Approaches and Memory Training, target specific cognitive and behavioural impairments and help to optimize remaining abilities (Kasl-Godley & Gatz, 2000). Reality Orientation (RO) is another therapeutic technique that reflects a similar goal (Spector, Orrell, Davies, & Wood, 2001). More recent developments in treatment include Music, Art and Recreational Therapies, which are reported to reduce behavioural and psychological symptoms of dementia (Gerdner, 2000).

Various outcome studies have demonstrated that these interventions are effective at reducing behavioural and psychological symptoms of dementia (Wilson, Mendes de Leon, Barnes, Schneider, Bienias, Evans, & Bennett, 2002; Kasl-Godley & Gatz, 2000; Gerdner, 2000; Edgar & Morris, 1993). Some of these approaches are more thoroughly researched than others. To date there is no available data on the outcome of psychodynamic interventions, whilst there is a wealth of information regarding the benefits of RO (Spector, Orrell, Davies, & Wood, 2001; Zanetti, Oriani, Geroldi, Binetti, Frisoni, Giovanni, De Vreese, 2002). An evaluation of the RO research has recently been conducted by the Cochrane report. The report concluded, “there is some evidence that RO has benefits on both cognition and behaviour for dementia sufferers…but it appears that a continued programme may be needed to sustain potential benefits” (Spector, Orrell, Davies, & Wood, 2002). However, many treatments require continued usage in order to sustain their benefits. For example, insulin would not have sustained benefits if it were withdrawn from a diabetic. Just because a treatment is psychological in nature does not necessarily mean that it should be able to have lasting effects once withdrawn. For instance, it is well known that the withdrawal of positive reinforcement results in the desired behaviour being extinguished.

Overall the research regarding psychological interventions seems to suggest that they are only effective at specific points in the course of dementia. Thus, far from dispersing the idea that there is a concurrent course of deterioration in dementia, psychological therapies appear to work within this model. Nevertheless, the outcome studies suggest that some of these therapies may have beneficial effects on symptom reduction (Gerdner, 2000; Zanetti et al, 2002; Spector, Orrell, Davies, & Wood, 2002). Because a diagnosis of dementia is based upon observable symptoms, the paradox here is whether by reducing the symptoms it is seen as altering the course or not. On the one hand, it can be argued that by delaying the expected deterioration in AD or by alleviating some of the diagnostic symptoms, the severity of the disorder is reduced, which by definition mean the course has been altered (cf. American Psychiatric Association, 2000). This interpretation leads to the conclusion that dementia does not just simply take its course, rather each dementing process is idiosyncratic and
interventions are able to upset its natural path. On the other hand though, it could be argued that irrespective of the idiosyncratic process a dementia takes, the end point is always the same: Therefore the process does not change, it takes its course.

These points of view reflect an academic argument as to whether it is necessary to focus on micro or macro level processes in dementia. Within clinical practice it seems that a micro level approach is more appropriate. This is largely because research populations are currently criticised for not being comparable to the average population, who are usually more complex (Beaumont, Kenealy and Rogers, 1999). Beaumont, Kenealy, and Rogers have argued that this means “recommendations based upon research with highly selected populations need to be applied judiciously in most clinical situations” (Beaumont, Kenealy and Rogers, p260, 1999). If the effects of experimental treatments cannot be reliably generalised to clinical situations, then one questions why current dementia research is dominated by experimental treatments? Clearly, more focus on the idiosyncratic course of dementia might help overcome these difficulties, whilst also addressing other issues such as the exploration of the hypothesis that there are multiple aetiologies for AD.

In summary, the collective views of current research and reports regarding clinical practice appear to sway the current discussion in favour of the conclusion that, dementia does not simply take its course. Instead the course of dementia is seen as an idiosyncratic process that frequently alters as a consequence of social influences and as a result of various treatment approaches. While it cannot be disputed that the majority of dementia follows a process of gradual deterioration culminating in death, to say that it takes it's course is to over-simplify the complex processes involved.

Discussion:

Through the current discussion it has become apparent that the statement “dementia cannot be cured, it takes its course” is inaccurate. This conclusion has been reached because it has been demonstrated that some dementias are curable, thereby disproving the first part of this statement. Furthermore, with regard to the second part of the statement, it has also been shown that there are a number of interventions that can effect the course of dementia, particularly for those in the early stages of the disorder. Moreover, as these interventions are only in their infancy, their impact on the course of dementia for future generations is unknown. Therefore, it would be premature to conclude, “dementia just takes its course”.

88
It seems the earlier intervention occurs, the more the course of dementia can be changed (Erkinjuntti, 1999). Who knows what the future will look like for those who are newly diagnosed today as they reach the later stages in the future? The literature is abundant with optimism that changes with regards the treatment and course of dementia are imminent. However, one thing is certain; The fact that we do not fully know what the future holds for individuals who are receiving concoctions of new treatments at the moment, means that the statement under discussion here, cannot be agreed with, as it cannot be validated conclusively at the present time. As Morris points out dementia is "a multifaceted problem, which has biomedical, psychological and social aspects" (Edgar & Morris, p1, 1993). The truth is, with the increasing speed of developments in all three of these areas we cannot predict anyone's future experience of dementia with conviction. Thus it has to be concluded that the statement is inaccurate.

Not only is the statement inaccurate, but it is also extremely unhelpful to the future developments in this area. The World Health Organisation (1982) estimates that by 2020 the global growth in the over 65 population will be 150%. The implications for the prevalence of dementia are profound. Dementia is already described as "a major economic burden", and it is known that cost increases with the severity of the disorder (Erkinjuntti, ps59, 1999). The majority of the total cost of dementia is due to the provision of care, with the step from home to residential care incurring the greatest costs (Erkinjuntti, 1999). In light of these facts it seems that the notion of searching for a cure may be a misuse of research resources. In fact, Erkinjuntti (1999) has suggested that research resources would be better spent improving early diagnosis, which at the moment only comprises 1% of the total cost of investment into dementia services. In conclusion, it appears as though the most meaningful answers with regards to future treatment and services for dementia, will come from research that develops methods to delay, or prevent, the progression of AD, and not a wild goose chase in search of a cure.
References


American Psychiatric Association (1952) *Diagnostic and statistic manual of mental disorders*. Washington, DC. Author.


CLINICAL DOSSIER

OVERVIEW

This section contains an overview of the clinical experience gained during the course and a brief summary of each of the five clinical case reports submitted. Full details of the case reports, as well as placement contracts, logbooks of clinical experience, and placement evaluation forms can be found in volume II. This is held within the Psychology Department of the University of Surrey due to the confidential nature of the information it contains.

Please note that all identifying details in this section have been changed to preserve the clients' anonymity.
CORE ADULT MENTAL HEALTH PLACEMENT

PLACEMENT DETAILS:

Dates: October 2000 – March 2001
Type of service(s): 1. Adult Psychology Outpatients Clinic  
2. Community Mental Health Team (CMHT)

Summary of Experience:
This placement was a split post involving a day at a CMHT and two days at an Adult Psychology Outpatient Clinic. Together these settings enabled the Trainee to gain experience working with a variety of adult mental health problems using a cognitive-behavioural model. The clinical work largely comprised of individual therapy with a range of conditions including depression, schizoaffective disorder, and social phobia. In addition, the Trainee saw a number of clients with severe and enduring mental health problems who were referred for neuropsychological assessments to investigate differential diagnoses for their presenting difficulties. The trainee attending weekly CMHT and psychology department meetings, and performed three formal presentations during the course of the placement. One presentation was to the CMHT regarding the service related research, and the other two were presentations of interesting clinical cases at the psychology department meetings.

CORE PEOPLE WITH LEARNING DISABILITIES PLACEMENT

PLACEMENT DETAILS:

Dates: April 2001 – September 2001
Type of service(s): Specialist Healthcare Service for Adults with Learning Disabilities

Summary of Experience:
This placement provided valuable experience of working within a psychodynamic model. The Trainee utilized the model in the formulation and treatment of people with mild to severe learning disabilities. Experience was also gained using a behavioural and a systemic approach. The clinical work comprised of individual therapy and staff and service-wide interventions addressing presenting problems such as self-harm, challenging behaviour, depression and anger management. The Trainee also conducted various neuropsychological assessments specifically used with this client group, and participated in weekly psychodynamic group supervision.
CORE CHILDREN, ADOLESCENTS AND FAMILIES PLACEMENT

PLACEMENT DETAILS:

Dates: October 2001 – March 2002

Type of service(s): Tier 2 Community Child and Family Service

Summary of Experience:
This placement involved working across multiple sites in various Schools and a GP’s surgery. The clinical work consisted of individual therapy with children and families, as well as group work with children. The Trainee gained experience working with children aged between three and thirteen with a wide range of presenting problems including, conduct disorder, ADHD, eating disorders and bereavement issues. The trainee largely employed cognitive-behavioural and systemic approaches to inform interventions but psychodynamic concepts were also drawn upon to formulate. The Trainee also gained experience working as part of a reflecting team in a family therapy service.

CORE OLDER ADULTS PLACEMENT

PLACEMENT DETAILS:

Dates: March 2002 – September 2002

Type of service(s): Regional Older Adults Psychology Service

Summary of Experience:
On this placement the Trainee gained experience working with patients in a wide variety of settings including: inpatient wards for functional and organic problems, outpatients living in the community or residential homes, inpatients on acute rehabilitation wards and outpatients who attended a physical rehabilitation clinic. Patients presented with a range of problems such as depression, psychosis, dementia, and adjustment following stroke. The clinical work involved individual therapy, neuropsychological assessment and the development of a group therapy approach for patients newly diagnosed with depression. Fundamentally this placement enabled the Trainee to gain experience using a narrative approach to therapy, which was the most utilized model, although cognitive-behavioural approaches were also utilized quite substantially.
SPECIALIST NEUROREHABILITATION PLACEMENT

PLACEMENT DETAILS:

Dates: September 2002 – March 2003

Type of service(s): Regional Neurorehabilitation Service

Summary of Experience:
This placement involved working with patients with acquired brain injury as part of a multi-disciplinary team (MDT) to facilitate rehabilitation back into the community. Neuropsychological and cognitive-behavioural approaches to assessment and therapy were the main theoretical models employed. The clinical work involved utilizing neuropsychological assessment to specifically identify the mechanisms underlying patients' cognitive deficits in order to inform rehabilitation. Furthermore, the work involved conducting individual therapy with patients to teach compensatory strategies, and working closely with the MDT to address functional problems that might arise in the community. The Trainee also gained experience conducting individual therapy with patients in order to address problems such as depression, anosognosia (reduced insight) and adjustment issues.

SPECIALIST FORENSIC PLACEMENT

PLACEMENT DETAILS:

Dates: March 2003 – September 2003

Type of service(s): High Security Special Hospital

Summary of Experience:
This placement enabled the Trainee to gain experience working with dangerous and Severely disturbed psychiatric patients who presented with a wide range of disorders including bi-polar affective disorder, schizophrenia, and various forms of personality disorder. The Clinical work involved conducting neuropsychological, psychosexual and risk assessments, as well as individual therapy with patients to address their index offences. In addition the Trainee co-facilitated an anger management group. The trainee also gained an understanding of the procedures regarding conducting court assessments through direct observation of her supervisor. A neuropsychological and cognitive-behavioural approach was the main theoretical model utilized during this placement.
SUMMARY OF ADULT MENTAL HEALTH CASE REPORT

The assessment and treatment of a 29-year-old woman presenting with social phobia, using a cognitive-behavioural model.

Main Presenting Problem:
Sarah was referred to the adult psychology service by her GP for her long-standing fear of public speaking. Sarah reported experiencing various symptoms of anxiety including palpitations, shaking and a sense of detachment which she described as feeling like "Someone is looking in at me". These symptoms were triggered when she addressed large and small groups of people, or spoke to a senior person at work. In addition Sarah also experienced these symptoms when she spoke to men or engaged in other activities where she felt “on show” such as dancing. Sarah explained that she felt unable to form relationships with anyone because she felt “out of touch with her emotions”, and was unable to cry or become angry. Sarah’s problems were severely affecting her social life and work. For example, she was employed as a Trainee Legal Executive and was unable to represent clients’ in court. Sarah identified two broad goals for therapy; firstly, to establish whether her emotional difficulties were related to her social phobia, and secondly to overcome her fear of public speaking.

Assessment Procedure:
- A clinical interview was conducted in accordance with the literature regarding the cognitive-behavioural approach to initial assessment (Hawton, Salkovskis, Kirk, & Clark, 1989).
- Psychometric tests: Beck Depression inventory (BDI), Beck Anxiety Inventory (BAI), Hospital Anxiety and Depression Scale (HADS), and the social Activities and Distress scale (SADS).

Formulation:
Sarah’s symptoms of anxiety in social and performance situations were consistent with a diagnosis of Social Phobia as identified in DSM-VI-TR (American Psychiatric Association, 2000). This diagnosis follows from her fear of acting in a way that is humiliating in performance situations, and her marked avoidance of these situations. Also these symptoms severely interfere with her day to day functioning, despite her recognition that her fear is excessive. This diagnosis was further supported by Sarah’s scores on the SADS and Fear-questionnaire, which were both consistent with the scores expected from clinical samples of people with social phobia (Marks & Mathews, 1979; Watson & Friend, 1969).
Sarah’s presenting problems were understood by drawing on Clark and Wells (1995, 1997) cognitive-behavioural model of social phobia. They argue that the core of social phobia is a “strong desire to convey a... favourable impression of oneself to others and marked insecurity about one’s ability to do so” (Clark & Wells, 1995, p69). A person with social phobia is believed to interpret social situations as dangerous because they may act in an unacceptable manner, which would result in catastrophic consequences such as being rejected by others.

**Intervention:**

Based on Sarah’s goals, the initial formulation and relevant current literature (Clark, 1997; Clark and Wells, 1995), the Trainee planned that the intervention would loosely follow the structure advocated by Wells (1997) for the treatment of social phobia. The Trainee and Sarah met for 10 treatment sessions. During this time the trainee employed cognitive-behavioural techniques such as guided discovery and the downward arrow technique to work through the following stages of Clarke and Wells therapy:

- Socialising to the CBT model
- Identifying and modifying negative automatic thoughts and thinking errors.
- Identifying conditional assumptions and core beliefs
- Identifying and modifying self-processing (using exposure via videotape of Sarah speaking publicly).

**Outcome:**

At the time of writing Sarah’s therapy was ongoing. It was planned that all of the measures administered in the initial assessment would be re-administered at session 10. It was intended that scores on each questionnaire pre and post treatment would be compared in order to establish whether there has been any objective change in her general level of anxiety (BAI; HADS), depression (BDI; HADS), and social anxiety (SADS; Fear questionnaire).

At the point of writing this case report, Sarah reported that she felt she had achieved her first goal as she now was able to see that her difficulty expressing emotion was part of her social phobia. Sarah explained that she had found the formulation of her difficulties in light of her core beliefs and assumptions, extremely helpful in achieving her goal of greater understanding. She commented that she had not realised that she was “making decisions based on assumptions and beliefs” that she had “developed as a child” and that were “now probably out of date”. Sarah said that now she is aware of where her automatic thoughts come from she feels more able to question their validity. She also reported that she had found the discovery of her core belief “I’m not
"normal" initially a relief because she did not feel that her fears seemed "so unreasonable" when she considered that she was really scared of being "exposed as abnormal".

With reference to the second goal, Sarah reported that she recognised that she had developed various skills that were helpful but that she still felt unable to put them into practice in her more feared public speaking scenarios. Sarah and the Trainee agreed that the focus of the last few sessions would address this issue through the use of behavioural experiments.

References:


SUMMARY OF THE PEOPLE WITH LEARNING DISABILITIES CASE REPORT

‘The psychodynamic assessment and treatment of a 35-year old man with a mild learning disability, who has difficulty forming relationships and suffers from depression’

Main Presenting Problem:
Tom was referred to the Psychotherapy Service for People with Learning Disabilities, for help with his difficulty in establishing and maintaining relationships. The referral was made by Tom’s community nurse who had been unable to engage Tom in practical interventions aimed at improving his social network, despite this being Tom’s expressed desire. Tom has a diagnosis of quadriplegic Cerebral Palsy and he walks with the aid of a stick. Tom reported that he gets “depressed” because he is “disabled” and he “can’t express [his] feelings to [his] family”. He believes that his depression inhibits him from going out and making friends. However, he only reported four of the symptoms associated with a major depressive episode (American Psychiatric Association, 2000).

Assessment:
Some background information was gathered from Tom’s Community Team file and through an interview with his community nurse. However, the majority of information was obtained from the initial assessment, which was conducted over two sessions. Each session lasted an hour and took the format of a psychotherapy assessment session as advocated by Malan (1995). Fundamentally, Malan (1995) advocates the use of interpretation, therefore he argues that “the best way of assessing the patient’s capacity to use psychotherapy is to try it” (Malan, 1995, p234). The Beck-Depression-Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) was also administered to Tom, at the end of the second assessment session in order to establish a baseline measure of his general level of depression.

During the assessment sessions, Tom regularly presented with emotive displays and verbal accounts of anger. He often described feeling angry in response to situations that might logically be expected to cause someone to feel inadequate. For example, he explained “it makes me angry because I’ve never had a sexual relationship with a woman”. Furthermore, Tom would hurl comments at the Trainee in an angry manner. These responses seemed to occur when the Trainee commented on sensitive issues. He also explained that he “gets upset” when “people leave”. He described a
situation where he had become “close” to a woman from the befriending service, and how he had struggled to come to terms with her leaving. Tom explained how he fluctuates between feeling depressed, and feeling angry with himself and with her, for leaving.

**Formulation:**
The information from the initial assessment indicates that Tom’s negative feelings largely centre on his disability. Tom’s presenting problems were understood by using ‘The Two Triangles’ that Malan (1995) advocated for psychodynamic formulation. This model proposes that a client’s presenting problems arise out of “unexpressed painful feelings”, which derive from the past (Malan, 1995, p3). The first triangle is the ‘triangle of conflict’. This provides a framework to understand the client’s internal world that has given rise to the presenting problem. According to Malan (1995), the client will present with a defence mechanism that is protecting him from conscious exposure to some anxiety, which is generated by a hidden feeling. This hidden feeling is postulated to derive from the client’s relationships with people from the past and present, which is represented by the second triangle, called the triangle of person.

It was hypothesised that Tom appears to use anger as a defence to protect against the anxiety created by a fear of rejection. This fear is evident through his difficulty with endings. The hidden feeling appears to be a form of ‘shame’ relating to feeling inadequate because of his disability. This feeling can be traced back to his relationship with his parents and their attempts to treat him as ‘normal’ thus rejecting his disability. In other words, it appears as though Tom feels ashamed of himself and fears rejection if people see him for what he thinks he is. In order to protect himself from the painful feelings of rejection he defends himself by expressing anger. However, this only serves to create distance between him and those he fears rejection from, which results in feelings of loneliness and depression.

**Intervention:**
In accordance with Malan’s psychodynamic model of therapy, the aim of the intervention was “to enable the patient to understand his true feelings and to bring them to the surface and experience them” (Malan, 1995, p84). The Trainee and Tom met for 50 minutes once a week for 10 sessions. During this time the Trainee employed various therapeutic techniques as advocated by Malan (1995) in order to facilitate the aim of therapy. For example, to help Tom bring his defence, anxiety and
hidden feelings to the surface the Trainee provided interpretations of the transference and countertransference. The Trainee’s use of interpretations was guided by the depth of rapport between Tom and herself during each session.

**Outcome:**
Overall, Tom made some important gains towards the therapy aim. For instance, by the completion of therapy Tom had demonstrated greater insight into his use of anger as a defence, but more importantly, he had been able to bring some of his true feelings to the surface. For example, Tom accepted interpretations and initiated discussions regarding what he described as his feelings of "inadequacy". These feelings appear to be synonymous with the formulated hidden feelings of ‘shame’. However, while Tom exhibited intellectual insight into his unexpressed emotions, he showed little evidence of really ‘experiencing’ these feelings, which suggests that his emotional learning was limited. Evaluation of Tom’s progress across sessions indicated that his inability to experience his true feelings resulted in part, from his regression to a defensive position between sessions. In view of these findings it was recommended that Tom would benefit from more frequent therapy, for example three times a week, so that he would not have time to build up his defences between sessions.

**References:**


SUMMARY OF THE CHILDREN, ADOLESCENTS AND FAMILIES CASE REPORT

The extended cognitive assessment of a 7-year-old boy presenting with attention difficulties and hyperactivity.

Main Presenting Problem:
Ben was referred to the Tier 2 Community Child and Family Service by his GP following concerns about his hyperactivity and inattention at school and home. Ben’s mother Karen reported that Ben found it almost impossible to sit still and complete a defined task. She explained that he does not play with any of his toys, and behaves as though he is not interested in them. He watches television, but he is unable to sit still for a whole programme and tends to fidget and wriggle continuously. She also stated that Ben was very forgetful and never seems to listen to her instructions. The difficulties had started when Ben had learnt to walk but were becoming more problematic as he got older, particularly at school.

Extended Assessment Procedure:
Two potential hypotheses were generated to account for Ben’s presenting behaviours. Firstly, that his behavioural symptomology was indicative of Attention Deficit/ Hyperactivity Disorder (ADHD), and secondly that his presentation was due to a general or specific learning disability. In order to explore each of these hypotheses adequately various methods of assessment were utilized. Ben’s developmental, educational and social histories were assessed by clinical interview with his mother, father, aunt, cousin and teacher. Ben’s current behaviour was assessed through direct observation at school and during the assessment sessions. In addition the following psychometric assessments were administered:

- Wechsler Pre-school and Primary Scale of Intelligence – Revised version (WPPSI-R)
- Wechsler Objective Reading Dimensions (WORD).
- Strengths and Weaknesses Questionnaire (SDQ)
- The Conners’ Rating Scales – Revised version (CRS-R)
- Culture-Free Self-Esteem Inventory for children (CFSEI-2).

Formulation:
The information gathered in the extended assessment showed that Ben’s presenting behaviours were consistent with the DSM-IV-TR diagnosis of ADHD predominantly inattentive type (American
Psychiatric Association, 2000). In particular, Ben scored within the clinically significant range on the diagnostic screen assessments for hyperactivity (SDQ) and inattentiveness (CRS-R). Furthermore, the outcome of the intelligence and literacy tests indicated that Ben also has specific learning difficulties. Ben's difficulties were also compounded by emotional problems he had developed due to parental discord.

**Intervention:**
The results of the assessment were shared with Ben’s mother and, with her permission, with Ben’s Teacher. Ben was referred to the specialist ADHD assessment team for a formal diagnosis by an educational psychologist. Drawing upon the current evidence base regarding the intervention and management of ADHD the Trainee also made some simple recommendations for the immediate management of Ben’s behaviour at home and school.

**Outcome:**
One outcome of this extended assessment was that it highlighted areas where psychological intervention might be helpful in the future. For example, it was recommended that further work should be offered to Ben’s parents, focusing on their parenting style and how it impacts on Ben’s low self-esteem and emotional problems. After the Trainee finished the placement, Ben’s case was handed over to another Clinical Psychologist within the Tier 2 Community Child and Family Service. This was to provide a point of contact for those to whom referrals and reports had been sent, and also to offer the parents therapeutic input regarding their parenting style.

**References:**
SUMMARY OF THE OLDER ADULTS CASE REPORT

'A narrative intervention with an 89-year-old-man who presented with nightmares'.

Main Presenting Problem:
Mr Fred Smith is a white Caucasian man, whose first language is English. He has a slight hearing difficulty and walks with the aid of a stick. Fred was referred to the Psychology Outpatients Service by his Psychogeriatrician, who was concerned about Fred’s recent complaints of nightmares. The Psychogeriatrician had been seeing Fred for the last two years following an acute admission for depression. During this time Fred had recovered from his depression, but had recently started suffering from nightmares about the loss of his daughter. Fred reported that he was suffering from nightmares almost every night. The nightmares were always a ‘playing-out’ of graphic traumatic memories, such as his war experiences, the death of his daughter ‘Ann’, and his dog ‘Billy’. He explained that he had first suffered from these sorts of nightmares immediately after the war finished. They continued ‘on and off’ for about 10 years, but gradually stopped once his life became more “settled and less stressful”. At that time he did not seek any medical help, or other form of treatment for them, as he simply attributed them to ‘stress’.

Assessment procedure:
The initial assessment was conducted over three sessions. The Trainee Clinical Psychologist (TCP) met with Fred independently on all occasions. Each session lasted for an hour and took the format of a semi-structured interview. The format of the interviews was based upon guidelines for ‘initial assessments’ advocated by the service. The specific aim of the assessment was to find out what Fred’s concerns were, and to identify which form of psychological work, if any, would be appropriate for him. The TCP also administered the BDI as an objective outcome measure of Fred’s depression.

Formulation:
The TCP found that Fred’s difficulties were understood best by drawing upon social constructionist ideas, and the tradition of narrative therapy (cf. Kropf & Tandy, 1998). From the initial assessment, it was established that Fred’s current nightmares began shortly after his return home from his hospital
admission for depression. Coleman (1999) suggests that the crisis of sudden and unexpected disability caused by mental disorders in later-life, can lead people to question their past life. This is because mental difficulties pose a serious challenge to a person's sense of self. The TCP hypothesised that Fred's depressive breakdown prompted him to question his self-identity. His feelings of helplessness, loss of independence and control as a result of his experiences preceding his depression, led him to view himself as worthless. In an attempt to find confirmation for his original self-constructs he had begun to search his past memories. However, his memories only served to confirm his new construction of himself as 'worthless'. This hypothesis was supported by the dominant story that began to emerge during the assessment, which was about how he 'could or should have done better' in his life. Fred's construction of this dominant story evoked feelings of guilt and shame. Such emotions are known to be involved in the development and maintenance of the symptoms of post-traumatic stress disorder (Lee, Scragg, Turner, 2001). Therefore the TCP hypothesised, that through Fred's questioning of his past life, he had evoked feelings of shame and guilt that subsequently triggered his nightmares. The TCP also thought that it was these strong negative emotions that were maintaining the nightmares.

**Intervention:**

In accordance with the above social constructionist formulation the 'meaning-making approach' to narrative therapy was employed to guide the intervention (Kropf & Tandy, 1998). Fred attended 13 sessions in total. All sessions were conducted using a 'narrative conversation style' (Monk, Winslade, Crocket, & Epston, 1997). This involves taking a 'not-knowing' versus 'an expert' position, but seeking to understand the client's experiences. The TCP also employed narrative techniques such as: externalising conversation, deconstructive listening, and deconstructive questioning. The conclusion of therapy was reached when Fred had achieved an alternative story that he preferred and that offered a new meaning, which gave legitimacy to this alternative view of reality. Finally, a narrative life-story letter was constructed to summarise and make more explicit and concrete the key issues and changes that were observed throughout the therapy (cf. White & Epston, 1990).

**Outcome:**

Overall, Fred gave extremely positive feedback about his experience of therapy and his beliefs about the future, stating that he felt the TCP had helped him "open a new chapter" in his life. Fred also

---

1 The concept of a 'dominant story' refers to the concept defined by White & Epston (1990)
reported that he had found the narrative letter particularly helpful. Fred’s score on the BDI had reduced by 6 points at the end of therapy. Even though, neither of Fred’s scores fell in the clinically depressed range, the reduction in accordance with the therapy process would seem to support that Fred was feeling more positive, as he reported subjectively.

References:


SUMMARY OF THE SPECIALIST PLACEMENT
NEUROREHABILITATION CASE REPORT

'The neuropsychological assessment of a sixty-nine year old man presenting with an amnesic disorder due to a general medical condition'

Main Presenting Problem:
Mr. John Clark is a sixty-nine year old white British man who suffered a severe hypotensive-episode, and subsequently presented with an amnesic syndrome. John was referred to the Neurorehabilitation Service by his GP, to assess his suitability for rehabilitation. He was admitted to the service on the Cognitive Assessment Program (CAP), which is a four day programme specifically designed to assess a patient’s rehabilitation potential. The programme involves a multidisciplinary team, and as part of this team it was the Trainee Clinical Psychologist’s (TCP) role to conduct neuropsychological assessment.

Assessment Procedure:
Clinical interviews were conducted with John and his wife. His wife was interviewed separately to gain additional and supporting information. In addition John’s medical records were examined in depth, and previous psychology reports were requested from services John had attended prior to his admission to the current service.

The assessment revealed that an MRI scan of the brain showed small-vessel-disease with scattered microhaemorrhagic-lesions (which are typical of uncontrolled hypertension). The Neurologist’s report concluded that the hypotensive-episode had resulted in end territory damage bilaterally to the temporal lobes. John also suffered a seizure a few weeks after the hypotensive episode and another MRI scan showed hippocampal sclerosis, which was believed to be the focus of the seizure. The scan also showed small hippocampi bilaterally which had not been evident on the previous scan.

Formulation:
Amnesic disorders may have various aetiologies but can be classified as being due to a 'general medical condition' if there is evidence from the history or laboratory findings that the memory disturbance has a physiological cause. Although there is no specific diagnostic feature, damage to the
mediotemporal lobe structures is common, and is often reflected by structural atrophy detected on MRI (APA, 2000). Evidence of bilateral hippocampal atrophy was noted on John’s MRI scan, indicating that his amnesic syndrome might be expected to present as mediotemporal lobe amnesia.

However, the additional evidence of small-vessel-disease and scattered microhaemorrhagic-lesions may be indicative of more wide spread cognitive deficits, as both of these structural characteristics are implicated in the cognitive profile of subcortical vascular-dementia (Heilman & Valenstein, 1993). Drawing together the various pieces of evidence and current literature, it was hypothesized that:

Hypothesis 1: John will have a neuropsychological profile consistent with a pure Mediotemporal Lobe Amnesia, i.e impaired recall-memory, relatively spared recognition-memory, preserved insight, lack of confabulation, and no other cognitive deficits.
Or
Hypothesis 2: John will have a neuropsychological profile consisting of symptomology associated with hippocampal and vascular dysfunction; for example, impaired recall and spatial-memory, relatively spared recognition-memory, apathy or disturbed emotional behaviour, slow processing-speed, or poor executive-functioning.

Intervention:
A battery of tests were selected which together provided a comprehensive assessment of cognitive functioning (cf. Groth-Mamat, 2000; Lezak, 1983). This approach was considered the best means of answering the referral question (namely assessing John’s suitability for rehabilitation), and address the two hypotheses. The full neuropsychology assessment was successfully conducted over five hours, divided into two 2-hour sessions and one 1-hour session. Each test that was used is listed according to the neuropsychological function it was employed to measure:

- Premorbid function:
  - The Wechsler Test of adult Reading (WTAR).

- General Intellectual Functioning:

- Memory, and New Learning:
- The Wechsler Memory scale Third Edition (WMS-III)

- **Language:**
  - Graded Naming Test (GNT)
  - Verbal Fluency

- **Visuospatial abilities:**
  - Judgement of Line Orientation

- **Executive Functioning:**
  - Behavioural Assessment of Dysexecutive Syndrome (BADS)
  - Delis-Kaplan Sorting Test
  - Stroop

**Outcome:**

John’s cognitive profile was found to be one of intact verbal reasoning abilities, mild deficits in non-verbal reasoning and executive functioning, and general declines in memory function. Although his insight into his difficulties was relatively good (cf. Sohlberg et al. 1994), he presented with adjustment issues that complicate his presentation. Overall, John’s profile fitted best with a profile of vascular dysfunction (hypothesis 2). However, John’s deficits were only deficits relative to his premorbid level of functioning. In absolute terms John functioned (with the exception of delayed memory) within the average to very superior range.

John’s suitability for rehabilitation was subsequently questioned because of his variable insight and adjustment difficulties that are known to be barriers to rehabilitation (Sohlberg et al., 1994; Moorey, 1996). The TCP concluded that, given John’s preserved superior verbal-reasoning skills, it was likely that he would be able to undergo training to raise his insight (as advocated by Sohlberg et al., 1994) and engage in cognitive-behavioural therapy to address his adjustment issues (Moorey, 1996).

The TCP attended John’s goal planning meeting and circulated a neuropsychological report amongst the team. Specific recommendations were put to the team and a discussion was held about John’s suitability for rehabilitation. The team decided that John was suitable for rehabilitation and he was offered the psychological input detailed below as part of a multidisciplinary rehabilitation programme:
Neurorehabilitation Case Report Summary – Clinical Dossier

- To give John feedback about his results, and discuss the prognosis of his condition.
- To offer training to raise his awareness of his deficits using the approach advocated by Sohlberg et al (1994).
- To offer psychological therapy to facilitate his adjustment to his deficits.
- To train John in the use of the following compensatory memory aids:
  a) A filofax system to help him compensate for his anterograde amnesia and topographical-disorientation (cf. Sohlberg et al., 1994).
  b) A voice organiser to prompt him to engage in activities and help compensate for his poor planning abilities (cf. van den Broek, Downes, Johnson, Dayus, & Hilton, 2000).

References:


RESEARCH DOSSIER

OVERVIEW

This section includes the service related research project completed on the Adult Mental Health placement in Year 1, the qualitative research project completed in Year 2, and the major research project completed in year 3.
An Evaluation of Psychosis Relapse Prevention Training for Community Mental Health Team (CMHT) Staff.

July 2001

Year I
ABSTRACT:

This study evaluated in-service training for CMHT staff. The training was a 1-hour workshop designed to teach staff the Early Warning Signs (E.W.S) approach to Relapse Prevention for psychosis. Effectiveness was assessed using a self-constructed questionnaire administered pre and post-training. The questionnaire measured knowledge of the E.W.S approach, and staff attitudes towards: the E.W.S approach; organisational issues; and staffs' perceptions of their personal skills. Results indicated that the staff's knowledge increased significantly in the post-training condition, and their attitudes towards the E.W.S approach and their personal skills became significantly more positive. However, there was no change in the staff's attitudes towards organisational issues. Results are discussed in the context of recent literature regarding the role of attitudes in predicting behaviour, in particular the link between negative attitudes toward the organisation and poor job performance. It is concluded that the clinical implications of this evaluation are limited because the acquisition of knowledge does not necessarily mean that staff will implement the approach in their work. It is suggested that future research should measure long term retention of knowledge and behaviour change to effectively evaluate such in-service training.
1.0: INTRODUCTION

Research has shown that relapse in psychosis increases the chance of long term mental illness and social disability (Davis et al., 1993; Hogarty et al., 1991; Loebel et al., 1992; Shepherd, 1989; Wyatt et al., 1998). Relapse can be expected in 40-60% of patients within two years (Ram et al., 1992), and the possibility of relapse increases the longer the first episode of illness goes untreated. Such evidence has given rise to the development of various theories and approaches to relapse prevention (Beck-Sander, 1999, Birchwood, 2000; McGorry et al., 1992, 1994, 1996; McGorry & Jackson, 1999).

Max Birchwood (1989; 1998; 2000) developed one of the most prominent relapse prevention approaches currently used in the United Kingdom. His work is based on evidence that changes in thoughts, affect, and behaviour, which occur before frank psychosis, can predict relapse (Birchwood et al., 1989; Herz & Melville, 1980; Jorgenson, 1998; Subotnik & Neuchterlein, 1988). Birchwood (2000) proposed that these ‘early warning signs’ represent symptoms intrinsic to the illness, combined with psychological responses that involve denial or excessive fear of relapse. These psychological responses act as internal stressors that increase the probability of relapse. Birchwood (2000) believes that challenging these psychological responses with cognitive therapy techniques prevents the escalation of the early warning signs to frank psychosis. He advocates a structured methodology that draws on Cognitive Theory to identify and manage clients’ relapse signatures. This is known as the ‘Early Warning Signs’ (E.W.S) Approach to Relapse Prevention. Birchwood’s (2000) E.W.S approach has been successfully2 implemented as part of an early intervention service for psychosis.

In line with government policy regarding ‘evidence-based practice’ (Department of Health, 1998), evidence about the treatment and management of psychosis is starting to be translated into policy. For example, until recently the Department of Health policy has focused on the treatment of people ‘with severe and enduring mental illness’. Yet the newly published National Service Framework (N.S.F) for Mental Health (1999), states:

“Prompt assessment is essential for young people with the first signs of a psychotic illness, where there is growing evidence that early assessment and treatment can reduce levels of morbidity”

(Department of Health, 1999, p24)

---

2 There are no randomised control trial of the E.W.S approach. Perry et al (1999) report a randomised control trial of a similar approach with bipolar affective disorder to significantly reduce relapse.
Furthermore, the N.S.F states that mental health services should offer "appropriate access to psychological therapies" and clients should "receive care which optimises engagement, anticipates or prevents a crisis, and reduces risk" (Department of Health, 1999, p10). In fact, the British Psychological Society (B.P.S), have recently published a report recommending that psychological intervention "should be offered swiftly" following a first episode of psychosis (BPS, 2000, p47).

Clearly many of the current recommendations for treatment and management within the literature draw heavily on psychological knowledge and skills. However, on average C.M.H.Ts only have half a psychologist (Mauthner et al., 1998), whilst 44% of C.M.H.T caseloads are clients with psychoses (Greenwood et al., 2000). This mismatch between resources and need has led to psychologists becoming more involved in disseminating core skills. An example of this is evident in the Author's NHS Mental Health trust, where psychologists have been involved in developing and running a Relapse Prevention workshop to train CMHT staff.

The Relapse Prevention workshops were commissioned by the Trust's Early Intervention Group (E.I.G), which is a steering group that was set up to implement 'best practice' in the treatment and management of early psychosis. The E.I.G has drawn on the current evidence base and adapted it to local need. The result is a set of Clinical Practice Guidelines and standards. In order to enable staff to meet these standards the E.I.G proposes to run a series of short 1-hour training workshops. The Relapse Prevention workshop is the first of these workshops to be run, and was developed in order to facilitate CMHT staffs' ability to meet Standard 8', which specifies that:

"a relapse plan will be constructed and made available for individuals, families and clinicians for everyone who has presented with a first episode of psychosis"

(E.I.G, 2000, p14)

The E.I.G decided to train staff in the E.W.S approach to relapse prevention because it has been shown to be simple and straight forward to implement, and can be adapted according to the individual needs of the client (Birchwood et al., 2000). Thus CMHT staff should be able to incorporate the E.W.S approach into their current work without increasing their workload (E.I.G, 2000). The purpose of the current research was to evaluate the relapse Prevention Workshops, particularly with a view to establish whether the workshops achieved the E.I.G aims (see table 5).
Clearly the E.I.G training is starting from the premise of a ‘deficit model’ (cf. Tarrier & Barrowclough, 1986). They are assuming that staff do not perform relapse prevention techniques with clients because they do not know how too. However, there is little unequivocal evidence that such training procedures produce stable changes in staff behaviour (Ziarnick & Bernstein, 1982; Wood & Cullen, 1983). Ziarnik & Bernstein (1982) suggest that in order to establish whether staff training has been effective it is necessary to measure five different outcome (see table 1). They argue that most training only measures the first two outcome types (subjective and cognitive), yet these measures can only indicate whether staff were satisfied with the provision of information and have gained knowledge. In view of the limited time and resources available to conduct the current research it was not possible to measure the other outcome measures Ziarnik & Bernstein (1982) suggest.

Table 1: Ziarnik and Bernstein’s 5 outcome measures:

<table>
<thead>
<tr>
<th>Type of outcome measure</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subjective</td>
<td>What the trainee reports (i.e. feelings about the provision of information)</td>
</tr>
<tr>
<td>Cognitive</td>
<td>What knowledge is gained (measure of knowledge of information gained)</td>
</tr>
<tr>
<td>Behavioural</td>
<td>How training is applied (i.e. objective changes in staff behaviour following training).</td>
</tr>
<tr>
<td>Client-centred</td>
<td>The effects on the client (objective measures of change/improvement in clients)</td>
</tr>
<tr>
<td>Organisational</td>
<td>The effects on the organisation (i.e. objective measures of how the organisation changes following training)</td>
</tr>
</tbody>
</table>

However, research has shown that attitudes can predict future behaviour (Kraus, 1995). In particular, attitudes about the relevance of the training, the trainee’s perceived learning of skills, and the organisational context within which trained skills are to be applied, contribute to the successful transfer of skills (Curry, 1997; Mihe et al., 2000). Furthermore job performance can also be predicted from the degree to which staff believe that the organisation is supportive of them (Randall et al., 1999). If positive attitudes towards the trained approach, organisational issues and perceived skills can predict skill transfer, one might expect positive attitudes in these domains if staff intend to put the skills in to practice; therefore, the current research proposed to measure staff’s attitudes as an indication of their intent to implement the relapse prevention skills.
Hypotheses:

It is hypothesised that:

Knowledge
1. Participants will feel significantly more familiar with the E.W.S approach in the post training condition compared to the pre-training condition.

2. There will be a significant increase in participant’s knowledge scores on the post training questionnaire compared to their pre-training scores.

Attitudes:
3. Participant’s attitudes will become significantly more positive in all three domains \(^3\) in the post training condition compared with the pre-training condition.

\(^3\) The three domains are attitudes towards: the E.W.S approach, organisational issues, & personal skills.
2.0: METHODS

Design:
A non-randomised pretest-posttest design was employed (Barker, Pistrang & Elliot, 1994).

Participants:
An opportunity sample was employed from a population of Staff from 3 C.M.H.Ts’ covering a NHS trust. 37 staff members participated voluntarily in the Relapse Prevention Training. All 37 staff participated in the pre-training condition.

Attrition:
During the post-training condition an attrition rate of 29.7% reduced the sample size from 37 to 26 (see table 2). The differences between the demographic characteristics of those who dropped-out and the remaining sample are discussed below.

Table 2: The frequency of participants who dropped-out from each CMHT.

<table>
<thead>
<tr>
<th>CMHT</th>
<th>Total who completed pre-training questionnaire</th>
<th>Total who returned post-training questionnaires</th>
<th>Drop out rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>6</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>21</td>
<td>13</td>
<td>8</td>
</tr>
<tr>
<td>Totals</td>
<td>37</td>
<td>26</td>
<td>11</td>
</tr>
</tbody>
</table>

Demographic information:

Professional background of participants:
The remaining sample consisted of a range of clinicians (see table 3 for frequency of each clinician in the final sample vs. dropout group).

Table 3: Frequency of each type of clinician in the final sample and dropout group

<table>
<thead>
<tr>
<th>Type of Clinician</th>
<th>Frequency in final sample</th>
<th>% of final sample</th>
<th>Frequency in dropout group</th>
<th>% of dropouts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nurse</td>
<td>10</td>
<td>38.5%</td>
<td>4</td>
<td>36.8%</td>
</tr>
<tr>
<td>Social Worker</td>
<td>4</td>
<td>15.4%</td>
<td>2</td>
<td>18.2%</td>
</tr>
<tr>
<td>O.T</td>
<td>3</td>
<td>11.5%</td>
<td>1</td>
<td>9.1%</td>
</tr>
<tr>
<td>Students (O.T &amp; Nurses)</td>
<td>3</td>
<td>11.5%</td>
<td>1</td>
<td>9.1%</td>
</tr>
<tr>
<td>Team Manager</td>
<td>2</td>
<td>7.7%</td>
<td>1</td>
<td>9.1%</td>
</tr>
<tr>
<td>Mental Health Worker</td>
<td>2</td>
<td>7.7%</td>
<td>1</td>
<td>9.1%</td>
</tr>
<tr>
<td>Psychiatrist</td>
<td>1</td>
<td>3.8%</td>
<td>1</td>
<td>9.1%</td>
</tr>
<tr>
<td>Art therapist</td>
<td>1</td>
<td>3.8%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Totals</td>
<td>26</td>
<td>100%</td>
<td>11</td>
<td>100%</td>
</tr>
</tbody>
</table>
Previous experience or training in Relapse Prevention:
Only 4 (15.4%) participants in the final sample had previous experience of Relapse Prevention training. This was either through attending a workshop or experience working with the psychologist. None of the dropouts had previous experience.

Number of clients each participant had with first episode psychosis:
The average amount of clients a participant had in the final sample was 2 (median = 1.50). Using the Mann-Whitney U-test a significant difference was found between how many clients the sample group and the drop-out group had (U = 83.5, p = < 0.05). From visual inspection of Graph 1 it can be seen that the dropout group had significantly less clients than the sample group.

Apparatus / materials:
The questionnaires
2 self-constructed questionnaires were used. Both the pre and post-training questionnaires consisted of 3 subsections as displayed in table 4 (see appendix A for a copy of the questionnaire).
Table 4: The subsections of the pre and post-training questionnaires:

<table>
<thead>
<tr>
<th>Section</th>
<th>Which questionnaire each section was included in.</th>
<th>Content</th>
<th>Type of data</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pre</td>
<td>Demographic information regarding professional background, previous experience of Relapse Prevention training, and number of 1st episode clients they have.</td>
<td>Nominal data</td>
</tr>
<tr>
<td>2</td>
<td>Pre &amp; Post</td>
<td>Participant's knowledge of the Early Warning Signs approach (E.W.S) using multiple choice questions and a clinical vignette.</td>
<td>Interval data (Score out of 20)</td>
</tr>
</tbody>
</table>
| 3       | Pre & Post                                      | Participants' attitudes across three domains:  
- Attitudes towards the E.W.S approach.  
- Attitudes towards organisational issues.  
- Perceptions of their personal skills.  
Participants were asked to indicate how much they agree with various statements. | Ordinal data (5-point Likert scales. 3 items for each domain) |
| 4       | Post                                            | 1 question regarding participants' satisfaction with the training. | Qualitative data |

Designing the questionnaire:

The structure of the questionnaire was based upon the E.I.G training aims (see table 5). Items were generated using 3 sources. Firstly, through regular attendance at the E.I.G meetings during the period when the aims, objectives, and envisaged difficulties of the research were being discussed. Secondly through individual consultation with the facilitators of the training, and thirdly by drawing on the relevant literature. Three experts1 completed the questionnaire in order to establish the content validity of subsection 2 (which measures participants' knowledge of the E.W.S approach). All three experts gave the same answers on all questions.

Table 5: The E.I.G training aims and how they relate to the questionnaire

<table>
<thead>
<tr>
<th>Training Aim</th>
<th>Section of questionnaire that relates to the aim</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. To provide CMHT staff with knowledge of the core principles of Relapse Prevention, in order that they can achieve standard 8 of the EIG clinical practice guidelines.</td>
<td>Section 2: Knowledge</td>
</tr>
<tr>
<td>2. To promote the E.W.S approach as something that:</td>
<td>Section 3: attitudes towards:-</td>
</tr>
<tr>
<td>a) Can be easily integrated into staffs’ current practice without creating additional work.</td>
<td>Organisational issues</td>
</tr>
<tr>
<td>b) The approach is an effective means of reducing the amount and severity of clients' relapses.</td>
<td>E.W.S approach</td>
</tr>
<tr>
<td>c) Any clinician that does direct work with clients’ should have the personal skills necessary to implement the approach.</td>
<td>Personal skills</td>
</tr>
</tbody>
</table>

1 Experts were 2 psychologists and 1 psychiatrist who had attended formal training in the E.W.S approach set up by Max Birchwood at Birmingham Mental Health NHS Trust.
The Relapse Prevention Workshops

The training was run over a 1-hour workshop that adhered to the objectives outlined in Box 1 and used a standardised procedure.

Box 1: The E.I.G training objectives

**Objectives**
- To provide each C.M.H.T in the area with an hour workshop on the Early Warning Signs approach to Relapse Prevention, in place of the weekly Business meeting.
- For each workshop to cover three areas:
  1. Literature review of the key research on which the E.W.S approach is based.
  2. Overview of the approach's six sessions with particular emphasis on the card sorting and time-line session.
  3. Experiential exercise giving staff the opportunity to role play the card sorting and time-line sessions.

**Procedures:**

Participants were administered the pre-training questionnaire 10 minutes before the start of the training.

Each C.M.H.T received training on the day and time they would usually have their team business meeting. The training was run as an hour workshop and facilitated by 2 Chartered Clinical Psychologist, a Psychiatrist, a Community Psychiatric Nurse, and a Social Worker. The facilitators adhered to a standardised format for all three workshops.

Immediately following the training participants were given the post-training questionnaire together with a self-addressed envelope and written instruction asking them to complete and return the questionnaire within a week.

After a week a standardised reminder letter together with another copy of the questionnaire was placed in the tray of anyone who had not returned their questionnaire (see appendix B).
3.0: RESULTS

**Note:** Analysis of the data using the One-Sample Kolmogorov-Smirnov Test indicated that the data was not normally distributed. Therefore non-parametric statistical analysis was conducted.

**Analysis of participants acquisition of knowledge:**

1. **It was hypothesised that:** Participants will feel significantly more familiar with the E.W.S approach in the post-training condition compared to the pre-training condition.

Using a Wilcoxon-Signed-Ranks Test a significant difference at the $P = 0.001$ level was found between participants pre and post-training ratings of familiarity (see table 6). This result indicates that participants felt significantly more familiar (or knowledgeable) with the E.W.S approach following the training.

**Table 6: Displays the results from Wilcoxon-Signed-Ranks Test conducted for hypothesis 1:**

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Median</th>
<th>SD</th>
<th>Range</th>
<th>Z</th>
<th>Sig (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-training ratings</td>
<td>26</td>
<td>0.77</td>
<td>1.00</td>
<td>0.71</td>
<td>0-2</td>
<td>-3.716</td>
<td>$P = 0.001$</td>
</tr>
<tr>
<td>of familiarity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-training ratings</td>
<td>26</td>
<td>1.81</td>
<td>2.00</td>
<td>0.94</td>
<td>1-5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>of familiarity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. **It was hypothesised that:** There will be a significant increase in participant’s knowledge scores on the post-training questionnaire compared to their pre-training scores.

Using a Wilcoxon-Signed-Ranks Test a significant difference at the $P = 0.001$ level was found between participants’ pre and post-training knowledge scores (see table 7). This result indicates that participants’ knowledge scores significantly increased following the training.

**Table 7: Displays the results from Wilcoxon-Signed-Ranks Test conducted for hypothesis 2:**

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Median</th>
<th>SD</th>
<th>Range</th>
<th>Z</th>
<th>Sig (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-training knowledge</td>
<td>26</td>
<td>3.04</td>
<td>1.00</td>
<td>3.92</td>
<td>0.00-16</td>
<td>-4.290</td>
<td>0.001</td>
</tr>
<tr>
<td>scores</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-training knowledge</td>
<td>26</td>
<td>13.96</td>
<td>15.00</td>
<td>4.21</td>
<td>4.00-19.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Analysis of participants attitudes towards the E.W.S approach, organisational issues, and their own personal skills

3. **It was hypothesised that:** Participants' attitudes will become significantly more positive in all three domains in the post training condition compared with the pre-training condition.

Reliability analysis was conducted using Cronbach’s coefficient alpha, to establish whether the items within each domain could reliably form one scale. The results indicated that none of the items could be reliably grouped together (α < .7). This is probably due to the small number of items in each domain (as Alpha is usually lower when there are only a few items). Therefore, each item has been analysed individually using the Wilcoxon-Sign-Ranks test, with Bonferroni-correction conducted on each domain’s family of items (Clark-Charter, 1999: P = 0.01).

**Domain 1: Attitudes towards E.W.S approach:**

Using the Wilcoxon-Sign-Ranks Test, a significant difference was found between participants’ pre and post-training attitudes for items 1a and 1c (see table 8). Visual inspection of the means showed that the significant differences were due to participants having more positive attitudes towards the E.W.S approach following training. This result indicates that staff believed the E.W.S approach was simple and straightforward to implement and could decrease relapse. The increased percentage of people who had positive attitudes towards the E.W.S approach is illustrated in graph 2.

**Table 8: Results of Wilcoxon-Sign-Ranks Test for items addressing attitudes towards the E.W.S approach:**

<table>
<thead>
<tr>
<th>Item / attitude statement Pre vs. Post-training</th>
<th>N</th>
<th>Median</th>
<th>Mean</th>
<th>SD</th>
<th>Range</th>
<th>Z</th>
<th>Sig (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a “Using the E.W.S approach will decrease the amount of relapse clients have.”</td>
<td>26</td>
<td>Pre = 3</td>
<td>3.1923</td>
<td>.6337</td>
<td>2-4</td>
<td>-2.949</td>
<td>P = 0.003*</td>
</tr>
<tr>
<td>Post = 4</td>
<td>3.7308</td>
<td>.7776</td>
<td>2-5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1b “Using the E.W.S approach will decrease severity of clients relapse.”</td>
<td>26</td>
<td>Pre = 3.50</td>
<td>3.4615</td>
<td>.5818</td>
<td>2-4</td>
<td>-2.066</td>
<td>P = 0.03</td>
</tr>
<tr>
<td>Post = 4</td>
<td>3.8077</td>
<td>.6939</td>
<td>2-5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1c &quot;The E.W.S approach is simple and straightforward to implement.”</td>
<td>26</td>
<td>Pre = 3</td>
<td>3.0385</td>
<td>.4455</td>
<td>2-4</td>
<td>-4.147</td>
<td>P = 0.001*</td>
</tr>
<tr>
<td>Post = 4</td>
<td>3.8846</td>
<td>.5159</td>
<td>2-5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Graph 2: Shows the percentage of people who ‘agreed’ and ‘strongly agreed’ with the statements about the E.W.S approach at pre and post-training.

Domain 2: Attitudes towards organisational issues
Using the Wilcoxon-Sign-Ranks test, no significant differences were found between participants’ pre and post-training attitudes for any of the items in this domain (see table 9). Visual inspection of the medians indicates that there is a trend towards participants disagreeing with the statement 3a: “I have enough time to implement the E.W.S approach with all my clients”. This is the only statement that produced an increased negative attitude following the training, and is illustrated in graph 3.

Table 9: Results of Wilcoxon-Sign-Ranks Test for items addressing attitudes about organisational issues:

<table>
<thead>
<tr>
<th>Item / attitude statement</th>
<th>Pre vs Post-training</th>
<th>N</th>
<th>Median</th>
<th>Mean</th>
<th>SD</th>
<th>Range</th>
<th>Z</th>
<th>Sig (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2a “To what extent do you think it is appropriate that you (in your current role) should implement Relapse Prevention techniques and develop a Relapse Plan with a client?”</td>
<td>Pre = 4 Post = 4</td>
<td>26</td>
<td>3.6923</td>
<td>1.1582</td>
<td>1-5</td>
<td>-.206</td>
<td>P = 0.837</td>
<td></td>
</tr>
<tr>
<td>3a “I have enough time to implement the E.W.S approach with all my clients”</td>
<td>Pre = 3 Post = 2</td>
<td>26</td>
<td>2.8462</td>
<td>.7317</td>
<td>1-4</td>
<td>-.966</td>
<td>P = 0.334</td>
<td></td>
</tr>
<tr>
<td>3b “I have sufficient supervision to adequately develop and implement a Relapse Plan with all my clients”</td>
<td>Pre = 3 Post = 3</td>
<td>26</td>
<td>3.00</td>
<td>.6928</td>
<td>2-4</td>
<td>-1.748</td>
<td>P = 0.08</td>
<td></td>
</tr>
</tbody>
</table>
Graph: 3: Shows the percentage of people who 'agreed', 'disagreed' or were 'uncertain' about their attitudes towards the organisational issues at pre and post-training.

Domain 3: Attitudes about participants' personal skills:
Using the Wilcoxon-Sign-Ranks Test, significant differences were found between participants' pre and post-training attitudes for all 3 items in this domain (see table 10). Visual inspection of the means indicates that participants had more positive attitudes about their personal skills following training. This is illustrated in graph 4, which shows the increased percentage of participants who agreed and strongly agreed with the personal skills statements (table 10). These results indicate that the majority of staff felt they had the skills, knowledge and confidence to implement the E.W.S approach following training.

Table 10: Results of Wilcoxon-Sign-Ranks Test for items addressing attitudes about participants' personal skills:

<table>
<thead>
<tr>
<th>Item / attitude statement Pre vs Post-training</th>
<th>N</th>
<th>Median</th>
<th>Mean</th>
<th>SD</th>
<th>Range</th>
<th>Z</th>
<th>Sig (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre = 3</td>
<td></td>
<td>Pre = 3</td>
<td>2.7308</td>
<td>.8274</td>
<td>1-4</td>
<td>-3.391</td>
<td>P = 0.001*</td>
</tr>
<tr>
<td>Post = 4</td>
<td>26</td>
<td>Post = 4</td>
<td>3.6154</td>
<td>.6373</td>
<td>2-4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4a &quot;I feel confident to implement the E.W.S approach with my clients&quot;</td>
<td></td>
<td></td>
<td>2.7308</td>
<td>.8274</td>
<td>1-4</td>
<td>-3.391</td>
<td>P = 0.001*</td>
</tr>
<tr>
<td>4b &quot;I have good interpersonal skills that I can use to implement the E.W.S approach&quot;</td>
<td>26</td>
<td></td>
<td>3.4615</td>
<td>.64669</td>
<td>2-5</td>
<td>-2.517</td>
<td>P = 0.01*</td>
</tr>
<tr>
<td>4c &quot;I have adequate knowledge of the E.W.S approach to implement it&quot;</td>
<td>26</td>
<td></td>
<td>2.3462</td>
<td>.9356</td>
<td>1-4</td>
<td>-3.623</td>
<td>P = 0.001*</td>
</tr>
</tbody>
</table>
Graph 4: Shows the percentage of people who ‘agree’ and ‘strongly agree’ with the statements regarding their personal skills at pre and post-training.

Qualitative analysis of participants’ satisfaction with the training

100% of the sample reported that they had been satisfied with the training. Content analysis of participants’ reasons for liking the training revealed three main themes (see Table 11).

Table 11: Reasons why participants liked the training:

<table>
<thead>
<tr>
<th>Theme category:</th>
<th>No.</th>
<th>%</th>
<th>Example response</th>
</tr>
</thead>
<tbody>
<tr>
<td>The style of the training.</td>
<td>7</td>
<td>26.9</td>
<td>&quot;Good precise presentation&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>&quot;Informal...&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>&quot;Simple and Clear...&quot;</td>
</tr>
<tr>
<td>The practical exercise.</td>
<td>6</td>
<td>23.1</td>
<td>&quot;The practical task was helpful to understand the technique&quot;</td>
</tr>
<tr>
<td>Having knowledge of the approach.</td>
<td>8</td>
<td>30.8</td>
<td>&quot;The approach to clients and the way to implement by being patient and encouraging&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>&quot;informative - relative theory into practice&quot;</td>
</tr>
<tr>
<td>No reason given.</td>
<td>5</td>
<td>19.2</td>
<td>Answer sheet left blank</td>
</tr>
</tbody>
</table>
4.0: DISCUSSION

Participants’ acquisition of knowledge:

The results from the first two hypotheses established that the Relapse Prevention training had effectively increased how much knowledge participants thought they gained (hypothesis one), and how much knowledge they actually gained (hypothesis two). This finding indicates that the training had achieved the E.I.G aim to “give staff a knowledge of the core principles of the E.W.S approach to Relapse Prevention”.

However, the clinical significance of these finding is debatable. It is of importance to clinical practice that such changes in knowledge can be achieved in only an hour. To date there is only limited data regarding the effectiveness of brief training, with most reports referring to days rather than hours (Milne et al., 2000). Furthermore, with the growing mismatch between resources and need within psychological services, it seems likely that psychologist will be under increasing pressure to disseminate information speedily. Nevertheless, the acquisition of knowledge does not automatically imply that knowledge will be retained or change staff behaviour (Ziarnik & Bernstein, 1982; Wood & Cullen, 1983). Therefore the effectiveness of the training in terms of its purpose to improve the service that people with psychosis receive, is inconclusive.

Participants’ attitudes:

Domain 1: Attitudes towards the E.W.S approach:

The results from domain 1 established that staff felt more positive about the usefulness of the E.W.S approach following training. It is known that staff are more likely to transfer learnt skills if they perceive the training to be relevant (Curry, 1997). Therefore, it might be inferred that staff’s belief that the E.W.S approach can ‘decrease relapse’ and is ‘simple and straightforward to implement’, is a good indication that staff may intend to implement the E.W.S approach in their work.

Domain 2: Attitudes towards organisational issues:

Domain two established that once staff had learnt about the E.W.S approach they did not feel the organisation could support them to implement it. This result is important given that staff who feel unsupported are known to have poorer job performance (Randall et al., 1999). Furthermore, perception of organisational politics is strongly related to negligent behaviour
(Vigoda, 2000). Such research implies that staff's organisational attitudes may dissuade them from implementing the approach.

Feedback to the E.I.G with regard to these findings generated much discussion. The trend towards staff feeling more certain following training that they would not have 'enough time to implement the E.W.S approach’ was of particular interest. The E.I.G felt that future training would need to address the flexibility of the approach more clearly.

**Domain 3: Attitudes about participants' personal skills**

Domain 3 established that following the training, staff felt they had the personal skills necessary to implement the E.W.S approach. It has been shown that staff are more likely to transfer the skills they have been taught into behaviour if they perceive themselves to have learnt (Curry, 1997). Therefore, these results might also be seen as an indication that staff intend to implement the E.W.S approach.

**General Discussion:**

The primary aim of the current study was to establish whether a one-hour Relapse Prevention workshop was an effective means of training CMHT Staff. Obviously any conclusion hinges on what is defined as effective. While the training proved to be effective at satisfying staff and increasing their knowledge, a fundamental weakness of the study is the lack of follow-up measures. Without such measures it is impossible to know whether people’s knowledge will deteriorate over time, or whether the training causes any behavioural changes. Thus the clinical effectiveness of the training is unknown.

Nevertheless, measures of staff attitudes appear to suggest that, whilst staff feel the approach is effective, and that they have the skills to implement it, they do not feel the organisational structure can adequately support them to implement the approach with all their clients. These results suggest that despite the training, staff do not feel confident that they will be able to meet 'standard 8’ of the E.I.G practice guidelines and standards. Therefore, although the training has effectively achieved the documented E.I.G aims and objectives, the implications for clinical practice are not very promising. The interpretation of these results is further brought into question by the fact that the participants’ had significantly more clients’ with

---

3 Feedback was given to the E.I.G in the form of a presentation (see appendix C). The E.I.G reported that the results and their implications were extremely interesting and the author has been requested to present the study at the Trusts' Research Forum in September 2001
psychosis than those who dropped out. This indicates that the sample may not be representative of a general population of CMHT staff. Therefore the results should be interpreted with caution, as the current sample may have had a greater vested interest to learn than an average CMHT sample.

Obviously, future research would need to obtain a larger sample size in order to eradicate some of the methodological difficulties discussed. A larger sample would also enable more sensitive analysis. For example one might compare the CMHT groups to ensure no differences exist, or conduct analysis to see if the acquisition of knowledge, and transfer to behaviour can be predicted from staffs' attitudes. Essentially future research should attempt to measure all five outcome-measures suggested by Ziamnik and Bernstein (1982), although this would only be possible as a longitudinal study. Nevertheless, it would be important for any future evaluation of Relapse Prevention training to measure the 'behavioural' and 'client-centred' outcome. The behavioural outcome might be effectively measured by asking staff (via self-report questionnaires at regular interval i.e. 6 and 12 months), 'how many clients they have used the E.W.S approach with?' The client-centred measure could be a comparison of 'time to relapse' in those clients who did, and did not receive the approach.

Clearly there are substantial methodological improvements that could be carried out to answer some of the questions that have arisen within the wider context of this study. However, in the context of small-scale service related research, the current study has made some interesting contributions to the psychological knowledge regarding brief in-service staff training.

4 See page 2 for quotation of Standard 8
References:


Evaluation of the Early Intervention Group's (E.I.G) training in psychosis relapse prevention for Community Mental Health Team (CMHT) Members in the area.

Participant code  Location  Date:

Information Sheet:
'Standard 8' of The E.I.G Clinical Practice Guidelines states that:

'A relapse plan will be constructed and made available for individuals, families and clinicians for everyone who has presented with a first episode of psychosis'.

In order to enable CMHT staff to fulfil 'Standard 8', the E.I.G have developed a Relapse Prevention training package. The objective of the training is that staff will have the knowledge to implement the 'Early Warning Signs (E.W.S) approach to Relapse Prevention' with their clients (Birchwood, Spencer & McGovern, 2000).

This questionnaire has been designed to evaluate the effectiveness of the RP training. In particular, the questionnaire has been designed to elicit information regarding staffs’ knowledge of, and attitudes towards the E.W.S Approach. To monitor change, we will be asking you to complete this questionnaire again immediately after the training.

Your help with this evaluation is greatly appreciated, and all your responses will remain confidential. The questionnaire is not a test or appraisal of your knowledge of the field, it has been designed purely to evaluate the training. If you have any questions please contact Shai Betteridge, Trainee Clinical Psychologist on 020 8541 1686. Feedback will be given on the results of this evaluation at an organisational level in the near future.

Consent form:
I have read the information sheet and understand that participation in this study will involve the completion of this questionnaire now, and again immediately after the training.

Please sign

Thank you for your help.

Reference:
### Professional Details

All responses will remain STRICTLY CONFIDENTIAL. Your name or initials are necessary so that your follow-up questionnaires can be matched.

<table>
<thead>
<tr>
<th>Name or initials:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Job Title:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Professional Background / qualifications:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Approx. no. of clients you have who present with a first episode of psychosis:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Any specific experience or training in relapse prevention:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

### Section A: Knowledge

1. How familiar are you with the 'Early Warning Signs (E.W.S) approach to Relapse Prevention?

   - Not at all
   - A little
   - Quite a lot
   - A lot

2. Rank the following 6 sessions according to the order they should occur in:

   - Card sort
   - Time line
   - Check understanding
   - Relapse drill
   - Clarification
   - Engagement

   Tick here if you do not know what order they should occur

3. One of the aims of the 'Card Sorting' session is to:
   a) Establish chronological order of occurrence of early signs of relapse.
   b) Establish the titles for each stage of the relapse drill.
   c) Establish what the client feels would be helpful in the event of relapse.
   d) Establish perceptual, cognitive and affective changes.
   e) Don’t know

   Only tick one box

4. According to the literature, once Early Warning Signs have been observed when would you expect psychotic symptoms to occur?
   a) Within 2 weeks
   b) Within 4 weeks
   c) Within 6 weeks
   d) Within 8 weeks
   e) Don’t know

   Only tick one box

5. According to the literature dysphoric symptoms (i.e., depressed mood & withdrawal) are:
   a) The most commonly reported early warning sign
   b) The best predictor of the onset of psychosis
   c) The symptoms that occur later in the illness
   d) The least commonly reported early warning sign
   e) Don’t know

   Only tick one box
Vignette
Below is an example of a client who may present at your service. Please read the vignette and answer the question that follows.

John is a 19-year-old man who was recently diagnosed with schizophrenia. He started a degree course at Kingston University in October. Shortly after starting his course John started to feel anxious and restless. He also had difficulty keeping up with his work. By late October John stopped going to University and started spending all his time alone. Early in November the fire alarm was set off in the Halls of Residence where John lived. Everyone had to evacuate the building. A Friend of John’s noticed that he looked unwell and asked if he was all right. John told him that he ‘felt like he could not trust other people’. John’s friend contacted John’s mother. When John’s mother came to visit John, he told her that he was receiving personal messages from the radio.

6. Create a timeline for this client.

<table>
<thead>
<tr>
<th>External Event</th>
<th>Early warning sign</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If you do not know how to create a timeline please tick this box.

7. The Early Warning Signs (E.W.S) approach states that engagement with a client can be achieved through:
   a) Establishing what to do in the event of relapse
   b) Monitoring clients attendance at appropriate resource centres.
   c) Identifying the most recent relapse and client’s concept of this.
   d) Ensuring regular contact with the client for the first two years.
   e) Don’t know

Only tick one box.

8. Who is responsible for monitoring the client?
   a) Only relevant CMHT staff
   b) Relevant carers/ family
   c) Relevant CMHT staff and carers/ family
   d) Client, carer family and relevant CMHT staff
   e) Don’t know

Only tick one box.

9. According to the E.W.S approach the purpose of the ‘Relapse Drill’ session is to?
   a) Establish chronological order of occurrence of early signs of relapse
   b) Establish what would be helpful in the event of relapse
   c) Split the timeline into 3-4 stages
   d) Decide the order of the relapse signature
   e) Don’t know

Only tick one box.
### Attitudes:
All questions refer only to your work with clients who present with a first episode of psychosis

**About the Early Warning Signs (E.W.S) approach:**

1. How much do you agree with the following statements:

   a) "Using the E.W.S approach will decrease the amount of relapses clients have"

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Uncertain</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

   b) "Using the E.W.S approach will decrease the severity of clients relapses"

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Uncertain</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

   c) "The E.W.S approach is simple and straightforward to implement"

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Uncertain</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Organisational issues**

2. a) To what extent do you think it is appropriate that you (in your current role) should implement Relapse Prevention techniques and develop a Relapse Plan with a client?

<table>
<thead>
<tr>
<th>Not at all</th>
<th>A little</th>
<th>Unsure</th>
<th>Quite a lot</th>
<th>A lot</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. b) Who do you think should be responsible for implementing Relapse Prevention techniques and developing a Relapse Plan?

**3.** How much do you agree with the following statements:

   a) "I have enough time to implement the E.W.S approach with all my clients"

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Uncertain</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

   b) "I have sufficient supervision to adequately develop and implement a Relapse Plan with all my clients"

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Uncertain</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Personal issues:**

4. How much do you agree with the following statements:

   a) "I feel confident to implement the E.W.S approach with my clients"

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Uncertain</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

   b) "I have good interpersonal skills that I can use to implement the E.W.S approach"

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Uncertain</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

   c) "I have adequate knowledge of the E.W.S approach to implement it"

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Uncertain</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Memo

To:
From: Shai Betteridge (Trainee Clinical Psychologist)
Date: 01/03/01
Re: Follow-up questionnaire for the evaluation of the relapse prevention workshop

Thank you for your co-operation and time completing the initial questionnaire evaluating the relapse prevention workshop.

Unfortunately I can not use the data unless you have completed the follow-up questionnaire. I appreciate that you are probably extremely busy and have not had time to complete it yet. However, your views are extremely valuable in order for the evaluation of this workshop to be representative. Therefore, I would be grateful if you could complete and return the follow-up questionnaire as soon as possible. I have enclosed another copy of the follow-up questionnaire and an envelope for you to return it in.

Once again, I would just like to emphasis how grateful I am for your time and co-operation with this matter. If you have any further questions please do not hesitate to contact me at

Yours sincerely

Trainee Clinical Psychologist in Supervision with Dr & Dr
(Chartered Clinical Psychologists)
Dear

Re: Presentation to the Early Intervention Group

I am writing to thank you so much for making time to come back to the Early Intervention Group on Friday 1 June 2001 to present the results of your study. It was a very thoughtful presentation and as I think was clear at the time, all members of the group were interested in the results. I very much hope that the group will use the information that you gave us to enhance any future workshops that the Early Interventions Group presents to teams.

Once again, thank you for all of the hard work that you put into the presentation.

Yours sincerely,

Dr.
Chartered Clinical Psychologist
On Behalf of the Early Interventions Group
An Exploration of 2nd Year Trainee Clinical Psychologists’ Experiences of Their Dual Status as Clinicians and Postgraduate Students, with a Focus on Potentially Conflicting Aspects.

May 2002
Year II
1.0: INTRODUCTION

Research has indicated that psychologists experience higher levels of job-related stress than the general non-professional population (Boyer, 1984; Laliotis & Grayson, 1985; Thoreson & Skorina, 1986). More recently attention has turned to the experiences of Trainee Clinical Psychologists (TCPs), who experience the professionally related stressors that qualified staff do, coupled with the stressors associated with their student role. (Cushway, 1992). Research evaluating the experiences of TCPs has reported that trainees', also have to contend with instances of 'role-conflict and role-ambiguity' (Cheshire, 2000; Pica, 1998). Cheshire (2000) found that:

Role-conflict most frequently arose from trainees' dual status as NHS employees and university postgraduates. Respondents identified much more strongly with their employee role than they did with the student role; nevertheless, they had to cope with switching between the two.

Despite identifying role-conflict as a key stressor for TCPs, Cheshire (2000) made no attempt to theoretically explain how, or why the dual roles of clinical training produce conflict for trainees, or how they coped with the conflict.

Amongst the limited literature regarding TCPs experiences, there is generally an absence of theorising that can account for the phenomena of 'role-conflict and role-ambiguity' (cf. Cheshire, 2000; Cushway, 1992; Pica, 1998). One explanation for the lack of theorising is that the experiences of CPTs is a relatively new area of research. Therefore, the research has focused on describing the trainees' perspective of clinical training, rather than explaining the phenomena identified. More recently one study has investigated how trainees cope with the stresses of clinical training. However, this study failed to provide a theoretical explanation of why particular strategies were more prominent, or how they mediated the stress resulting from role-conflict (Nelson, Dell'oliver, Koch, Buckler, 2001).

To date, the research regarding TCPs' experiences has been extremely limited, and the importance of phenomena such as 'role-conflict' to trainees' development as clinical psychologists is poorly understood. The aim of the current study was to contribute to the research regarding TCPs' experiences of 'role-conflict', with the intent to develop an inductive theory that could explain the phenomenon.
2.0: METHOD

Design:
An interview-based design was employed in accordance with a Grounded Theory (GT) approach (cf. Pigeon, 1996). A GT approach was selected due to the apparent absence of any adequate theory to account for the patterns of conflict TCPs experience during training (cf. Cheshire, 2000; Cushway, 2000; Pica, 1998).

Researchers:
The researchers who conducted the interviews and subsequent analysis were five 2nd year TCPs from a South West London Training Course.

Participants:
Theoretical sampling was employed to select 5 participants from a population of 2nd year TCPs from a Southwest London Training Course. This involved initially analysing the data from two participants, then using the emerging theoretical assumptions to guide the selection of new participants. For example, the final 3 participants were chosen to broaden the range of experience prior to clinical training, age, and gender in the sample (see table 1).

Table 1: Demographic information for the sample.

<table>
<thead>
<tr>
<th>ID</th>
<th>Age</th>
<th>Gender</th>
<th>Relevant work experience</th>
<th>Years experience</th>
<th>Academic qualifications</th>
<th>Placement experienced on training</th>
<th>Ethnicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>25-30</td>
<td>F</td>
<td>Assistant psychologist Undergraduate placement</td>
<td>2-3</td>
<td>None</td>
<td>AMH, LD &amp; CMH</td>
<td>White-British</td>
</tr>
<tr>
<td>2</td>
<td>25-30</td>
<td>F</td>
<td>Clinical/research post Resource officer</td>
<td>5+</td>
<td>None</td>
<td>AMH, LD &amp; CMH</td>
<td>White-British</td>
</tr>
<tr>
<td>3</td>
<td>31-35</td>
<td>F</td>
<td>Psychiatric nurse</td>
<td>5+</td>
<td>Masters RN (Mental health)</td>
<td>AMH, LD &amp; CMH</td>
<td>White-British</td>
</tr>
<tr>
<td>4</td>
<td>25-30</td>
<td>M</td>
<td>PhD</td>
<td>4</td>
<td>PhD</td>
<td>AMH, LD &amp; CMH</td>
<td>White-British</td>
</tr>
<tr>
<td>5</td>
<td>25-30</td>
<td>M</td>
<td>Assistant psychologist Nursing assistant</td>
<td>2-3</td>
<td>None</td>
<td>AMH, LD &amp; CMH</td>
<td>White-British</td>
</tr>
</tbody>
</table>

1 Throughout this document the term ‘trainee’ and the abbreviation ‘TCPs’ will be used interchangeably to refer to Trainee clinical Psychologists.
Procedure:

**Designing the interview schedule:**
A semi-structured format was selected in order to allow information to be collected around a consistent set of themes, whilst also enabling participants to report their experiences in an unconstrained way. Using a process of 'brain storming' the researchers identified the central themes they felt were important, by drawing upon their own experiences and literature regarding TCPs experiences (Cheshire, 2000; Crushway, 1992; Pica, 1998). These themes guided the development of the questions used in the interview schedule (see table 2).

During the development of the questions, the researchers tried to be mindful of the GT approach to interviewing (cf. Pigeon & Henwood, 1996). Fundamentally, this entailed trying to follow an open-ended conversational style and being aware of unwittingly loading assumptions into the questions. The final interview schedule started with a 'grand tour' question (Spradley, 1979), which enabled participants to lead the conversation. This was followed by 3 questions (each with prompts to encourage participants to elaborate their responses), and 1 general question to enable participants to talk about anything they considered important that had not already been covered (see appendix A for interview schedule).

**Table 2: Themes used to guide the development of the questions for the interview schedule**

<table>
<thead>
<tr>
<th>Theme</th>
<th>Origin</th>
<th>Relates to question no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trainees' perceptions of the role: (Are there different aspects of the role?)</td>
<td>Researchers experiences &amp; Cheshire (2000)</td>
<td>1 &amp; 2</td>
</tr>
<tr>
<td>Trainees' management of the multiple aspects of the role: (How do they manage all the aspects of the roles at the same time?)</td>
<td>Researchers experiences &amp; Crushway (1992), Pica (1998), Nelson, Dell’Oliver, Koch &amp; Buckler (2001)</td>
<td>2</td>
</tr>
<tr>
<td>Trainees' role identity: (Do they identify more with one aspect of the role than the others?)</td>
<td>Researchers experiences &amp; Cheshire (2000)</td>
<td>3</td>
</tr>
</tbody>
</table>
Pilot:
The initial interview schedule was shown to a specialist in the field of qualitative research. Following his advice one of the questions was re-worded. The amended interview schedule was piloted on the first two TCPs to volunteer. The Participants' found one prompt to be redundant, which was subsequently removed.

Conducting the interviews:
Each researcher conducted 1 interview using the following procedure. The interviews lasted for approximately 30 minutes and were carried out on the University campus. Following an introduction to the interview procedure, participants were asked the first question on the interview schedule. After the initial question, the interviewers used the participant's responses to guide which question or prompt they asked next. The researchers asked all the questions from the schedule, unless the participant had previously answered them in an earlier response. The interviews were audio taped and transcribed (See appendix B for interview transcript).

Analytic approach:
The G.T analytic procedure involved coding the transcripts line by line into 'meaning units', which are defined as "a number of words describing the same phenomena" (McVey, Madill, Fielding, 2001). Using the method of 'constant comparison', units of meaning were grouped into categories based upon their similarities and differences. Each category was given a label that indicated whether it was a 'members category' or a 'researchers category'. 'Members categories' referred to concepts derived directly from the interviewee's responses, and were given category labels based on the words used by participants. 'Researchers categories' referred to the more theoretical concepts that were given category labels identified by the researchers. Every category label was recorded as the header on a file card, together with a reference and précis of the specific quotes, and any potential 'links' with other categories. Links were coded as either 'a strong causal link' or 'an association' if the participant made these types of link in the data. Alternatively a link could be coded as a 'causal link interpreted by the researchers'.

As more and more categories emerged, the researchers began splitting, converting and re-labelling categories in accordance with their understanding and interpretation of the concepts that were emerging from the data. Memos regarding the process of modification, and

---

2 The researchers followed the grounded theory analytic procedure advocated by Pidgeon & Henwood, 1996.
theoretical reflections or hunches regarding links between categories, were also recorded (see appendix C). When new data no longer contributed further insight into a concept, the category was considered 'saturated'. The data relating to it was then summarised by writing a definition stating the qualities identified in the data, and the nature of the category as interpreted by the researchers.

Finally, the researchers analysed the links between the categories and began integrating them based upon their salient concepts. This involved developing flow charts and diagrammatic representations of the relationships between the categories. Through this process a specific pattern of interrelationships emerged, which appeared to have a wider theoretical relevance. This was then developed into a theory represented through a graphical model.

**Evaluation criteria**

The subjectivity of this qualitative analysis means that traditional criteria for evaluating research are not applicable (Henwood & Pidgeon, 1992). It is recommended that such research be evaluated based upon the persuasiveness of the grounded examples used to support the interpretations of the data (Elliott, Fischer, & Rennie, 1999). Another appropriate method of evaluation is respondent validation. However, this was not attempted due to time constraints.
3.0: ANALYSIS

The data produced 19 categories that conceptualised TCPs' experiences. These were then integrated into 7 categories (see appendix D). Due to the limitation of space, it is not possible to recount the outcome of the analytic process for all of the categories. Only the analysis for the category 'conflict' will be presented here. This category has been chosen because of its importance in understanding the theory that resulted from the analysis. However, the definitions for all of the categories included in the theory can be seen in appendix E. Firstly though, the theory will be described.

Theory of role-conflict in Trainee Clinical Psychologists:

Analysis of the interrelationships between the final 7 categories produced a theoretical understanding of how TCPs’ experiences of conflict developed. A diagrammatic presentation of the proposed process is presented in figure 1. Fundamentally, the model suggests that the interaction of trainees' previous and current experiences contribute to the development of 'role-conflict' and the formation of their future career expectations. This model will now be explained in more detail by referring to the interrelationships and causal links between the categories, which the researchers have interpreted from the data.

Description of the model

The model proposes that a trainee's previous experience influences how they define and subsequently experience the different aspects of their role. Thus, trainees with a background in clinical work, will define their role predominantly in terms of the clinical role. Holding a clinically skewed definition produces a negative bias against the academic and research roles, and as a result they report negative experiences of these roles (see table 3, quote 1).

How a trainee defines and experiences the role proceeds to impacts on how they manage the different aspects. Trainees spend more time developing the aspect that they identify with most, and consequently feel better adjusted to it (see table 3, quote 2). Two factors influence how trainees manage their multiple roles. Firstly, the imposed structure of the course, which dictates how and when they perform each role (see table 3, quote 3a & b). However, the imposed structure also leads to the development of conflict between their roles (see table 3 quote 4). As the different environmental and emotional demands of the roles compete and

---

3 Note that the description of the model could not follow a traditional grounded theory narrative form whereby quotes are incorporated into the text due to space constraints. For an example of this style see the analysis of the category 'conflict'.
contradict each other, the trainees' developed a splitting of emotions across their multiple roles. As a result, feelings of “hate”, “guilt” and a general sense of role “ambiguity” emerge. This conflict then feeds into and reshapes their preconceived beliefs about what it will be like to be a qualified clinical psychologist (see table 3, quote 5).

The second factor influencing how trainees manage their role is through the use of coping strategies. A range of internal and external techniques may be used. For example, an external strategy like using peer support can help by providing communal understanding of the difficulties (see table 3, quote 6). In contrast, an internal strategy involves conceptualising the different roles as ‘wearing different hats’. Using this strategy the trainees can mentally maintain one identity and avoid the conflict incurred by the imposed splitting of roles (see table 3, quote 7).

The association between ‘imposed structure’ and ‘coping strategies’ appears to be a circular process reflecting the trainee’s development over the training. Trainees initially manage the multiple roles using the imposed structure, but this produces conflict. As they progress in the training they develop coping strategies to help them manage the role more effectively (see table 3, quote 7). However, both the negative experience of conflict and the more positive experiences of coping feed into and shape their future career expectations (see figure 1).

**Conflict:**
The category label ‘conflict’ developed following the integration of three original categories. These were ‘conflict resulting from perceptions of competence’, ‘conflict resulting from environmental expectations’ and ‘conflict resulting from the student role’. The final category was defined as detailed in text box 1. These categories were merged because the common theme among them was that all of the trainees reported experiencing some form of conflict as a result of their multiple roles. For instance, participant 5 claimed that “sometimes there can be a clash between the different roles”. Essentially, the researchers interpreted the discrepancies between trainees’ feelings towards the different aspects of the role, as evidence of conflict. The researchers’ interpretation of conflict was found to be similar to the phenomenon of ‘identity conflict’ described in identity theories (Baumeister, 1995). ‘Identity conflict’ occurs when multiple definitions of self come into conflict and dictate competing, incompatible courses of action.

The researchers found that trainees varied with regards to which aspects of the role they experienced the conflict between. Most reported feeling the conflict occurring between the
academic and the clinical roles, although participant 5 reported experiencing conflict between the research and the clinical roles. He said “I don’t mind so much the academic and the clinical bit cos ah they seem to apply quite well to each other. The research bit, I don’t know, I could probably sort of do without... I find myself sitting in the lecture thinking what the hell has this got to do with helping people?” Participant 5’s statement was also seen as evidence of his allegiance to the clinical role.

Generally the researchers found that conflict seemed to be attributed to the various causes (for example competence, environmental factors or the student role) depending upon which role trainees felt more aligned with. Trainees tended to report extremely negative emotions towards the opposing roles. Participant 1 reported that “it can be quite odd...being a practitioner half of the week when you’re a student the other half...there is a conflict between these angles...the student side I just find, well I can’t stand it and I rebel against it. I hate it...”. The strong negative emotions towards the student role were interpreted as symptomatic of the trainees’ conflict. This explanation further fits with the theory of ‘identity conflict’, which suggests that emotional reaction such as “guilt, and feelings of being a traitor” are indicative of identity conflict (Baumeister, 1995, p66). This is more clearly illustrated by participant 4’s comments regarding his experiences of the conflict between the academic and clinical aspects of the role:

Sometimes there can be a slight element of guilt...a concern in the back of your mind,
I’m not doing the best for these clients, because I’m selfishly focusing on this piece of coursework

In summary the researchers interpreted that the causes of conflict were born out of the inevitable contradictory demands that exist between the different roles. Once conflict has been fostered it is expressed through negative emotions such as hatred and guilt.

**Text box 1: Definition of ‘conflict’**

This category refers to the conflict trainees reported experiencing as a consequence of their different roles. Conflict appeared to result from three main sources. Firstly, a lack of identity with the student role. Trainees felt frustrated and disempowered by the constraints of the student role compared to their clinical role. They reported feeling “patronized” as though at times they “were not being taught anything” making the student role was “a waste of time”.

The second source of conflict was trainees’ perception of a discrepancy between the level of competence expected of them in the student verses the clinician roles. They felt that in their role as a clinician they were expected to have a higher level of competence than they actually had, whilst as students they were treated as though they were incompetent.

The third source of conflict appeared to be the competing pressures from the different environmental settings in which trainees perform the student and clinician role. Swapping between the different atmospheres in the environmental settings created conflict between the trainees’ identities with each role. Such conflict was expressed in feelings of guilt about unequal dedication of time between the roles, feelings of rebellion towards the student role or feeling as though they were being deceitful in their portrayal of themselves as clinicians.
<table>
<thead>
<tr>
<th>Quote No.</th>
<th>Participant ID</th>
<th>Quote</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>...For me the clinician role is like working, so that's actually much easier...um...and isn't so different to what I was doing before I started the course...um... I find the student bit...quite a struggle...</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td>- I'd almost see a triangle. You'd have the...academic and the clinical on equal footing and at the bottom you'd have the research.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- I identify with the clinical role more than the others.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- So I probably give the clinical study more time than I was probably able to before because I've given less priority to the other two.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- I enjoy the clinical stuff more than I enjoy anything else, but it makes me a little bit more resentful of the research stuff.</td>
</tr>
<tr>
<td>3a</td>
<td>1</td>
<td>Q: So how do you manage?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Because the week is actually structured and divided up, you have a Monday and a Tuesday doing one thing, and then you work.</td>
</tr>
<tr>
<td>3b</td>
<td>3</td>
<td>I don't think I do manage... I think that it's the way that it's structured by the course...The student and clinician roles are separated by the structure.</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>...Being a practitioner half of the week when you're a student the other half...Your continually having to switch from being the person who doesn't know anything and having to be given a lot of information, and then spending the other half of the week as if you do know what your talking about and as though your fit to deliver some kind of care to people.</td>
</tr>
<tr>
<td>5</td>
<td>2</td>
<td>I think it's also realising that I'm probably going to feel the same kind of way when I qualify...so in a sense I'm going to have this ambiguity forever.</td>
</tr>
<tr>
<td>6</td>
<td>3</td>
<td>Q: Tell me more about how you managed?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I guess the big bit of that is getting to know other people on the course, and actually forming kind of support networks within the peer group...there's very much a shared anxiety or a shared opportunity to whinge...so you don't feel isolated.</td>
</tr>
<tr>
<td>7</td>
<td>5</td>
<td>- In your mind you can see how the three sort of inter-link and interchange but when it comes to the work you have to...be quite boundaried.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- ...It's like one day I'll wear the major research project one and then the next day I'll wear the academic hat...</td>
</tr>
</tbody>
</table>
Figure 1: THEORY OF ROLE CONFLICT IN TRAINEE CLINICAL PSYCHOLOGISTS:

PREVIOUS EXPERIENCE

DEFINITIONS & EXPERIENCES OF THE MULTIPLE ROLES OF THE CLINICAL PSYCHOLOGY TRAINEE

MANAGING THE ROLES

IMPOSED STRUCTURE OF TIME

COPING STRATEGIES

CONFLICT

FUTURE EXPECTATIONS

Key:
- Strong causal link grounded by participants' comments
- Tentative causal link interpreted by researchers
- An association grounded by participants' comments
4.0: DISCUSSION

This study has proposed an explanation for TCPs' experiences of 'role-conflict' during clinical training. The use of a grounded theory approach enabled the researchers to derive a theoretical perspective that was grounded in the reports of TCPs. Although the researchers were careful to document (with examples from the data) the way in which the theory of conflict emerged, they recognise that their own preconceptions as TCPs may have influenced their interpretations. Furthermore, the small sample size, lack of ethnic minorities, and the inclusion criteria being limited to 2nd year TCPs, means that caution must be exerted in generalising the results. Nevertheless, the researchers felt that the theory offered some new and useful interpretations.

Essentially, the theory provides an understanding of how conflict develops and the sort of factors that make trainees vulnerable to experiencing conflict between their different roles. The theorised process is comparative to a Cognitive-behavioural model (cf. Beck, 1967), whereby previous experience influences current thinking and behaviour, and results in the development of the problem 'role-conflict'. The theory also seems to extend the social psychology theorising regarding 'identity conflict', by providing an understanding of how conflict in professional identity may occur. In contrast to 'identify conflict' theory, were multiple definitions of self come into conflict, it seems as though Trainees' definitions of their professional identity come into conflict with the definitions of professional identity imposed upon them by the course structure. This interpretation is also supported by literature regarding professional identify, which reports that employees are more likely to acquire a professional identity if they agree with the philosophy of the company (Moreno, 2001). Thus it may be surmised that trainees' role-conflict represents a lack of professional identity.

Despite, Cheshire's (2000) conclusion that experience prior to training was not an important factor, the current study supports more recent findings that previous experience influenced trainees stress and coping (Coates, 2001). Furthermore, the theory also supports the finding that the structure and organisation of the course is the greatest cause of stress amongst trainees (Cushway, 1992), and coping strategies such as peer support, and cognitive strategies are the most frequently used (Cushway, 1992; Nelson et al., 2001). The theory has also extended our understanding of how trainees use cognitive strategies to cope. Within the current study trainees conceptualised their multiple roles as 'wearing different hats', which helped them
minimise the loss of self. Such compartmentalising is recognised to be the way to resolve ‘identity conflict’ (Baumeister, 1995).

Since only 2nd years were sampled, it is unknown from the current study whether ‘role-conflict’ resolves before the end of training. Cheshire (2000) reported that role-conflict increased in third year trainees, however the use of cognitive compartmentalising techniques within the current sample suggests that they may be beginning to resolve their conflict. The idea that trainees do resolve their role-conflict is supported by Pica who reported that “wrestling with ambiguity appears to be an essential component in our growth as clinicians” (Pica, 1998, p363). Nevertheless, he also recognised that “unstructured, and unclear elements of the program” in clinical training “raised the level of ambiguity” unnecessarily.

Whether or not trainees resolve their role-conflict, it appears as though the conflict could be reduced in order to facilitate better adjustment to the multiple roles. Certainly, in the current climate of increasing political pressure for psychologists to be ‘scientist-practitioners’, it is concerning that the new wave of psychologists may be failing to acquire this prescribed professional identity. The current theory has provided some insight into how this process may be occurring, and as such could be used as a starting point to re-think how clinical training courses can help trainees to incorporate their multiple roles into a unified professional identity. Obviously, future research is needed to validate this theory by assessing trainees from different course, and across different time points in training. Furthermore future research could attempt to establish if trainee role-conflict is ever naturally resolved.
References:


An exploration of second year trainee clinical psychologists’ experiences of their dual status as clinicians and postgraduate students, with a focus on potentially conflicting aspects.

**Interview schedule**

1. Could you describe what you see as the various aspects of your role as a trainee clinical psychologist?  
   [*If the participant volunteers only two or three aspects, prompt for further aspects]*

2. Other researchers have attached importance to the clinician and student aspects of the role. [*If the trainee has not volunteered these aspects in response to question 1, ask: How relevant does that seem to you?*]. I know this might seem like a very general question but what is it like to be both a clinician and a student?

   (If interviewee says that two roles are different, then explore possible conflict and use prompt)
   
   - It sounds like your roles are quite different. How do you manage to hold the two roles at the same time?

   (If the interviewee does not differentiate between the two roles, then use prompt)
   
   - Bearing in mind that you have to work as a clinician and a student, in your experience how do you feel that these two roles are similar and/or different?

3. Do you identify with one particular role more than the other?  
   [*If yes: Why do you think that is? How is that reflected in what you do or how you are on the course?*]  
   [*If no: Why do you think that is?*]

4. Other researchers have suggested that a trainee’s identity with the different roles changes during training. Could you describe your experience of how your role as a trainee has developed since joining the course?

   **Prompts**
   
   - What if any changes have you noticed from the first year to the second year?  
     (If the interviewee implies that there has been a change, then use prompt)
   
   - How have you managed that change?

   Is there is anything that you consider important about the way you have managed the clinician and student role that hasn’t been covered in the interview?
PILOT INTERVIEW

Participant: 1

1. I = Q1: Could you describe what you see as the various aspects of your role as a trainee clinical psychologist?

3. P = Oh god. What the various aspects of my role are?
4. I = Yes, could you describe it, the aspects of your role?
5. P = I'm not even sure what that means. What does that mean?
6. I = What do you think it means?
7. P = Various aspects of my role?
8. I = Do you think that there are different aspects to your role, you may feel that there isn't?
10. P = Well I guess they're just practitioner and student.
11. I = can you describe what the role of the clinical psychologist is in your experience?
13. P = Yes well there is obviously the role of practitioner and also the role of being a student where you are learning about the profession. You're learning about it on the one hand and on the other hand you're actually going out there and delivering a service.
17. I = umm. Is that how you see it or how you think you're supposed to see it?
18. P = No I think that is how I see it. Yeah as though it is kind of two halves and so the week is split in two.
20. I = Do you see any other aspects or is it just the two?
21. P = Yes there are only two because the role of research comes under the role of student because it certainly doesn't come under my role as a practitioner.
23. I = Right, So do you see research as a separate aspect of the role?
24. P = I don’t know.
25. I = well, if the question was ‘describe your role as a trainee clinical psychologist’ how would you describe it?
27. P = I would say I spend half the time as a practitioner in an NHS setting delivering psychology and the other half of the week being a student learning about psychology. And the research I see as part of the student learning side of it. I know that in reality the whole thing about a clinical psychologist is this thing about being a scientist-practitioner but that’s not what I see out in...and
32. It’s not where my interests are. I see the research as being part of the doctorate.
33. Once it’s done and dusted that’s it.
34. I = Right.
35. P = I’ll read research but I’m not going to do it again.

36. I = ok. **What is it like to be both a practitioner and a student?**
37. P = umm. I think it can be quite odd, particularly being a practitioner half of the
38. week when you’re a student the other half, because... umm. You’re continually
39. having to switch from being the person who doesn’t know anything and having
40. to be given a lot of information, and then spending the other half of the week as
41. if you do know what you’re talking about and as though you’re fit to deliver some
42. kind of care to people.
43. I = um.
44. P = And that there is a conflict between these two angles, as to whether you’re
45. competent or whether you’re not. Also the way that people respect you, in terms
46. of the way you are treated as a student, as opposed to the way you are treated as
47. a colleague.
48. I = So it sounds as though there is conflict for you between how you are treated
49. and how you are perceived?
50. P = Yes how you are perceived and just in terms of trusting my own
51. competence really. As a result of being in a learning environment at one time
52. and being expected to deliver care on the other. It seems a kind of missed
53. message generally.
54. I = It sounds as though you experience that as a split of your roles?
55. P = What between being a student and being a practitioner?
56. I = Yes, you used the word conflict.
57. P = Yes to the point that I mean I think I’m probably different people when I’m
58. at university and when I’m at work.
59. I = so different identities even?
60. P = yes, so when I’m at university I’m much more the student that I was when I
61. was at university.
62. I = So when you say student as a person you were as an undergraduate do you
63. mean with regards your attitudes and things?
64. P = Yes.
65. I = and mannerisms?
66. P = Yes, and just that experience of being lectured to and being told means that
67. you go straight back into that submissive student type framework. Where as
68. when you are in the work place you are respected as a person and as a
69. colleague with a hierarchy that seems less apparent than it does within an
academic setting.

71. I = Ok. How do you manage to hold the two roles at the same time?
72. P = umm. Because of by virtue of them being at different times of the week.
73. I = Then it contains it?
74. P = yes. Yes the structure’s there for you. The same way as I might be different
with my friends as I am with my family. You are capable of being different
people and still being one person.
77. I = So you seem to keep it quite boundaried then?
78. P = yes.
79. I = So you manage it by having it as two separate things rather than trying to
roll them into one, or hold them as one thing that means all of these things?
81. P = Yes, and I’m sure or rather I know that I’m influenced by the teaching and I
use what I’ve kind of learnt from the lectures while I’m on placement, but
generally I would see it’s the equivalent to me as working in two different work
places.
85. I = So how you manage those 2 roles would be the same as if you had a split
post in a work place you mean?
87. P = yes.
88. I = So you would just think that’s who I am when I’m there these days, and this
is who I am on these days.
90. P = umm.
91. I = But would you be the same person then or does having a split post make
you a different person then?
93. P = It depends on the atmosphere in the workplace. If the atmosphere is quite
similar, but then even where I am now there is a different flavour about
95. K---- CAMHS to R---- CAMHS, so even within that half of the week
96. I’m sure I’m slightly different.
97. I = um.
98. P = So you know it does really depend on the two different places you work at.
99. It is to do with the atmosphere within the two places.
100. I = um. So atmosphere creates who you are?
101. P = yes, the atmosphere and the attitude of other people.
102. I = dictate or creates who you become?
103. P = um.
104. I = So the split you were describing in terms of feeling like a student when
105. you are at university and a professional when on placement is that more about
106. the environment – that will naturally always create that?
107. P = Yes. I would have thought so. Yes. I mean when we are at university it's
108. not set up like a training course, like when we’ve gone to conferences or
109. workshops as a professional. This doesn’t have that feel about it. It’s not a
110. kind of conference centre. It’s just a kind of university with a whole bunch of
111. lecture rooms with crappy desks and crappy chairs and so it is very much
112. being in one different room to the next. I wonder whether salomons and their
113. swanky all in one room and here’s coffee and oranges and all the rest of it,
114. whether it would feel like more professional training and that there would be
115. more of a link but you can only speculate.
116. I = So maybe the environment has a big part to play in how we behave and
117. how we perceive things then?
118. P = Yes. Well it does for me.

119. I = OK. (Q3): Do you identify with one particular role more than the other?
120. P = Probably more with the professional role. I enjoy it more therefore it must
121. be that my leaning is towards the professional aspect than the student side.
122. The student side I just find, well I can’t stand it and I rebel against it. I hated it
123. when I was an undergraduate and I hate it now. I just don’t like being
124. patronized.
125. I = um. So you identify more with the professional role because you like it
126. more so therefore you identify with it more.
127. P = Yes. Or, as I say I’ve never really thought which side I identify with, I’m
128. just assuming that because I like it more therefore it makes sense that it’s the
129. side I identify with more I think it’s a bit of a strange question. I feel that to
130. decide what I identify more with, I mean because although I have these
131. separate selves in terms of my student self and my professional self there not
132. so separate that its like I don’t identify that part of me.
133. I = Yes although it seems as though your saying you do still identify more
134. with the professional role because as a student you feel uncomfortable being
135. treated as this, which suggests you don’t identify yourself with the role as
136. much.
137. P = Yes.
138. I = So if you accepted your identity as a student we might expect that you
139. would accept that identity and feel comfortable with it, but you don’t seem to.
140. You do feel comfortable identifying with the professional role though?
141. P = Yes, the professional role and the professionals in their place.
142. I = So you feel comfortable in this role but you feel a bit insecure about your competence which feeds through from the other role. But you feel that left to your own devices that might feel ok?
145. P = Yes, in terms of looking at other people in the work place and looking at other people in the university setting and like who would I like to be more, then I would say that I would like to be like my colleagues in the work place setting than to be like a lecturer/ teacher and tell people what they don’t know all day.
150. I = umm.
151. I = So that’s kind of like role identity who do you identify with, in terms of these being modelled behaviours. So seeing it as though you are kind of learning from both situations your describing it as though that’s the model I’d like to follow more. If I’m going to model anyone’s behaviour I’d like their behaviour to theirs sort of thing. So you identify more with their behaviour that then becoming the identity you’d like to take on yourself? Even though you might not feel as though you are fully there yet?
158. P = Yes.
159. I = **How do you feel your identity with the practitioner role reflects in what you do?**
160. P = ummm. What I do within each setting?
162. I = Yes.
163. P = Probably that I spend all day at university being pissed-off and slightly less so when I’m on placement. Um.
165. I = Do you think then that the insecurities that you experience on placement are because you have some identity to you role as a student?
167. P = Yes it must do because, you know just being junior generally. Yes. That obviously I appreciate that I am a student, but I still feel that you can be a student and a learner. Um and not feel so much, I mean I think you can be a learner in professional development, in the sense that you go away and learn on courses, but its not the same as being a student. I don’t know what I’m trying to say really.
173. I = so it sounds like the issue of being patronized. You feel as though you are treated as though “you know nothing” rather than “you’re learning, we’d like to teach you another skill”.
174. treated as though “you know nothing” rather than “you’re learning, we’d like to teach you another skill”.
175. to teach you another skill”.

163
 qualitative Research Project – Appendix B

176. P = yes, as in nothing you have to say is of any value. We run this course and
177. we’ll tell you the way it goes. Whereas in a work place – if you don’t agree
178. with it there’s more of an opportunity for discussion.

179. I = So (Q4): **Could you describe your experience of how your role as a**
180. trainee has developed since joining the course?
181. P = Can you say that again?
182. I = Could you describe your experience of how your role as a trainee has
183. developed since joining the course?
184. P = How it’s developed?
185. I = yeah how has it changed? Do you feel your role has changed?
186. P = No not particularly.
187. I = So you don’t feel your role has changed since the 1st year?
188. P = no.
189. I = So you haven’t noticed any change since the 1st year to the 2nd year in how
190. you identify with these roles?
191. P = No, I think I’ve become more resigned to the course being the way it is
192. and so, perhaps just less kind of irritated by it. But myself I don’t think that
193. I’ve changed or learnt to like the course more, or learnt to appreciate myself
194. more as a practitioner.
195. I = So in terms of identifying with the practitioner role would you have said
196. that in the 1st year?
197. P = Yeah, well apart from the fact that I hated my first placement. But then I
198. don’t think I identified with anything, which is probably why I wanted to
199. leave all the time. Although I keep the two sections separately to an extent I
200. wouldn’t go as far as to say that I identify with one more than the other.
201. I = So although you don’t identify with one more than the other your way of
202. managing the different aspects is to keep them separated. So do you feel that
203. this way of managing the aspects of the role is the same today as it was in the
204. first year?
205. P = Yes.
206. I = So there hasn’t been a real change in the way you identify with one role or
207. the other?
208. P = yes.
209. I = It feels very much the same over the 2 years?
210. P = yes.
211. I = Its just that you feel more resigned to these roles where as in the beginning
213. it was more difficult?
214. P = Yes. I don’t know, I’m starting to think I don’t hold them as separate as I
215. think I do because of the fact that I do just think of myself as a trainee clinical
216. psychologist. I don’t really think of myself as having two separate roles.
217. S= Is this feeling / thought new? In other words is it since becoming a 2nd year
218. verses a 1st year?
219. P = No, I think it’s always been like that.
220. I = Right. Ok so you don’t feel there has been any change in the why you
221. experience the role of clinical psychologist or in the way you manage the
223. different aspects of the role since joining the course/
224. P = No.

225. I = Ok, so finally. Is there anything that you consider important about the
226. way you have managed the practitioner and student role that hasn’t been
227. covered in the interview?
228. P = No.
229. I = Ok, well thanks for you co-operation you’ve been very helpful.
Memo 1. Potential links between role identity and conflict

Exploring the relationship between role identity and areas of role conflict. It was suggested that conflict may be related to the dual role and that identification with the different roles may be linked to potential areas of conflict. Identity with different roles may also be shaped by previous experience. Role identity may influence how much participants identify with different aspects of the role, and where less identification there is conflict, e.g. previous experience with clinical aspects of role, identify with clinical role and conflict with student role.

Memo 2. Merging categories

Similarity noted between two existing categories, managing roles by imposed structure and role management determined by environmental factors. Content of two categories examined and decision made to merge categories. Re-named as imposed structure.
Figure 2: representing integration of 19 categories into the final 7

Note: The numbers denote the original 19 categories identified from the data

1. Previous experience

Definitions and experience of the role of the Trainee Clinical Psychologist

Integrated categories:
1. Previous experience
2. Managing the roles
3. Coping strategies

Managing the roles

Integrated categories:
1. Previous experience
2. Managing the roles
3. Coping strategies

Coping strategies

Integrated categories:
11. Wearing different hats
12. Peer support
13. Role amalgamation
14. Resigned to the role
15. Role ambiguity
16. Conflict resulting from perceptions of competence
17. Conflict resulting from environmental expectations
18. Conflict resulting from the student role
19. Future expectations

Key:
Strong causal link grounded by participants' comments
An association grounded by participants' comments
Tentative causal link interpreted by researchers
DEFINITIONS OF THE FINAL 7 CATEGORIES:

**Previous Experience**

This category was concerned with trainees' clinical, academic and research experiences before they commenced clinical psychology training. It encompasses comments about how trainees tended to feel more confident and comfortable with training experiences that they had encountered prior to clinical training (e.g. working with adult clients with mental health difficulties). They were therefore more likely to identify with these particular roles (e.g. experience as a research assistant prior to training tended to result in trainees identifying with the research role). Trainees also commented on how the course emphasised the importance of presenting "what you don’t know" (i.e. learning needs) unlike pre-training experiences where "what you know" seemed more significant. Comments were also made about how the compulsory nature of teaching sessions on training differed to previous experiences of academia, where attendance tended to be voluntary. Some trainees relied on their previous experience of research supervision to inform them of the purpose of clinical supervision.

**Extracts from transcripts:**

"...I had a resource officer's post...so I had a lot of responsibility and...to go from that where I had to present the things that I knew, above the things that I didn’t know and to switch into a role where it’s actually really important to highlight the things you don’t know. Perhaps that’s why the first placement was difficult.” (Participant 2, 57-63)

"...if I was forced to make the choice...I’d probably opt for research. But then maybe that’s because I haven’t done so much clinical work.” (Participant 5, 100-102)

"In Adult Mental Health, I felt more comfortable, but with Child especially, some parents are having trouble disciplining their children and they say to you ‘what would you do in these circumstances?’ You’re sitting and thinking ‘how on earth would I know, having never had that experience?’” (Participant 4, 132-136)

"I suppose for me the clinical role is like working, so that’s actually much easier...and it isn’t so different to what I was doing before I started the course...I find the student bit i.e. the coming into university is quite a struggle...” (Participant 3, 39-41)
Managing the roles

This category was concerned with the management and adjustment to the different aspects of being a trainee clinical psychologist and role identity. A number of key areas were described by participants as central to this category, including the process of developing and adjusting to the training roles. The process of role development encompasses the presence or absence of change in relation to participant’s management of the different aspects of the roles. A major aspect of this category was specific areas of development including clearer expectations of course requirements, more established preferences for models of working and personal responsibility for development. The second key aspect was mechanisms of adjustment to the roles. Participants reported a number of approaches to this including the use of organisational skills such as prioritising and time management and the concept of being ‘good enough’, that is a shift in their expectations of themselves in relation to managing the demands of clinical and academic work.

Future expectations

The category of future expectations was concerned with trainee’s ideas and aspirations about the types of positions and jobs they will be doing when they qualify. A number of important aspects emerged including a desire to focus on clinical aspects of the role, wanting a mixture of different roles combining clinical and research aspects. Future aspirations emerged as an important motivating factor for completing training. A further aspect of this category was the theme of ambiguity as an aspect of psychology. It was anticipated that future roles would incorporate some of the ambiguity experienced during training due to the inherent ambiguity of the role of a psychologist and the process of continual professional development.

Definitions and experiences of the role of trainee clinical psychologist

This category is concerned with how trainees defined the different roles of a trainee clinical psychologist. Roles consisted of student and professional / clinician. The clinician role involved being seen to work as a professional, being paid and having a responsibility to see and treat clients. In this role, trainees felt that they were perceived by others as more knowledgeable than in the student role. The student role was broken down by participants into an academic and a research role. This role was perceived as entailing less responsibility and was more about fitting back into the undergraduate student role of not knowing and being there to learn. The academic aspect involved being taught to and being set academic deadlines. Research consisted of the doctoral thesis and smaller research projects undertaken by the trainees. It also referred to the trainees’ personal experiences of the identified roles, including their attitude towards the different roles and the importance that they attached to each of them.
Definition of 'conflict'

This category refers to the conflict trainees' reported experiencing as a consequence of their different roles. Conflict appeared to result from three main sources. Firstly, a lack of identity with the student role. Trainees felt frustrated and disempowered by the constraints of the student role compared to their clinical role. They reported feeling "patronized" and as though at times they "were not being taught anything" and so the student role was "a waste of time".

The second source of conflict was trainees' perception of a discrepancy between the level of competence expected of them in the student verses the clinician roles. They felt that in their role as a clinician they were expected to have a higher level of competence than they actually had, whilst as students they were treated as though they were incompetent.

The thirdly source of conflict appeared to be the competing pressures from the different environmental settings in which trainees perform the student and clinician role. Swapping between the different atmospheres in the environmental settings created conflict between the trainees' identities with each role. Such conflict was expressed in feelings of guilt about unequal dedication of time between the roles, feelings of rebellion towards the student role or feeling as though they were being deceitful in their portrayal of them self as clinicians.

Extracts from transcripts:

Participant 3:  
40- = I find the student bit i.e. the coming into university is quite a struggle... um. I sometimes feel that it's quite a waste of time because there are days when you don't feel you're being taught anything.

Participant 2:  
133-141 = " There is still some conflict between the roles. I think we are treated by the course team quite adolescently. It feels like if I am thinking of myself as a clinician why aren't they. That they might be more comfortable with me in a position of just accepting what they say, but on the other hand I don't think they want me to do that. I think they are sometimes ambiguous about what position they want us to be in. They say it's our responsibility and yet, you can't take annual leave. I feel that on one hand I am being told to manage my time but on the other hand they are putting blocks in the way of you actually doing it. Which I don't think would happen if I wasn't a student, if I wasn't in that role".

Participant 1:  
35-49 = " I think it can be quite odd, particularly being a practitioner half of the week when you're a student the other half...And that there is a conflict between these two angles, as to whether your competent or whether your not. Also the way that people respect you, in terms of the way you are treated as a student, as opposed to the way you are treated as a colleague...  

49= As a result of being in a learning environment at one time and being expected to deliver care on the other. It seems a kind of missed message generally...to the point I mean I think I'm probably different people when I'm at university and when I'm at work.

The student side I just find, well I can't stand it and I rebel against it... I hate it... I just don't like being patronized.

Participant 4:  
47-50 = Sometimes there can be a slight element of guilt. Maybe that's putting it to strongly, but there's at least a worry there, a concern in the back of your mind, am I not doing the best for these clients, because I'm selfishly focusing on this piece of coursework.
### Imposed structure

This category is concerned with the structure imposed on the trainee clinical psychologist in terms of their division of time and the course requirements. The imposed structure of time entails the trainee attending the University for lectures on Mondays and Tuesdays (academic days), and attending their clinical placement for the remainder of the week (placement days). Within the placement days half a day each week is allocated study time. This division of time was seen by some trainees as an imposed separation of the student and clinician roles of the trainee, and was often described as an imposed way of managing these different roles. Consequently, on academic days trainees tended to regard themselves as students, and on placement days they tended to regard themselves as clinicians. The structure of course requirements refers to the structure of academic days and course assignments. The course requires that all trainees attend all lectures. The lecture timetable and contents are devised by the course. Some trainees reported that this imposed structure meant that some lectures were less relevant to them due to their previous knowledge or experience, or that they were not relevant to their clinical work on placement, and hence this was described as a further separation of the student and clinician roles. In terms of assignments, these were described as structured in terms of their focus, hence trainees were obliged to follow this imposed structure.

### Coping Strategies

This category is concerned with strategies that trainees adopted to cope with having several roles and the demands that the different roles place on the trainee. Some strategies involved linking aspects of the various roles to make them more cohesive, whereas other strategies involved keeping the roles quite separate, but being able to switch between the different roles. Other coping strategies include accepting that there are different roles, which made it easier to cope with the different roles. Social support from other trainees was also an important coping strategy. For example drawing comparisons with stresses that other trainees experienced and being able to realise that the personal anxieties and stresses were shared by other trainees provided a useful source of coping with the difficulties that the different roles produced.
The Ecological Validity of the Delis-Kaplan Executive Function System Sorting Test

July 2003
Year III
ABSTRACT

**Design:** A cross-sectional correlational design was used to evaluate the degree of association between executive impairment as measured by the Delis-Kaplan Executive System Sorting Test (D-KEFS-ST), and everyday functioning in patients with acquired brain-injury (ABI).

**Methods:** 36 participants with acquired brain-injury completed the D-KEFS-ST. All participants nominated a significant other (defined as a close relative, carer or friend) to complete various measures of everyday functioning. The measures used were: The Dysexecutive-Questionnaire (DEX-R), The Community-Integration-Questionnaire (CIQ-R), The World-Health-Organization-Disability-Assessment-Schedule-II (WHODAS-II), and the Social-Functioning-Scale (SFS). In order to validate the latter two questionnaires for use with a brain-injured population the Disability-Rating-Scale was employed as a criterion measure. To control for confounding variables, information was also collected from participants’ medical notes about their brain injury localization, and their general neurological and physical impairment.

**Results:** Participants’ executive impairment, as measured by the D-KEFS-ST correlated significantly positively with all of the measures of everyday functioning when confounding variables were controlled for. Furthermore, the WHODAS-II and the SFS were found to be valid measures of everyday functioning in an ABI population.

**Conclusions:** The D-KEFS-ST was found to have comparable ecological validity to traditional measures of executive functioning, such as the Wisconsin Card Sorting Test. However, the clinical implications of this finding are limited, as the size of the correlations only accounted for a maximum of 38% of the total variance in participants’ disability. Nevertheless, the results indicate that further research into the ecological validity of the complete battery of tests included in the Delis-Kaplan Executive Function System may produce more promising results.
1.0: INTRODUCTION

Acquired brain-injury (ABI) is currently one of the leading causes of long-term disability in the developed regions of the world (Murray & Lopez, 2003). Various conditions can cause brain-injury such as cerebrovascular disease, ischemic heart disease and road traffic accidents. In 1990 these conditions accounted for approximately 10% of global disability and it is estimated that this figure will double by 2020 (Murray & Lopez, 2003). In America one brain-injury occurs every 15 seconds and 50% of these result in at least a short-term disability requiring rehabilitation. The cost of traumatic brain-injury rehabilitation alone is more than four billion dollars (OHSU, 2003). Although there are no comparable statistics for the United Kingdom (UK), it is clear from the empirical literature that patients with ABI generate equivalent demands upon services in the UK (Ponsford, 1995; Wood, McCrea, Wood, & Merriman, 1999). Within this context neuropsychologists are put under increasing pressure to provide plausible prognoses about outcome and early predictions of ongoing disabilities (Caille, Deguise, Feyz, Hardy, & Richard, 2000; Higginson, Arnett, & Voss, 2000; Stemmer, Gahl, Lacher, & Schoenle, 2000). However, most of the psychometric tests available to neuropsychologists from which they currently deduce these predictions, were not designed to provide such information and it has been argued that their success at doing so, is limited (Brown, Baird, & Schatz, 1986; Odhuba, van den Broek, & Johns, 2000; Sbordone & Long, 1996).

1.1: Historical development of neuropsychological testing

The development of neuropsychological test batteries in the 1940’s enabled neuropsychologists to make statements about the presence, laterality and extent of brain-damage. This era is often earmarked as the start of the neuropsychology revolution, primarily because such tests led to an escalating demand for neuropsychological assessments by neurologists and neurosurgeons (Groth-Marnat, 2000b). Their popularity was due to the fact that they offered a more sensitive and non-invasive alternative to the crude neurological procedures of the time (Long, 1996). However, it is argued that today neuropsychology is on the brink of a new revolution, because the role of neuropsychological assessment is changing as a consequence of two key factors (Bennett, 2001; Groth-Marnat, 2000b; Johnstone & Farmer, 1997; McSweeny & Labuhn, 1996). Firstly, the recent advances in neuroradiological techniques are said to have subsumed much of the initial
diagnostic role neuropsychological assessments fulfilled in neurosurgery and neurology (Costa, 1983; Grant & Adams, 1996; Sbordone & Long, 1996). Secondly, as discussed above, the growing role of neuropsychology in rehabilitation settings has generated a whole new set of referral questions (Johnstone & Farmer, 1997).

This shift in the role of neuropsychology, especially in rehabilitation services, has led to an emphasis on interpreting patients' cognitive strengths and weaknesses as indication of their functional potential in the community (Long, 1996). As most tests were developed to predict lesion location rather than functional behaviour (Franzen & Wilhelm, 1996), clinical judgement and experience in neuropsychological assessment is usually drawn upon to generate plausible predictions (Bennett, 2001; Long, 1996). Williams (1996), investigated clinicians' predictions based upon their clinical judgement, and concluded that "in general, neuropsychologists believe the predictive relationship between tests and... skills are more robust than research would suggest" (Williams, 1996, p139). Subsequently, Long (1996) argued that because "there is currently little or no empirical foundation for such predictions... research is needed to establish the relationship between the neuropsychological tests... and specific jobs", in short he poses the question "what is the ecological validity of neuropsychological tests?" (Long, 1996, p5).

1.2: Defining Ecological Validity:

Ecological validity is defined as the “functional and predictive relationship between the patient's performance on a set of neuropsychological tests and the patient's behaviour in a variety of real-world settings” (Sbordone, 1996, p 16). Recently, Franzen and Wilhelm (1996) proposed a methodological framework by which the ecological validity of neuropsychological tests could be evaluated. They argue that ecological validity encompasses two general aspects. The first is verisimilitude, which refers to the similarity of the data collection method to skills required in the open environment. The second is veridicality, defined as the extent to which test results reflect or can predict phenomena in the real world. They perceive verisimilitude to be most important in the design of neuropsychological tests, whilst veridicality is important once a test is designed. The evaluation of veridicality involves an examination of the relationship between scores from a neuropsychological instrument and scores on instruments that are reliable and valid measures of behaviour in a free environment. They propose that in order to investigate veridicality the
statistical design should be correlational, whereby the goal is to identify tests that have shared variance with behavioural tasks. Fundamentally though, they argue that the methodological rigour of any investigation of veridicality essentially depends upon the quality of the criterion measures.

1.3: Outcome Criterion Measures in studies of Ecological Validity

Goldstein (1996) criticises studies that have used discrete categories such as employment or driving as criteria to evaluate ecological validity, arguing that “these measures are not at all refined, and one might wish to know more about functioning after giving a lengthy battery of neuropsychological tests” (Goldstein, 1996, p.82). Goldstein points out that using standardised global measures of functioning enables different studies to be compared with each other, thus facilitating better evaluation of the ecological validity of neurological tests. Nevertheless, not all standardised global functioning questionnaires are suitable as criterion measures. Goldstein suggests that good criteria measures should meet the definitions set out in the International Classification of Impairment, Disability and Handicap (ICIDH) developed by the World Health Organization (WHO, 1980).

The ICIDH model proposes that when an illness, disorder or injury disrupts an ability, it is referred to as an ‘impairment’. That impairment may produce a functional deficit, which is called a ‘disability’. A disability may prevent a person from performing certain functions in society, thus this would be deemed a ‘handicap’. For example; “an aphasia (impairment) may prevent an individual from conversing on the telephone (disability), leading to not being able to work as a telephone operator (handicap)” (Goldstein, 1996, 78). Goldstein argues that ecological validity is essentially concerned with the relationship of impairment to disability or handicap. Certainly, it cannot be disputed that anticipating and treating the consequences of disability is currently the central focus in neurorehabilitation settings (cf. Hayden, Moreault, LeBlanc, & Plenger, 2000).

Several outcome evaluation measures have been developed to assess the ICIDH constructs, and some of these have been used to explore the ecological validity of neuropsychological tests. Of particular interest is the Disability-Rating-Scale (DRS), which taps the ICIDH concept of disability (Rappaport, Hall, Hopkins, & Bellezza, 1982). This scale was specifically designed to assess functional outcome in brain-injured populations after post-acute rehabilitation, and has
been demonstrated to be a sensitive measure (Ashley, Persel, & Clark, 1997). Furthermore, the DRS has been used in a number of empirical studies investigating ecological validity of neuropsychological tests (Acker, 1986; Doig, Fleming, & Tooth, 2001; Hanks, 1996; Neese et al., 2000). Despite its abundant use, the DRS has come under criticism recently for not providing a comprehensive assessment of outcome after brain-injury (Doig et al., 2001). The consequence of this is that a ceiling effect occurs because there is less opportunity for patients with high DRS scores to change (Lehmkuhl, Hall, Mann, & Gordon, 1993).

Another important outcome measure is the Community-Integration-Questionnaire (CIQ), which was designed to tap the ICIDH construct of handicap in patients with ABI (Willer, Ottenbacher, & Coad, 1994). The CIQ was specifically developed to assess participation in community activities after rehabilitation. Even though there are a few other measures that have been developed to assess handicap (Boake & High, 1996; Powell, Beckers, & Greenwood, 1998) the CIQ has been used most frequently, and there is a wealth of research supporting its validity and reliability (Bryant, Marosszeky, Crooks, Baguley, & Gurka, 2001; Corrigan, & Deming, 1995; Cusick, Gerhart, & Mellick, 2000; Kaplan, 2001; Dijkers, 1997; Sander et al., 1999; Tepper, Beatty, & DeJong, 1996; Willer, Rosenthal, Kreutzer, Gordon, & Rempel, 1993). Of greater relevance though, is the fact that the CIQ has been employed in a number of studies investigating the ecological validity of neuropsychological tests (Colantonio, Ratcliff, Chase, & Escobar, 2000; Doig et al., 2001; Hanks, 1996; Odhuba et al., 2000).

The extensive body of research regarding the CIQ does not come without some criticisms. For instance, the CIQ has been found to have ceiling effects (Doninger et al., 2003; Hall et al., 1996), and cannot distinguish between participants who achieve low scores because they choose not to perform activities, and those who are not competent performing activities (Willer, Linn, & Allen, 1994). One outcome measure that overcomes these criticisms is the Social-Functioning-Scale (SFS; Birchwood, Smith, Cochrane, Wetton, & Copestake, 1990). This tool was also constructed to measure community integration and its design was informed by the ICIDH; although it claims to measures both handicap and disability. The SFS is unique in that it distinguishes lack of competence from lack of performance, which is what the CIQ fails to do.

However, the SFS was developed and validated for use with schizophrenic patients. The authors argue that it may be suitable for use with other populations, although it has never been validated
with any (Birchwood, et al., 1990). It is likely that the SFS would be suitable with a brain-injured population because the scale specifically assesses social dysfunction caused by impaired interpersonal functioning, which is well documented as a consequence of brain-injury, especially frontal-lobe damage (Brooks, 1984; Donnelly, Donnelly, & Grohman, 2000; Levin, Eisenberg, & Benton, 1991; Levin, Grafman, & Eisenberg, 1987; Stuss & Benton, 1986; Stuss & Knight, 2002).

While these various outcome measures were being developed the WHO were revising their model, due to criticisms from people with disabilities who felt that the model was too medicalized and subsequently pathologized them (Bickenbach, Chatterji, Badley, & Ustun, 1999). In 2001 the International Classification of Functioning, disability and health (ICF) was published (WHO, 2001). The new model is a synthesis of medical and social approaches to disablement, and as such embodies the biopsychosocial model.

According to the ICF, disablement is a variation of human functioning, and human functioning occurs at three levels: ‘body functions and structures’, which refers to the physiological functions and anatomical structures of the body; ‘activities’ which refers to the range of tasks or actions a person can execute, and ‘participation’, which is used to identify the extent of a person’s involvement in basic areas of human life. Thus, when a disablement occurs at the level of body functions and structures it is referred to as ‘impairment’, while if it occurs at the level of activity or participation it is called ‘activity limitation’ or ‘participation restriction’. Essentially, ‘activity limitation’ maps onto what was referred to as ‘disability’ in the ICIDH model. Similarly the concept of ‘impairment’ is unchanged. In contrast, the ‘participation restriction’ classification is argued to have broadened the range of disablement compared to the original handicap classification. This is because the concept of ‘participation’ encompasses all areas of human life, from the mundane, such as looking after one’s appearance, to the highest forms of social participation, like spiritual and political involvement; whereas ‘handicap’ only refers to the negative social consequences of being a person with impairment.

It is proposed that the ICF can be used for research purposes and in clinical practice, and it is envisaged that it will be used in conjunction with the International Classification of Disease and related health problems (ICD-10; WHO, 1992). The ICF is published in two forms, the complete framework, and a short-form checklist. Since its inception the ICF model has become an essential
framework for neurorehabilitation (Geyh, Cieza, Catterji et al., 2003), although as of yet no neurorehabilitation outcome measures have been developed using it. However, the WHO has developed an assessment measure based upon the ICF model that can be used generically in any health setting. They call this tool the World Health Organization’s Disability Assessment Schedule II (WHODAS-II; WHO, 2000b).

The WHODAS-II was developed “to level the playing field for all disorders” thus it treats all disorders as equal when determining level of functioning (Epping-Jordan, & Ustun, 2000, p6). The WHODAS-II achieves this by assessing functioning/disability at the individual level instead of the disorder-specific level. So far the WHODAS-II has been subjected to rigorous and extensive psychometric testing in twenty-one field trials across fourteen countries, all of which have reported good reliability and validity (Epping-Jordan, & Ustun, 2000). Nevertheless, the validity of the WHODAS-II with brain-injured populations is currently unknown.

Recently, reports have begun to emerge in the literature of studies that are beginning to look at the ICF with brain-injured populations (Bocker, Gauggel, Zimmermann, Privou, & Lutz, 2003; Geyh, Cieza, Kostanjek, Ewert, & Stucki, 2003). One study is currently working on developing a core-set of ICF domains relevant to most stroke patients (Geyh, Cieza, Catterji et al., 2003). Their aim is to develop a tool that can be used in neuropsychological rehabilitation to meet the emerging need for multi-level assessment that considers cognitive deficits as well as everyday activities. This study’s aim appears to be contrary to the philosophy of the ICF as a generic assessment tool, but they argued that short-lists of the ICF domains for stroke patients will facilitate cost-effective clinical practice. However, it is well known that it is the type of cognitive impairment which dictates rehabilitation outcome, rather than the neurological condition per se (Bennett, 2001; Grogan, Barker-Collo, & McCarthy, 2003; Jonhnstone & Stonnington, 2001). Therefore, it might be more useful to develop short-lists of ICF items for specific cognitive deficits, rather than neurological diagnoses.

---

1 The WHODAS-II is a revised version of a tool that was developed alongside the ICIDH model for assessing disturbances in social adjustment and behaviour in patients with mental disorders.
1.4: Executive-function: definition and historical development of the term

One area of cognitive function that is known to have a strong mediating role in rehabilitation outcome is executive-functioning (Alderman & Burgess, 1994; Alderman, Fry, & Youngson, 1995; Burgess & Wood, 1990; Thomsen, 1987; Von Cramon & Von Cramon, 1994). The term executive-function is used to describe a range of cognitive processes which "enable a person to engage successfully in independent, purposive, self-serving behaviour" (Lezak, 1995, p42). Goldman-Rakic (1993) defined executive-functioning processes as higher-order abilities including: planning, organization, goal formation, self-regulation, cognitive estimation, set maintenance, initiation, disinhibition, flexibility, working memory, and supervisory attention. However, it is argued that these cognitive processes are poorly defined (Burgess, 1997; Hanks, 1996). For example, Stuss and Benson (1984) discuss cognitive flexibility as a unitary function, whereas Eslinger and Grattan (1993) propose a distinction between spontaneous cognitive flexibility and reactive cognitive flexibility. Clearly, the definition of executive-function is a contentious issue, but inconsistencies are also to be expected, given that our knowledge of executive-function has emerged over years of exploration and is still not fully understood (Baddeley, 1998; Hanks, 1996; Parkin, 1998; Rabbit, 1997).

Relationship to the frontal-lobes

Historically, executive-functions have been linked to the frontal-lobes since the observation of the well known case of Phineas Gage (Harlow, 1868 cited in Kolb & Whishaw, 1998). The behavioural symptomology that ensued from his focal frontal-lobe damage became known as the 'frontal-lobe syndrome' and was characterised by intact intellectual, language and sensorimotor skills, but significant alterations in personality and purposeful behaviour. Early observations of frontal dysfunction in patients with brain-injury identified a diverse spectrum of personality changes, including such factors as aggression, impulsivity, euphoria, disinhibition and apathy (Campbell, 1909; Feuchtwanger, 1923; Jastrowitz, 1988; Oppenheim, 1890; Zacher, 1901; Quensel, 1914 cited in Levin et al., 1991). However, the concept of a frontal-lobe syndrome began to be questioned following a series of case studies that demonstrated dissociation between frontal-lobe damage and the frontal-lobe syndrome (Eslinger & Damasio, 1985; Goldstein,
Due to the ambiguity surrounding the relationship between frontal-behaviours and frontal-lobe damage, Baddeley and Wilson (1988) argued that it was misleading to continue to refer to such behaviours as the frontal-lobe syndrome. Wilson and her colleagues (1996) point out that:

We [neuropsychologists] do not classify memory, language, reading or perceptual deficits in this way as it would be inadequate and limit our understanding of the observed phenomena. Similarly, a functional definition seems more appropriate to the deficits arising from frontal-lobe damage.

(Wilson, Alderman, Burgess, Emslie & Evans, 1996, p4).

Baddeley (1986) coined the term ‘dysexecutive syndrome’ as a functional characterisation of frontal-behaviours, and since its conception it has been used synonymously with the term ‘frontal-lobe syndrome’ (Burgess, 1997; Wilson, Evans, Emslie, Alderman, & Burgess, 1998).

Counter lateral to Baddeley’s shift away from neuroanatomic models, recent developments in neuroradiological imaging techniques have led to increased knowledge about the cytoarchitecture of the frontal-lobes. It is now known that they consist of a multitude of interconnections that allow communication with most other areas of the brain (Malloy, Cohen and Jenkins, 1998). Central to these connections is a series of parallel frontal-subcortical circuits that link regions of the frontal-lobes to subcortical structures (Cummings, 1993). There are five key circuits, three of which originate in the prefrontal cortex, which is the area believed to have a regulatory role over other brain structures. Each prefrontal circuit has a signature behavioural syndrome. Executive-function deficits generally occur with lesions of the dorsolateral prefrontal cortex (Cummings, 1993; Malloy, Cohen and Jenkins, 1998).

In view of the fact that the prefrontal cortex has so many connections with other areas of the brain, it is now widely accepted that most of the behavioural manifestations observed following frontal-lobe damage are a result of severed connections, rather than the anatomic system responsible for such behaviour being located within the prefrontal region (Benson, 1993). Cummings (1993) argues that interpreting these frontal-subcortical circuits as a unifying framework explains the dissociations observed between frontal-lobe damage and dysexecutive
symptomology. Yet, at the same time, we do not fully understand the mechanisms behind which the prefrontal cortex controls subcortical areas, or which executive processes are impaired in order to cause the dysexecutive syndrome.

1.5: Theories of executive-function:

Within the theoretical literature it has been postulated for some time that the frontal-lobes are involved in the control of cognitive processes (Zhu, 1989). This control function is hypothesized to direct behaviour, and therefore has been termed 'executive' (Baddeley, Della Sala, Papagno and Spinner, 1997; Hebb, 1945; Luria, 1966; Milner, 1964; Teuber, 1964). As Baddeley explains: “rather than performing cognitive operations, such as memorizing, learning, and reasoning, the frontal regions are concerned with the deployment of such capabilities, which are carried out elsewhere in the brain. Therefore, the role of the frontal-lobes is regarded as supervisory” (Baddeley et al, 1997, p.187). Baddeley uses the word ‘supervisory’ intentionally to denote Shallice and Burgess’ (1996) model of the Supervisory Attentional System (SAS), which proposes that dysexecutive symptoms can be described as an impairment in attentional control.

The Supervisory Attentional System

Shallice and his colleagues have developed a multilevel model of cognitive functioning, which proposes that high-level processes such as executive-functions modulate a system that is concerned with the routine control of basic motor and cognitive operations (Norman & Shallice, 1980; 2002; Shallice & Burgess, 1991a/b;1996). These routine cognitive skills are generally regarded as those that have been over-learned by practice or repetition, and can include anything from reading to semantic memory (Burgess, 1997). They call this system ‘contention scheduling’. However, since no two situations are exactly the same, most real-life situations require some adaptation of these skills, and the system responsible for modulating them is called the Supervisory Attentional System (SAS). It is the SAS that is deemed responsible for the control of higher-level processes that enable thoughts and actions to be generated in non-routine and novel situations.

Shallice’s (2002) most recent work has focused on trying to specify the component processes of the SAS in an attempt to understand how they operate. Research in this area has led to the
hypothesis that the executive-function system is fractionable (Burgess, 1997; Shallice, 2002). Evidence has come from three different sources. Firstly, patients with dysexecutive impairment notoriously present with idiosyncratic sequelae which would not be expected if damage had occurred to a system-wide control process (Burgess, 1997; Burgess, Baxter, Rose, & Alderman, 1996; Kopelman, 1995). Secondly, neuroimaging studies have shown that separate executive processes occur in different regions of the frontal cortex (Shallice, 2002; Shallice, et al., 1994; Tulving, Markowitsch, Craik, Habib, & Houle, 1996). Thirdly, there is variable congruence between tests of executive-functioning, which suggests that different tests may tap different executive processes (Burgess & Shallice, 1996a; Kopelman, 1991; Shoqerat, Mayes, MacDonald, Meudell, & Pickering, 1990; Wilson et al., 1996). This assumption has been confirmed through the development of the Hayling-and-Brixton-Test, which demonstrates that response-initiation and suppression-processes are dissociated (Burgess, 1997; Burgess & Shallice, 1996b).

The Working Memory Model:
Another advocate of the fractionation of the executive-functioning system is Baddeley (1998; 2003). He believes that the SAS is analogous to the ‘central executive’ component of his working memory model. The central executive is responsible for attentional control of working memory and achieves this control by coordinating the operation of two subsidiary slave systems, the phonological loop which deals with speech based information, and the sketchpad which is concerned with visuospatial information (Baddeley & Hitch, 1974). On the basis of this model Baddeley hypothesized that a defective executive system would have difficulty coordinating the simultaneous operation of these two systems, which he successfully demonstrated to be true in a series of studies (Baddeley, Logie, Bressi, Della Sala, & Spinner, 1986; 1991; Della Sala, Baddeley, Papagno, & Spinner, 1995; Greene, Hodges & Baddeley, 1995). Furthermore, he found that dual-task performance was a better predictor of dysexecutive behaviours than the WCST and Verbal-Fluency measures (Alderman, 1996; Hartman, Pickering & Wilson, 1992). Having confirmed that dual-task management is one executive process controlled by the central executive, Baddeley postulated further potentially separable executive processes (Baddeley & Della Sala, 1998). For example, he suggested that selective attention, switching attention and manipulating information may all be separate processes.

Clearly, there is growing evidence that executive processes are fractionated, as Shallice (2002) has highlighted. However, Baddeley (2002; 2003) has recently proposed that it is incorrect to
assume that the fractionation of the executive system only applies to attentional processes. He came to this conclusion following his observation of a series of frontal amnesic patients who had good initial recall but no delayed recall. This led him to postulate the existence of an episodic buffer, which is responsible for binding together information that is attentionally demanding (Baddeley, 2003). Thus, Baddeley proposes that the control of thoughts and actions operates at many different levels and is mediated by multiple executive systems. He argues that such systems are unlikely to map in a simple way onto an anatomical structure such as the frontal-lobes, but he accepts that the frontal-lobes play an important role in integrating information from many other areas of the brain. Therefore he suggests that research using a functional or anatomical approach should continue to develop synergistically “using an increasing sophisticated armoury of new psychological and neurobiological techniques” (Baddeley, 2002; p258).

1.6: Assessment of Executive Function:

Executive function is difficult to measure because it is so complicated to define. Burgess (1997) argues that the real problem is that the term still has no operational definition, only a theoretical one. Nevertheless, a few assessment instruments are available to clinicians which have been demonstrated to be reliable and valid measures of executive function (cf. Groth-Marnat, 2000a; Lezak, 1995). Most of these measures were developed prior to the revolution of research in neuropsychology, cognitive psychology and neuroscience (Delis, Kaplan, & Krammer, 2001a). This means that they have been unable to benefit from the extensive knowledge about executive-functioning that is now available. For instance, it is now known that most measures of executive-functioning require several higher-level cognitive abilities for successful performance, and also tap a range of incidental processes (Burgess, 1997; Delis et al., 2001a; Delis, Squire, Bihrlle & Massman, 1992). Most traditional tests of executive-functioning cannot be analysed in terms of the components of cognition. Consequently, when patients perform poorly, the nature of their impairment is often unclear (Delis et al., 1992).

One test that claims to provide multiple measures of component abilities is The WCST. This test has been described as the “gold standard” in measures of executive-functioning and is arguably the most well known and utilized test to date (Hodges, 1994; Delis et al., 2001a; Goldberg & Podelol, 2000). The test measures concept formation and evaluates a person’s ability to ‘shift
cognitive-set' and avoid perseverative responding (Anderson, Damasio, Jones, & Tranel, 1991; Heaton, 1981; Hodges, 1994; Kibby, Scmitter-Edgecombe, & Long, 1998). In addition, it is sensitive to problems with planning ability, problem-solving, working memory and abstract reasoning (Hanks, 1996). A copious amount of research has demonstrated that the WCST is a valid and reliable measure of frontal-lobe damage, which accounts for its popularity (Drewe, 1974; Heaton, 1981; Milner, 1963; Settlage, Zable, & Harlow, 1948; Zable & Harlow, 1946 cited in Anderson et al., 1991). However, more recently Anderson and his colleagues (1991) found no significant difference in WCST performance between participants with and without frontal-lobe damage.

Wilson and her colleagues (1993; 1996; 1998) have also questioned the validity of the WCST through their finding that some patients with dysexecutive symptomology do well on a range of widely used measures of executive functioning including the WCST, the Trail-Making-Test (TMT), Verbal-Fluency measures (cf. Lezak, 1993), and the Stroop (Stroop, 1935). Wilson argues that the main problem with these traditional measures of executive function, is that they were developed without due consideration to ecological validity. This prompted Wilson and her colleagues to design the Behavioural Assessment of the Dysexecutive Syndrome (BADS), a test battery aimed at predicting everyday problems arising from the Dysexecutive Syndrome (Wilson et al., 1996). The test consists of six tasks analogous to those required in everyday life that involve executive-functioning. The complete battery has been found to have good validity and reliability, including ecological validity (Wilson et al., 1996; 1998).

In order to assess the ecological validity of the BADS, Wilson and her colleagues developed a questionnaire for patients, relatives and carers, as a validation measure. They called this measure the Dysexecutive Questionnaire (DEX; Burgess, Alderman, Wilson, Evans, & Emslie, 1996). The DEX was developed in accordance with the common symptoms of frontal-lobe damage classified by Stuss and Benson (1984, 1986). Since its development it has been found to be a sensitive and ecologically valid questionnaire for tapping dysexecutive symptoms (Burgess, Alderman, Evans, Emslie, & Wilson, 1998; Wilson et al., 1996). There are a number of advantages to the DEX. Firstly, it is one of the very few questionnaires that has been specifically designed to assess everyday problems associated with the dysexecutive syndrome. Secondly, it gives a comprehensive picture of commonly reported symptoms that are described in layman’s terms. Finally, the DEX has two versions, a self-reported (DEX) and informant-reported questionnaire.
(DEX-R). However, as part of the symptomology of the dysexecutive syndrome patients frequently suffer from poor insight into their condition, thus the DEX-R is considered to be a more reliable measure than the DEX (Burgess et al., 1998; Norris & Tate, 2000; Wilson et al., 1996; 1998). Wilson and her colleagues’ investigation of the BADS ecological validity, found that the DEX-R correlated moderately \( (r = .3 \text{ to } .4) \) with each of the six tasks of the BADS, and highly \( (r = .6) \) with the total profile score.

1.7: Ecological validity of tests of executive-function:

While the verisimilitude of measures of executive-function is obviously important, it is argued that “most clinical neuropsychologists wish to keep their tried and true assessment batteries...the idea of altering the tests is unpalatable. Such clinicians would prefer to see prediction studies...show that their tests predict everyday skills” (Williams, 1996, p141). For a neuropsychologist, the choice to commit time to exploring a new test has to be made against a backdrop of the demands of a fast-pace service whereby quick and concise assessments and conclusions are required (cf. Groth-Marnat, 2000b; Holland, 1998). Furthermore, it often requires a considerable amount of time to become acquainted with a new test well enough to be confident about the conclusions that can be drawn from its use in clinical practice (cf. Bennett, 2001). Considering these factors it is not surprising that so many neuropsychologists express the above opinion. Consequently, the veridicality of tests of executive-function is seen as especially important (Johnstone & Stonninington, 2001; Ready, Stierman, & Paulsen, 2001; Sbordone, 2000).

Neuropsychologists’ desire for research regarding the veridicality of tests of executive-function is largely driven by the huge burden of care these patients create upon services (cf. Ponsford, 1995; Wood et al., 1999). Recent research has shown that executive dysfunction is the most frequently reported problem following Traumatic Brain Injury (TBI) (Donnelly et al., 2000). The longevity of dysexecutive symptoms, and the burden they create for both families and services, was demonstrated by Lezak (1987) in a five-year follow-up study of 42 adults who had sustained a TBI. She concluded that the most significant residual impairments found in these patients were due to their impaired executive-functions. Furthermore, executive impairment has been found to be one of the most reliable correlates of unemployment in brain-injured populations (Crepeau & Scherzer, 1993), and it accounts for up to 90% of the failures in vocational rehabilitation.
Consequently, it is not surprising that executive impairment frequently produces chronic social-disability (Johnstone & Stonnington, 2001; Oddy, Coughlan, Tyerman, & Jenkins, 1985).

Pitched against this growing need for predicting outcome is the wealth of evidence from case studies, indicating that traditional measures of executive dysfunction often fail to reflect the severity of patients’ disability in everyday functioning (Cripe, 1996; Damasio & Anderson, 1993; Sandson, Daffner, Carvalho, 1991). Despite the obvious importance of having ecologically valid tests of executive-functioning, research exploring the subject is only in its infancy. In fact, Sbordone (2000) concluded from his recent review of the literature that although “a wide variety of neuropsychological tests have been utilized to assess the patient’s executive-functions, there has been little systematic research on the ecological validity of these measures” (Sbordone, 2000, p450).

Two of the earliest studies of relevance looked at the ecological validity of neuropsychological tests in relation to everyday executive behaviours. One study explored the relationship between neuropsychological tests and vocational disability in patients with frontal-orbital brain-damage, but found that the two were not correlated (Varney, 1988). The second study compared everyday measures of utilization behaviour, which is the tendency to pick up and use objects when they are presented, with neuropsychological test performance, and also found that there was no correlation (Lhermitte, Pillon, and Serdaru, 1986; Lhermitte, 1986).

Most of the more promising research findings initially came from studies investigating rehabilitation outcome following ABI, in particular the prediction of return to work. For instance, in 1978 Newnan, Heaton and Lehman found that the Category-Test was able to discriminate between employed and chronically unemployed people with ABI, and predict average wages earned on the job. The Category-Test has also been found to be predictive of return to work in people with epilepsy (Dikmen & Morgan, 1980). One criticism of these studies is that they have failed to look at peoples’ actual performance in the job. This is particularly important given that 32% of patients with ABI who return to work will be unemployed within five years (Olver, Pondsford, Curran, 1996).
A number of more recent studies have addressed this issue of job performance, and found that results vary according to the executive test that is used. The category-Test predicted general activity impairment but did not predict work related behaviour (Bowman, 1996), while the Trail-Making-Test did predict work related behaviour (Bowman, 1996; Ready et al., 2001). In contrast, Kibby, Schmitter-Edgecombe, and Long (1998) found that perseverative responses on the WCST predicted occupational status but not job performance. Furthermore, in a seven-year follow-up study, whereby neuropsychological test performance was used to categorize people into mild, moderate and severe impairment, executive tests were found to be particularly poor at predicting work related outcome (Possl, Jurgensmeyer, karlbauer, wenz, & Goldnberg, 2001).

In addition to vocational factors, the ecological validity of executive measures has been demonstrated in terms of their relationship with driving ability (Acker, 1986; Sivak, Olson, Kewmann, Won, & Henson, 1981), academic achievement (Acker, 1986; Bayless, Varney, & Roberts, 1989; Cicerone & De Luca, 1990) complex ideation skills and self-regulation (Acker, 1986). Clearly, these early results are quite diverse and somewhat varied depending upon the particular test that was used. Essentially, these results serve to reiterate the importance of investigating the ecological validity of each individual test of executive-functioning.

Another source of information regarding the ecological validity of executive tests is research that has investigated batteries of neuropsychological tests and included a measure of executive-function (Bowman, 1996; Colantonio, Ratcliff, Chase, & Escobar, 2000; Farmer & Eakman, 1995; Neese et al., 2000; Ross, Millis, & Rosenthal, 1997). One of the most common tests to have been explored in these studies is the Trail-Making-Test (TMT). The TMT has been found to correlate moderately ($r = .5$) with disability as assessed by the DRS (Acker, 1986; Hanks, 1996), community integration as assessed by the CIQ ($r = .4$) (Hanks, 1996), and with a range of activities of daily living, such as using a chequebook, preparing a meal and map reading ($r = .3-.5$) (Farmer & Eakman, 1995). However, the TMT did not correlate with the DEX symptoms (Norris & Tate, 2000). Research employing factor analysis has revealed that the TMT is predictive of a number of outcome variables including: employment, permanent impairment (Bowman, 1996), disability (Neese, Caroselli, Klaas, High, Becker, & Scheibel, 2000), psychosocial adaptation (Ross, Millis, & Rosenthal, 1997), and community integration (Colantonio, Ratcliff, Chase, & Escobar, 2000). On the surface it looks as though there is considerable support for the conclusion that the TMT is ecologically valid. However, it is difficult
to know the true value of the test as a predictor of everyday functioning, because most of the studies have analysed it in conjunction with a series of other neuropsychological measures. Thus no data is available on the unique variance the TMT accounts for.

A few studies have included the WCST in their batteries, but not all of these studies have provided individual statistics for the WCST (Hanks, 1996; Hodges, 1994; Kibby, Schmitter-Edgecombe, & Long, 1998). For instance, Neese and her colleagues (2000) used the WCST and the TMT to assess executive-functioning and found that jointly they correlated significantly (r = .23) with TBI patients’ level of disability as assessed by the DRS. On the other hand, Hanks (1996) reported individual statistics for the WCST, and found that there were low to moderate significant correlations between the WCST and the DRS (r = .3) and the participants’ level of community integration as measured by the CIQ (r = .2). In contrast, Martzke, Swan and Varney (1991) found that there was no relationship between head-injured patients’ performance on the WCST and the severity of their dysexecutive psychosocial symptoms as reported by their first-degree relatives. In fact, all twenty patients in their sample scored above the cut-off point despite displaying many serious maladaptive behaviours. Similarly, Norris and Tate (2000) found that the WCST was not correlated with the DEX. However, the WCST has been found to be ecologically valid for predicting ADL performance (Little, Templer, Persel, & Ashley, 1996).

Various criticisms have been vocalised as explicates for the variability in the research findings to date, mostly relating to methodological issues (Rabbit, 1997; Sbordone & Long, 1996). Primarily it is argued that much of the research “has been limited by focusing on associations between neuropsychological measures and a narrow range of behavioural and functional outcomes such as vocational and academic criteria” (Ready, Stierman, & Paulsen, 2001). This criticism is largely based upon the evidence that the dysexecutive syndrome may be fractionable (Damasio, 1996; Duncan, Burgess, Emslie, 1995; Robbins, 1996; Stuss, Shallice, Alexander, & Picton, 1995). Burgess and his colleagues (1998) point out that if the executive system consists of a number of different processes they could be variously impaired in any patient, and each process may have its own behavioural and cognitive sequelae. Presuming this is the case, Burgess et al. argue that it is not appropriate to estimate the ecological validity of an executive test using a single criterion variable, such as vocational functioning. Rather they propose that “it would seem sensible to gain measures of behaviour in a wide range of situations where dysexecutive patients have problems, and consider not only how performance on a given test relates to overall severity
of deficit but also how it may relate to subgroups of symptoms” (Burgess et al., 1998, p.548). However, introducing multiple measures of functioning also raises the possibility of detecting spurious correlations that reflect the tests sensitivity to general impairment rather than specificity to executive impairment (Burgess et al., 1998).

Burgess and his colleagues (1998) addressed the issues they raised in what has been argued to be “the most comprehensive study of ecological validity of executive-function measures” to date (Ready, Stierman, & Paulsen, 2001, p.315). They investigated the associations between six well-established neuropsychological tests of executive-function and self and informant reports of dysexecutive symptoms as measured by the DEX. The sample consisted of 92 neurological patients and 216 controls. Participants were assessed on the modified WCST (MWCST), the Cognitive-Estimates-Test, Verbal-Fluency for words and Animals, TMT, and the Simplified Six-Elements-Test. The results indicated that all of the executive tests, with the exception of the Cognitive-Estimates-Test, were significantly correlated with informant-reported DEX symptoms (r = .3 to .4). Furthermore, these correlations appeared to be due to the tests’ detection of executive impairment rather than their sensitivity to general neurological dysfunction. This conclusion was based upon evidence that the pattern of relationships between the tests and the DEX symptoms scores did not follow that of test sensitivity. For example, the MWCST was the most sensitive measure of neurological pathology but it was not the best predictor of everyday dysexecutive problems. In contrast, other tests that had poor sensitivity were better predictors of everyday dysexecutive problems.

Burgess et al. also conducted a factor analysis of patients’ dysexecutive symptoms as measured by the DEX. Five factors were identified in total, namely: ‘inhibition’, ‘intentionality’, ‘executive memory’ and two factors that related to emotional and personality changes which they called ‘positive’ and ‘negative’ affect. As they predicted, different executive tests loaded onto different factors. All of the tests except the MWCST were related to factor one, ‘inhibition’. Only the Six-Elements-Test related to factor two, while only the MWCST and Verbal-Fluency measures related to factor three ‘executive memory’. None of the tests related to factors four or five.

Interpretation of these results is confusing. While most of the tests relate to the appropriate factors, for instance, the Six-Elements-Test related to intentionality, other tests did not relate to the expected factors. For example, factor one - inhibition, refers to “the ability to suppress a
habitual response”. Impulsivity and disinhibition are seen as the behavioural consequences of problems with this skill, yet the MWCST did not load onto this factor (Burgess et al., 1998, p554). Similarly, the MWCST did not load onto factor two, intentionality, which refers to “the creation and maintenance of goal-related behaviour” (Burgess et al., 1998, p555). Clearly on the basis of what the WCST claims to measure, it is striking that it does not relate to these two factors. It does relate to factor three ‘executive memory’, which is defined as “confabulation and inability to recall the correct order of events” (Burgess et al., 1998, p555). However, executive memory was also linked to perseverative errors reported by informants, which most probably accounts for the relationship with the MWCST. These findings have recently been supported by research exploring the fractionation of the Dysexecutive Syndrome in a non-clinical sample of 93 people using the DEX (Chan, 2001). Using factor analysis this study confirmed that ‘inhibition’, and ‘intentionality’ were fractionated executive processes in normal controls.

In contrast to the fractionation debate, Goldberg and Podell (2000) have proposed an alternative explanation for the poor ecological validity of traditional tests of executive-function. They argue that most current measures of executive-functioning are concerned with various aspects of veridical decision-making rather than adaptive decision-making, the latter being required more in real-life decision-making. Veridical decision-making occurs when “the determination of what is ‘correct’ and what is incorrect is inherent in the experimental situation...and does not require any knowledge of the organism making the choice” (Goldberg & Podell, 2000, p57). For example, deciding which coat is made of warmer fabric would be a veridical decision. Goldberg and Podell (2000) argue that in real-life veridical decision-making is subordinate to adaptive decision-making, which “involves ranking and scaling the organism’s various priorities in relationship to the parameters of the external situation” (Goldberg & Podell, 2000, p57). In other words, real-life situations that require someone to make a choice are usually ambiguous, and it is up to the individual to make the choice.

Goldberg and Podell have developed a test they propose is sensitive to adaptive decision-making, called the Cognitive-Bias-Task (CBT). This test asks participants to select one of two cards on the basis of which one “they like best”. The two cards are presented with a stimulus card that inherently matches one of the two cards. Participants who randomly select cards, rather than according to a strategy (such as cards that are similar or cards that are different) are significantly more likely to have frontal-lobe lesions. Goldberg and Podell (2000) point out that the CBT is still
an exploratory technique but they argue that "the development of new...preference-based paradigms tapping into adaptive, non-veridical cognitive processes will enhance our ability to detect deficits associated with prefrontal dysfunction and help improve the ecological validity of assessing executive control functions" (Goldberg & Podell, 2000, p68). One published test that can be seen to increase adaptive decision-making is the Delis-Kaplan Executive-Function-System Sorting-Test (D-KEFS-ST), which will be discussed in more detail below (cf. Delis et al., 2001a).

1.8: Delis-Kaplan Executive-function System:

Recently Delis et al. (2001a) published a promising new battery of standardised tests for comprehensively assessing the component processes of executive-functioning. They called this tool the Delis-Kaplan Executive-function System (D-KEFS), and they claim that it offers the "first nationally normed set of tests designed exclusively for the assessment of executive-functions" (Delis et al., 2001a, p1). The test took over ten years to develop. One of the main objectives was to incorporate the principles and procedures from the extensive body of knowledge regarding executive processes into a new set of tests. Another objective was to enable psychologists to assess the multifactorial domains of executive-function in a comprehensive manner. Fundamentally they wanted to develop rigorous empirical means for determining whether poor performance is due to deficits in fundamental cognitive skills or higher-level executive-functions. The final objective was to increase the tests sensitivity to mild brain-damage.

Following three pilot studies, the final version of the test managed to achieve all of the tests objectives. In addition, the test boasts excellent validity and reliability and a normative sample of over 1,700 children and adults, aged between eight and eighty-nine years (Delis et al., 2001a; 2001b). Furthermore, the sample was carefully selected to match the demographic characteristics of the United States population. The D-KEFS consists of nine tests that measure a wide spectrum of verbal and non-verbal executive-functions. The origin of these tests can be subdivided into two types: firstly, seven of the D-KEFS tests are modified versions of either well-established clinical instruments, or experimental tasks, namely the TMT, Verbal and Design-Fluency, Twenty-Questions-Test, Colour-Word-Interference-Test, and the Tower-Test; The second group of tests were newly developed by the authors, and consist of the Word-Context-Test and the Sorting-Test.
The D-KEFS Sorting-Test (D-KEFS-ST) was especially designed to isolate and measure specific components of problem-solving, and was formally called the California-Card-Sorting-Test (Delis et al., 1992). The D-KEFS-ST is of particular interest for a number of reasons, primary though, because it is extremely innovative and offers a number of advantages over other measures of executive-functioning. For instance, this test offers the most comprehensive measure of concept-formation and problem-solving to date (Delis et al., 2001a). This is because it measures several key component processes including: initiation of problem-solving behaviour, verbal and non-verbal concept-formation skills, transfer of concepts into action, abstract expression of concept relationships, flexibility of thinking, and flexibility of behavioural responses. Even though the WCST provides separate measures, for instance on ‘correct sorts’, and ‘perseverations’, the component processes underlying these scores cannot be detected. For example, a poor score on the sorting measure can reflect deficits in several abilities, such as identifying new sorting principles, or failure to benefit from feedback, but these abilities are not specifically measured (Delis et al, 1992). Furthermore, on the WCST, ‘correct sorts’ is so highly and negatively correlated with ‘perseverative’ responding that it is doubtful that these measures are independent (Beatty & Monson, 1990; 1996).

The D-KEFS-ST is innovative because it is the first test to measure initiation of problem-solving behaviour. It is also superior to the WCST at detecting subtle executive-function deficits, because it has raised the processing demand placed on participants (Delis et al., 2001a). On the D-KEFS-ST the examinee is required to identify a maximum of 16 different conceptual rules verses only three in the WCST. A third benefit of the D-KEFS-ST is that it has higher ceiling and lower floor effects than the WCST. This has been achieved by ensuring that the means of assessing a patient’s ability to identify sorting principles varies in difficulty, from more obvious, common concepts (e.g. large/ small cards) to more subtle, uncommon concepts (e.g. concave/ convex curves on the card edges). Thus, this range of difficulty helps minimize floor effects for patients with severe brain-damage, whilst also decreasing ceiling effects for individuals with high premorbid IQs (Delis et al., 2001a).

A fourth advantage of the D-KEFS-ST over the WCST is its game-like format. Unlike the WCST which employs right/wrong feedback after every response, the D-KEFS-ST never employs feedback. This is because providing feedback has been implicated in decreasing motivation by discouraging and frustrating participants, which causes them to give-up prematurely (Delis et al.,
2001a). Another advantage of this approach is that it promotes adaptive decision-making as advocated by Goldberg and Podell (2000). For example, the patient is simply instructed to sort the cards into two groups. The participant has to decide on what basis they want to sort the cards. Scores are generated for any type of sort they may create. Thus in a similar way to Goldberg and Podell's CBT, participants can be grouped on the basis of how logical or random their decision-making is (Delis et al., 2001a).

Overall, the D-KEFS adheres to a cognitive process approach, whereby it is presumed that the component functions of higher-level cognitive tasks can be assessed. Even though Delis et al. (2001a) claim that the D-KEFS was not developed in accordance with any specific theoretical construct, they recognise that they were influenced by Baddeley (1998), Shallice and Burgess' (1996) models of executive-function. This influence is most apparent in their operational definitions of the two types of component process they propose to measure. Firstly, they claim to measure 'fundamental cognitive skills', which they define as the foundation abilities that higher-level executive-functions depend upon in order to conduct a particular task. Secondly, they claim to measure multiple 'higher-level cognitive functions' that may contribute to successful performance on a particular test (Delis et al., 2001a). Clearly, these concepts hark back to Shallice and Burgess' (1996) multilevel model of cognitive functioning.

Fundamentally the D-KEFS is the only comprehensive assessment of executive-functioning for children and adults. The BADS is the only other comprehensive assessment of executive-functioning for adults, but the D-KEFS even has a number of advantages over the BADS. One key benefit is that each test is designed to be a stand-alone instrument that can be administered individually or along with other D-KEFS tests. In addition, the D-KEFS standardized scoring system facilitates direct comparisons with many other neuropsychological tests, especially the Wechsler tests. Even though the use of the Wechsler Tests as the 'gold standard' of psychometric methodology is controversial, their dominance in clinical practice cannot be denied, and thus the neuropsychologist's need for tools that generate comparable standardized information is paramount (Dikmen, Machamer, Winn, & Temkin, 1995; Groth-Marnat, 2000a). The D-KEFS also provides multiple achievement scores for the various component processes involved in each task. In contrast, the BADS only provides crude profile scores ranging from one to four for each subtest. In clinical practice patients often present with very mixed profile scores on the BADS, and the validity and reliability of interpreting one subtest on its own is dubious, because of the
limited normative data, which incidentally only consisted of 216 controls. Furthermore, because the BADS profile scores are summaries of total performance on each test, they reveal nothing about the mechanisms underlying the patient's poor performance. However, the BADS is well-established as an ecologically valid measure of executive-functioning (Burgess et al., 1998; Wilson et al., 1996; 1998), whilst to date, there is no empirical evidence regarding the ecological validity of the D-KEFS.

1.9: Summary

Disability is a growing epidemic in society, and one of the central causes is ABI. This population's needs have contributed to the changing face of neuropsychology, whereby greater pressure is being put on neuropsychologists to predict rehabilitation outcome. In an era of accountability and evidence-based practice, neuropsychologists must be able to prove the utility of their tests, particularly in post-acute rehabilitation settings. These multiple demands have led to the recent explosion of interest in the ecological validity of neuropsychological tests. Given the observed relationship between executive dysfunction and poor rehabilitation outcome, it is clear that investigation into the ecological validity of tests of executive-function is paramount. To date, most of the traditional measures of executive-functioning have been found to have low to moderate ecological validity, and at best can account for about 40% of the variance in patients' outcome (Goldstein, 1996). While this figure may be statistically significant, the capacity to make individual predictions from such data is limited.

Part of the difficulty may be due to the fact that many of the traditional measures of executive-functioning were developed before the recent advances in our understanding of the executive-function systems. The recent development of the D-KEFS promises to overcome some of the pitfalls of previous tests, however there has been no investigation of its ecological validity. Due to the comprehensiveness of the D-KEFS it is extremely time consuming to administer as a complete battery. In the realities of clinical practice it is likely that most neuropsychologists will only administer one subtest in a session. The subtest that has received most attention in the empirical literature is the Sorting-Test, fundamentally because of the advantages it has over traditional executive-functioning tests (Beatty, 1993; Beatty, Jocic, Monson, & Katzung, 1994; Beatty, Katzung, Nixon, & Moreland, 1993; Beatty, & Monson, 1996; 1990; Crouch, Greve, & Brooks,
The adequate assessment of the ecological validity of the D-KEFS-ST is dependent upon identifying well-established valid and reliable criterion measures of functional behaviour. In view of the scientific rigour underlying the WHO's ICF framework, and its increasing global influence within the field of neurorehabilitation, it seems appropriate that future research should try to measure functional behaviour in accordance with the definitions they have proposed. The WHODAS-II appears to be a promising measure of global disability as defined by the ICF, but from a clinical perspective its suitability as a criterion measure for evaluating the ecological validity of the D-KEFS-ST is limited by its novelty, as its validity with brain-injured populations is unknown. From the review of the brain-injury literature it is clear that specific measures of functioning such as employment status are also inappropriate. The more empirically sound measures have tended to be guided by the WHO’s old model of disablement, in particular the DRS as a measure of disability, and the CIQ as a measure of handicap.

However, the DRS and CIQ are not without difficulties. The CIQ’s failure to distinguish between competence and performance is obviously problematic in terms of quantifying total disablement. This is a problem that has been overcome by the SFS, which interestingly is a measure that appears to conform more to the ICF criteria for participation restriction than the ICIDH models construct of handicap, despite the fact it was developed in line with the latter. This is because the SFS taps problems in all forms of life-role functioning. Another advantage of the SFS is that it measures a number of aspects of interpersonal functioning that are characteristically affected in the dysexecutive syndrome, but unfortunately like the WHODAS-II, the SFS has not been validated with a brain-injured population.

With regard to the DRS, given that a ceiling effect has been observed in patients who have initial high scores, it is unlikely that it would be sensitive enough to evaluate the ecological validity of the D-KEFS-ST, although its extensive use in the brain-injury literature makes it a good measure to use for the validation of the WHODAS-II and SFS with this population. Another criticism of
global functioning measures in general, is that they are susceptible to spurious correlations due to their sensitivity to general impairment (Burgess et al., 1998).

Through the foregoing review it has become clear that there is no ideal criterion measure; rather the selection of any scale depends upon the specific hypotheses that are being addressed. Nevertheless, in order to adequately investigate the ecological validity of any test, it is obvious from the literature discussed, that the new ICF offers a far superior model for defining functional behaviour than the old ICIDH model. However, while it is important to use a theoretically sound construct of functional behaviour, it is also essential to use empirically rigorous criterion measures. Due to the novelty of the ICF the latter is not possible. If predictions regarding social-disability following ABI are to advance, research is needed that addresses the ecological validity of tests of executive-function using both empirically rigorous measures of functional behaviour and the new theoretically sound criterion measures.

1.10: The present study:

The primary aim of the present study was to investigate the ecological validity of the D-KEFS-ST with a population of people with ABI. Even though none of the tests in the D-KEFS have been investigated for ecological validity, many of the tests are modified versions of tests which have been investigated, such as the TMT. However, the D-KEFS-ST is a novel test which has never had its ecological validity explored. In view of the difficulties that surround the selection of appropriate criterion measures for evaluating ecological validity, the present study's objective was to explore the D-KEFS-ST from two different perspectives. Firstly, from a clinical point of view; whereby the primary aim was to demonstrate the ecological validity of the D-KEFS-ST in a way that would facilitate comparisons with other tests of executive-function. Secondly, from a theoretical perspective, the study aimed to explore the relationship between the D-KEFS-ST and the new constructs of functional behaviour expounded by the WHO. Finally, the study aimed to conduct some exploratory analysis to investigate whether participants with and without frontal-lobe involvement could be discriminated on the basis of their performance on the D-KEFS-ST, and whether patterns in their performance supported the theoretical proposition that the executive-function system is fractionated.
1.10.1: Part 1 – Primary Analysis
In order to investigate the ecological validity of the D-KEFS-ST from a clinical perspective it was necessary to use well-established criterion measures. This necessitated that the D-KEFS-ST be evaluated in terms of the ICIDH model using the DEX-R as a measure of disability associated with everyday dysexecutive problems, and the CIQ-R as a measure of handicap. Therefore, it was hypothesized that:

Hypothesis 1:

1.a) Executive impairment (as measured by the D-KEFS-ST) will be significantly positively correlated with the degree of disability participants experience because of their everyday dysexecutive problems (as measured by the DEX-R).

1.b) Executive impairment (as measured by the D-KEFS-ST) will be significantly positively correlated with the degree of handicap participants experience (as measured by the CIQ-R).

In view of the fact that global measures of functioning are susceptible to detecting disability due to general physical impairment, as well as impairment specific to executive dysfunction, it was hypothesized that:

1.c) When general impairment is controlled for (as measured by an adapted version of the ICF checklist; AICFC), executive impairment (as measured by the D-KEFS-ST) will still be significantly positively correlated with the degree of handicap participants experience (as measured by the CIQ).

1.10.2: Part 2 – Validity Analysis
It was of theoretical interest to explore the ecological validity of the D-KEFS-ST in terms of its relationship to the new constructs of disablement detailed in the ICF, and measured by the WHODAS-II. Before this could occur it was necessary to establish the concurrent and construct validity of the WHODAS-II with a brain-injured population. Therefore, it was hypothesized that:
Hypothesis 2

2.a) Scores on the WHODAS-II will be significantly correlated with scores on the DRS, DEX-R, CIQ-R, and the SFS.

On the basis of the proposition that the ICIDH constructs of 'disability' and 'handicap' should relate in part to the ICF constructs of 'activity limitation' and 'participation restriction' respectively, it was hypothesized that:

2.b) The strength of the correlation between activity limitation (as measured by the WHODAS-II) and disability (as measured by the DRS) will be stronger than the correlation between activity limitation and handicap (as measured by the CIQ-R).

2.c) The strength of the correlation between participation restriction (as measured by the WHODAS-II) and handicap (as measured by the CIQ-R) score will be stronger than the correlation between participation restriction and disability (as measured by the DRS).

Furthermore, given that the DEX-R purports to measure disability associated with everyday dysexecutive problems, it was hypothesized that:

2.d) The strength of the correlation between activity limitation (as measured by the WHODAS-II) and disability (as measured by the DRS) will be stronger than the correlation between activity limitation and disability associated with everyday dysexecutive problems (as measured by the DEX-R).

It was also of theoretical interest to investigate the utility of the SFS as another promising criterion measure for functional behaviour in ABI. The SFS was of particular interest because it appears to tap interpersonal functioning specifically associated with the dysexecutive syndrome. In order, to test the concurrent and construct validity of the SFS it was hypothesized that:

2.e) Scores on the SFS will be significantly correlated with scores on the DRS, DEX-R, CIQ-R, and the WHODAS-II.

In view of the fact that the SFS appears to be more conceptually related to the ICF construct of participation restriction than the ICIDH concept of handicap it was hypothesized that:
2. The strength of the correlation between participation restriction (as measured by the WHODAS-II) and social dysfunction (as measured by the SFS) will be stronger than the correlation between participation restriction (as measured by the WHODAS-II) and handicap (as measured by the CIQ).

1.10.3: Part 3 – Secondary Analysis
In order to investigate the ecological validity of the D-KEFS-ST in terms of its association with global disability as defined by the ICF it was hypothesized that:

Hypothesis 3

3.a) Executive impairment (as measured by the D-KEFS-ST) will be significantly positively correlated with global disability (as measured by the WHODAS-II).

3.b) When general impairment is controlled for (as measured by the AICFC), executive impairment (as measured by the D-KEFS-ST) will still be significantly positively correlated with global disability (as measured by the WHODAS-II).

In order to investigate the ecological validity of the D-KEFS-ST in terms of its association with social dysfunction it was hypothesized that:

3.c) Executive impairment (as measured by the D-KEFS-ST) will be significantly positively correlated with participants’ social dysfunction (as measured by the SFS).

3.d) When general impairment is controlled for (as measured by the AICFC), executive impairment (as measured by the D-KEFS-ST) will still be significantly positively correlated with social dysfunction (as measured by the SFS).

1.10.4: Part 4 – Exploratory Analysis
Based upon the assumption that the executive-function system is fractionated, it is expected that the D-KEFS-ST will be more highly correlated with certain clusters of fractionated dysexecutive behaviours, than with all dysexecutive behaviours (cf. Chan, 2001; Burgess et al., 1998). For
instance, given that the D-KEFS-ST is essentially a measure of concept-formation and problem-solving it was hypothesized that:

**Hypothesis 4:**

4.a) Executive impairment (as measured by the D-KEFS-ST) will correlate with inhibition (as measured by DEX-R factor 1) to a greater degree than it does with overall dysexecutive problems in everyday life (DEX-R total score).

4.b) Executive impairment (as measured by the D-KEFS-ST) will correlate with intentionality (as measured by DEX-R factor 2) to a greater degree than it does with overall dysexecutive problems in everyday life (DEX-R total score).

4.c) Executive impairment (as measured by the D-KEFS-ST) will correlate with Executive Memory (as measured by DEX-R factor 3) to a greater degree than it does with overall dysexecutive problems in everyday life (DEX-R total score).

Secondly, in order to explore the relationship between executive impairment and frontal-lobe damage the following hypotheses were tested:

**Hypothesis 5:**

5.a) The severity of participants' executive impairment (as measured by the D-KEFS-ST) will be greater in the group of participants with possible frontal-lobe damage than it is in the group of participants without frontal-lobe damage.

5.b) Participants with possible frontal-lobe damage will have significantly more dysexecutive problems in everyday life (DEX-R) than participants without frontal-lobe damage.
2.0: METHOD

2.1: DESIGN
A cross-sectional correlational design was employed to evaluate the degree of association between executive impairment as measured by the D-KEFS-ST, and measures of disability. Correlational analyses were undertaken using Pearson's product moment correlation.

2.2: PARTICIPANTS
A power calculation using G-Power computer software indicated that it was necessary to recruit 34 participants assuming an effect size of .41 with statistical power of at least 80% and significance set at p<0.05. An opportunity sample was drawn from a population of patients with brain injury, who had been referred to a specialist Neurorehabilitation Service over a 6 month period.

2.2.1: Inclusion and exclusion criteria
For inclusion in the study participants were required to meet the following criteria:

1. Diagnosis of an acquired, non-degenerative brain disorder diagnosed independently of the research.
2. No other concurrent neurological illness.
3. No history of learning disability, dyslexia, dysphasia or other impairment that would confound interpretation of participants' performance on the D-KEFS-ST.
4. At least one month post-injury.
5. Literate
6. English as a first language.
7. Aged between 16-89.
8. All participants were required to have a 'significant other' (defined as a spouse/partner, relative, carer or close friend) who saw them regularly and knew them well (cf. Wilson et al., 1996).

1 In accordance with previous research an effect size of .4 was expected (cf. Burgess et al. 1998; Oduba, van den Broek & Johns, 2000).
2 Ethical approval for the study was obtained from the Service's NHS Trust Local Research Ethics Committee and Surrey University (see appendix J).
2.2.2: Recruitment procedure

The Consultant Neuropsychologist who was responsible for assessing all the referrals to the Neurorehabilitation Service identified those patients who met the inclusion criteria. The identified patients and their significant others were invited to take part in the study during a formal meeting with the Neuropsychologist. Patients who agreed to participate were given an information sheet to take away (see appendix A). After 24 hours the researcher contacted the patients and their significant others by telephone to confirm whether they wished to participate or not. If they agreed to participate, an appointment was made for them to sign the consent form and complete the assessments (see appendix B).

2.2.3: Summary of the participants included in the study

A total of 36 participants were invited to take part in the study and all of them were recruited. The sample consisted of 26 males (72.2%) and 10 females (27.8%)\(^3\). The mean age was 46 (range 17-75, SD = 17.14), and the mean amount of years spent in education was 11.7 (range 9-19, SD = 2.30). The mean premorbid IQ predicted from the WTAR reading score was 97 (range 70-122, SD = 13.4). Four participants were Black-British (11.1%), and the remainder were White-British (88.9%). Participants had a wide range of aetiologies (see appendix I); 44.4% had suffered cerebrovascular accidents, 33.3% had suffered head injuries, 11.1% had suffered a bout of encephalitis, 8.3% had suffered tumours, and 2.8% had suffered anoxic brain damage. The mean amount of months post-injury was 19 (range 1-180, SD = 37.01). The sample of significant others consisted of 13 spouses (36.1%), 11 parents (30.6%), 6 siblings (16.7%), 4 children (11.1), and 2 carers (5.6%). The mean amount of days that significant others had spent with the participants in the month preceding the assessment was 25 (range 5-30, SD = 7.45).

\(^3\) The disproportionate amount of males in the sample is consistent with a brain injured population according to Powell & Wilson (1994) who claim that there are twice as many men to women in a brain injured population.
2.3: MATERIALS

2.3.1: Measures for the Primary Analysis

*Delis-Kaplan Executive-function System Sorting Test (D-KEFS-ST; Delis, Kaplan, & Kramer, 2001):*

The D-KEFS-ST measures multiple component processes of executive-function that can be quantified and converted to normative scores. There are five primary measures and 29 optional measures. All scores are converted to either scaled scores (ranging from 1 to 19) or cumulative percentiles. Table 2.3.1 shows the five primary scores and the executive-functions or impairments they measure.

<table>
<thead>
<tr>
<th>TEST SCORE</th>
<th>EXECUTIVE PROCESSES MEASURED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description Scores:</td>
<td></td>
</tr>
<tr>
<td>1. Free-Sorting</td>
<td>• Ability to conceptualize relationships (in verbal &amp; nonverbal modalities).</td>
</tr>
<tr>
<td>2. Sort-Recognition</td>
<td>• Abstraction.</td>
</tr>
<tr>
<td>3. Combined composite Score</td>
<td>• Ability to transfer concepts into action.</td>
</tr>
<tr>
<td>4. Contrast measure:</td>
<td>• Ability to inhibit behaviour and thoughts in order to engage in flexibility of behaviour and thinking.</td>
</tr>
<tr>
<td>Sort Recognition vs. Free Sorting Description</td>
<td>• Initiation of problem solving and concept-formation Skills.</td>
</tr>
<tr>
<td>5. Confirmed Correct Sorts</td>
<td>• Identifies impairments of initiation when concept-formation skills are intact.</td>
</tr>
<tr>
<td></td>
<td>• Sensitive to problems of distractibility and perseveration.</td>
</tr>
</tbody>
</table>

The current study employed the ‘Combined Description Score’ as a measure of executive impairment, because this is the best overall measure of performance on the D-KEFS-ST. This is a composite score calculated by summing the scores generated by participants’ descriptions of their sorting concepts on the Free-Sorting and Recognition conditions. High scores on this measure
suggest that the examinee has successfully displayed a number of higher-level executive-functions. For example, the examinee must be able to perceive and form conceptual relationships in both the verbal and nonverbal modalities, express the conceptual relationship in abstract terms, and initiate problem-solving and concept-formation skills. Furthermore, participants also need considerable cognitive flexibility in order to engage in multiple sorts, and must be able to inhibit the pull to repeat the same behavioural or verbal response. Poor performance can reflect impairment in any or all of these areas, but the isolated impairments involved can be identified by examining the optional measures.

The D-KEFS-ST consists of two conditions, and utilizes two sets of stimulus cards in both conditions (see diagram 1 for an example of one set of the stimulus cards). The Free-Sorting condition is administered first, which requires the examinee to sort the stimulus cards from set 1 into as many different conceptual categories as possible, and to describe the concepts he or she used to generate each sort. The examinee must obey specific rules set by the examiner. For instance, one rule is that cards must always be sorted into two groups with three cards in each group. Another rule is that examinees must explain how they have sorted both groups of cards, for example, if the cards were sorted by colour the examinee would be required to say that one group was ‘blue’ and the other was ‘yellow’. This Free-Sorting process is then repeated for card set 2. There are eight possible correct sorts in each card set. Three sorts are based on verbal-semantic information and five are based on visual-spatial and perceptual features. The second part of the test is the Sort Recognition condition. In this condition the examiner sorts the cards from set 1 into each of the 8 target sorts, and the examinee is required to deduce the correct categorization rule or concept the examiner has used to sort the cards. This process is also repeated for card set 2.

The validity of the DKEFS-ST has been investigated in several neuropsychological studies using an early version of the test called the California Card Sorting Test (CCST, Delis, 1988). Two studies have investigated the validity of the Sorting Test as part of the whole DKEFS. The collective results indicate that the test has good construct and discriminant validity (Delis, Kaplan, Kramer, 2001). Research has also investigated The D-KEFS-ST reliability and found that it has moderate to high internal consistency, and moderate test-retest reliability (Delis, Kaplan, Kramer, 2001).
Diagram 2.3.1: The DKEFS-ST Stimulus cards (Set 1)

Delis-Kaplan Executive-function System (D-KEFS) Card Sorting Test reproduced with permission by The Psychological Corporation (c) 2001. All rights reserved.
Dysexecutive Questionnaire (DEX; Burgess, Alderman, Wilson, Evans, & Emslie, 1996)

The DEX is a 20-item questionnaire designed to measure a range of everyday problems associated with the dysexecutive syndrome (see appendix C). In accordance with Stuss and Benson's (1984; 1986) description of the frontal lobe syndrome, the questions sample four broad areas of change; emotional or personality, motivational, behavioural, and cognitive changes. Each item is scored on a 5-point Likert scale (scored 0-4), ranging from 'never' to 'very often'. The total score can range from 0 to 80. The higher the score is, the higher the frequency of dysexecutive behaviour in everyday life. There are two versions of the DEX, one to be completed by the participant (DEX) and one to be completed by a significant other (DEX-R).

The DEX-R has been demonstrated to have adequate construct validity, as it correlated significantly ($r = .35-.4$) with established measures of executive-functioning such as the Wisconsin Card Sorting Test (Burgess et al., 1998). It has also been demonstrated to have good discriminative validity, and has been widely used to assess ecological validity in previous research (Burgess et al., 1996; Chan, 2001; Noris & Tate, 2000; Odhuba, van den Broek, & Johns, 2000). However, there is no reliability data available for either of the DEX questionnaires. In the current study the DEX-R was used as a measure of disability associated with everyday dysexecutive problems in order to explore the relationship between such disability and executive impairment (as measured by the D-KEFS-ST).

The Community Integration Questionnaire (CIQ; Wilier, Ottenbacher, & Coad, 1994):

The CIQ provides an estimate of handicap in a brain injured population (see appendix D). It was specifically designed for patients with acquired brain injury, to measure their integration into the home and community following rehabilitation. There are 15 questions in total that measure integration across three domains; home, social and productive activities. Each question is answered using a multiple-choice format. Individual scores are generated for each domain and summed to create the total score, which can range from 0 to 29. High scores represent good community integration. The questionnaire can be completed by self report (CIQ-S) or by another person who knows the patient well (CIQ-R). Research has demonstrated that both versions of the CIQ have good concurrent and discriminant validity, adequate test-retest reliability and internal consistency (Cusick, Gerhart, & Mellick, 2000; Kaplan, 2001; Willer, Ottenbacher, & Coad,
1994; Wilier, Rosenthal, Kreutzer, Gordon, & Rempel, 1993). The CIQ was utilized as a measure of participants’ handicap in order to explore the degree of association between handicap and executive impairment (as measured by the D-KEFS-ST).

The Wechsler Test of Adult Reading (WTAR; Wechsler, 2001):

The WTAR is a measure of estimated premorbid intellectual functioning, which it assesses based upon the examinee’s current word reading level. The examinee is required to read aloud a list of 50 words with irregular pronunciations. Each word that is read correctly is awarded 1 point. The total score is then converted to a standard score that is used together with the examinee’s age and years of education to estimate premorbid intelligence and memory functioning. The predicted scores are reported as IQ scores.

The WTAR was developed for individuals aged 16-89 and was co-normed with the Wechsler Adult Intelligence Scale Third Edition (WAIS-III; Wechsler, 1997a) and the Wechsler Memory scale Third Edition (WMS-III; Wechsler, 1997b). These two tests are considered to be the most widely used measures of intelligence and memory because of their exceptionally good validity and reliability (Hodges, 1994; Groth-Marnat, 2000a; Wechsler, 1997a & b). It has also been demonstrated that the WTAR has very good concurrent validity and re-test reliability (Wechsler, 2001). In the current study the WTAR estimated full-scale IQ score was used to provide an estimate of participants’ premorbid intelligence as demographical information.

Adapted version of the International Classification of Functioning Checklist (version 2.1a) Part 1a Impairment (ICFC; WHO, 2000a):

The ICFC is a short-list of the major categories of the ICF. It was designed as a practical tool to elicit information on the functioning and disability of an individual, and it can be used for clinical or research purposes. The ICFC-Part-1a is a list of the major categories used to classify impairment of functioning in the ICF. There are 8 subsections each containing various items which collectively measure all the possible areas of mental and physical impairment identified within the ICF (see Table 2.3.2). Each item is classified on a four-point Likert scale ranging from 0 ‘no impairment’ to 4 ‘complete impairment’.

4 A copy of the WTAR is not included in the appendix due to issues of copy right.
Table 2.3.2: Subsections of the ICFC-Part-1a

<table>
<thead>
<tr>
<th>Category Code</th>
<th>Name of subsection</th>
<th>No. of items in subsection</th>
</tr>
</thead>
<tbody>
<tr>
<td>b1</td>
<td>Mental Functions</td>
<td>11</td>
</tr>
<tr>
<td>b2</td>
<td>Sensory Functions &amp; Pain</td>
<td>4</td>
</tr>
<tr>
<td>b3</td>
<td>Voice and Speech Functions</td>
<td>1</td>
</tr>
<tr>
<td>b4</td>
<td>Functions of the Cardiovascular, Haematological, Immunological &amp; Respiratory Systems</td>
<td>5</td>
</tr>
<tr>
<td>b5</td>
<td>Functions of the Digestive, Metabolic &amp; Endocrine Systems</td>
<td>4</td>
</tr>
<tr>
<td>b6</td>
<td>Genitourinary Reproductive Functions</td>
<td>2</td>
</tr>
<tr>
<td>b7</td>
<td>Neuromusculoskeletal &amp; Movement Related Functions</td>
<td>4</td>
</tr>
<tr>
<td>b8</td>
<td>Functions of the skin and related Structures</td>
<td>0</td>
</tr>
</tbody>
</table>

For the purpose of the current research the criteria in ICFC-Part-1a were adapted into a questionnaire format and used as a measure of 'general impairment' in order to control for its effect on the other measures (see appendix E). The ICF provides examples of how to ask questions about each category (WHO, 2001). Each criteria item in the ICFC-Part-1a was converted into a question using the guidelines in the ICF (WHO, 2001). Only one item relating to 'blood pressure' was excluded because this information was included in the item on 'haematological function'. Each item was rated in accordance with the four-point classification scale detailed on the ICFC. The ratings from each item were summed to generate a total score that indicated the overall level of impairment. The higher the score, the greater the level of impairment.

To ensure that the questionnaire measured general impairment that was not associated with impaired executive-functioning, the mental function domain was excluded from the calculation of the ‘general impairment’ score. However, the mental function domain was used to calculate a score for participants’ overall neurological dysfunction. This score was used to control for the mediating role general neurological dysfunction might play in any difference found between participant with or without suspected frontal lobe damage on the D-KEFS-ST.

The adapted version of the ICFC-Part-1a (AICFC) has good content validity because the items have been taken directly from the items in the ICF, which were developed following extensive research (Bickenbach, Chatterji, Badley, & Ustun, 1999; Susser, 1990; WHO, 2001). The
reliability of the questionnaire was estimated using the split-half reliability procedure. The AICFC was divided into two halves by allocating all the even numbered items to one group and the odd numbers to another group. The internal consistency coefficient was calculated using the Spearman-Brown correction of the Pearson correlation coefficient (Clarke-Carter, 1997). The results indicated that the questionnaire had adequate reliability both as a measure of general impairment ($r (36) = 0.72$), and overall neurological dysfunction ($r (36) = 0.71$).

2.3.2: Additional Measures for the validity and secondary analysis

*World Health Organisation Disability Assessment Schedule II (WHODAS-II; WHO, 2000b)*:

The WHODAS-II was developed to assess the activity limitations and participation restrictions experienced by an individual irrespective of their medical diagnosis (see appendix F). The measure consists of 36 items which contribute to six domains (see table 2.3.3). The first five domains assess activity limitation and the final domain assesses participation restrictions. Participants are asked to rate the level of difficulty they experience in each area, taking into consideration how they usually do the activity, including the use of any assistive devices or physical assistance. All items are rated on a 5-point Likert scale ranging from 0 ‘none’ to 4 ‘extreme/cannot do’. Scores can be calculated for each of the individual domains, and domain scores can be summed to give a total score for activity limitation (range 0-112) and participation restriction (range 0-32). These two scores can be added together to give a general disability score (total score range = 0-144). The higher the score is, the greater the general disability. There are two versions of the WHODAS-II, one to be completed by the participant (WHODAS-II-Self) and one to be completed by a significant other (WHODAS-II-Proxy).

The WHODAS-II was cross-culturally developed and is therefore applicable across the spectrum of different cultural and educational backgrounds (cf. Ulug, Ertugrul, Goegues, & Kabakci, 2001). The validity and reliability of the WHODAS-II has been assessed in 16 centres across 14 countries all of which have reported good results (WHO, 2000c). The present study employed the WHODAS-II for two reasons. Firstly, to investigate the concurrent and construct validity of the CIQ, DRS and DEX as measures of activity limitation and participation restriction. Secondly, the WHODAS-II was used to explore the relationship between general disability (as measured by the WHODAS-II) and executive impairment (as measured by the D-KEFS-ST).
### Table 2.3.3: Domains of the WHODAS-II:

<table>
<thead>
<tr>
<th>Primary domain</th>
<th>Sub-domains</th>
<th>No. of items in the domain</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Activity limitation</strong></td>
<td>1. Understanding and communicating 6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Getting around</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>3. Self care</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>4. Getting along with people</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>5. Life activities</td>
<td>8</td>
</tr>
<tr>
<td><strong>Participation restriction</strong></td>
<td>6. Participation in society 8</td>
<td></td>
</tr>
<tr>
<td><strong>General disability score</strong></td>
<td>Total of all domains 36</td>
<td></td>
</tr>
</tbody>
</table>

**Social Functioning Scale (SFS; Birchwood, Smith, Cochrane, Wetton, Copestake, 1990):**

The SFS measures an individual's degree of disability associated with impaired life-role functioning, which includes interpersonal functioning (see appendix G). It was designed as a measure of social functioning in individuals with schizophrenia, and was standardized on a sample of 100 normal controls. Furthermore, the SFS has been demonstrated to have good construct validity, internal consistency and inter-rater reliability (Birchwood et al., 1990).

The questionnaire consists of 7 domains which measure aspects of social functioning in a range of social arenas, from the interpersonal to occupational (see table 4). There are a total of 59 items across the seven domains and each domain employs either multiple-choice or Likert scale questions. The raw scores for each domain are summed and converted to standard scores, and a total score is calculated by adding together the domain scores. The lower the score the more difficulty the participant has with social functioning.

There are two versions of the questionnaire, one for participants and one for significant others. In this study the SFS was only completed by the significant other, and raw scores were used instead of standardized scores because of the uncertainty regarding the appropriateness of the standardized data with a brain injured population. The SFS was employed for two purposes. Firstly to investigate its construct and concurrent validity in relation to the WHODAS-II, and secondly to explore the relationship between the degree of disability participants experience due
to difficulties with life-role functioning and measures of executive impairment (as measured by the D-KEFS-ST).

**Table 2.3.4: Domains of the SFS:**

<table>
<thead>
<tr>
<th>Domains</th>
<th>Type of questions</th>
<th>No. of items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Withdrawal/ Social engagement</td>
<td>Multiple choice and Likert scale (range 0 ‘almost never’ to 3 ‘often’)</td>
<td>5</td>
</tr>
<tr>
<td>Interpersonal communication</td>
<td>Ranked scores and Likert scale (scale as above)</td>
<td>4</td>
</tr>
<tr>
<td>Prosocial</td>
<td>Likert scale (range 0 ‘never’ to 3 ‘often’).</td>
<td>22</td>
</tr>
<tr>
<td>Recreation</td>
<td>Likert scale (range 0 ‘never’ to 3 ‘often’).</td>
<td>15</td>
</tr>
<tr>
<td>Independence-competence</td>
<td>Likert scale (range 0 ‘not know’ to 3 ‘adequate’).</td>
<td>13</td>
</tr>
<tr>
<td>Independence-performance</td>
<td>Likert scale (range 0 ‘never’ to 3 ‘often’).</td>
<td>13</td>
</tr>
<tr>
<td>Employment/ occupation</td>
<td>Ranked scores and 2 Likert scales (scale 1: range 0 ‘almost never’ to 3 ‘often’, and scale 2: range 0 ‘definitely no’ to 3 ‘definitely yes’).</td>
<td>2</td>
</tr>
</tbody>
</table>

*The Disability Rating Scale (DRS; Rappaport, Hall, Hopkins, & Belleza, 1982)*

The DRS assesses the general level of functioning in individuals with brain injury (see appendix H). The DRS was developed to measure patients’ rehabilitation progress from coma to their return to the community. The scale consists of 8 items divided into 4 categories: arousal and awareness, cognitive ability to handle self-care functions, physical dependence upon others, and psychosocial adaptability for work, housework, or school. Scores on the 8 items are summed to create a total disability score. A higher total score reflects a more severe level of disability. The DRS has been shown to have good construct validity (Rappaport et al., 1982), concurrent validity (Neese et al., 2000) and higher inter-rater reliability (Rappaport et al., 1982). Furthermore, the DRS is frequently reported in the literature and commonly used in brain injury rehabilitation facilities as a measure of patients’ general level of functioning (cf. Lehmkuhl, Hall, Mann, & Gordon, 1993;
Neese et al., 2000). In this study the DRS was employed as a measure of disability in brain injured populations in order to investigate the concurrent validity of the WHODAS-II.

2.4: PROCEDURE

An appointment date was arranged with each participant and their significant other via telephone. Participants and their significant others were asked to attend the Neurorehabilitation Service and to allow an hour and a half for the appointment. An appointment letter was sent out to confirm the details.

At the appointment, the researcher allocated 15 minutes to initially meet with both the participants and their significant others. During this time the procedure for the assessment was explained and the purpose of the research was reiterated (as outlined on the information sheet; see appendix A). Participants were informed that they would be required to complete two neuropsychological assessments and three questionnaires. During this time their significant other would be asked to wait in the waiting area and complete four questionnaires. Participants and their significant others were then given the opportunity to ask questions. Participants were reminded that their test data would be anonymous and that they could withdraw their data at anytime. Participants were also informed that they could contact the Psychology Department after July 2003 if they were interested in the results of the research. The consent form was then signed by all parties.

The participants' significant others were given the DEX-R, CIQ, SFS and WHODAS-II to complete and were shown to the waiting area where a table, chair and pen were available. The researcher allocated an hour of the appointment time to administer the assessments to the participant. The D-KEFS-ST was administered first, which took an average of 20 minutes to administer (range = 15-45 minutes). The WTAR was administered next, followed by the DEX, CIQ and the WHODAS-II.

After the participant had finished all the assessments, their significant other was invited back into the consulting room. The remaining 15 minutes was allotted to review the significant other's questionnaires and ensure they had answered all the questions correctly. The participant and their
significant other were then given the opportunity to ask any further questions. Once they were satisfied their questions had been answered, the appointment was ended by thanking them for their time and co-operation.

Following the completion of the assessment, the researcher examined the participants’ medical records in order to complete the DRS and the AICFC. All participants had completed a battery of neuropsychological assessments\(^5\) and a medical examination upon admission. This information was available in the medical notes and was used to complete the relevant section on the DRS and AICFC. CT or MRI Scan results were also inspected in order to classify each participant’s lesion site.

\(^5\) Information from the neuropsychological assessment was used to complete the mental functions domain of the AICFC. A battery of standardised tests is administered to all patients admitted to the service. The battery includes the; WAIS-III, WMS-III (Wechsler, 1997a & b), WCST (Heaton, 1981 ), Verbal Fluency (cf. Lezak, 1983), NART (Nelson 1991), Judgement of line orientation (Benton, Kambsher, Varney, & Spreen,1983), Stroop (Stroop, 1935), BADS (Wilson et al., 1996) and the Graded Naming Test (McKenna & Warrington, 1983; Warrington, 1997).
3.0: RESULTS

3.1: Descriptive Statistics:

Table 3.1.1 displays the means, standard deviations, and the range of scores for each variable used in the analysis.

<table>
<thead>
<tr>
<th>Test Scores</th>
<th>Mean score</th>
<th>Std Dev.</th>
<th>range</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-KEFS-ST (Combined Description Score)</td>
<td>7.36</td>
<td>3.77</td>
<td>1-17</td>
</tr>
<tr>
<td>DEX-R</td>
<td>32.8</td>
<td>17.42</td>
<td>0-68</td>
</tr>
<tr>
<td>CIQ-R</td>
<td>10.11</td>
<td>5.13</td>
<td>3-23</td>
</tr>
<tr>
<td>WHODAS-II (proxy total score)</td>
<td>61.16</td>
<td>22.01</td>
<td>13-116</td>
</tr>
<tr>
<td>WHODAS-II (proxy activity limitations)</td>
<td>46.19</td>
<td>18.21</td>
<td>6-89</td>
</tr>
<tr>
<td>WHODAS-II (proxy participation restriction)</td>
<td>15.19</td>
<td>5.87</td>
<td>6-28</td>
</tr>
<tr>
<td>SFS</td>
<td>96.94</td>
<td>28.96</td>
<td>47-174</td>
</tr>
<tr>
<td>AICFC (excluding mental function)</td>
<td>4.41</td>
<td>3.31</td>
<td>0-17</td>
</tr>
<tr>
<td>AICFC (mental function section only)</td>
<td>5.61</td>
<td>4.03</td>
<td>0-20</td>
</tr>
</tbody>
</table>

3.2: Part 1 – Primary Analysis

1.a) It was hypothesised that: Executive impairment (as measured by the D-KEFS-ST) will be significantly positively correlated with the degree of disability participants experience because of their everyday dysexecutive problems (as measured by the DEX-R).

The degree of association between participants’ executive impairment (D-KEFS-ST), and their dysexecutive problems in everyday life (DEX-R) was analysed using Pearson’s product moment correlation. This indicated that there was a significant negative correlation between the scores on the D-KEFS-ST and the scores on the DEX-R, (r (36) = -0.40, p < 0.01, 2-tailed test). This result shows that the severity of participants’ executive impairment (represented by low scores on the D-KEFS-ST) was associated with a greater amount of dysexecutive problems in everyday life (represented by high scores on DEX-R).
1.b) **It was hypothesised that:** *Executive impairment (as measured by the D-KEFS-ST) will be significantly positively correlated with the degree of handicap participants experience (as measured by the CIQ-R).*

The degree of association between participants’ executive impairment (as measured by the D-KEFS-ST), and their handicap (as measured by the CIQ-R), was analysed using Pearson’s product moment correlation. This indicated that there was a significant positive correlation between participants’ scores on the D-KEFS-ST and their scores on the CIQ-R, \( r (36) = 0.34, p < 0.03, 2\text{-tailed test} \). This result signifies that greater severity of participants’ executive impairment (as represented by low scores on D-KEFS-ST) was associated with a greater degree of handicap (as represented by low scores on the CIQ-R).

1.c) **It was hypothesised that:** *When general impairment is controlled for (as measured by the AICFC), executive impairment (as measured by the D-KEFS-ST) will be significantly positively correlated with the degree of handicap participants experience (as measured by the CIQ-R).*

It is possible that the degree of association between the D-KEFS-ST and the CIQ-R may have been confounded by participants’ general physical impairment, which would depress performance on the CIQ-R. In order to control for the effects of general impairment (measured by AICFC), a partial correlation was employed to analyse the association between executive-function (DKEFS-ST) and handicap (CIQ-R) when general impairment (AICFC) was controlled for. The partial correlation indicated that even when general impairment was controlled for, there was still a significant positive correlation between the D-KEFS-ST and the CIQ-R \( r (36) = 0.33, p < 0.04, 2\text{-tailed test} \).
3.3: Part 2 – Validity Analysis:

2.a) It was hypothesized that: *Scores on the WHODAS-II will be significantly correlated with scores on the DRS, DEX-R, CIQ-R, and the SFS.*

In order to test the concurrent and construct validity of the WHODAS-II, Person’s product moment correlations were employed to analyse the degree of association between the WHODAS-II total disability scores and total scores on the DRS, DEX-R, CIQ-R, and the SFS. The results of these analyses can be seen in table 3.3.1. Under conditions of Bonferroni correction for multiple comparisons, the WHODAS-II total disability score correlated significantly with the DRS, DEX-R, CIQ-R, and the SFS.

<table>
<thead>
<tr>
<th>WHODAS-II Total disability</th>
<th>DRS</th>
<th>DEX-R</th>
<th>CIQ-R</th>
<th>SFS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>.609</strong></td>
<td><strong>.416</strong></td>
<td><strong>-.417</strong></td>
<td><strong>-.663</strong></td>
<td></td>
</tr>
<tr>
<td><em>p &lt; 0.001</em>†</td>
<td><em>p = 0.01†</em></td>
<td><em>p = 0.01†</em></td>
<td><em>p &lt; 0.001†</em></td>
<td></td>
</tr>
</tbody>
</table>

** p < 0.01
† Significant correlation under conditions of Bonferroni correction for multiple comparisons (p < 0.05 ÷ 4, p = 0.0125)

2.b) It was hypothesized that: *The strength of the correlation between activity limitation (as measured by the WHODAS-II) and disability (as measured by the DRS) will be stronger than the correlation between activity limitation and handicap (as measured by the CIQ-R).*

The degree of association between activity limitation (as measured by the WHODAS-II) and disability (as measured by the DRS) and handicap (as measured by the CIQ) were analysed using Pearson’s product moment correlation. The results of these analyses are displayed in table 3.3.2. From the table it can be seen that there is a stronger correlation between activity limitation (WHODAS-II) and disability (DRS) than there is between activity limitation (WHODAS-II) and handicap (CIQ). Using the test devised by Williams (1959, cited in Howell, 1997) to examine the
difference between two correlations from a single sample, the strength of the correlation between activity limitation (WHODAS-II) and disability (DRS) was not found to be significantly different from the correlation between activity limitation (WHODAS-II) and handicap (CIQ) (t (36) = 4.90, p > 0.05, 2-tailed test).

Table 3.3.2: Correlations between WHODAS-II composite scores and DRS, DEX-R, CIQ-R, and SFS

<table>
<thead>
<tr>
<th></th>
<th>DRS</th>
<th>DEX-R</th>
<th>CIQ-R</th>
<th>SFS</th>
</tr>
</thead>
<tbody>
<tr>
<td>WHODAS-II</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activity limitation</td>
<td>.655**</td>
<td>.380*</td>
<td>-.460**</td>
<td>-.653**</td>
</tr>
<tr>
<td></td>
<td>p = &lt; 0.001†</td>
<td>p = 0.022</td>
<td>p = 0.005</td>
<td>p = &lt; 0.001†</td>
</tr>
<tr>
<td>WHODAS-II</td>
<td>.219</td>
<td>.359*</td>
<td>-.150</td>
<td>-.463**</td>
</tr>
<tr>
<td>Participation restriction</td>
<td>p = 0.199</td>
<td>p = 0.031</td>
<td>p = 0.381</td>
<td>p = 0.004†</td>
</tr>
<tr>
<td>SFS</td>
<td>-.562**</td>
<td>-277</td>
<td>.697**</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>p = &lt; 0.001†</td>
<td>p = .102</td>
<td>p = &lt;0.001†</td>
<td></td>
</tr>
</tbody>
</table>

* p < 0.05
** p < 0.01
† Significant correlation under conditions of Bonferroni correction for multiple comparisons (p < 0.05 ÷ 11, p = 0.004)

2.c) It was hypothesized that: The strength of the correlation between participation restriction (as measured by the WHODAS-II) and handicap (as measured by the CIQ-R) score will be stronger than the correlation between participation restriction and disability (as measured by the DRS).

The degree of association between participation restriction (as measured by the WHODAS-II) and handicap (as measured by the CIQ-R) and disability (as measured by the DRS) were analysed using Pearson’s product moment correlation. The results of these analyses are displayed in table 3.3.2. From the table it can be seen that there was no significant correlation between participation restrictions (WHODAS-II) and handicap (CIQ-R), or disability (DRS). These results indicate that
there is no relationship between these variables, therefore no further analysis of the strengths of the relationships was necessary.

2.d) **It was hypothesized that:** The strength of the correlation between activity limitation (as measured by the WHODAS-II) and disability (as measured by the DRS) will be stronger than the correlation between the activity limitation and disability associated with everyday dysexecutive problems (as measured by the DEX-R).

The degree of association between activity limitation (as measured by the WHODAS-II) and disability (as measured by the DRS) and disability associated with everyday dysexecutive problems (as measured by the DEX-R) were analysed using Pearson’s product moment correlation. The results of these analyses are displayed in table 3.3.2. From the table it can be seen that there is a stronger correlation between activity limitation (WHODAS-II) and disability (DRS) than there is with activity limitation (WHODAS-II) and disability associated with dysexecutive problems (DEX-R). Using the test devised by Williams (1959) to examine the difference between two correlations from a single sample, the strength of the correlation between activity limitation (WHODAS-II) and disability (DRS) was not found to be significantly different from the correlation between activity limitation (WHODAS-II) and disability associated with dysexecutive problems (DEX-R) ($t (36) = 1.74, p > 0.05$, 2-tailed test).

2.e) **It was hypothesized that:** Scores on the SFS will be significantly correlated with scores on the DRS, DEX-R, CIQ-R, and the WHODAS-II.

In order to test the concurrent and construct validity of the SFS, Person’s product moment correlations were employed to analyse the degree of association between the SFS total score and total scores on the DRS, DEX-R, CIQ-R, and the WHODAS-II. The results of these analyses can be seen in table 3.3.3. Under conditions of Bonferroni correction for multiple comparisons, the SFS correlated significantly with the DRS, CIQ-R, and the WHODAS-II ($p < 0.01$). However, the SFS did not correlate with the DEX-R. Given that this result was surprising additional analysis was conducted to explore the component parts of the SFS in relation to the DEX-R. Person’s product moment correlations were employed to analysis the degree of association between the DEX-R and the seven domains of the SFS. The results of these analyses can be seen in table 3.3.4.
Under conditions of Bonferroni correction for multiple comparisons, the DEX-R was only found to correlate significantly with the domain of interpersonal communication ($p < 0.01$).

### Table 3.3.3: Correlations between the SFS, DRS, DEX-R, CIQ-R, and WHODAS-II

<table>
<thead>
<tr>
<th></th>
<th>DRS</th>
<th>DEX-R</th>
<th>CIQ-R</th>
<th>WHODAS-II</th>
</tr>
</thead>
<tbody>
<tr>
<td>SFS</td>
<td>-.562**</td>
<td>-.277</td>
<td>-.697**</td>
<td>-.663**</td>
</tr>
<tr>
<td></td>
<td>$p = &lt; 0.001$</td>
<td>$p = .102$</td>
<td>$p = 0.001$</td>
<td>$p = &lt; 0.001$</td>
</tr>
</tbody>
</table>

* $p < 0.05$
** $p < 0.01$
† Significant correlation under conditions of Bonferroni correction for multiple comparisons ($p = <0.001$)

### Table 3.3.4: Correlations between DEX-R and the 7 Domains of the SFS

<table>
<thead>
<tr>
<th></th>
<th>Withdrawal/Social engagement</th>
<th>Interpersonal communication</th>
<th>Prosocial</th>
<th>Recreation</th>
<th>Independence -competence</th>
<th>Independence -performance</th>
<th>Employment/occupation</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEX-R</td>
<td>-.271</td>
<td>-.486**</td>
<td>-.062</td>
<td>.121</td>
<td>-.243</td>
<td>-.262</td>
<td>-.178</td>
</tr>
<tr>
<td></td>
<td>$p = .110$</td>
<td>$p = 0.003$†</td>
<td>$p = .720$</td>
<td>$p = .482$</td>
<td>$p = .153$</td>
<td>$p = .123$</td>
<td>$p = .298$</td>
</tr>
</tbody>
</table>

* $p < 0.05$
** $p < 0.01$
† Significant correlation under conditions of Bonferroni correction for multiple comparisons ($p = <0.007$)

2.f) It was hypothesized that: The strength of the correlation between participation restriction (as measured by the WHODAS-II) and disability associated with social dysfunction (as measured by the SFS) will be stronger than the correlation between participation restriction (as measured by the WHODAS-II) and handicap (as measured by the CIQ).

The degree of association between participation restriction (as measured by the WHODAS-II), social dysfunction (as measured by the SFS) and handicap (as measured by the CIQ) were analysed using Pearson’s product moment correlation. The results of these analyses are displayed in table 3.3.2. From the table it can be seen that there was a significant correlation between participation restrictions (WHODAS-II) and social dysfunction (as measured by the SFS). However, there was no significant correlation between participation restriction (WHODAS-II) and handicap (CIQ). As there was no significant relationship between the latter two variables no further analysis of the strength of the relationships was necessary as these results support the
hypothesis that participant restriction (WHODAS-II) correlates more strongly with disability associated with social dysfunction (SFS) than handicap (CIQ).

However, the correlation matrix that was conducted to analysis hypotheses 2.b and 2.c also revealed that participation restriction (WHODAS-II) correlated significantly with disability associated with everyday dysexecutive problems (DEX-R). This was an unexpected result and can be seen in table 3.3.2. In view of this unexpected result further analysis was conducted to explore whether the strength of the correlation between participation restriction (WHODAS-II) and disability associated with social dysfunction (SFS) was stronger than the correlation between participation restriction (WHODAS-II) and disability associated with everyday dysexecutive problems (DEX-R). Using the test devised by Williams (1959) to examine the difference between two correlations from a single sample, the strength of the correlation between participation restriction (WHODAS-II) and disability associated with social dysfunction (SFS) was not found to be significantly different from the correlation between participation restriction (WHODAS-II) and disability associated with everyday dysexecutive problems (DEX-R) (t (36) = 3.46, P>0.05, 2-tailed test).

3.4: Part 3 – Secondary Analysis:

3.a) It was hypothesized that: Executive impairment (as measured by the D-KEFS-ST) will be significantly positively correlated with global disability (as measured by the WHODAS-II).

A Pearson’s product moment correlation was employed to analyse the degree of association between participants’ executive impairment (as measured by the D-KEFS-ST) and their global disability (as measured by the WHODAS-II total score). The result showed that there was a significant negative correlation between the D-KEFS-ST and the WHODAS-II (r (36) = -0.36, p < 0.02, 2-tailed test). This result indicates that greater severity of executive impairment (low scores on the D-KEFS-ST) was associated with a greater degree of disability (high scores on the WHODAS-II).
3.b) **It was hypothesized that:** *When general impairment is controlled for (as measured by the AICFC), executive impairment (as measured by the D-KEFS-ST) will still be significantly and positively correlated with global disability (as measured by the WHODAS-II).*

In order to control for the effects of general impairment (measured by AICFC), a partial correlation was used to analyse the association between executive impairment (as measured by the DKEFS-ST) and global disability (as measured by the WHODAS-II). The partial correlation indicated that even when general impairment (AICFC) was controlled for, there was still a significant negative correlation between the D-KEFS-ST and the WHODAS-II \( r (36) = -0.35, p < 0.03, \) 2-tailed test).

3.c) **It was hypothesized that:** *Executive impairment (as measured by the D-KEFS-ST) will be significantly positively correlated with participants’ social dysfunction (as measured by the SFS).*

A Pearson’s product moment correlation was used to analyse the association between executive impairment (as measured by the D-KEFS-ST) and social dysfunction (as measured by the SFS). The result indicated that there was a significant positive correlation between severity of executive impairment (D-KEFS) and severity of social dysfunction (SFS) \( r (36) = 0.59, p < 0.01, \) 2-tailed test).

3.d) **It was hypothesized that:** *When general impairment is controlled for (as measured by the AICFC), executive impairment (as measured by the D-KEFS-ST) will still be significantly positively correlated with social dysfunction (as measured by the SFS).*

In order to control for the effects of general impairment (measured by AICFC), a partial correlation was used to analyse the association between executive impairment (as measured by the DKEFS-ST) and social dysfunction (as measured by the SFS). The partial correlation indicated that when general impairment was controlled for, there was a greater significant positive correlation between the D-KEFS-ST and the SFS \( r (36) = 0.62, p < 0.01, \) 2-tailed test).
In view of the fact that the correlation between the D-KEFS-ST and the SFS appeared to be substantially larger than the correlation between the D-KEFS-ST and the DEX-R, the test devised by Williams (1959) to examine the difference between two correlations from a single sample was used to analyse the difference. The results indicated that the strength of the correlation between executive impairment (D-KEFS-ST) and social dysfunction (SFS) was significantly higher than the correlation between executive impairment (D-KEFS-ST) and disability associated with dysexecutive problems (DEX-R) (t (36) = -4.90, p < 0.001, 2-tailed test).

3.5: Part 4 – Theoretical Analysis:

4.a) It was hypothesized that: Executive impairment (as measured by the D-KEFS-ST) will correlate with inhibition (as measured by DEX-R factor 1) to a greater degree than it does with overall dysexecutive problems in everyday life (DEX-R total score).

In accordance with the theoretical proposition that the executive-functioning system is fractionated, it was hypothesised that performance on the D-KEFS-ST would be expected to correlate more with the inhibition component. A Pearson’s product moment correlation was employed to analyse the degree of association between participants’ performance on the D-KEFS-ST and the inhibition component of executive-function (as measured by the DEX-R items in factor 1, Burgess et al., 1998). The result indicated that there was a significant negative correlation between participants’ executive impairment (represented by low scores on the D-KEFS) and their dysfunctional inhibition skills (represented by high scores on the DEX-R inhibition items) (r (36) = -0.51, p < 0.01, 2-tailed test). This correlation is higher than the correlation between the D-KEFS-ST and the DEX-R total score (r (36) = -0.40, p < 0.01, 2-tailed test). Using the test devised by Williams (1959) to examine the difference between two correlations from a single sample, the strength of the correlation between the D-KEFS-ST and inhibition (DEX-R factor 1) was found to be significantly different from the correlation between D-KEFS-ST and participants’ total dysexecutive symptoms (DEX-R) (t (36) = -1.63, p < 0.05, 2-tailed test).
On the basis of these results further analysis was conducted to explore whether the correlation between executive impairment (as measured by the D-KEFS-ST) and disability associated with social dysfunction (as measured by the SFS) was greater than the correlation between executive impairment (D-KEFS-ST) and disinhibition (as measured by factor 1 from DEX-R). Using the test devised by Williams (1959) the strength of the correlation between the D-KEFS-ST and social dysfunction (SFS) was found to be significantly different from the correlation between D-KEFS-ST and inhibition (DEX-R factor 1) \( t(36) = -2.05, p < 0.05, \) 2-tailed test).

4.b) It was hypothesized that: Executive impairment (as measured by the D-KEFS-ST) will correlate with intentionality (as measured by DEX-R factor 2) to a greater degree than it does with overall dysexecutive problems in everyday life (DEX-R total score).

A Pearson’s product moment correlation was employed to analyse the degree of association between participants’ performance on the D-KEFS-ST and the intentionality component of executive-function (as measured by the DEX-R items in factor 1, Burgess et al., 1998). The result indicated that there is no significant relationship between participants’ executive impairment (D-KEFS) and intentionality (DEX-R factor 2) \( r(36) = -253, p > 0.05, \) 2-tailed test).

4.c) It was hypothesized that: Executive impairment (as measured by the D-KEFS-ST) will correlate with executive memory (as measured by DEX-R factor 3) to a greater degree than it does with overall dysexecutive problems in everyday life (DEX-R total score).

A Pearson’s product moment correlation was employed to analyse the degree of association between participants’ performance on the D-KEFS-ST and the executive memory component of executive-function (as measured by the DEX-R items in factor 3, Burgess et al., 1998). The result indicated that there is no significant relationship between participants’ executive impairment (D-KEFS) and executive memory (DEX-R factor 2) \( r(36) = -224, p > 0.05, \) 2-tailed test).

5.a) It was hypothesized that: The severity of participants’ executive impairment (as measured by the D-KEFS-ST) will be greater in the group of participants with possible frontal-lobe damage than it is in the group of participants without frontal-lobe damage.
On the basis of the CT and MRI scan results, participants were divided into two groups; participants with possible frontal lobe involvement, and participants without any frontal lobe involvement (see appendix I). The difference between participants with and without suspected frontal lobe damage on the D-KEFS-ST was investigated using an Independent-Samples T-test. The result indicated that participants with suspected frontal lobe damage had significantly more executive impairment ($\bar{X} = 6.28, SD = 2.96$) than participants without executive damage ($\bar{X} = 8.86, SD = 4.34$) ($t(36) = -2.122, p < 0.05$, 2-tailed test).

However, it is possible that within the current sample, participants with frontal-lobe damage may also have had the most severe overall neurological dysfunction. If this was the case then the observed difference between participants with and without frontal-lobe damage on the D-KEFS-ST could have been caused by differences in their overall neurological impairment, rather than being specific to their executive dysfunction. Additional analysis was conducted in order to check whether there was a significant difference between participants with and without frontal-lobe damage in terms of the severity of their overall neurological dysfunction (mental function section from AICFC). An Independent-Samples T-test indicated that there was no significant difference between participants' with ($\bar{X} = 5.37, SD = 4.47$) and without ($\bar{X} = 6.08, SD = 3.08$) frontal-lobe damage in terms of the severity of their overall neurological dysfunction ($t(36) = -.492, p > 0.05$, 2-tailed test). This result indicates that the overall level of neurological dysfunction in the current sample did not differ between participants with and without frontal-lobe damage.

5.b) It was hypothesized that: Participants with possible frontal damage will have significantly more dysexecutive problems in everyday life (DEX-R) than participants without frontal lobe damage.

An Independent-Samples T-test was used to investigate whether participants with frontal-lobe damage experienced more dysexecutive problems (as measured by the DEX-R) than participants without frontal-lobe damage. The result indicated that there was no significant difference between participants with suspected frontal-lobe damage ($\bar{X} = 35.0, SD = 18.54$) and those without frontal-lobe damage ($\bar{X} = 29.7, SD = 15.81$) ($t(36) = -.891, p > 0.05$, 2-tailed test).
4.0: DISCUSSION

4.1: Ecological validity of the D-KEFS-ST from a clinical perspective

The primary aim of the present study was to establish the ecological validity of the D-KEFS-ST in order to inform clinical practice. This necessitated adopting a methodological approach that would facilitate comparisons with previous research that has explored the ecological validity of tests of executive function. Fundamental to the methodology was the use of empirically rigorous criterion measures. Consequently, the first part of the study emulates the ICIDH model of disablement, despite the fact that this model has been superseded by a theoretically more superior one. Nevertheless, this is the model that has been adopted in previous research, making its use appropriate in achieving the primary aim of the study. Subsequently, the DEX-R was employed as a measure of disability and the CIQ as a measure of handicap to determine the veridicality of the D-KEFS-ST.

Primary Analysis

The results from the primary analysis demonstrated that participants' performance on the D-KEFS-ST was significantly and positively correlated with the degree of dysexecutive problems they had in everyday life ($r = .4$), and the amount of difficulty they had living in the community ($r = .34$). The analysis also demonstrated that the relationship between participants' performance on the D-KEFS-ST and their level of community integration was not confounded by participants' general impairments ($r = .33$). Within the empirical literature correlations of .3-.4 are generally reported as indication that a test has modest ecological validity (Acker, 1986; Burgess et al., 1998; Odhuba, van den Broek, & John, 2000; Sbordone & Long, 1996; Wilson et al., 1996). Thus, in accordance with this research it may be concluded that the current study found that the D-KEFS-ST has modest ecological validity.

Ecological validity of the D-KEFS-ST compared to traditional tests

In comparison to previous research the D-KEFS-ST can be seen to have equal ecological validity to many of the traditional tests of executive function. For example, the MWCST has been demonstrated to correlate with the DEX-R at .4 (Burgess et al., 1998), whilst it correlates with the CIQ at .2 (Hanks, 1996). Even those tests that are considered to have good verisimilitude do not
produce any greater correlations. For instance the Hayling and Brixton test was only found to correlate with the DEX-R at .4, and the CIQ at .2 (Odhuba, van den Broek, John, 2000). Moreover, none of the tests included in the BADS battery produced correlations with the DEX-R above .46, yet it is heralded to be the gold standard of ecologically valid tests of executive functioning (Wilson et al., 1996). The ecological validity of the BADS is based upon the total score across all tests, which correlates with the DEX-R at .62 (Wilson et al., 1996). The fact that the veridicality of D-KEFS-ST in the present study is equivalent to the veridicality of most of the single subtests of the BADS, indicates that the complete D-KEFS battery may also have good ecological validity.

Even though the current findings demonstrate that the ecological validity of the D-KEFS-ST is comparable to most other single tests of executive functioning, the clinical significance of these findings is debatable. In reality these results can only account for approximately 16% of the total variance in disability due to dysexecutive problems and 10% of handicap, therefore as Goldstein (1996) argued, the capacity to generalise to individuals is limited. One explanation for the modest correlations between neuropsychological tests and functional behaviour is that the criterion measures used to assess functional behaviour may not be sensitive enough. As discussed before, the CIQ has been demonstrated to have ceiling effects and is unable to distinguish whether low scores are due to a lack of competence or performance. Obviously, such pitfalls could have confounded the results of the current investigation. In addition, the recent theoretical propositions regarding the fractionation of the executive function system suggest that while the DEX-R appears to be a sensitive measure of dysexecutive problems, all dysexecutive problems may not be specifically related to the type of executive impairment measured by the D-KEFS-ST. Thus, it might not be plausible to expect a high correlation between participants’ total dysexecutive symptomology and their performance on the D-KEFS-ST. Additional analysis was conducted in order to explore these theoretical explanations for the results in more depth.

4.2: Ecological validity of the D-KEFS-ST from a theoretical perspective

It is clear from the literature review that the new ICF model offers a far superior definition of functional behaviour than the old ICIDH model. However, due to the novelty of the WHODAS-II (which is the only measure to date which purports to tap the ICF constructs), it could not be
automatically used in the present study, because despite being a theoretically sound construct of functional behaviour, its empirical rigour is still under investigation (Epping-Jordan, & Ustun, 2000). Thus before the WHODAS-II and the SFS (which seemed theoretically to be a better measure than the CIQ) could be used to evaluate the D-KEFS-ST ecological validity, it was necessary to examine their construct and concurrent validity.

Construct and concurrent validity of the WHODAS-II and SFS

The results of the second part of the analysis indicate that the WHODAS-II has adequate construct and concurrent validity, as it correlated significantly with all of the other measures. This suggests that it is a suitable tool to be used with a brain injured population. However, further analysis of the component parts of the WHODAS-II namely ‘activity limitation’ and ‘participation restriction’ produced mixed results. ‘Activity limitation’ was found to correlate with its predecessors ‘disability’ (as measured by the DRS) and ‘handicap’ (as measured by the CIQ) in the direction that would be predicted. For example, activity limitation correlated to a greater degree with disability (DRS) than it did with handicap (CIQ). However, statistical analysis of the difference between the strengths of these correlations indicated that there is no significant difference. Furthermore, participation restriction did not correlate with either disability (DRS) or handicap (CIQ).

These results suggest that while activity limitation is still a relatively similar construct to disability, participation restriction is a new construct that taps something different to what disability and handicap measure. Such findings do not support the WHO’s (2001) argument that ‘activity limitation’ and ‘participation restriction’ are simply broader versions of the constructs of ‘disability’ and ‘handicap’. While the DRS has good construct and concurrent validity as a pure measure of activity limitation, the CIQ is not valid as a measure of participation restriction and has only poor to moderate validity as a measure of activity limitation or general disability. Therefore, future research planning to measure functional behaviour in line with the ICF definitions should probably use the WHODAS-II.

Interestingly, the DEX-R which has been used to assess disability associated with dysexecutive problems under the old ICIDH model, appears to be related to activity limitation and participation restriction. The strength of the correlations indicate that it actually has poor construct and concurrent validity as a measure of these constructs, but this is to be expected given that the DEX-
R is only supposed to tap disability associated with dysexecutive problems. Overall, these results suggest that the DEX-R is probably a valid measure of general disability associated with dysexecutive problems in terms of the ICF model.

The results from the analysis of the SFS found that it correlates significantly with all of the measures except the DEX-R. However, further analysis of the relationship between the individual domains of the SFS, indicated that the ‘interpersonal communication’ domain correlated significantly with the DEX-R. This result shows that the SFS does tap dysexecutive characteristics, as was anticipated. Analysis of the relationship between the SFS and the component parts of the WHODAS-II revealed that the SFS also has good construct and concurrent validity as a measure of activity limitation, and poor to moderate validity as a measure of participation restriction. Of all the criterion measures included in the present study the SFS produced the highest correlation with participation restriction ($r = .46$), although this was not found to be significantly different from the size of the correlation between the DEX-R and participation restriction. Overall, the results of these analyses suggest that the SFS is a validity measure of general disability (as defined by the ICF), and is sensitive to dysexecutive problems.

**Ecological validity of the D-KEFS-ST predicted from the WHODAS-II and SFS:**

On the basis that the WHODAS-II and SFS have been demonstrated to have adequate construct and concurrent validity, the secondary analysis explored the ecological validity of the D-KEFS-ST using these scales. As predicted the D-KEFS-ST correlated significantly with the WHODAS-II ($r = -.36$). This result demonstrates that impaired performance on the D-KEFS-ST is related to a greater degree of general disability. When general impairment was controlled for this correlation only decreased slightly, which suggests that the correlation between the D-KEFS-ST and the WHODAS-II most likely reflects a true relationship between executive impairment and disability. Nevertheless, in reality this result can only account for 12% of the disability participants experience. To an extent, one might not expect executive functioning to correlate more than modestly with general disability because it will be mediated by numerous factors. Thus, from this perspective a correlation of .35 is arguably quite reasonable.

As predicted, the SFS also correlated significantly with D-KEFS-ST ($r = .59$), and this correlation improved slightly when the effects of general impairment were controlled for ($r = .62$). Furthermore, the correlation between the SFS and D-KEFS-ST was significantly greater than the
correlation between the DEX-R and the D-KEFS-ST. This indicates that participants who had severe executive impairment were more likely to have high levels of disability due to their social dysfunction than to their everyday dysexecutive problems. This result was not expected. On the basis of the empirical literature it would have been predicted that participants' dysexecutive problems in everyday life would have had a stronger relationship with performance on the D-KEFS-ST (cf. Burgess et al., 1998; Odhuba, van den Broek, Johns, 2000). Nevertheless, if this result is reliable it suggests that the D-KEFS-ST has good ecological validity.

However, there are a few alternative explanations for this finding that need to be considered before any firm conclusions can be drawn. One explanation is that the correlation between the D-KEFS-ST and the SFS reflects the D-KEFS-ST sensitivity to general neurological dysfunction rather than its specificity to executive impairment (Burgess et al., 1998). If this were the case, then the D-KEFS-ST would not be expected to discriminate between patients with, and without frontal- lobe damage, whilst the DEX-R might.

**Frontal localization of executive functions**

Analysis of the difference between participants with and without possible frontal-lobe damage on the D-KEFS-ST was found to be significant. This result indicates that the participants who performed poorly on the D-KEFS-ST were more likely to have frontal lobe damage. These results are consistent with the results from previous research that has investigated the discriminant validity of the D-KEFS-ST (cf. Delis, Kaplan and Krammer, 2001b). Furthermore, the fact that no significant difference was found between frontal and non-frontal participants in terms of their overall mental dysfunction score, suggests that this result cannot be attributed to frontal participants being more severely impaired. These results would seem to suggest that the high correlation between the D-KEFS-ST and SFS cannot be accounted for by the D-KEFS general sensitivity to neurological dysfunction.

**Fractionation of the executive system: implication for the current study**

An alternative explanation for the high correlation between the D-KEFS-ST and the SFS is the fractionation hypothesis, which has already been discussed above (Baddeley, 2002; Shallice, 2002). In summary, on the basis of the assumption that the executive function system is fractionated, it is proposed that the strength of the correlation between the D-KEFS-ST and the DEX-R may have been compromised by the fact that the DEX-R measures dysexecutive
symptomology that may not be directly related to the type of executive impairment measured by the D-KEFS-ST.

In order to explore the proposition that the executive functioning system is fractionated, the relationship between the D-KEFS-ST and the components processes of the dysexecutive syndrome proposed by Burgess et al. (1998) was investigated. Burgess and his colleagues identified five component processes on the basis of the symptoms recorded on the DEX, but only three of them were found to be related to neuropsychological measures - namely, inhibition, intentionality and executive memory. Chan (2001) provides partial support for these three components in his study of a non-clinical sample, although only the first component of 'intentionality' involved exactly the same items from the DEX. In the present study the correlation between the D-KEFS-ST and inhibition was found to be significantly greater than the correlation between D-KEFS-ST and the total DEX score. This result indicates that the D-KEFS-ST is a better measure of the executive processes relating to inhibition, than a general measure of executive impairment. Furthermore this result supports theoretical proposition that the executive function system is fractionated (Baddeley, 2002; Shallice, 2002). Nevertheless, the strength of the correlation between the D-KEFS-ST and the SFS is significantly greater than the correlation between the D-KEFS-ST and inhibition. This indicates that the executive impairment measured by the D-KEFS is still more closely associated with the severity of participants' social dysfunction than the degree of dysexecutive problems they experienced in everyday life.

However, no significant correlations were found between performance on the D-KEFS-ST and the other two component processes, although both correlated in the predicted direction at .2. Overall, the results of the statistical analysis appear to support the fractionation hypothesis even though two of the correlations only indicated that the trends were in the predicted direction. Such trends are difficult to confidently reject as non-significant, because the small sample size (which was selected on the basis of achieving the primary analysis) may have limited the power of the statistical analysis in this exploratory section. Thus, it is not possible to either reject or confirm the proposition that the modest correlation between the D-KEFS-ST and the DEX-R can be accounted for by the fractionation hypothesis.
4.3: Summary
Overall the present study’s findings suggest that the D-KEFS-ST has good ecological validity. The results have demonstrated that the severity of participants’ executive impairment according to the D-KEFS-ST is modestly related to the degree of disability they experience. In particular, the severity of an individual’s executive impairment as assessed by the D-KEFS-ST can account for approximately 38% of the social dysfunction they experience. In essence, the greater their executive impairments are, the greater their social dysfunction is. For example, participants who had executive impairments were more likely to have problems engaging in appropriate social interaction, performing everyday activities independently, and participating in prosocial and recreational activities such as visiting friends or going to the cinema. Furthermore, the D-KEFS-ST accounted for approximately 16% of the total amount of everyday dysexecutive problems participants experienced, and 26% of their everyday problems due to disinhibition. Examples of these behaviours are that they “will say one thing, but will do something different” or are “unconcerned about how s/he should behave in certain situations” (items 17 and 13 taken from the DEX-R, Wilson et al., 1996). On the whole, when general impairment was taken into consideration, the level of participants’ executive impairment as assessed by the D-KEFS-ST, accounted for approximately 0.12% of the total variance in the severity of their general disability.

Even though the validity and reliability of the D-KEFS-ST has been widely investigated, to date no study has investigated its ecological validity. Thus the results from the present study provide valuable support for the validity of the D-KEFS-ST as test of executive functioning with brain-injured populations. These results also have important implications for the wider field of research regarding the ecological validity of tests of executive function. Understanding the ecological validity of individual tests of executive function is considered especially important because these tests are notoriously unreliable (Johnstone & Stonnington, 2001). The poor generalization between tests of executive function and everyday behaviour has often been attributed to the fact that traditional tests require structured environments, which prevents the executive problems that occur in real-life becoming apparent in the test situation. The outcome is that assessment strategies have been directed towards tasks that mimic real-world behaviour, such as those developed in the BADS. The disadvantage of these tests is that they tend not to be able to identify the underlying mechanisms of executive impairment. The D-KEFS-ST overcomes this difficulty,
and the findings of the present study demonstrate that a test does not have to mimic real life to be ecologically valid.

However, these results do not negate the criticism waged by Goldstein (1996) as there is still a large percentage of variance unaccounted for, and in clinical practice this degree of error variance could lead to unsound judgements or predictions. However, Bach (1993) argues that it is wrong to expect anything more than a modest correlation between neuropsychological tests and outcome measures assessing functional behaviours following brain injury, because so many other factors impinge on successful functioning. While the present study had considered Bach’s comments and controlled for general impairment, another factor that has recently been implicated as a potential mediating factor is personality (Ready, Stierman, & Paulsen, 2001). A greater degree of variance might have been explained if personality measures had been included in the current study, although including such measures would have altered the aims of the research and required different methodology. For instance, it would have been desirable to conduct multiple regression to establish how much of the total variance in disability could be predicted by each variable, but this would also have necessitated a larger sample. Such a design would have been beyond the scope of the current projects resources, but it is an obvious point of progression for future research.

The small sample size in the current study has proved to be a limitation in a number of ways. Firstly, the findings drawn from the additional analyses have to be interpreted cautiously, as the number of statistical tests that were employed relative to the size of the sample means that the chance of a type II error was increased. Secondly, the level of statistical analysis that could be employed in the study was also limited. For example, as discussed above, it would have been of interest to employ multiple regression to explore which areas of disability the D-KEFS-ST best predicted. Furthermore, a larger sample would have meant that factor analysis could have been used to explore the fractionation hypothesis in more depth by comparing the individual component scores on the D-KEFS-ST in relation to specific items of the DEX and SFS.

In line with the fractionation hypothesis, and in view of the criticisms regarding the use of single achievement measures in tests of executive function, it is possible that the use of the Combined Descriptions Composite Score in the present study may have reduced the sensitivity of the D-KEFS-ST thus limiting the size of the correlations achieved. A large sample size would have
enabled additional analysis of the optional scores on the D-KEFS-ST such as the Combined Repeated Errors Score, which might have produced higher correlations with variables such as the ‘inhibition’ factor taken from the DEX. Such analysis may have produced better support for the fractionation hypothesis, and a very different conclusion regarding the ecological validity of the D-KEFS-ST in relation to its association with the SFS.

Nevertheless, the above limitations do not reduce the validity of the conclusions of the primary analysis with regard to the ecological validity of the D-KEFS-ST in comparison to other tests of executive function. In essence, the primary conclusion that can be drawn confidently from the present study is that the D-KEFS-ST has been demonstrated to have comparable ecological validity to traditional tests of executive function. In order to confirm the value of the findings regarding the ecological validity of the D-KEFS-ST using the SFS, future research is needed to investigate the ecological validity of traditional measures using the SFS and WHODAS-II.

While the present study has demonstrated that the SFS and the WHODAS-II are obviously promising tools for evaluating rehabilitation outcome in a brain-injured population, further research regarding the validity of these measures with this population is required before these tools can be used clinically. However, the evaluation of the construct and concurrent validity of the WHODAS-II and the SFS in the current study has begun to provide useful information regarding the utility of these scales and the other criterion measures clinically. For instance, despite the continued widespread use of the CIQ both clinically and in the empirical literature (Doninger et al., 2003) the present findings suggest that this is no longer a viable tool in the context of the criteria set out by the WHO in the new ICF. The ICF has been designed to enable a global language regarding the classification of functioning in a similar capacity to the role ICD10 has played for years in the classification of mental disorders (WHO, 2001). Thus, in an era of increasing emphasis on evidence-based practice and global research collaborations, it is not surprising that the ICF has “become an essential framework...in the field of neurorehabilitation” (Geyh et al., 2003, p532). Consequently, the continued use of the CIQ, which only has poor validity as a measure of activity limitation, is likely to lead to unreliable results.

In contrast, the DRS has good validity as a measure of activity limitation, although it still has the problem of ceiling effects for people who are initially quite able, which means that its utility is limited to acute rehabilitation settings. The DEX appears to be a valid measure of general
disability associated with dysexecutive problems, although this could not be substantially concluded, as one has to assume that its modest correlations with the WHODAS-II is a function of the fact that it only taps those areas specific to dysexecutive disability. From a research perspective this is not really adequate, and it might be important for future research to conduct large scale projects that can employ factor analysis to determine the degree and nature of general disability that is accounted for by the DEX items. Overall, the WHODAS-II and the SFS produced the most promising results in terms of their utility as outcome measures of functional behaviour defined by the ICF, although further large scale research studies will be necessary to establish an empirical database regarding their suitability with brain-injured populations before they will be viable tools for clinical practice.

In addition, future research is needed to explore the ecological validity of the complete battery of tests included in the D-KEFS, which clearly has promising results on the basis of the current study’s findings. Obviously, evaluating the whole battery would be an extensive task and would require a large research budget, but small scale research could explore one of the other sub-tests and be equally valuable. Of particular interest to future research would be the D-KEFS version of the TMT, as this test in its original form has been demonstrated to be ecologically valid. It would be interesting to know if the modifications in the D-KEFS version improve its ecological validity. In fact the TMT is one of the few individual tests that has been found to correlate at .5 with some criterion measures, although the higher correlations have generally been reported in studies that were less methodologically sound (cf. Acker, 1986; Farmer & Eakman, 1995).

The methodological approach employed by the current study was in line with previous research advocated by key authors in the field of ecological validity research (Burgess et al., 1998; Sbordone & Long, 1996). Despite the fact that cross-sectional correlational designs have been most frequently employed to conduct research into ecological validity, they fundamentally limit the conclusions that can be drawn about the predictive power of a test, because they only detect associations. In order to truly be able to assess whether tests of executive functioning can predict rehabilitation outcome and long-term disability, a number of authors have argued that it is necessary to conduct large-scale longitudinal studies employing multiple regression statistical analysis techniques (Franzen & Wilhelm, 1996; Long, 1996).
Within the constraints of clinical practice and real world research, such methodological ideals are rarely achieved. Large-scale longitudinal studies are obviously required before any firm conclusions can be drawn regarding the predictive value of the D-KEFS-ST and any other tests of executive function. However, it is inevitable that more small scale projects such as the present study, will be required to pave the way for larger longitudinal studies, as without substantial evidence to justify such expensive methodology such research is unlikely to materialise. Thus, in conclusion the findings of the present study offer another small but important contribution to the growing pool of research regarding the ecological validity of tests of executive function.


Ecological validity of neuropsychological testing. Delray Beach Florida: GR Press/St. Lucie Press.


A study to assess the usefulness of a new test of executive functioning

INFORMATION SHEET¹:

You and a person close to you (for example your partner, a parent or carer) are being invited to participate in a research study². Before you decide, it is important for you to understand why the research is being done, and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish.

What is the purpose of the study?

Sometimes when someone suffers a brain injury, they can experience changes in their higher-level cognitive skills, such as attention, language, perception, and creative thought. This group of cognitive skills is said to be our ‘executive functions’.

Psychologists have recently developed a new test to measure executive functioning. However, we do not know if a person’s performance on this test is related to how they use their executive functions in their everyday life. It is important for psychologists to have this information, so that they can decide how important changes in someone’s executive functioning are to their rehabilitation. Therefore, this study aims to investigate the relationship between people’s performance on this new test of executive functioning, and their everyday functioning.

Why have I been chosen?

Every new person who is referred to this service, and has suffered from a brain injury that could have caused changes to their executive functioning, is being invited to take part in the study. A total of 34 people are expected to participate.

¹ Information sheet 11.09.02 (version 1)
² This study has been reviewed and approved by the Local Research Ethics Committee.
Do I have to take part?

It is up to you to decide whether or not to take part. If you do decide to take part you will be asked to sign a consent form. If you agree to take part you are still free to withdraw at any time and without giving a reason. A decision to withdraw at any time, or a decision not to take part, will not affect your current or any future treatment or care you receive.

What will happen to me if I take part?

Participation involves only a one-off interview. During this time you will be asked to complete a problem-solving task that lasts about 20 minutes, followed by some structured questions about your current activities of daily living and social life. These questions will take approximately 40 minutes to complete. While you are being interviewed your partner, a parent or carer will be asked to complete some questionnaires asking for their views about the same areas.

If you consent to take part in the study your medical records will also be inspected for the purposes of analysing the results. All the information you provide will be confidential and will be stored according to the requirements of the Data Protection Act. Access to data will be restricted to authorised research and clinical personnel.

What will happen to the results of the study?

The results of the study will be written up in a report that will be available at the University of Surrey Library for reference only. You will not be identified in any part of the report.

If you have any questions or would like more information about the project, please contact Shai Betteridge on [contact information]. Should you decide to participate you will be given a copy of the information sheet and a signed consent form to keep.

Thank you for taking the time to consider taking part in this study.
CONSENT FORM

Title of Project: Ecological Validity of the Delis-Kaplan Sorting Test

Name of Researcher: Shai Betteridge
Centre Number:
Study Number:
Patient Identification Number for this trial:  

Please initial box

1. I confirm that I have read and understand the information sheet dated 11.09.02 (version 1) for the above study and have had the opportunity to ask questions.

2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my medical care or legal rights being affected.

3. I understand that sections of any of my medical notes may be looked at by Shai Betteridge where it is relevant to my taking part in research. I give permission for this individual to have access to my records.

4. I agree to take part in the above study.

Name of Patient Date Signature

Name of Significant Other Person (e.g. partner, relative, or carer) Date Signature

Researcher Date Signature

1 for patient; 1 for significant other; 1 for researcher; 1 to be kept with hospital notes.
This questionnaire looks at some of the difficulties that people sometimes experience. We would like you to read the following statements, and rate them on a five-point scale according to your experience of (the subject):

1. Has problems understanding what other people mean unless they keep things simple and straightforward
   - Never
   - Occasionally
   - Sometimes
   - Fairly often
   - Very often

2. Acts without thinking, doing the first thing that comes to mind
   - Never
   - Occasionally
   - Sometimes
   - Fairly often
   - Very often

3. Sometimes talks about events or details that never actually happened, but she believes did happen
   - Never
   - Occasionally
   - Sometimes
   - Fairly often
   - Very often

4. Has difficulty thinking ahead or planning for the future
   - Never
   - Occasionally
   - Sometimes
   - Fairly often
   - Very often

5. Sometimes gets over excited about things and can be a bit ‘over the top’ at these times
   - Never
   - Occasionally
   - Sometimes
   - Fairly often
   - Very often

6. Gets events mixed up with each other, and gets confused about the correct order of events
   - Never
   - Occasionally
   - Sometimes
   - Fairly often
   - Very often

7. Has difficulty realizing the extent of his/her problems and is unrealistic about the future
   - Never
   - Occasionally
   - Sometimes
   - Fairly often
   - Very often

8. Seems lethargic, or unenthusiastic about things
   - Never
   - Occasionally
   - Sometimes
   - Fairly often
   - Very often

9. Does or says embarrassing things when in the company of others
   - Never
   - Occasionally
   - Sometimes
   - Fairly often
   - Very often

10. Really wants to do something one minute, but couldn’t care less about it the next
    - Never
    - Occasionally
    - Sometimes
    - Fairly often
    - Very often

Copyright © 1996. No part of this publication may be reproduced, in whole or in part, in any form without written permission from the publishers. B.A.D.S., ISB N 1 874319 95 4
This questionnaire looks at some of the difficulties that people sometimes experience. We would like you to read the following statements, and rate them on a five-point scale according to your own experience:

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I have problems understanding what other people mean unless they keep things simple and straightforward</td>
<td>Never</td>
<td>Occasionally</td>
<td>Sometimes</td>
<td>Fairly often</td>
</tr>
<tr>
<td>2</td>
<td>I act without thinking, doing the first thing that comes to mind</td>
<td>Never</td>
<td>Occasionally</td>
<td>Sometimes</td>
<td>Fairly often</td>
</tr>
<tr>
<td>3</td>
<td>I sometimes talk about events or details that never actually happened, but I believe did happen</td>
<td>Never</td>
<td>Occasionally</td>
<td>Sometimes</td>
<td>Fairly often</td>
</tr>
<tr>
<td>4</td>
<td>I have difficulty thinking ahead or planning for the future</td>
<td>Never</td>
<td>Occasionally</td>
<td>Sometimes</td>
<td>Fairly often</td>
</tr>
<tr>
<td>5</td>
<td>I get very excited about things and can be a bit 'over the top' at these times</td>
<td>Never</td>
<td>Occasionally</td>
<td>Sometimes</td>
<td>Fairly often</td>
</tr>
<tr>
<td>6</td>
<td>I get events mixed up with each other and get confused about the correct order of events</td>
<td>Never</td>
<td>Occasionally</td>
<td>Sometimes</td>
<td>Fairly often</td>
</tr>
<tr>
<td>7</td>
<td>I have difficulty realizing the extent of my problems and am unrealistic about the future</td>
<td>Never</td>
<td>Occasionally</td>
<td>Sometimes</td>
<td>Fairly often</td>
</tr>
<tr>
<td>8</td>
<td>I am lethargic, or unenthusiastic about things</td>
<td>Never</td>
<td>Occasionally</td>
<td>Sometimes</td>
<td>Fairly often</td>
</tr>
<tr>
<td>9</td>
<td>I do or say embarrassing things when in the company of others</td>
<td>Never</td>
<td>Occasionally</td>
<td>Sometimes</td>
<td>Fairly often</td>
</tr>
<tr>
<td>10</td>
<td>I really want to do something one minute, but couldn't care less about it the next</td>
<td>Never</td>
<td>Occasionally</td>
<td>Sometimes</td>
<td>Fairly often</td>
</tr>
<tr>
<td>11</td>
<td>I have difficulty showing emotion</td>
<td>Never</td>
<td>Occasionally</td>
<td>Sometimes</td>
<td>Fairly often</td>
</tr>
<tr>
<td>12</td>
<td>I lose my temper at the slightest thing</td>
<td>Never</td>
<td>Occasionally</td>
<td>Sometimes</td>
<td>Fairly often</td>
</tr>
<tr>
<td>13</td>
<td>I am unconcerned about how I should behave in certain situations</td>
<td>Never</td>
<td>Occasionally</td>
<td>Sometimes</td>
<td>Fairly often</td>
</tr>
<tr>
<td>14</td>
<td>I find it hard to stop repeating saying or doing things once I've started</td>
<td>Never</td>
<td>Occasionally</td>
<td>Sometimes</td>
<td>Fairly often</td>
</tr>
<tr>
<td>15</td>
<td>I tend to be very restless, and can't sit still for any length of time</td>
<td>Never</td>
<td>Occasionally</td>
<td>Sometimes</td>
<td>Fairly often</td>
</tr>
<tr>
<td>16</td>
<td>I find it difficult to stop myself from doing something even if I know I shouldn't</td>
<td>Never</td>
<td>Occasionally</td>
<td>Sometimes</td>
<td>Fairly often</td>
</tr>
<tr>
<td>17</td>
<td>I will say one thing, but will do something different</td>
<td>Never</td>
<td>Occasionally</td>
<td>Sometimes</td>
<td>Fairly often</td>
</tr>
<tr>
<td>18</td>
<td>I find it difficult to keep my mind on something, and am easily distracted</td>
<td>Never</td>
<td>Occasionally</td>
<td>Sometimes</td>
<td>Fairly often</td>
</tr>
<tr>
<td>19</td>
<td>I have trouble making decisions, or deciding what I want to do</td>
<td>Never</td>
<td>Occasionally</td>
<td>Sometimes</td>
<td>Fairly often</td>
</tr>
<tr>
<td>20</td>
<td>I am unaware of, or unconcerned about, how others feel about my behaviour</td>
<td>Never</td>
<td>Occasionally</td>
<td>Sometimes</td>
<td>Fairly often</td>
</tr>
</tbody>
</table>
Community Integration Questionnaire

This questionnaire looks at some of the areas that people sometimes find difficult after a brain injury. We would like you to answer each question in relation to your experience of [the subject].

1. Who usually does shopping for groceries or other necessities in the subject's household?
   - The subject alone
   - The subject and someone else
   - Someone else

2. Who usually prepares meals in the subject's household?
   - The subject alone
   - The subject and someone else
   - Someone else

3. In the subject's home who usually does normal everyday housework?
   - The subject alone
   - The subject and someone else
   - Someone else

4. Who usually cares for the children in the subject's home?
   - The subject alone
   - The subject and someone else
   - Someone else
   - Not applicable/ no children under 17 in the home

5. Who usually plans social arrangements such as get-togethers with family and friends?
   - The subject alone
   - The subject and someone else
   - Someone else

6. Who usually looks after the subject's personal finances such as banking or paying bills?
   - The subject alone
   - The subject and someone else
   - Someone else

Can you tell me approximately how many times a month the subject now usually participates in the following activities outside his/her home?

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>7. Shopping</td>
<td>□ Never</td>
<td>□ 1-4 times</td>
</tr>
<tr>
<td>8. Leisure activities such as movies, sports, restaurants</td>
<td>□ Never</td>
<td>□ 1-4 times</td>
</tr>
<tr>
<td>9. Visiting friends or relatives</td>
<td>□ Never</td>
<td>□ 1-4 times</td>
</tr>
<tr>
<td>10. When the subject participates in leisure activities does he/she usually do this alone or with others?</td>
<td>Mostly alone</td>
<td>Mostly with friends who have head injuries</td>
</tr>
<tr>
<td>11. Does the subject have a best friend with whom he/she confides?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>12. How often does the subject travel outside the home?</td>
<td>Almost everyday</td>
<td>Almost every week</td>
</tr>
<tr>
<td>13. Please choose the answer below that best corresponds to the subject's current (during the past month) work situation:</td>
<td>Full-time employment (more than 20 hours per week)</td>
<td>Part-time employment (less than or equal to 20 hours per week)</td>
</tr>
<tr>
<td>14. Please choose the answer below that best corresponds to the subject's current (during the past month) school or training program situation:</td>
<td>Full-time</td>
<td>Part-time</td>
</tr>
<tr>
<td>15. In the past month, how often did the subject engage in volunteer activities?</td>
<td>Never</td>
<td>□ 1-4 times</td>
</tr>
</tbody>
</table>

Community Integration Questionnaire

1. Who usually does shopping for groceries or other necessities in your household?
   - Yourself alone
   - Yourself and someone else
   - Someone else

2. Who usually prepares meals in your household?
   - Yourself alone
   - Yourself and someone else
   - Someone else

3. In your home who usually does normal everyday housework?
   - Yourself alone
   - Yourself and someone else
   - Someone else

4. Who usually cares for the children in your home?
   - Yourself alone
   - Yourself and someone else
   - Someone else
   - Not applicable/ no children under 17 in the home

5. Who usually plans social arrangements such as get-togethers with family and friends?
   - Yourself alone
   - Yourself and someone else
   - Someone else

6. Who usually looks after your personal finances such as banking or paying bills?
   - Yourself alone
   - Yourself and someone else
   - Someone else

Self-rating

Can you tell me approximately how many times a month you now usually participate in the following activities outside your home?

7. Shopping
   □ Never
   □ 1-4 times
   □ 5 or more

8. Leisure activities such as movies, sports, restaurants
   □ Never
   □ 1-4 times
   □ 5 or more

9. Visiting friends or relatives
   □ Never
   □ 1-4 times
   □ 5 or more

10. When you participate in leisure activities do you usually do this alone or with others?
    □ Mostly alone
    □ Mostly with friends who have head injuries
    □ Mostly with family members
    □ Mostly with friends who do not have head injuries
    □ With a combination of family and friends

11. Do you have a best friend with whom you confide?
    □ Yes
    □ No

12. How often do you travel outside the home?
    □ Almost everyday
    □ Almost every week
    □ Seldom/never (less than once per week)

13. Please choose the answer below that best corresponds to your current (during the past month) work situation:
    □ Full-time employment (more than 20 hours per week)
    □ Part-time employment (less than or equal to 20 hours per week)
    □ Not working, but actively looking for work
    □ Not working, not looking for work
    □ Volunteer job in the community
    □ Not applicable, retired due to age

14. Please choose the answer below that best corresponds to your current (during the past month) school or training program situation:
    □ Full-time
    □ Part-time
    □ Not attending school or training program

15. In the past month, how often did you engage in volunteer activities?
    □ Never
    □ 1-4 times
    □ 5 or more

ICF CHECKLIST
IMPAIRMENT OF BODY FUNCTIONS

- Body functions are the physiological functions of the body systems.
- Body structures are anatomical parts of the body such as organs, limbs and their components.
- Impairments are problems in body function or structure as a significant deviation or loss.

In the patient's present state of health please rate how impaired his or her following body functions and structures are:

<table>
<thead>
<tr>
<th>Qualifier:</th>
<th>0 No impairment</th>
<th>1 Mild impairment</th>
<th>2 Moderate impairment</th>
<th>3 Severe impairment</th>
<th>4 Complete impairment</th>
</tr>
</thead>
</table>

### B1. MENTAL FUNCTIONS

<table>
<thead>
<tr>
<th>B1/B144 orientation:</th>
<th>How is the patient's general mental function of knowing and ascertaining his/her relation to self, to others, to time and to one's surroundings? For example, does s/he know who s/he is, where s/he is, and the date?</th>
<th>0 1 2 3 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1/B177 Intellectual functioning:</td>
<td>How is the patient's general intellectual functioning, such as understanding information in his/her surroundings, or using multiple intellectual functions?</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>B1/B30 Energy and drive functions:</td>
<td>How is the patient's functions of energy level, motivation and appetite?</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>B1/B34 Sleep functions:</td>
<td>How is the patient's sleeping, such as the onset, amount, maintenance and quality of sleep?</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>B1/B40 Attention functions:</td>
<td>How is the patient's attention, such as concentration and distractibility?</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>B1/B44 Memory functions:</td>
<td>How is the patient's memory functions of registering, storing and retrieving information?</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>B1/B52 Emotional functions:</td>
<td>How is the Patient's emotional functioning, such as the appropriateness of his/her emotions, regulation and range of emotions?</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>B1/B56 Perceptual functions:</td>
<td>How are the patient's ability to recognise and interpret information using the senses of hearing, seeing, tasting, smelling, touching and visuospatial skills.</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>B1/B64 Higher-Level Cognitive functions:</td>
<td>How is the patient's complex goal-directed behaviours such as decision-making, abstract thinking, planning and carrying out plans, mental flexibility, and deciding which behaviours are appropriate under what circumstances?</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>B1/B67 Mental functions of language:</td>
<td>How is the patient's spoken and written language, such as sign language, and functions of expression and comprehension?</td>
<td>0 1 2 3 4</td>
</tr>
</tbody>
</table>

### B2. SENSORY FUNCTIONS:

<table>
<thead>
<tr>
<th>B2/B10 seeing function:</th>
<th>How are the patient's visual functions? Can s/he see light, form, size, shape and colour?</th>
<th>0 1 2 3 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>B2/B30 Hearing function</td>
<td>How is the patient's auditory function, can s/he hear sounds and discriminate location, pitch loudness and quality of sound?</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>B2/B35 Vestibular functions</td>
<td>How is the patient's balance of his/her body movement?</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>B2/B280 Pain</td>
<td>How is the patient's sensation of pain?</td>
<td>0 1 2 3 4</td>
</tr>
</tbody>
</table>

### B3. VOICE AND SPEECH FUNCTIONS

| B3/B10 VOICE: | How is the patients voice function, such as the production and quality of his/her voice in terms of phonation, pitch, and loudness? | 0 1 2 3 4 |

### B4. FUNCTIONS OF THE CARDIOVASCULAR AND RESPIRATORY SYSTEM

| B4/B10 heart: | How is the patient's heart functioning? | 0 1 2 3 4 |

Impairments would include tachycardia, bradycardia and irregular heart beat and as in
17/B430 Haematological system function (blood)  
How is the patient’s production of blood and bone marrow?  
Impairments would include anaemia, haemophilia and other clotting dysfunctions.  

18/B435 Immunological system functions (allergies, hypersensitivity)  
How are the patient’s functions of the body related to protection against foreign substances?  
Impairments would include autoimmunity (AIDS), allergic reactions, lymphadenitis and lymphoedema.  

19/B440 Respiration:  
How are the patient’s functions of respiration, such as the rate, rhythm and depth?  
Impairments would include apnoea, hyperventilation, irregular respiration, paradoxical respiration, and brochial spasm as in pulmonary emphysema.  

20/B515 Digestive:  
How are the patient’s functions of transporting food through the gastrointestinal tract, breakdown of food and absorption of nutrients?  
Impairments would include hyperacidity of stomach, malabsorption, intolerance to food, hypermotility of intestines, intestinal paralysis, intestinal obstruction and decreased bile production.  

21/B525 Defecation functions:  
How is the patient’s function of eliminating waste and undigested food as faeces?  
Impairments would include constipation, sphincter incompetence or incontinence.  

22/B530 Weight maintenance:  
How is the patient’s function of maintaining appropriate body weight?  
Impairments would include being underweight or overweight due to primary or secondary obesity.  

23/B555 Endocrine gland functions:  
How is the patient’s production and regulation of hormonal levels in the body?  

24/B620 Urination functions  
How is the patient’s discharge of urine from the urinary bladder?  
Impairments include dribbling, and incontinence.  

25/B640 Sexual functions  
How is the patient’s sexual functioning including the arousal, preparatory, orgasmic and resolution stages of the sexual act?  
Impairments include impotence, frigidity, and premature ejaculation.  

26/B710 Mobility of joints:  
How is the range and ease of movement in his/her joints?  
Impairments would include hypermobility of joints, frozen joints, arthritis.  

27/B730 Muscle power:  
How are the patient’s functions associated with the power of specific muscles such as the muscles of one limb, or one side of the body?  
Impairments include hemiplegia, paraplegia, quadriplegia, muscle paralysis and akinetic mutism.  

28/B735 Muscle Tone:  
How are the patient’s functions related to the tension present in the resting muscles and the resistance offered when trying to move the muscles passively?  
Impairments include hypertonia, hypertonias and muscle spasticity.  

29/B745 Involuntary movement functions:  
To what degree does the patient suffer from unintentional, involuntary contractions of a muscle or group of muscles?  
Impairments include tremors, tics, stereotyes, motor perseveration, chorea, vocal tics, dystonic movements and dyskinesia.  

30/B810 – B849 skin functions:  
How are the patient’s functions of the skin such as healing, sweating sensation, and protective (i.e. from the sun)? [excluding b280]  

<table>
<thead>
<tr>
<th>Functions</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart failure, cardiomyopathy, myocarditis, and coronary insufficiency.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17/B430 Haematological system function (blood)</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>How is the patient’s production of blood and bone marrow?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impairments would include anaemia, haemophilia and other clotting dysfunctions.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18/B435 Immunological system functions (allergies, hypersensitivity)</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>How are the patient’s functions of the body related to protection against foreign substances?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impairments would include autoimmunity (AIDS), allergic reactions, lymphadenitis and lymphoedema.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19/B440 Respiration:</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>How are the patient’s functions of respiration, such as the rate, rhythm and depth?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impairments would include apnoea, hyperventilation, irregular respiration, paradoxical respiration, and brochial spasm as in pulmonary emphysema.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20/B515 Digestive:</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>How are the patient’s functions of transporting food through the gastrointestinal tract, breakdown of food and absorption of nutrients?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impairments would include hyperacidity of stomach, malabsorption, intolerance to food, hypermotility of intestines, intestinal paralysis, intestinal obstruction and decreased bile production.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21/B525 Defecation functions:</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>How is the patient’s function of eliminating waste and undigested food as faeces?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impairments would include constipation, sphincter incompetence or incontinence.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22/B530 Weight maintenance:</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>How is the patient’s function of maintaining appropriate body weight?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impairments would include being underweight or overweight due to primary or secondary obesity.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23/B555 Endocrine gland functions:</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>How is the patient’s production and regulation of hormonal levels in the body?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24/B620 Urination functions</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>How is the patient’s discharge of urine from the urinary bladder?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impairments include dribbling, and incontinence.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25/B640 Sexual functions</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>How is the patient’s sexual functioning including the arousal, preparatory, orgasmic and resolution stages of the sexual act?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impairments include impotence, frigidity, and premature ejaculation.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26/B710 Mobility of joints:</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>How is the range and ease of movement in his/her joints?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impairments would include hypermobility of joints, frozen joints, arthritis.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27/B730 Muscle power:</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>How are the patient’s functions associated with the power of specific muscles such as the muscles of one limb, or one side of the body?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impairments include hemiplegia, paraplegia, quadriplegia, muscle paralysis and akinetic mutism.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28/B735 Muscle Tone:</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>How are the patient’s functions related to the tension present in the resting muscles and the resistance offered when trying to move the muscles passively?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impairments include hypertonia, hypertonias and muscle spasticity.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29/B745 Involuntary movement functions:</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>To what degree does the patient suffer from unintentional, involuntary contractions of a muscle or group of muscles?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impairments include tremors, tics, stereotyes, motor perseveration, chorea, vocal tics, dystonic movements and dyskinesia.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30/B810 – B849 skin functions:</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>How are the patient’s functions of the skin such as healing, sweating sensation, and protective (i.e. from the sun)? [excluding b280]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
World Health Organization
Disability Assessment Schedule II
Phase 2 Field Trials - Health Services Research
36-Item Proxy Informant Version

This questionnaire asks about difficulties due to health conditions. Health conditions include diseases or illnesses, other health problems that may be short or long lasting, injuries, mental or emotional problems, and problems with alcohol or drugs.

Think back over the last 30 days and, to the best of your knowledge, answer these questions thinking about how much difficulty your relative* had while doing the following activities. For each question, please circle only one response.

(* This term is defined broadly for the purpose of this questionnaire, and can include friends or acquaintances.)

<table>
<thead>
<tr>
<th>H1</th>
<th>How do you rate your relative’s overall health in the past 30 days?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very good</td>
<td>Good</td>
</tr>
</tbody>
</table>

In the last 30 days, how much difficulty did your relative have in...

<table>
<thead>
<tr>
<th>Understanding and communicating</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
</tr>
<tr>
<td>D1.1 Concentrating on doing something for ten minutes?</td>
</tr>
<tr>
<td>D1.2 Remembering to do important things?</td>
</tr>
<tr>
<td>D1.3 Analyzing and finding solutions to problems in day to day life?</td>
</tr>
<tr>
<td>D1.4 Learning a new task, for example, learning how to get to a new place?</td>
</tr>
<tr>
<td>D1.5 Generally understanding what people say?</td>
</tr>
<tr>
<td>D1.6 Starting and maintaining a conversation?</td>
</tr>
</tbody>
</table>

* Please continue to the next page...*
In the last 30 days, how much difficulty did your relative have in:

<table>
<thead>
<tr>
<th>Getting around</th>
<th>None</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
<th>Extreme/ Cannot Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>D2.1 Standing for long periods such as 30 minutes?</td>
<td>None</td>
<td>Mild</td>
<td>Moderate</td>
<td>Severe</td>
<td>Extreme/ Cannot Do</td>
</tr>
<tr>
<td>D2.2 Standing up from sitting down?</td>
<td>None</td>
<td>Mild</td>
<td>Moderate</td>
<td>Severe</td>
<td>Extreme/ Cannot Do</td>
</tr>
<tr>
<td>D2.3 Moving around inside the home?</td>
<td>None</td>
<td>Mild</td>
<td>Moderate</td>
<td>Severe</td>
<td>Extreme/ Cannot Do</td>
</tr>
<tr>
<td>D2.4 Getting out of the home?</td>
<td>None</td>
<td>Mild</td>
<td>Moderate</td>
<td>Severe</td>
<td>Extreme/ Cannot Do</td>
</tr>
<tr>
<td>D2.5 Walking a long distance such as a kilometre (or equivalent)?</td>
<td>None</td>
<td>Mild</td>
<td>Moderate</td>
<td>Severe</td>
<td>Extreme/ Cannot Do</td>
</tr>
</tbody>
</table>

Self Care

| D3.1 Washing his/her whole body? | None | Mild | Moderate | Severe | Extreme/ Cannot Do |
| D3.2 Getting dressed? | None | Mild | Moderate | Severe | Extreme/ Cannot Do |
| D3.3 Eating? | None | Mild | Moderate | Severe | Extreme/ Cannot Do |
| D3.4 Staying by himself/herself for a few days? | None | Mild | Moderate | Severe | Extreme/ Cannot Do |

Getting along with people

| D4.1 Dealing with people he/she does not know? | None | Mild | Moderate | Severe | Extreme/ Cannot Do |
| D4.2 Maintaining a friendship? | None | Mild | Moderate | Severe | Extreme/ Cannot Do |
| D4.3 Getting along with people who are close to him/her? | None | Mild | Moderate | Severe | Extreme/ Cannot Do |
| D4.4 Making new friends? | None | Mild | Moderate | Severe | Extreme/ Cannot Do |
| D4.5 Sexual activities? | None | Mild | Moderate | Severe | Extreme/ Cannot Do |

Life activities

| D5.1 Taking care of his/her household responsibilities? | None | Mild | Moderate | Severe | Extreme/ Cannot Do |
| D5.2 Doing his/her most important household tasks well? | None | Mild | Moderate | Severe | Extreme/ Cannot Do |
| D5.3 Getting all the household work done that is needed? | None | Mild | Moderate | Severe | Extreme/ Cannot Do |
| D5.4 Getting the household work done as quickly as needed? | None | Mild | Moderate | Severe | Extreme/ Cannot Do |

Please continue to the next page ...
IF YOUR RELATIVE WORKS (PAID, NON-PAID, SELF EMPLOYED) OR GOES TO SCHOOL, COMPLETE QUESTIONS D5.5-D5.8 BELOW. OTHERWISE, SKIP TO D6.1 NEAR THE MIDDLE OF THE PAGE.

<table>
<thead>
<tr>
<th>Question</th>
<th>None</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe/Cannot Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>D5.5 His/her day to day work/school?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D5.6 Doing his/her most important work/school tasks well?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D5.7 Getting all the work done that is needed?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D5.8 Getting the work done as quickly as needed?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Participation in society**

In the last 30 days:

<table>
<thead>
<tr>
<th>Question</th>
<th>None</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe/Cannot Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>D6.1 How much of a problem did your relative have in joining in community activities (for example, festivities, religious or other activities) in the same way as anyone else can?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D6.2 How much of a problem did your relative have because of barriers or hindrances in the world around him/her?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D6.3 How much of a problem did your relative have living with dignity because of the attitudes and actions of others?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D6.4 How much time did your relative spend on his/her health condition, or its consequences?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D6.5 How much has your relative been emotionally affected by his/her health condition?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D6.6 How much has his/her health been a drain on his/her financial resources or on the financial resources of other relatives?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D6.7 How much of a problem did you or the rest of his/her family have because of his/her health problems?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D6.8 How much of a problem did your relative have in doing things by him/herself for relaxation or pleasure?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Please continue to the next page...*
<table>
<thead>
<tr>
<th>H2</th>
<th>Overall, how much did all of these difficulties interfere with your relative’s life?</th>
<th>Not at all</th>
<th>Mildly</th>
<th>Moderately</th>
<th>Severely</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>H3</td>
<td>Overall, in the past 30 days, how many days were these difficulties present?</td>
<td>RECORD NUMBER OF DAYS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H4</td>
<td>In the past 30 days, for how many days was your relative totally unable to carry out his/her usual activities or work because of any health condition?</td>
<td>RECORD NUMBER OF DAYS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H5</td>
<td>In the past 30 days, not counting the days that your relative was totally unable, for how many days did your relative cut back or reduce his/her usual activities or work because of any health condition?</td>
<td>RECORD NUMBER OF DAYS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H6</td>
<td>In the past 30 days, how many days have you seen or spoken with your relative?</td>
<td>RECORD NUMBER OF DAYS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H7</td>
<td>I am the ________ (choose one) of this person. 1 = husband or wife 2 = parent 3 = son or daughter 4 = brother or sister 5 = other relative 6 = friend 7 = professional carer 8 = other (specify) __________</td>
<td>1 = husband or wife 2 = parent 3 = son or daughter 4 = brother or sister 5 = other relative 6 = friend 7 = professional carer 8 = other (specify) __________</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This completes the questionnaire. Thank you.
**World Health Organization**  
**Disability Assessment Schedule II**  
Phase 2 Field Trials – Health Services Research  
36-Item Self-Administered Version

For Office Use Only:

- Center #  
- Subject #  
- Time #  

Day / Month / Year

Pop:  
- Gen  
- Dig  
- Ale  
- Mnl  
- Phys  
- Other

Dwelling:  
- Independent  
- Assisted  
- Hospitalized

<table>
<thead>
<tr>
<th>H1</th>
<th>How do you rate your overall health in the past 30 days?</th>
<th>Very good</th>
<th>Good</th>
<th>Moderate</th>
<th>Bad</th>
<th>Very Bad</th>
</tr>
</thead>
</table>

This questionnaire asks about difficulties due to health conditions. Health conditions include diseases or illnesses, other health problems that may be short or long lasting, injuries, mental or emotional problems, and problems with alcohol or drugs.

Think back over the last 30 days and answer these questions thinking about how much difficulty you had doing the following activities. For each question, please circle only one response.

In the last 30 days, how much difficulty did you have in:

<table>
<thead>
<tr>
<th>Understanding and communicating</th>
<th>None</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
<th>Extreme/Cannot Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1.1 Concentrating on doing something for ten minutes?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D1.2 Remembering to do important things?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D1.3 Analyzing and finding solutions to problems in day to day life?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D1.4 Learning a new task, for example, learning how to get to a new place?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D1.5 Generally understanding what people say?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D1.6 Starting and maintaining a conversation?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Getting around</th>
<th>None</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
<th>Extreme/Cannot Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>D2.1 Standing for long periods such as 30 minutes?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D2.2 Standing up from sitting down?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D2.3 Moving around inside your home?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D2.4 Getting out of your home?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D2.5 Walking a long distance such as a kilometre (or equivalent)?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please continue to the next page ...
In the last 30 days, how much difficulty did you have in:

<table>
<thead>
<tr>
<th>Self Care</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>D3.1 Washing your whole body?</td>
<td>None</td>
<td>Mild</td>
<td>Moderate</td>
<td>Severe</td>
</tr>
<tr>
<td>D3.2 Getting dressed?</td>
<td>None</td>
<td>Mild</td>
<td>Moderate</td>
<td>Severe</td>
</tr>
<tr>
<td>D3.3 Eating?</td>
<td>None</td>
<td>Mild</td>
<td>Moderate</td>
<td>Severe</td>
</tr>
<tr>
<td>D3.4 Staying by yourself for a few days?</td>
<td>None</td>
<td>Mild</td>
<td>Moderate</td>
<td>Severe</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Getting along with people</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>D4.1 Dealing with people you do not know?</td>
<td>None</td>
<td>Mild</td>
<td>Moderate</td>
<td>Severe</td>
</tr>
<tr>
<td>D4.2 Maintaining a friendship?</td>
<td>None</td>
<td>Mild</td>
<td>Moderate</td>
<td>Severe</td>
</tr>
<tr>
<td>D4.3 Getting along with people who are close to you?</td>
<td>None</td>
<td>Mild</td>
<td>Moderate</td>
<td>Severe</td>
</tr>
<tr>
<td>D4.4 Making new friends?</td>
<td>None</td>
<td>Mild</td>
<td>Moderate</td>
<td>Severe</td>
</tr>
<tr>
<td>D4.5 Sexual activities?</td>
<td>None</td>
<td>Mild</td>
<td>Moderate</td>
<td>Severe</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Life activities</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>D5.1 Taking care of your household responsibilities?</td>
<td>None</td>
<td>Mild</td>
<td>Moderate</td>
<td>Severe</td>
</tr>
<tr>
<td>D5.2 Doing most important household tasks well?</td>
<td>None</td>
<td>Mild</td>
<td>Moderate</td>
<td>Severe</td>
</tr>
<tr>
<td>D5.3 Getting all the household work done that you needed to do?</td>
<td>None</td>
<td>Mild</td>
<td>Moderate</td>
<td>Severe</td>
</tr>
<tr>
<td>D5.4 Getting your household work done as quickly as needed?</td>
<td>None</td>
<td>Mild</td>
<td>Moderate</td>
<td>Severe</td>
</tr>
</tbody>
</table>

If you work (paid, non-paid, self employed) or go to school, complete questions D5.5-D5.8 below. Otherwise, skip to D6.1 at the top of the next page.

In the last 30 days, how much difficulty did you have in:

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>D5.5 Your day to day work/school?</td>
<td>None</td>
<td>Mild</td>
<td>Moderate</td>
<td>Severe</td>
</tr>
<tr>
<td>D5.6 Doing your most important work/school tasks well?</td>
<td>None</td>
<td>Mild</td>
<td>Moderate</td>
<td>Severe</td>
</tr>
<tr>
<td>D5.7 Getting all the work done that you need to do?</td>
<td>None</td>
<td>Mild</td>
<td>Moderate</td>
<td>Severe</td>
</tr>
<tr>
<td>D5.8 Getting your work done as quickly as needed?</td>
<td>None</td>
<td>Mild</td>
<td>Moderate</td>
<td>Severe</td>
</tr>
</tbody>
</table>

Please continue to the next page ...
In the last 30 days:

<table>
<thead>
<tr>
<th>Participation in Society</th>
<th>None</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
<th>Extreme/Cannot Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>D6.1 How much of a problem did you have in joining in community activities (for example, festivities, religious or other activities) in the same way as anyone else can</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D6.2 How much of a problem did you have because of barriers or hindrances in the world around you?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D6.3 How much of a problem did you have living with dignity because of the attitudes and actions of others</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D6.4 How much time did you spend on your health condition, or its consequences</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D6.5 How much have you been emotionally affected by your health condition</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D6.6 How much has your health been a drain on the financial resources of you or your family</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D6.7 How much of a problem did your family have because of your health problems</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D6.8 How much of a problem did you have in doing things by yourself for relaxation or pleasure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

H2 Overall, how much did these difficulties interfere with your life?

<table>
<thead>
<tr>
<th>Not at all</th>
<th>Mildly</th>
<th>Moderately</th>
<th>Severely</th>
<th>Extremely</th>
</tr>
</thead>
</table>

H3 Overall, in the past 30 days, how many days were these difficulties present?

<table>
<thead>
<tr>
<th>RECORD NUMBER OF DAYS</th>
</tr>
</thead>
</table>

H4 In the past 30 days, for how many days were you totally unable to carry out your usual activities or work because of any health condition?

<table>
<thead>
<tr>
<th>RECORD NUMBER OF DAYS</th>
</tr>
</thead>
</table>

H5 In the past 30 days, not counting the days that you were totally unable, for how many days did you cut back or reduce your usual activities or work because of any health condition?

<table>
<thead>
<tr>
<th>RECORD NUMBER OF DAYS</th>
</tr>
</thead>
</table>

This completes the questionnaire. Thank you.
THE SOCIAL FUNCTIONING SCALE
RELATIVES VERSION
NAME: _______________________________________

This questionnaire helps us to learn how your relative has been getting on since s/he became ill.

This questionnaire takes about 20 minutes to complete- before getting started could you please answer the following:

1. Does your relative still live with you?
   Answer: __________________________________________________________

2. If no, when did your relative move away?
   Answer: __________________________________________________________

3. Do you still have regular contact with your relative?
   Answer: __________________________________________________________

FOR INTERVIEWER'S USE ONLY:

<table>
<thead>
<tr>
<th>Raw Score</th>
<th>Scaled Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Withdrawal/Social Engagement (W)</td>
<td></td>
</tr>
<tr>
<td>Interpersonal Communication (Inter)</td>
<td></td>
</tr>
<tr>
<td>Independence-Performance (Ip)</td>
<td></td>
</tr>
<tr>
<td>Independence-Competence (Ic)</td>
<td></td>
</tr>
<tr>
<td>Recreation (R)</td>
<td></td>
</tr>
<tr>
<td>Prosocial (P)</td>
<td></td>
</tr>
<tr>
<td>Employment/Occupation (E/O)</td>
<td></td>
</tr>
</tbody>
</table>

12
1. What time does he/she get up each day?

<table>
<thead>
<tr>
<th>Average weekday</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>9-11am</td>
<td>2</td>
</tr>
<tr>
<td>11am-1pm</td>
<td>1</td>
</tr>
<tr>
<td>AFTER 1pm</td>
<td>0</td>
</tr>
</tbody>
</table>

Average weekend (if different)

2. On average how many hours does he/she spend alone in one day?
   e.g. alone in a room
   walking out alone
   listening to radio or watching TV alone etc.

Please tick one of the boxes:

<table>
<thead>
<tr>
<th>0-3 hours</th>
<th>3-6 hours</th>
<th>6-9 hours</th>
<th>9-12 hours</th>
<th>12 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very little spent alone</td>
<td>Some of time</td>
<td>Quite a lot of the time</td>
<td>A great deal of time</td>
<td>Practically all the time</td>
</tr>
</tbody>
</table>

3. How often will he/she start a conversation at home?

<table>
<thead>
<tr>
<th>Almost never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
</tr>
</thead>
</table>

4. How often does he/she leave the house (for any reason)?

<table>
<thead>
<tr>
<th>Almost never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
</tr>
</thead>
</table>

5. How does he/she react to the presence of strangers/people they don’t know?

<table>
<thead>
<tr>
<th>Avoid them</th>
<th>Feel nervous</th>
<th>Accept them</th>
<th>Like them</th>
</tr>
</thead>
</table>

13
1. How many friends does he/she have at the moment? (people he/she will see regularly, do activities with etc.)

2. Does he/she have a partner?
   - Yes
   - No

3. How often are you able to carry out a sensible or rational conversation with him/her? Please tick a box
   - Almost never
   - Rarely
   - Sometimes
   - Often

4. How easy or difficult does he/she find it talking to people at the moment?
   - Very easy
   - Quite easy
   - Average
   - Quite difficult
   - Very difficult
Please place a tick against each item to show how often she/he has done the following over the past 3 months.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buying items from the shops (without help)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Washing pots, tidying up etc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regular washing, bathing etc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Washing own clothes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Looking for a job/working</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doing the food shopping</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prepare and cook a meal</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leaving the house alone</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Using buses, trains etc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Using money</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Budgeting</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Choosing and buying clothes for self</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Take care of personal appearance.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Please place a tick in the appropriate column to indicate how often he/she has done any of the following activities over the past 3 months.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>Playing musical instruments</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sewing, knitting</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gardening</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading things</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Watching television</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Listening to records or radio</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooking</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D.I.Y activities (e.g. putting up shelves)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fixing things (car, bike, household etc.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Walking, rambling</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Driving/cycling (as a recreation)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Swimming</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hobby (e.g. collecting things)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shopping</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Artistic activity (painting, crafts etc.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Please place a tick in the appropriate column to indicate how often he/she has done any of the following activities **over the past 3 months**.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cinema</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Theatre/Concert</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Watching an indoor sport (squash, table-tennis)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Watching an outdoor sport (football, rugby)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Art gallery\ museum</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exhibitions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visiting places of interest</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meetings, talks etc</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evening Class.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visiting relatives in their homes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Being visited by relatives</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visiting friends (including boy/girlfriends)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parties</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formal occasions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disco etc</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nightclub\ Social club</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Playing an indoor sport</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Playing an outdoor sport</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Club\ Society</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pub.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eating Out</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Church</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Please place a tick against each item to show how able he/she is at doing or using the following.

<table>
<thead>
<tr>
<th>Adequately</th>
<th>Needs Help</th>
<th>Unable (needs)</th>
<th>Not known</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public transport</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Handling money.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Budgeting.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooking for shopping.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weekly shopping.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Looking for a job/working.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Washing own clothes.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal hygiene.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Washing, tidying etc.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Purchasing from shops.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leaving the house alone.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Choosing and buying clothes.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caring for personal appearance.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Is he/she in regular employment?
(This includes industrial therapy, rehabilitation or retraining courses).

Yes
No

1 IF YES:
What sort of job ______________________.
How many hours does he/she work per week? ____________.
How long has he/she had this job? ____________.

2 IF NO:
When was he/she last in employment? ____________.
What sort of job was it? ______________________.
How many hours per week? ____________.

Is he/she registered disabled?
Yes
No

Does he/she attend hospital as a day patient?
Yes
No
# The Disability Rating Scale

**Name:**

**Date of head injury:**

**Sex:**

**Date of Birth:**

**Age:**

**DATE OF RATING**

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>ITEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arousalability</td>
<td>Eye opening</td>
</tr>
<tr>
<td>Awareness and Responsibility</td>
<td>Verbalization</td>
</tr>
<tr>
<td>Cognitive Ability for self care activities</td>
<td>Motor responses</td>
</tr>
<tr>
<td>Dependence on others</td>
<td>Level of functioning</td>
</tr>
<tr>
<td>Psychosocial adaptability</td>
<td>Employability</td>
</tr>
</tbody>
</table>

**COMMENTS**

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye opening</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spontaneous</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>To speech</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>To pain</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Level of functioning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Completely independent</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Independent in social environment</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Mildly dependent</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Markedly dependent</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Totally dependent</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

**Cognitive ability for feeding, toileting, grooming. (Does patient know how and when? Ignore motor disability.)**

<table>
<thead>
<tr>
<th>Cognitive ability</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spontaneous</td>
<td>0</td>
</tr>
<tr>
<td>Oriented</td>
<td>0</td>
</tr>
<tr>
<td>Confused</td>
<td>1</td>
</tr>
<tr>
<td>Inappropriate</td>
<td>2</td>
</tr>
<tr>
<td>Incomprehensible</td>
<td>3</td>
</tr>
<tr>
<td>None</td>
<td>4</td>
</tr>
<tr>
<td>Not restricted</td>
<td>0</td>
</tr>
<tr>
<td>Selected jobs competitive</td>
<td>1</td>
</tr>
<tr>
<td>Sheltered workshop</td>
<td>2</td>
</tr>
<tr>
<td>Non-competitive</td>
<td>3</td>
</tr>
<tr>
<td>Not employable</td>
<td>4</td>
</tr>
</tbody>
</table>

**Disability categories**

<table>
<thead>
<tr>
<th>Level of disability</th>
<th>Total DR score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete</td>
<td>0</td>
</tr>
<tr>
<td>Partial</td>
<td>1</td>
</tr>
<tr>
<td>Minimal</td>
<td>2</td>
</tr>
<tr>
<td>None</td>
<td>3</td>
</tr>
<tr>
<td>Mild</td>
<td>1</td>
</tr>
<tr>
<td>Partial</td>
<td>2</td>
</tr>
<tr>
<td>Moderate</td>
<td>3</td>
</tr>
<tr>
<td>Moderately severe</td>
<td>4</td>
</tr>
<tr>
<td>Severe</td>
<td>6</td>
</tr>
<tr>
<td>Extremely severe</td>
<td>7</td>
</tr>
<tr>
<td>Extreme</td>
<td>8</td>
</tr>
<tr>
<td>Vegetative state</td>
<td>9</td>
</tr>
<tr>
<td>Death</td>
<td>10</td>
</tr>
</tbody>
</table>

Grouping for participants diagnosis into 5 diagnostic categories:

Table 1: Re-categorized diagnosis groups:

<table>
<thead>
<tr>
<th>Category No.</th>
<th>Description of Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cerebrovascular Accident</td>
</tr>
<tr>
<td>2</td>
<td>Head Injury</td>
</tr>
<tr>
<td>3</td>
<td>Encephalitis</td>
</tr>
<tr>
<td>4</td>
<td>Tumours</td>
</tr>
<tr>
<td>5</td>
<td>Anoxic Brain Damage</td>
</tr>
</tbody>
</table>

Table 2: Original diagnosis categories:

<table>
<thead>
<tr>
<th>Category No.</th>
<th>Diagnosis</th>
<th>Re-categorization No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Traumatic Brain Injury (TBI)</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>Herpes Simplex Encephalitis</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>Meningioma</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>Subarachnoid haemorrhage</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>Hypotensive episode / CVA</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>MS / N/A</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Pituitary tumour</td>
<td>4</td>
</tr>
<tr>
<td>8</td>
<td>Middle Cerebral Artery (MCA) Aneurysm / intra cerebral artery bleed.</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>Right MCA haemorrhage</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>Cerebral anoxia</td>
<td>5</td>
</tr>
<tr>
<td>11</td>
<td>MCA infarct</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>CVA</td>
<td>1</td>
</tr>
<tr>
<td>13</td>
<td>Intracranial haemorrhage</td>
<td>1</td>
</tr>
<tr>
<td>14</td>
<td>Right MCA CVA</td>
<td>1</td>
</tr>
<tr>
<td>15</td>
<td>Vasogenic oedema</td>
<td>4</td>
</tr>
<tr>
<td>16</td>
<td>Mycoplasma encephalitis/ right CVA</td>
<td>3</td>
</tr>
<tr>
<td>17</td>
<td>Wernicke's encephalitis (in pregnancy)</td>
<td>3</td>
</tr>
<tr>
<td>18</td>
<td>Left CVA multiple cerebral artery infarct</td>
<td>1</td>
</tr>
<tr>
<td>19</td>
<td>Intracerebral bleed</td>
<td>1</td>
</tr>
<tr>
<td>20</td>
<td>Right posterior cerebral haemorrhage.</td>
<td>1</td>
</tr>
</tbody>
</table>
## Grouping of patients with & without possible frontal-lobe involvement

### Table 3: Lesion site categorization into frontal or non-frontal variable

<table>
<thead>
<tr>
<th>Category No.</th>
<th>Description of Localization of damage (taken from results of CT or MRI scans reported in medical notes.)</th>
<th>Re-categorization No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Frontal lobes bilateral</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Left anterior communicating artery</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Temporal lobes</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>Left frontal</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>Right frontal</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>Frontal/ parietal</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>Bilateral hippocampal</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>Bitemporal</td>
<td>2</td>
</tr>
<tr>
<td>9</td>
<td>Right frontal/ temporal/ parietal</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>Parietal/ temporal</td>
<td>2</td>
</tr>
<tr>
<td>11</td>
<td>Left haemorrhage infarct</td>
<td>2</td>
</tr>
<tr>
<td>12</td>
<td>MCA Subarachnoid haemorrhage</td>
<td>1</td>
</tr>
<tr>
<td>13</td>
<td>2 focal intracranial lesions</td>
<td>1</td>
</tr>
<tr>
<td>14</td>
<td>Query frontal abnormalities / CT normal</td>
<td>1</td>
</tr>
<tr>
<td>15</td>
<td>Left temporal</td>
<td>2</td>
</tr>
<tr>
<td>16</td>
<td>Right temporal/ parietal</td>
<td>2</td>
</tr>
<tr>
<td>17</td>
<td>Left MCA / ACA</td>
<td>1</td>
</tr>
<tr>
<td>18</td>
<td>Parietal lobe (MCA)</td>
<td>2</td>
</tr>
<tr>
<td>19</td>
<td>Left corpus stratum/ internal/ external capsule</td>
<td>1</td>
</tr>
<tr>
<td>20</td>
<td>Anterior communicating Artery (ACA)</td>
<td>1</td>
</tr>
<tr>
<td>21</td>
<td>Occipital lobe infarct, left anterior &amp; posterior communicating artery</td>
<td>1</td>
</tr>
<tr>
<td>22</td>
<td>Right parietal / frontal</td>
<td>1</td>
</tr>
<tr>
<td>23</td>
<td>Posterior cerebral artery (PCA)</td>
<td>2</td>
</tr>
<tr>
<td>24</td>
<td>Left basal ganglia</td>
<td>2</td>
</tr>
</tbody>
</table>
Dear Miss Betteridge

Re: An investigation into the relationship between the everyday functioning of people with brain injury and their scores on the Delis-Kaplan Sorting Test – 02.78.9

The Local Research Ethics Committee of 25th September 2002 considered your application and conditional approval is given for the above named study to proceed subject to the following points being addressed:

1. The Committee sought clarification of the subjects which would be recruited for this study. It was felt that immediately following brain injury, some patients would be unable to perform certain tasks.
2. The Patient Information Sheet should be printed on hospital headed notepaper according to the Committee's guidelines.

We look forward to hearing from you.

Yours sincerely

Vice-Chair/Clinical Secretary
Local Research Ethics Committee

Please note: All research should be conducted in accordance with the guidelines of the Ethical Committee; the reference number allocated to the project should be used in all correspondence with the Committee and the Committee should be informed:

(a) when the project is complete
(b) what stage the project is at one year from today's date
(c) if any alterations are made to the treatment or protocol which might have affected ethical approval being granted.
(d) all Investigators whose projects have been approved by this Committee are required to report at once any adverse experience affecting subjects in the study and at the same time state the current total number of Serious Adverse Events that have occurred.
31 October 2002

Miss Shai Betteridge

Dear Miss Betteridge

Re: An investigation into the relationship between the everyday functioning of people with brain injury and their scores on the Delis-Kaplan Sorting Test – 02.78.9

Thank you for your letter of 7th October 2002 which fully addresses the points raised by the Committee. We are now happy to give final approval for the above named study to proceed.

Yours sincerely

Vice-Chair/Clinical Secretary
Local Research Ethics Committee

Please Note: All research should be conducted in accordance with the guidelines of the Ethical Committee; the reference number allocated to the project should be used in all correspondence with the Committee and the Committee should be informed:

(a) when the project is complete.
(b) what stage the project is at one year from today’s date.
(c) if any alterations are made to the treatment or protocol which might have affected ethical approval being granted.
(d) all investigators whose projects have been approved by this Committee are required to report at once any adverse experience affecting subjects in the study and at the same time state the current total number of Serious Adverse Events that have occurred.
Dear Ms Betteridge

An investigation into the relationship between the everyday functioning of people with brain injury and their scores on the Delis-Kaplan Sorting Test (ACE/2002/97/Psych) - FAST TRACK

I am writing to inform you that the University Advisory Committee on Ethics has considered the above protocol under its 'Fast Track' procedure and has approved it on the understanding that the Ethical Guidelines for Teaching and Research are observed. For your information, and future reference, these Guidelines can be downloaded from the Committee's website at http://www.surrey.ac.uk/Surrey/ACE/.

This letter of approval relates only to the study specified in your research protocol (ACE/2002/97/Psych) - Fast Track. The Committee should be notified of any changes to the proposal, any adverse reactions and if the study is terminated earlier than expected, with reasons.

Date of approval by the Advisory Committee on Ethics: 29 November 2002
Date of expiry of approval by the Advisory Committee on Ethics: 28 November 2007

Please inform me when the research has been completed.

Yours sincerely

Catherine Ashbee (Mrs)
Secretary, University's Advisory Committee on Ethics

cc: Chairman, ACE
    Dr A Moss, Supervisor, Dept of Psychology
    Dr M van den Broek,
Log of Research Experience

September 2000 – July 2003

Year III
## LOG OF RESEARCH EXPERIENCE

<table>
<thead>
<tr>
<th>Research Skill/Experience</th>
<th>Description of how research skill/experience acquired</th>
<th>Date research skill/experience acquired</th>
</tr>
</thead>
</table>
| Conduct a literature search | During the three years that I have been training I have used various means to conduct literature searches including:  
1. General internet searches using search engines such as [www.google.com](http://www.google.com). Frequently visited sites include the department of health web page, the World Health Organization web page and the BPS web page.  
2. Searches of online databases such as Psychinfo, Medline, Ovid, Cochrane library, and the psychology and behavioural sciences collection.  
3. Searches of online library catalogues including Surrey University, the British Library, St George's Medical School, and the Institute of Psychiatry. Searches have been conducted for various reasons including, to explore essay or research questions and for clinical purposes. Examples of searches for clinical use include:  
1. Cognitive therapy bibliotherapy sources for clients regarding problems such as social phobia, depression, and psychosis.  
2. Assessment and treatment of various difficulties, for instance: fear of falling, self harm in severe learning disability (specifically ripping off toe nails), bereavement in children, memory problems following acquired brain injury, and adjustment issues due to disability.  
3. Searches on the use of therapeutic models with specific client groups for instance: psychodynamic therapies for people with learning disabilities (PLD) and narrative therapy with older adults. | Constantly over 3 years of training |

|                      | Winter 2000.  

---

1 I have been able to become a member of these libraries through my status as a Trainee Clinical Psychologist on placement in the affiliated Trusts.
<table>
<thead>
<tr>
<th>Week</th>
<th>Activity/Research Project</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2. Working with bereavement, with a focus on bereavement in PLD (for the development of a 1-day workshop on bereavement for staff working in residential settings).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Group therapy for depression, with a focus on psychosocial approaches (for the development of a group therapy service on my other adults placement).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Experiential learning, with a focus on experiential learning for research projects.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Ecological validity of psychometric test (for my major research project; MRP).</td>
<td></td>
</tr>
</tbody>
</table>

Log of Research Experience – Research Dossier

- I have conducted a thorough review of the literature, and critically evaluated it for the following topics:
  - Working with bereavement, with a focus on bereavement in PLD (for the development of a 1-day workshop on bereavement for staff working in residential settings).
  - Group therapy for depression, with a focus on psychosocial approaches (for the development of a group therapy service on my other adults placement).
  - Experiential learning, with a focus on experiential learning for research projects.
  - Ecological validity of psychometric test (for my major research project; MRP).

- I have formulated 3 specific research questions that I have subsequently investigated:
  1. Does psychosis relapse prevention training for CMHT staff improve staff’s knowledge of treatment and promote the utilization of staff in the development of the relapse prevention program?
  2. How does training clinical psychologists cope with the dual roles of training and research?
  3. Is the Delphi Card Sorting Test valid for brain-injured populations? Is it popular as a test of executive functioning?

- I prepared a brief research proposal regarding the evaluation of psychosis relapse prevention training (for the SRRP).

- I prepared a brief research proposal regarding the exploration of the ecological validity of the Wisconsin Card Sorting Test with brain-injured populations (this research was not pursued).
<table>
<thead>
<tr>
<th>Activity</th>
<th>Description</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Write a detailed proposal/protocol</td>
<td>I prepared a research proposal for a regional ethics committee and the university ethics committee for the MRP. The proposal was approved at both ethics committees with slight amendments.</td>
<td>Winter 2002</td>
</tr>
<tr>
<td>Obtain appropriate supervision/collaboration for research</td>
<td>For my SRRP I obtained field supervision from a member of the Regional Early Intervention Group in Psychosis and academic supervision from my research tutor at the University of Surrey. The qualitative project was undertaken collaboratively with a group of other trainee clinical psychologists. Data was pooled. A senior lecturer specialising in qualitative research was consulted for supervision of the project. For my MRP a consultant clinical neuropsychologist working in the service was my field supervisor. An academic tutor at the University of Surrey who also worked part-time as a neuropsychologist was my university supervisor. I also sought advice from my research tutor regarding the statistical analysis of my data.</td>
<td>Winter 2000 – June 2001, January 2002-May 2002, October 2002-July 2003</td>
</tr>
<tr>
<td>Write a participant information sheet and consent form</td>
<td>Information sheets and consent forms were compiled for the MRP.</td>
<td>Autumn 2002</td>
</tr>
</tbody>
</table>
| Judge ethical issues in research and amend plans accordingly           | For MRP:  
1. Care was taken to ensure participants were able to give informed consent. This was done by providing of an information sheet, 24 hours to reflect before committing, personal discussion about the research and what was expected of them.  
2. In order to prevent undue distress to participants only those deemed capable psychologically and physically to undergo assessment were referred to the study. This decision was made by the consultant psychologist of the service who would usually make decisions about a patients suitability for assessment.  
3. The measures investigated in the project were kept to a minimum in order to avoid undue distress for the brain injured participants who are known to fatigue easily.  
4. To ensure that the collected data was kept secure and confidential, the original assessment material was filed in the participants' psychology notes. | October 2002 – July 2003 |
| Obtain approval from a research ethics committee                       | Ethical approval for MRP was obtained from a Local Regional Ethics Committee and the University of Surrey ethics committee.                                                                                   | October 2002        |
| Collect data from research participants | Data was collected from CMHT staff who completed 2 self-report questionnaires. Trainee clinical psychologists were interviewed for Qualitative research project. Patients with acquired brain injury were assessed using a neuropsychological assessment and self-report questionnaires in a formal assessment session. Patients’ relatives also completed questionnaires. | Spring 2001 | Spring 2002 | Winter 2002 - Spring 2003 |
| Set up a data file | Data files were set up using SPSS for the SRRP and the MRP. | Spring 2001, Spring 2003 |
| Analyse quantitative data | Data for SRRP was analysed using descriptive statistics and statistical procedures such as; One-sample Kolmogorov-Smirnov, Wilcoxon signed ranks tests, Cronbach's coefficient alpha. Data for MRP was analysed using some of the methods mentioned above and parametric statistical procedures such as t-tests, Person’s correlation coefficient and the William’s test for differences between correlations from one sample. | Summer 2001 | Summer 2003 |
| Analyse qualitative data | For the SRRP, content analysis was employed to analyse participants’ comments on the questionnaires. For the qualitative research project the interviews were transcribed and analysed with other trainee clinical psychologists using procedures advocated by grounded theory. | Spring 2001 | Spring 2002 |
| Summarise results in figures/graphs | Various types of graphs were used to summarise results in the SRRP and pie charts were employed in the presentation of the results to the service. Results from the qualitative project were summarised in figures. Results from the MRP were more appropriately summarised in tables and prose. | Summer 2001 | Spring 2002 | Summer 2003 |
| Interpret results from data analysis | Skills were gained interpreting data results as part of the research modules I attended during clinical training. These skills were applied formally when I reviewed the results of published papers and interpreted the results for my SRRP, qualitative research project, and MRP. All results were interpreted in the context of the literature regarding the original research questions. The limitations of the results were acknowledged and the implications for future research and clinical practice were discussed. | Continuously developed over the three years of training |
| Present research findings/plans to an audience | I conducted a formal presentation of my SRRP to the CMHT and the regional Early Intervention Group for Psychosis.  
I conducted a formal presentation of my MRP to the Regional Neuropsychologists Academic Meeting held at the Atkinson Morley Hospital. | Spring 2001  
Spring 2003 |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Produce a written report on a research project</td>
<td>SRRP, Qualitative project and MRP were all written up formally and submitted as part of the examination process.</td>
<td>June 2001, June 2002, July 2003</td>
</tr>
<tr>
<td>Defend research project at an oral examination</td>
<td>Viva</td>
<td>September 2003</td>
</tr>
<tr>
<td>Submit research report for publication in a journal/book</td>
<td>It is planned that the MRP will be written up and submitted for publication. To date I have not had the opportunity to publish any work that I have completed as part of my training, although I am in the process of preparing my older adults case report for publication.</td>
<td>N/A</td>
</tr>
</tbody>
</table>
Spring -Summer 2002  
Winter 2002- Spring 2003 |