ACCEPTABILITY OF THE PSYCHOSOCIAL CONSEQUENCES OF TRAUMATIC HEAD INJURY AMONG EMPLOYER GROUPS

by

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In memory of my partner

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ABSTRACT

A questionaire was used to survey 213 employers to identify differing levels of acceptability of the psychosocial consequences of traumatic head injury across employer groups. Gender differences in responses and the acceptability of two factors that could affect the level of acceptability were sought. These two factors were the importance of good public relations skills and the necessity to be able to work as part of a team. The questionaire was developed from the literature, with additional content validity being obtained by trialling the questionaire on local head injury rehabilitation professionals. Case studies were also sought of people who had received a THI and had returned to work.

It was found that the professional/managerial group had a significantly higher level of unacceptable responses than the sales/service group which in turn had a mean level of unacceptability significantly higher than manufacturing/construction/trades. A difference existed between manufacturing/construction/trades and farming but the difference did not reach significance. Employers requiring good public relations skills had a significantly greater mean level of unacceptability than those who did not. Those who required employees to be able to work as part of a team had a greater mean level of unacceptable responses but this did not reach significance. The gender difference between employers also did not reach significance but the number of women employers was very small.

Case studies reflected the unacceptability of the effects of a THI to employers. Symptoms experienced by those in the case studies supported those reported in the literature. These results have important implications for those working in the vocational rehabilitation of people with THI.

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OVERVIEW OF THE INTRODUCTION

The psychosocial consequences of THI have been well documented. These include: difficulties with memory, learning and concentration and an inability to carry out executive function tasks such as problem solving and problems with initiation and task completion. Perceptual problems occur such as a lack of awareness of their own deficits and an inability to pick up social cues, as do emotional and behavioural problems such as depression, irritability and socially-inappropriate behaviour. Even a minor head injury can leave a person with psychological deficits that seriously affect day to day lives (Long, Gouvier & Cole, 1984).

Although most people experience an improvement over time, studies have shown that features such as tiredness, difficulty in becoming interested and sensitivity distress may get worse. Many experience consequences such as memory problems and personality change that are permanent. These consequences have important implications for employment.

In 1991, 8411 New Zealanders were hospitalised with a head injury. Many more were treated in Accident and Emergency departments and discharged. The largest group were young males with their whole working lives in front of them. The age and number of people involved has created an increasing need for rehabilitation services aimed at helping these people work towards independence, including financial independence.

Research highlighted three major factors affecting a return to work. They were the severity and site of injury, and the time elapsed since injury. For those who suffered a severe THI the prospect of a return to work was bleak. Most people who had experienced a minor head injury

returned to work but a small percentage were still not back at work a year later. Factors which were counter-indicative of a return to work were: problems with visuo-spatial memory, emotional lability, difficulties in communicating, loss of organisational abilities and difficulties interpreting the facial affect of others. Competitive employment was successful for those who were aware of their deficits and either compensated or obtained employment in areas where their deficits were not a barrier.

Research indicates that seventy five percent of those hospitalised with a head injury return to the workforce but by five years post-injury only thirty percent remain employed (Prigatano, 1991). The reasons for this are unclear as, although the consequences of THI have been well documented, little has been done to survey the employers' role in this handicap. The one study found that did attempt this was Blair and Spellacy's 1989 paper. They surveyed 122 employers in Washington State about the acceptability of selected PS consequences of THI in entry-level positions and received 44 responses. On combining four groups into two they found the general labouring group (comprised of employers from agriculture/forestry and manufacturing/construction) had a significantly greater number of acceptable responses than the service group (service and wholesale/retail). "Lack of initiative was found to be the most acceptable behaviour, followed by memory difficulties, movement and fatigue problems, personality disturbances and distractibility"(p.8). Details of the items used in their questionaire were not published but it would appear from the journal article that only these six consequences of THI were surveyed.

It is important those working in the vocational rehabilitation of people recovering from a THI have information on the acceptability of the consequences of THI from a wide range of employment areas and levels.

DEFINITION OF TERMS

Head injury

The term traumatic head injury (THI) as used in the literature covers several types of traumatic injury to the brain. Gronwell, Wrightson and Waddell (1990) divided THI into open, closed and crush injuries. In an open THI the brain is exposed. In a closed THI the brain is not exposed and injury occurs due to acceleration or deceleration which may force the brain against bony protuberances of the skull and stretch nerve fibres. In a crush injury the head is crushed between or within objects.

Blunt injury refers to damage from a blunt object which can cause diffuse damage as opposed to injury from projectiles, such as bullets, in which damage is usually limited to the path of the projectile.

Most THI results from MVA (motor vehicle accidents) or falls but traumatic head injury can also follow assaults and anoxia (Moore & Bartlow, 1990). In times of peace most THIs are closed with the major causes being MVA and assaults. In closed THI there is often widespread damage (McClelland, 1988). This damage may be temporary or permanent (Ostwald, 1989).

Psychosocial

Papers surveyed in the literature tended to use this term without defining it. Generally the term referred to cognitive, perceptive and behavioural changes and their social consequences. This is the definition followed in this research.

INTRODUCTION

Incidence of THI in New Zealand

In New Zealand in 1991, 8411 people were hospitalised with a head injury. Another 2011 people were treated as outpatients (these figures included those who died in hospital from their injuries. Department of Health, 1991). Many more received minor head injuries and were listed under another classification such as orthopaedic. Of the inpatients, 69% were male and 42% were in the 15-30 age group. The percentages were even higher for outpatients, with 75% being male and 58% being between 15 and 30 years (see Table 1).

Table 1

Patients treated for head injury in New Zealand hospitals in 1991

	Male	female	male (15-30)	female (15-30)	total
Inpatients	5806	2605	2704	870	8411
Outpatients	1505	506	927	234	2011
Total	7311	3111	3631	1104	10422

(Compiled from data in the Department of Health, 1991 Hospital and morbidity data report.)

Many of those who sustained severe injuries would previously have died but are now surviving due to advances in critical care (Fraser, Dikman, McLean, Miler, & Temkin, 1988). The survival rate among severely head injured individuals is higher for those who are young (Ostwald, 1989). Although a younger person is less likely to suffer long-term deficits, a high proportion of those that do can be expected to live another 35 to 60 years (Moore & Bartlow, 1990). The cost of THI to the person, caregivers and the community in financial and emotional terms is

high. Figures are not available in New Zealand to indicate the total financial cost to the community in terms of lost wages for the head-injured person and caregiver, medical expenses, and effect on hospital waiting lists, but some information is available from the Accident Rehabilitation and Compensation Corporation (ACC). In the 1992 financial year ACC paid out $48,149,994 on 6408 claims. This figure excluded: wages for the first week (which are paid by employers), hospital costs, medical treatment costs, and pharmaceuticals (ACC National Head Injury claims, 1992). With the partial cost of $48 million excluding medical costs the total cost may be very high indeed. This cost underlines the importance of vocational rehabilitation.

Psychosocial consequences of THI

The aim of this section is to describe the psychosocial consequences of moderate and severe THI. The terms moderate and severe are not defined in the literature with any degree of consistency but all include a PTA (post-traumatic amnesia) of greater than 24 hours. In spite of the differing definitions of moderate or severe THI in the literature there is wide agreement on the PS consequences. This can not be said of minor head injury and as there is considerable debate as to its effects it has been dealt with in a separate section.

There are many ways of classifying the consequences of THI. Newton and Johnson (1985) described four major areas of deficit following severe head injuries. These were : physical (e.g. blindness and hemipareisis), cognitive (e.g. concentration and memory difficulties), behavioural (e.g. irritability), and social (e.g. making socially-inappropriate comments). Although physical difficulties following THI have important consequences with regard to employment, this thesis has concentrated on the psychosocial consequences of THI. These would encompass Newton and Johnson's cognitive, behavioural and social difficulties.

Prigatano (1986) grouped cognitive dysfunctions into: learning and memory, attention and concentration, executive functioning and awareness and behavioural issues. These are the divisions used in the following section describing PS consequences. However, it should be noted that these divisions are rather arbitrary and are aimed at making the material more manageable. The effects of THI are very complex and frequently interlink to produce the observed consequences. For example, attention and concentration deficits impact on other areas such as learning and memory (Brantner,1992) and perceptual difficulties cause problems with executive functioning.

Memory and learning

The most common deficits seen in THI are those involving learning and memory (Brantner, 1992; McKinlay, Brooks, Bond, Martinage & Marshall, 1981). Although the frequency of memory problems reported varied widely between studies, the deficits typically involved recent memory (Ostwald, 1989). For example, a study by van Zomeren and van den Burg described the occurrence of memory problems as 54% in a group of severely head injured clients two years post-injury. In a New Zealand study, Crawford (1983) described the occurrence of memory problems following severe THI as 25% in the good recovery subjects and 80% in the moderate recovery subjects. Thomsen (1984) followed subjects for 15 years and described poor memory as the most common deficit at 80% of subjects 2.5 years post-injury and 75 % of subjects at 10-15 years post-injury. Oddy and colleagues (Oddy et al, 1978; Oddy et al, 1980; and Oddy et al, 1985) followed subjects for 7 years and reported memory deficits in 44% of subjects at six months but 79 % of subjects at 7 years. Oddy's study covered a wider range of severity.

People with THI tend to have difficulty learning new information (Moore & Bartlow, 1989). Some may have problems storing information and others in the retrieval of information but when recent memory is affected ability to learn is severely affected (Moore & Bartlow, 1989). A person may respond to memory changes with depression and withdrawal, or defensiveness. Confabulation, another response to memory deficits, may result in the person being thought of as untruthful and hence unreliable (Moore & Bartlow, 1989). Unfortunately, a person with a THI who forgets 10% of what they hear (which is considered a mild impairment) may be 100% unemployable (Moore & Bartlow, 1990). Memory impairment has been linked to a poor employment outcome

(Prigatano, 1986).

Attention, concentration and fatigue

Another common deficit area is attention and concentration. Gronwall, Wrightson and Waddell (1990) divided attention deficits into three areas: concentration span, the ability to divide attention between tasks and the ability to focus attention. Concentration span may be reduced and this will have definite implications for employment. A person may be able to concentrate in a quiet or structured environment but be unable to do so in a work environment that is noisy or distracting. A person may not be able to concentrate on more than one item at a time. This is a problem as many employment areas require simultaneous task completion. A person with a THI may have difficulty remaining focused on one thing. Incoming information that would normally be screened out, isn't and a person may appear easily distracted. Prigatano (1986) described the consequences of lack of ability to attend when more than one person is talking. He states that people are inclined to be distractible and make tangential comments. This may be seen as self-centred or indicative of psychiatric problems and employers do not tolerate this type of behaviour.

Fatigue impacts on all areas of life and is one of the most limiting after-effects of head-injury (Gronwall, Wrightson & Waddell, 1990). A person may appear lazy or unmotivated due to fatigue following injury. Fatigue may reduce the capacity to work and may result in the person working long hours to attain their prior levels of output (Prigatano, 1986). Doing so has further implications for fatigue and work satisfaction.

Perception

People with perceptual impairments have difficulty interpreting incoming information (Moore & Bartlow, 1989). They also have problems with self-monitoring.

Difficulties in self-monitoring may result in repetitive behaviour or the person becoming less flexible (Moore & Bartlow, 1989; Prigatano, 1986). A lack of flexibility may mean the person is less able to shift from one task to another. The ability to transfer skills to a new situation may also be impaired (Ostwald,1989). The person may also lose the ability for abstraction with the consequence that a very concrete approach is adopted. A loss of ability for abstraction may result in a loss of self-reflection with the consequence that the person may be unable to learn from experience (Crosson, 1987). This not only affects employment but has a profound effect on social behaviour.

An inability to interpret incoming information may include a difficulty perceiving the feelings or desires of others. For example, problems such as an inability to discriminate facial effect may lead to insensitive or socially-inappropriate behaviour (Ostwald,1989). This has serious implications for those involved in occupations in which public relations skills are important.

An inability to perceive the intent and feelings of others may be caused by a loss of ability for abstract thinking or a preoccupation with the difficulties caused by THI but may also reflect right hemisphere damage (Crosson, 1987). People with right cerebral damage may lose their abilities in non-verbal comprehension as well as intuition, critical imagination, visual memory, and the ability to distinguish wholes from parts (Ostwald, 1989). They are often unaware of their own deficits so may over-estimate

their own abilities. This may result in them being satisfied with poor performances or being overly complacent. They may set unrealistic goals for themselves and the frequent failure resulting from this may produce depression. An inability to recognise deficits may mean a person has to return to work and fail before they are prepared to recognise they have cognitive deficits (Brantner, 1992).

Executive functioning

Executive functioning refers to strategies for ordering information and sequencing activities (Brantner, 1992). Ability to learn from mistakes, reasoning and initiation of tasks are other executive functions. Executive functioning is severely impaired when people lack insight, flexibility and ability for abstraction.

Initiation problems may be due to impairments in memory, concentration and attention or perceptual difficulties. A person may lack the cognitive skills to work out how and when to carry out a task. They may be able to follow instructions, or carry out a task set up for them but be unable to set it up themselves. This may appear as laziness or a lack of motivation or initiative (Brantner, 1992; Prigatano, 1986). Executives who have suffered mild or moderate injuries may find they have difficulties with the organisation of tasks on returning to work (Prigatano, 1986).

Many people experience a decreased speed of information processing following a THI (Prigantano, 1986). This slowness can have important implications for employment.

Personality, behaviour and emotion

Depression, anxiety, irritability and obsessive behaviour are among the most common behavioural consequences of THI (McClelland, 1988;

Crosson, 1987; Lezak, 1978). Loss of impulse control is also common and may result in socially-inappropriate behaviour. Childish behaviour, disinhibition and lack of tact frequently follow frontal lobe damage (McClelland,1988).

Personality changes are often reported following a THI (Brooks, Campsie, Symington, Beattie, & McKinlay, 1986; Thomsen, 1984). Although, as Moore and Bartlow (1989) state, previous personality characteristics are usually exaggerated rather than changed.

Behavioural problems may be either organically-based or related to coping with the newly acquired deficits (Brantner, 1992). Problems with an organic base are identified by Prigatano (1987) as impulsiveness, emotional lability, socially-inappropriate behaviour, childishness and lack of motivation. As with many disabilities, psychological responses may include an initial denial phase followed by depression and anger as further emotional adjustment takes place and the person becomes aware of the extent of the deficit (Moore & Bartlow, 1990; Crosson, 1987). Increased anxiety is also often found as cognitive functioning improves and people compare their present and past levels of functioning (Ostwald, 1989).

It is important to distinguish between depression and lack of motivation. Those who lack motivation will usually be able to carry out a task if it is set up for them. Ostwald (1989) suggested an iatrogenic component in loss of motivation. People are often told soon after the injury that the prognosis is poor and recovery will occur mainly in the first six months. Loss of motivation after that time has expired is not surprising.

Denial can be a normal part of adjustment to a disability or can be organically-based. Denial as a coping mechanism after disability differs from that of lack of insight following frontal lobe damage in which the

person is incapable of recognising their behaviour as unacceptable. Organically-based denial may hinder rehabilitation as the person is unable to see the behaviour as undesirable.

Another common consequence of THI is an inability to modulate emotions (Crosson,1987, Moore & Bartlow, 1990). Rapid mood swings are common (Lezak, 1978). In a study of 51 cases of severe THI Crawford (1983) found that 50% of the moderately recovery group were irritable and aggressive. The tendency to lose one's temper at minor irritations is less common but can have greater consequences in employment (Crosson, 1987).

Disorders of communication

Prigatano (1986) described various problems in communication resulting from THI. These included: difficulty finding the right word, anomia, talkativeness and the use of peculiar or socially unacceptable words. Speech may be tangential and hard to follow, or there may be reduced word fluency. Oddy, Humphrey and Utley (1978) showed a positive correlation between verbal expansiveness and a custodial relative's mood disturbance and it may be surmised that if verbal expansiveness was a problem at home it may also cause difficulties in an employment situation. Residual aphasic disturbances also impact heavily on employment (Prigatano, 1986).

Psychiatric symptoms following THI

Most studies surveyed for this research did not report psychiatric diagnoses with the exception of anxiety and depression. Those who did are outlined below.

Keshavan, Channabasavanna and Narayana Reddy (1981) followed 60

randomly selected people for three months following THI. All degrees of severity were included and ages ranged from 15 to 55. At six weeks post-injury they found a neuropsychiatric disturbance in 80% of subjects. The commonest problem (43%) was post-traumatic syndrome. This was defined as the presence of at least three of the following: headache, giddiness, anxiety, intolerance to noise and insomnia. The next most common psychiatric features were depression and organic brain syndrome. It is not known how long these symptoms continued.

Lezak and O'Brien (1988) followed 39 male patients for five years following a THI of varying degrees of severity. At some time 45% had symptoms of delusion, hallucination or paranoia. Whether symptoms experienced in the acute recovery stages were included in the study was not stated. In a study of 40 patients with serious THI Thomsen (1984) found 20% had experienced a post traumatic psychoses. Lezak(1978) also stated that paranoia may occur due to lack of insight and defective social awareness.

Needless to say symptoms such as hallucinations, paranoia and delusions would impact heavily on employment. However these were not widely reported in the literature so may be less common than the study by Lezak and O'Brien would suggest. Psychiatric symptoms such as anxiety, headache and sensitivity distress were widely reported but as symptoms of THI rather than psychiatric symptoms per se.

Long-term PS consequences following THI

Most of the studies reviewed so far have gained their information in the months following injury. There are few studies that actually quantify the long-term consequences of THI. Results from some of the studies that do so have been outlined in Table 2. These authors followed subjects for several years post-injury and noted the long-term consequences of THI and the changes in these consequences over time.

Table 2

Percentage of subjects reporting long-term psychosocial consequences of THI

Study	McKinlay		Thomsen		Oddy		Brooks	
			Years since injury					
Consequence of THI	.25	1	2-5	10-15	.5	7	1	5
poor memory	73	69	80	75	44	79	67	67
slowness	86	67	65	53	-	-	65	67
tiredness	82	69	28	50	38	43	69	62
personality change	49	60	80	65	-	-	60	74
irritability	63	71	38	48	31	-	67	64
often loses temper	48	67	-	-	33	31	64	64
depressed	57	57	-	-	-	-	51	57
rapid mood change	-	-	45	35	-	-	57	57
anxiety	57	57	-	-	-	-	57	57
poor concentration	-	-	73	53	29	50	-	-
threats/actual violence	-	-	-	-	-	-	15	54
childish	-	-	60	25	-	40	-	-
restless	-	-	25	38	21	-	-	-
aspontaneity	-	-	43	53	-	-	-	-
disinterested	-	-	20	55	21	43	-	-
impatience	60	71	-	-	35	43	-	-
sensitivity distress	-	-	23	68	-	-	-	-
difficulty speaking	-	-	-	-	-	50	-	-

Study summary

Study	N	source	PTA	Age	Type	Control
McKinlay et al, 1981	55	Relative	≥2 days	16-60	both	none
Thomsen, 1984	40	R, P, S	≥31 days	15-44	closed	none
Oddy et al., 1978, 1985	44	R, S	> 1 day	16-39	closed	orthopaedic
Brooks et al., 1986	40	R(5 year follow-up of McKinlay study)				

source of information
R= reported by relative
P= reported by patient
S= reported by staff at a rehabilitation facility
Age= mean age or age range of participants, at time of injury.

The most common long-term consequences of THI mirrored those found in short-term studies. These were problems with memory, slowness, fatigue, personality change and irritability. People described by relatives as having had a personality change were now more dependant, immature, inflexible, childish, excitable, unhappy and had a dislike of company (McKinlay et al, 1981). Some problems reported as having a late onset were not commonly reported in the shorter-term studies. Late-onset problems included psychoses, lack of interests and sensitivity distress (Thomsen,1984).

Some of the problems improved over time and others deteriorated. Thomsen(1984) observed 40 patients at 2.5 and 10-15 year post trauma and found an increase in the problems of restlessness, irritability, aspontaneity, tiredness, sensitivity distress and difficulty becoming interested. Behaviours such as poor memory, childishness, emotional lability, concentration problems and slowness improved. A study by Brooks, Campsie, Symington, Beattie, and McKinley (1986) supported some of these results but contradicted others. They found an improvement in

sensitivity to noise and childishness. Concentration problems, forgetting what they are doing in the middle of an activity, violent, bizarre and socially inappropriate behaviour, verbal expansiveness, and sensitivity to even small changes in routine, increased. Oddy, Coughlan, Tyerman and Jenkins (1985) completed a 15 year follow-up of 50 young adults. They noted a reduction in cognitive changes during the first 12 months. Personality change was common in the second year with an increase in irritability being the most common change. Long-term problems reported at seven years were: memory difficulties, concentration problems, childish behaviour, impatience, difficulty becoming interested and intellectual impairment.

Long-term changes in personality and emotion are common consequences of severe THI. Only a quarter of those who suffer a serious head injury get back to reasonable health with less than 10% recovering to full health (Crawford, 1983). These psychosocial problems result in difficulty in maintaining gainful employment, relationship difficulties, increased dependency and reduced self-esteem (Prigatano, 1986).

Minor head injury

Minor head injury has been defined as an "injury in which consciousness is lost only briefly, if at all, or in which post-traumatic amnesia is brief."(McClelland, 1988. p.14). Many people are discharged without admission or fail to seek medical attention after a minor THI (Carlson,1986. cited Novak, Roth & Boll,1988).

As previously stated, the origin of symptoms reported following minor head injury has been cause for debate. The most common physical problems reported are headache, fatigue, alcohol intolerance, deafness, tinnitis, and dizziness. Psychological symptoms commonly reported include; memory and concentration problems, depression, anxiety and irritability (McClelland, 1988. Rutherford, Merrett & McDonald, 1979; Novak, Roth & Boll, 1988; Bray, Carlson, Humphrey, Mastrilli, & Valko, 1987.)

Most people experiencing a minor head injury recover totally within a year (Dikmen, McLean, Temkin, 1986). However, a small percentage experience persisting difficulties (Leninger, Gramling, Farrell, Kreutzer, & Peck, 1990). In one study 24% had not returned to work three months following a mild head injury (Rimel, Giordani, Bath, Boll, & Jane, 1981. cited Novak, Roth & Boll,1988).

The occurrence of symptoms after mild THI has been described as a post-concussion syndrome (PCS) or post traumatic syndrome (Bray, Carlson, Humphrey, Mastrilli, & Valko, 1987). Mittenberg, DiGiulio, Perrin and Bass (1992) described PCS as a "cluster of symptoms that includes complaints of memory difficulty, headache, vertigo, depression, anxiety, concentration difficulty, blurred vision, fatigue, irritability, photophobia and hyperacoutism." (p.200).

A study by Rutherford, Merrett and McDonald(1979) described these

symptoms at one year post-injury in a small percentage of subjects(14.5%). Half of these had symptoms they had not complained of at six weeks with most having only one or two of the symptoms. There was a trend towards a higher number of symptoms in older patients which, they stated, would support an organic cause. One hypothesis suggested was that early symptoms were produced by organic causes with psychological factors preventing the resolution of some symptoms and prompting the arrival of new symptoms.

The occurrence of a syndrome has been questioned by studies which have attributed the symptoms to; a stress response, malingering to gain compensation or to people simply fulfilling an expected response to THI. As Aubrey, Dobbs, and Rule (1989, p. 842) state, "There is disagreement over whether symptoms existing beyond a few weeks or months are directly attributable" to THI.

When Aubrey et al (1989) investigated lay person's knowledge of the effects of mild THI they found that less than 50% believed cognitive symptoms were likely and "highly exaggerated speeds were thought necessary to produce even the most common physical symptoms."(p.842) They concluded that, "lay people may show little understanding or sympathy for cognitive consequences of THI and these symptoms are unlikely to be simulated by malingerers if they are basing their simulations on common knowledge"(p.845). This has important implications for employees returning to work as employers may also show little understanding.

An interesting study by Mittenberg, DiGiulio, Perrin and Bass (1992) contradicted the previous study. They suggested that, although the frequency and universality of symptoms after head trauma may indicate cerebral insult, there is another possibility. It is possible that the symptoms

of concussion following mild THI may reflect an expectation rather than a neurological reality. A group of 233 subjects who had not experienced a THI were given a questionaire requesting the current frequency of selected symptoms. They were then asked to assume they had received a concussion six months prior and were asked to indicate the symptoms they expected to experience. The resulting symptoms were closely aligned with those reported from a group of 100 people who had post-concussion syndrome. The study also compared premorbid estimates of the frequency of selected symptoms by THI patients and those reported by the uninjured controls. The THI subjects described a much lower frequency of symptoms and it was suggested the patients may have underestimated the frequency of symptoms prior to their THI and attributed benign physical and psychological symptoms to the trauma.

Leininger, Gramling, Farrell, Kreutzer & Peck (1990) examined 53 people referred for NS (nervous system) examination 1-22 months after a minor HI resulting in a brief loss of consciousness or a period of confusion. Some patients reported persisting symptoms and a difficulty returning to work. All performed significantly poorer than controls on four out of eight NS tests. Deficits were most prevalent on tests of reasoning, information processing and verbal learning. Poor attention to detail, faulty error recognition and inefficient organisation were also problems. Severity of these deficits was found to be independent of NS status immediately following injury and those who were simply dazed showed the same level of deficit as those who were briefly unconscious. NS deficits have been observed following minor THI three months to three years post-injury, providing clear evidence that a subgroup of individuals suffer long-term difficulties (Leininger et al, 1990). "There is no doubt that even the most sensitive neuropsychological tests do not tap

some of the subtle processing deficits which result from minor HI"(Lenninger et al,1990. p.296). Long, Gouvier and Cole (1984) conclude that even a minor head injury can leave a person with deficits that seriously affect daily life.

Whether PCS exists as a syndrome or not does not alter the fact that PS consequences have been widely reported following minor head injury. Crosson (1987) states difficulties experienced after THI are caused by a combination of neurological damage, psychological reaction to injury, premorbid adjustment and level of available support. A study by van Zomeren and van den Burg (1985) suggested impairment complaints (e.g. poor memory, concentration and attention problems, and slowness) were positively correlated with severity but intolerances (e.g. intolerance of bustle) were not. Symptoms, whether organically or psychologically based, may impact on employment. The greater frequency of minor head injury over serious head injury makes its effects important. Also, while few return to work following a very severe head injury, most do so following a minor head injury.

Return to work

The consequences of THI cause difficulties in the area of employment. "These difficulties are particularly significant for persons in technical and professional occupations, where higher level cognitive skills are necessary for job performance."(Brantner, 1992. p. 3.)

Table 3

Return to work following traumatic head injury

Study	N	Severity	Follow-up	Full time work	Drop in level
Tate et al, (1989)	87	severe - good recovery - mod. disability -sev. disability	1-3 years	40% 4% 0%	33%
Crawford, (1983)	51	severe - good recovery - mod. disability - sev. disability	1-3 years	20% 15% 0%	
Prigatano, (1983)	18	mixed (PTA > 24hrs.)	1-2 years	36%	
Oddy et al, (1983)	45	severe	6 months	49%	
Wilson, (1992)	29	v.severe	6-11 years	38%	35%
Fraser et al, (1992)	102 (PTA> 1hr.)	mixed	1 year	73% (40% claimed difficulties on return)	
Thomsen, (1984)	40 (PTA> 1month)	severe	2.5/10-15	7.5%	

(good recovery, moderate disability, and severe disability indicate outcomes on the Glasgow Outcome Scale)

Studies surveyed describing return to work outcomes for people with THI varied greatly in percentage reported as returned to work (see Table 3). Those including a wide range of injury severity reported a higher percentage of return to work than studies involving only seriously head injured adults. For example, Fraser et al (1992) reported a 73% return while Thomsen (1984) reported it as low as 7.5%. This variability reflected differences in site and time since injury as well as seriousness of injury. It also reflected a variability in what qualified as a return to work. In some studies return included part-time work and work at a much lower level than before.

A study by Tate, Lulham, Broe, Strettles, and Pfaff, (1989) reported that following a severe THI the percentage who returned to full-time employment was low. Those who did suffered a drop in level. In the study none of those rated by the Glasgow Outcome Scale as severely disabled, 4% of those rated as moderately disabled, and 40% of the good recovery group returned to work. One third who returned experienced a drop in level, had experienced difficulties with their work or had been moved laterally to more sheltered work. Of the severe disability group, all had been classified as permanently incapacitated for work.

Crawford (1983) followed 51 patients for 11-36 months. Of those who had been previously working no seriously disabled returned to work. Of those described as moderately disabled 15% were working at their previous level and 40% not at all. Of the good recovery group 20% were not working to their previous level.

In contrast, Oddy and colleagues (Oddy et al 1978, Oddy et al, 1980, and Oddy et al, 1985) followed 50 young adults for seven years post-injury. They reported a high return to work rate of 49% (see Table 3) but assumed that those employed at six months, and lost to later follow-ups, remained

employed. Recent research (e.g. Prigatano, 1991) has suggested that this assumption may be faulty as employment rates may decrease in the years post -injury.

Fraser, Dikmen, McLean, Miler and Temkin (1988) studied 102 people at one month and one year post blunt head injury. Study participants covered a wide range of injury severity but 60% were rated as mild on the Glasgow Coma scale. There was a high percentage of skilled and semi-skilled workers in the sample. Of those studied 73% returned to work within one year, but 40% of those indicated job-related difficulties (mainly post-concussion symptoms such as fatigue or irritability). Twenty-five percent of those working at the time of injury were not on the job market at one year. The percentage reporting job-related difficulties was highest in the professional/managerial group at 81% and lowest in the structural occupations with 50%. Some had become unemployed as a result of those difficulties.

Factors which predicted a poor outcome for return to work were: memory problems, post-psychotic states, emotional lability and communication difficulties (Prigatano, 1986). Fraser et al (1988) found that those who returned to work differed from those who didn't in the time before they first followed a command. This was less than one hour for those who later returned to work and over 24 hours for those who didn't. At one month post-injury those who didn't return to work after a year were slower, showed less flexibility and had poorer visuo-spatial memory, problem-solving and manipulatory skills.

Longitudinal studies have indicated a tendency for rates of employment to decrease over time. Prigatano (1991) reported a 70% return to work by two years post-injury but by five years those working had dropped to 30%. Ben-Yishay, Silver, Piasetsky, and Rattok (1987. cited Fraser, 1988) found

that unemployment doubled during the three years following return to work. Prigatano (1986) described difficulties faced by people returning to work following a THI. People who held high level positions often managed to keep up previous levels of productivity only by working long hours. Some became too slow or needed too much supervision and so were unable to succeed in the previous employment. They dropped to a lower-level position or ended up seeking psychiatric help. He noted that coping strategies, such as excessive note-taking and repeatedly asking the same questions due to memory problems, may have appeared bizarre to co-workers (Prigatano, 1986).

Fraser et al (1988) suggested that difficulties reported during the early stages of a return-to-work may fore-shadow later unemployment. Deficiencies due to THI may be overlooked in the early return period due to absenteeism and the tolerance of a former employer who may accept unsatisfactory performances or behaviour in the short term in the belief a recovery will occur.

In many cases people with a THI are advised not to engage in heavy manual labour or hazardous work environments. The majority of the remaining jobs include professional, managerial, clerical, sales and benchwork. Most of these jobs require high levels of executive functioning, i.e. the ability to plan, organize, and perform sequential activities. The loss of ability to perceive shades of emotion, subtle cues such as facial expression and tone of voice, may pose problems for those in jobs which require good interpersonal skills. Creative skills are required in many non-manual jobs and these skills may be affected after THI. Lack of speed is a common consequence of THI. Most think they do not function as rapidly as before and attempts to speed up often result in a deterioration in quality of work.

A successful return to work following a THI involves a careful evaluation of the work demands and environment, the nature of the deficits, and the severity of the brain damage (Moore & Bartlow, 1990). This requires an active programme of vocational rehabilitation for those who have had a THI. Such programmes are available overseas but are scarce in New Zealand.

THE VOCATIONAL REHABILITATION OF PEOPLE WITH THI, GAPS IN THE RESEARCH

The psychosocial consequences of THI need to be addressed if vocational rehabilitation is to be successful. This involves the assessment of deficits in the individual and a rehabilitation programme aimed at these deficits, but the programme must take into account the employer's role in the vocational handicap of persons with THI. Presently, most research aims at linking deficits to brain sites of injury and identifying the psychosocial sequelae of THI and the effects on the person and their caregivers. Methods used in rehabilitation are also commonly researched but little attention has been paid to the employer's role. For rehabilitation efforts to be successful vocationally, it is important to have information on the acceptability of behaviours resulting from THI. Thus rehabilitation research needs to provide data on the acceptability of factors involved in THI across employment groups if rehabilitation efforts are to be maximised. This will allow rehabilitation to be focused on a particular deficit if a person desires to return to a particular employment area where the deficit would be a problem or to retrain for another area if the deficit is not amenable to rehabilitation. This knowledge could be used to avoid the situation in which a person is returned to an employment area in which they may be doomed to fail.

The one study found that did attempt to fill this gap in the research was Blair and Spellacy's 1989 paper. They surveyed the acceptability of the PS consequences of THI with 122 employers in Washington State. Only 48 responses were obtained and the differences between the four groups of employers failed to reach statistical significance. These groups were: agriculture/forestry; manufacturing/construction; service; and wholesale /retail. They then combined employers into two groups, a general

labouring group (formed from manufacturing/construction and farming/forestry) and a service group covering the remaining responses. The general labouring group had significantly more acceptable responses than the service group. Lack of initiative was found to be the most acceptable behaviour followed by memory difficulties, movement and fatigue problems and personality disturbances, with the least acceptable behaviour being distractibility. Details of questionaire items were not published but each behaviour was linked to a 'positive' statement. The example given was, "Mr. Smith does not act spontaneously and may have to be told what to do. He is, however, motivated to do a good job."(p.9). Two descriptions were provided for each of the six behaviours and the employers asked to rate each as acceptable or unacceptable. As employers were only surveyed about entry-level positions the responses can only be described as valid for that level. It is quite likely acceptance levels for items would be lower if all levels in an occupation were represented. There appeared to be no professions included in the sample. It would be expected people returning to work after a THI may attempt a return to their prior job what ever the level. Thus it is important to determine the acceptability of consequences of THI across as wide a variety and level of occupations as possible.

"Employers hire people who have the skills necessary to perform a particular job. If the client lacks the necessary skills it would be a disservice to support that vocational goal."..." Competitive employment is successful for clients who accept realistic goals, are aware of their deficits and how they affect their jobs and either use compensatory techniques or obtain employment in areas not compromised by their deficits." (Watcher, Fawber & Scott, 1987 p.292-293).

THE PRESENT STUDY

The primary aim of this thesis was to ascertain if a difference existed in the acceptability of PS consequences across employer groups. It was expected that occupations requiring a higher level of executive functioning would have higher levels of unacceptable responses. This would suggest professional and managerial occupations would have the highest level of unacceptable responses, followed by sales and service then manufacturing/constructions/trades and finally agricultural occupations. It was also intended to determine if a difference existed between men and women employers in mean total acceptability levels. An attempt was made to identify features of employment that lead to behaviour being deemed unacceptable. To this end, questions were added asking whether employees needed to have good public relations skills or needed to be able to work as part of a team. It was expected that those requiring good public relations skills, especially, would find the consequences of THI less acceptable.

A secondary aim was to identify the most and least acceptable consequences of THI and to ascertain if these differed across employer groups.

The case studies in section three sought information linking employer responses with outcomes experienced by people who had returned to work following a THI. Specifically, features of THI that had led to dismissal or had caused problems in an employment situation were sought.

SECTION ONE

QUESTIONAIRE VALIDATION

Content validity for the questionaire items was established from the literature. The aim of section one was to provide additional content validity. This involved asking a group of professional head injury rehabilitators whether the questionnaire items were consequences of THI and how commonly they thought they occurred. Studies in the literature varied in numbers of subjects, use of controls and the severity of head injury. Most studies were American and the extent to which subjects in the studies reflected the population they represent had not been established. The literature was short of material from New Zealand. Section one was added to validate the data for New Zealand, as well as to provide additional content validity.

METHOD

Participants

Fourteen professionals working in the area of head injury rehabilitation in Palmerston North were contacted and asked to complete the questionnaire. This number constituted most of the professionals working in head injury rehabilitation in Palmerston North. Ten were working in the Rehabilitation Unit attached to the Palmerston North hospital and four in the community. Patients referred to the Rehabilitation Unit were generally those who had sustained a severe THI. Although staff at the Rehabilitation unit tended to deal with patients in the early stages after a THI, they also dealt with people who were several years post-injury. Workers in the community included people such as field officers for self-help groups who dealt with a wider range of injury severity. They also had contact with people over a longer time period and

so may have had a better view of both the consequences of more minor THI and chronic long-term problems.

There were 6 men and 8 women participants and their ages ranged from early 20s to early 50s. One set of responses was invalid when the respondent chose to answer solely for frontal lobe injury and was eliminated from the analysis. This left 13 participants (6 men and 7 women).

Materials and Procedure

A search was made of the literature for the psychosocial consequences of THI. This information was collated to form a draft list (see Appendix one). The list was used to construct a questionnaire (see Appendix two). Although items in the draft list were taken from studies reflecting a range of severity and varied time since THI there was a consistency across the studies on the psychosocial consequences reported. More weight was placed on information from studies with a larger number of participants and those who had used controls. Most studies used to compile the draft list had excluded participants with prior psychiatric diagnoses or who were elderly. Items used in the questionnaire were generally those which were reported by several studies and were relevant to a work situation. Four items not commonly reported as consequences of THI were included to test the discrimination of participants (No.4 'constantly worries about own health', No.34 'tends to steal', No.43 'sometimes wanders off and gets lost', and No.18 'has hallucinations').

The questionnaire was pilot tested to test for ambiguity. It was expected there would be some problems as professionals commonly classify symptoms according to site and severity of injury and the questionnaire contained no reference to either. However, the reason for doing the

professionals' questionnaire was to eliminate items that were rare or not consequences of head injury for the employers' questionnaire and to add any consequences that would have implications in employment that may have been missed. To increase the complexity of the questionnaire would have rendered it unsuitable for that purpose.

Questionnaires were delivered to the individuals concerned and picked up later. All participants were surveyed within a four week period and those in the same work area asked not to collaborate on the answers. Participants were asked to tick the box alongside each item according to how frequently they thought the item occurred after THI. Choices were: very common, common, occurs sometimes, uncommon, not a feature of head injury, and don't know. Finally participants were asked to add any consequences of THI not present on the list that they thought would be relevant in an employment situation.

RESULTS

Of the 49 items on the questionnaire eight were generally described as very common i.e. occurring in 70% or more of cases. These items are listed in Table 4. There was general agreement between the respondents and the literature on those consequences of THI that occur very commonly with the exception of No. 13. ('Can't deal with multiple pieces of information at one time') which was not reported as a very common consequence in the literature.

Table 4

Number of participants rating items as very common and very common combined with common consequences of THI. (N= 13)

Item	very common	v. common combined with common
1. poor memory	11	13
5. has difficulty concentrating	8	13
13. can't deal with multiple pieces of information at one time	9	12
15. tires easily	8	12
21. needs a quiet working space	8	12
25. has difficulty learning new information	7	11
26. is often anxious	7	7
48. easily distracted	6	11

Sixteen items were described as common consequences of THI i.e. occurring in 40-70% of cases (see Table 5). These items were also described as common consequences in the literature.

Table 5

Number of participants rating items as a common and common combined with very common consequences of THI (N= 13)

Item	Common	Commoncombined with Very Common
7. needs to do things slowly to get them right	6	9
10. unable to read the intentions of others	7	7
16. has difficulty expressing ideas clearly	8	9
17. makes socially inappropriate comments	6	7
19. unable to follow a conversation involving more than one person	5	8
20. restless	6	11
22. impulsive	6	9
28. has rapid mood changes	7	7
29. is easily frustrated	7	10
30. easily disorientated or confused	6	9
31. loses temper at minor irritations	6	9
32. lacks initiative	5	7
41. is often irritable	5	9
45. lacks flexibility	6	6
46. frequently misses the point and takes things literally	7	7
47. is upset by even small changes in routine	6	7

All four items placed to test the discrimination of participants were described by participants as either unrelated to THI or occurring only rarely. These items were (No.4 'constantly worries about own health', No.34 'tends to steal', No.43 'sometimes wanders off and gets lost', and No.18 'has hallucinations'). The remaining items in the questionnaire were generally described as 'occurring sometimes'.

As expected some of the participants commented that they found the

questionnaire difficult as it did not specify severity and site of injury and they were used to thinking in terms of location to decide if an item was common or not.

Although participants were asked to add any additional consequences of THI they considered were important for employment, only one suggestion was made. The suggestion was that people who have had a THI are often well motivated and try hard on return to work. As this suggestion neither fitted with the aim of determining employers' acceptability of the consequences arising from THI nor could not be described as a consequence of THI, the item was not included.

There was general agreement in responses between those professionals who worked in acute rehabilitation and those who worked at a chronic level. There was also agreement between participants and reports in the literature over the frequency of occurrence of consequences of THI.

Items considered to only rarely be a consequence of THI or not to be a consequence were removed from the questionnaire. These items were: 'constantly worries about own health', 'has hallucinations', 'tends to steal', 'thinks people are out to get them', and 'sometimes wanders off and gets lost'. A new item, 'doesn't get along with coworkers was added'. The new item appeared in the literature but was not placed in the professionals' questionaire as few professionals would have been in a position to see a person in their work situation so could not comment if the item was common or not.

SECTION TWO

EMPLOYER ACCEPTABILITY OF THE PS CONSEQUENCES OF THI

The aim of section two was to survey a wide range of employers to ascertain the differences in acceptability of the consequences of THI across different occupations. Information was also sought on whether a difference in tolerance existed between men and women employers. Differing levels of acceptability between employers requiring public relations skills and those who did not, were also researched. It was expected that employers who required their employees to have good public relations skills would have higher scores indicating a lower acceptance of the consequences of THI. A difference between occupations that required coworker co-operation and those that did not, was also expected with greater acceptance among those not requiring worker co-operation. Information on the most and least acceptable consequences of THI were sought along with any differences in acceptability of those consequences across employer groups.

METHOD

Participants

Two hundred and thirteen employers were contacted via local service groups and personal contact. A random survey was not considered feasible due to time limitations and the lack of availability of a list covering all employers in the area from which to take a random sample. Of the employers receiving questionnaires 150 participants came from employer members of four service clubs and 65 from canvassing local farms and businesses. The use of service clubs reduced the number of women in the

sample and the effect of this is unknown. However, most employers are also men. There were 124 men and 13 women participants. The age range was from early 20s to early 70s with the majority being in their 40s and 50s.

Materials and Procedure

The headings of the questionnaire developed in section one were changed to assess level of acceptability of each item. A front page data section was added requesting information on employment area, gender of respondent and whether ability to work as part of a team and good public relations skills were important in the particular employment area (see Appendix 3).

Each employer was supplied with a questionnaire and asked to tick each item according to the level of acceptability of that item in an employee. Employers were told the aim was to look for differences in acceptability of these items across employer groups. Items were not identified as features of head injury to avoid the introduction of extraneous variables. Instructions were both on the questionnaire and given verbally. Employers whose businesses covered a range of job types were asked to select one and fill out the questionnaire as relating to that particular job. Most subjects took the questionnaire away and they were either mailed back or picked up later. All employers were from the Manawatu area and were surveyed within a three month period.

Of the 213 questionnaires delivered to employers 140 (66%) were returned. Three of these were unusable leaving 137 usable responses. Employers were classified according to the groups listed in the New Zealand Standard Classification of Occupational Titles (1992). For the purposes of this research, group 1 (legislators and managers) and group 2

(professionals) were combined to form a manager/professional group. Groups 4 (clerks) and 5 (sales and service workers) were combined to form a sales and service group. Trades workers from group 7 were combined with group 8 (plant and machinery operators) as many tradespeople work in manufacturing industries. This last group became the manufacturing, construction and trades group. Responses that fell into group 6 (agriculture and fishery workers) were classified as farming. Major group 3 of the Standard Classification of Occupational Titles lists technicians and other associated professionals. Responses that fell into this group included real estate agents, travel agents and insurance representatives. As these jobs were very closely aligned with those in the service section it was decided to place those responses into the service and sales group. The classification of employer into groups is given in Appendix 4.

Each item in the questionnaire was scored according to level of acceptability: (1=very acceptable, 2=acceptable, 3=neutral, 4=unacceptable, 5=very unacceptable.). With the 45 items a total score out of 225 was obtained for each employer. A high score indicated a greater level of unacceptability.

The internal consistency of the scale was tested using the rating of the total sample to obtain a Cronbach's alpha of 0.96.

Means, standard deviations, F-test, and t-tests were computed for the differences in means using the SPSS-PC. Scores were also totalled by item for each group allowing individual items to be assessed for acceptability across groups.

RESULTS

The highest levels of mean unacceptability were found in the professional group followed by the sales and service group, then the manufacturing and trades and lastly the farming group (see Table 6).

Variation in acceptability across items was fairly constant between the groups with the exception of the farming group which had a standard deviation of 24.19 (see Table 6). This may reflect a greater diversity of employment areas across the various farming types.

Table 6

Unacceptability of items by employer group

Group	N	Mean	SD
Prof./Man.	27	198.41	13.44
Sales/Serv.	61	176.62	13.83
Farming	20	165.00	24.19
Man.Trades	29	166.17	14.40

An F-test was carried out first to determine if a significant difference existed between the groups. A significant difference was found. [F (3, 133) = 25.01, $p < .001$.] .

Due to uneven sample sizes a Sheffe test was then carried out. All groups had means that were statistically significant from each other group at the 0.05 level, except a comparison between farming and manufacturing/construction/trades. The professional/managerial group found the behavioural consequences of THI significantly more unacceptable than the sales and service group, farming group and the manufacturing and trades group. The sales and service group found

consequences of THI significantly less acceptable than either the farming or the manufacturing/trades groups. The difference between the means of the farming and manufacturing//trades groups were not significant.

Gender differences

The difference between the mean level of unacceptable responses (see Table 7) for women and that for men was not significant. [t (135)= -1.59, p> .05]. (All t-tests reported in this study were two-tailed. Pooled variance was used.)

Table 7
Gender differences in mean acceptability of responses

Gender	N	Mean	SD
Women	13	185.15	13.83
Men	124	176.15	19.86

As the women were predominantly in the professional/managerial and sales/service groups a higher mean could have reflected group rather than gender differences. A t-test was carried out comparing men and women using only these two employment groups. The results were still not significant [t (86) = 0.66, p> .05] but this may have been due to the small size of the sample (see Table 8).

Table 8

Gender differences in mean acceptability of responses
Prof./manag. and sales/service only

Gender	N	Mean	SD
Women	12	186.33	13.74
Men	76	182.83	17.45

Importance of good public relations skills.

Employers were asked whether it was important for their employees to have good public relations skills. Those who answered in the affirmative had a higher mean level of unacceptable responses (see Table 9) which was significant [$t(135)=-2.17$, $p< .05$.].

Table 9

Public relations skills important

	N	Mean	SD
No	28	169.96	18.46
Yes	109	178.88	19.43

The proportion of each group reporting public relations skills as important followed the trends of mean acceptability across the groups. The prof./man. group had the highest proportion with 100% requiring good public relations skills. The next highest was the sales/service group with 95%, followed by manuf./construction/trades with 41%. Farming was lowest with 25%.

Employees need to be able to work as part of a team.

Employers who said their employees needed to be able to work as part of a team had a higher mean level of unacceptable responses. However, this difference was not found to be significant [t (135)= .09, p>.05] . Only 5 employees answered this question in the negative so the sample was very small (see Table 10).

Table 10
Employees need to be able to work as part of a team

	N	Mean	SD
No	5	176.20	13.37
Yes	132	177.04	19.74

The acceptability of individual PS consequences of THI across employer groups

No items in the questionaire had an average score of less than 2.5 indicating that none of the PS consequences of THI were acceptable to employers. The manufacturing/trades group achieved the lowest level of unacceptability with a mean score of 2.72 on question 2. The professional/ managerial group had the worst most acceptable score of 3.44 (see Appendix 5).

Table 11

The most acceptable PS consequences of THI

2. low tolerance to bright light

6. can be obsessive with tasks

7. needs to do things slowly to get them right

20. needs a quiet working space

25. is often anxious

15. tires easily

16. difficulty expressing ideas clearly

18. unable to follow a conversation with more than one person

---

The items found most acceptable were the same across the groups. Items No. 2, 6, 7, 20 & 25, were all found in the top seven(see Table 11 & Appendix 5). Items 18, 15, & 16 appeared in the first ten(except item 15 which was not very acceptable for Manufacturing/trades).

The least acceptable items were also common among the groups. They were items 39, 40, 22, 30 & 4(see table 12 & appendix 5).

Table 12

The consequences of THI that were least acceptable to employers

39. is not dependable

40. is irresponsible

22. socially-inappropriate behaviour

30. losses temper at minor irritations

4. doesn't get along with coworkers

All items seem to contribute equally to the differences in means between groups giving further support to the homogeneity of the scale. The professional group had the smallest range of scores and the farming group the largest which may reflect the respective levels of diversity in these employment areas. Differences in the ranges across groups were fairly small (see table 13).

Table 13
Range of responses by group

Group	lowest mean score	highest mean score	range
Prof./man.	3.44	4.85	1.41
Sale/serv.	3.00	4.51	1.51
Farming	2.75	4.45	1.70
Man./trad.	2.72	4.38	1.66

SECTION THREE
CASE STUDIES

The aim of section three was to link the PS consequences of THI with actual problems faced in employment and if possible to find examples of consequences of THI employers have found less acceptable that have led to difficulties or dismissal at work. i.e. a link between employer attitudes and behaviour.

METHOD

Participants and Materials

Four people who had suffered a THI were surveyed using a questionnaire, list of consequences of THI and a general interview (see Appendices 7 and 8). Participants were contacted via professionals working in the field and a Palmerston North support group. Two men and two women were interviewed. All were several years post-injury and, with the exception of case three, had suffered a severe THI.

Procedure

Information was first elicited using a questionnaire format (see Appendix 7). This information was gathered first to elicit spontaneously-supplied responses before cues were given. Participants were asked the type of accident and time that had elapsed since the accident. Information was requested on whether the participant returned to work following the accident and whether there were consequences that made their work difficult. Information was also requested on the type and length of employment since the accident and reasons for leaving prior jobs.

After responding to the questionnaire participants were shown a list of

consequences resulting from THI (see Appendix 8). Participants were asked to identify those features that were previously a problem to them and those that remained a problem. A general discussion followed on the problems participants had experienced following THI.

RESULTS

Case One

Case one had a MVA at the age of 19. He was in a coma for two months and was hospitalised for three years. At the time of the accident he was an agricultural student at university. He attempted to return to university five years later but found it impossible due to memory and concentration problems, slowness, lack of balance and coordination and what he described as a 'need to re-learn social skills'. He worked on a relative's orchard for eight years but left due to multiple problems. It was not clear whether leaving was compulsory or mutually agreed upon. These problems included; speech problems, unspecified behaviour problems, "taking the law into his own hands", constantly having to be told what to do, difficulty relating to others and "morality problems with women". He would not elaborate on this last difficulty but said it had not led to problems with the law. He described feeling isolated and wished to meet people, especially women. With this in mind he moved to Palmerston North where he obtained work as a gardener via Workbridge. He now works three days a week and has been in the job for six months.

The items he ticked as problems after the injury were: speech is difficult to understand, lacks initiative, has difficulty concentrating, poor memory, needs to do things slowly to get them right, can't deal with multiple pieces of information at one time, (socially-inappropriate comments and behaviour also appeared to be problems from information supplied during the interview). Difficulties with memory, slowness and not being able to deal with multiple pieces of information at once remained a problem 21 years after the injury.

Case Two

Case two was 31 and working as the manager of a sheep station, 25 years ago, when he was dragged by a horse. He spent 14 days in a coma and had a PTA of four months. A return to farming was impossible due to orthopaedic injuries, ataxia and blurred vision. His memory and concentration were poor and he became depressed and irritable. His speech was also affected, being slow and indistinct.

His first job after the accident involved temporary horticultural work for three months growing seedlings. He then worked on a friend's farm for three years. That was an informal arrangement which allowed him to work at his own pace but he had to give up due to prior leg injuries. He then obtained a job as a Law clerk but only lasted for seven weeks. The lawyer was a friend but had to terminate his employment due to a lack of ability to assimilate new knowledge unless material was related to prior knowledge. His poor memory and lack of concentration were also problems. After re-training at the Rehabilitation Unit he obtained work as an Invoice clerk where he encountered few problems as the work was structured and menial. He remained in the position for 11 years until the firm closed. His next job as an invoice clerk lasted only three months after which he was asked to leave as he could not satisfactorily do the work. For the past eight years he has worked as a garage clerk and encountered few problems but still gets headaches which makes concentration difficult.

Case Three

Case three had a MVA six years ago at the age of 38. She had a very brief PTA which she estimated at about one hour. At the time of the accident she was working as a laboratory technician, a position to which she returned after a six month break due to orthopaedic injuries. The accident left her with concentration and memory problems, difficulties learning new procedures, anxiety, headaches and a feeling of isolation. She had been offered little information on the effects of THI until the interview. Four years after returning to work she was fired. The explanation given was that she was not coping with her work and there were difficulties getting along with a coworker. She felt the reasons were vague and did not accept them. She had been in the job, seemingly without difficulty, for 12 years prior to her accident.

Items ticked as a problem included: memory and concentration problems, fatigue, sensitivity distress, slowness, difficulty learning new information, anxiety, frustration, depression, difficulty becoming interested, irritability, agitation, being easily distracted, verbal aggression, clumsiness and mood swings. Most of these items were still a problem six years post-injury.

Case Four

Case four had a motor bike accident at the age of 16. She was in a coma for 10 days and did not return to school for several months. On her return she developed migraines and had problems with memory and concentration. She described having difficulty "getting information from my brain into written form". After leaving school she had a number of clerical jobs, which were described as frustrating, before marrying and raising a family. She still works on a casual basis. Thirty-one items on the

questionaire were ticked as problems experienced after the injury. Those listed as still a problem 21 years after the accident were: low tolerance to light and noise, talking excessively, fatigue, impatience, being easily frustrated, losing her temper at minor irritations and being unable to follow a conversation involving more than one person.

Summary of the cases

All of those interviewed were several years post-injury. Ages ranged from 16 to 38 at the time of the accident. Three participants had, or were studying for, higher qualifications and one was at school. With the exception of the third case, participants had suffered a severe THI. She had experienced a prior more serious head injury so effects noted may have been cumulative.

The effects of THI reported covered almost all 45 consequences listed in the questionnaire. Exceptions were: can be obsessive, inflexible, taking things literally, being upset by small changes in routine and being unable to learn from experience. Items commonly reported by participants were: poor memory, concentration problems, needing to do things slowly, difficulty dealing with multiple pieces of information, being impulsive, depression, and irritability.

Two of the participants had been unable to return to their former work as a result of the THI. Difficulties with memory, slowness at tasks and concentration were consequences commonly reported as causing problems at work. Other problems mentioned were depression, anxiety and irritability. Three of the participants had been released from employment due to difficulties resulting from the THI. The second case had been been released following a short trial period as a legal clerk due to poor memory and reduced ability to concentrate and assimilate new knowledge. The

third case was the only one who had returned to her prior employment but was fired four years after her return due to difficulties with coworkers and being unsatisfactory in her job. As she had been in the job for 12 years prior to her accident it seems likely that it was consequences from her accident that led to her dismissal.

Time since injury was reported as 21, 25, 6 and 21 years. Persisting problems for those over 20 years post-injury were: poor memory, needing to do things slowly, not being able to deal with multiple pieces of information at one time, concentration problems, low tolerance to noise and bright light, restlessness, tiring easily, impulsive behaviour, unable to follow conversation involving more than one person, frustration and losing temper at minor irritations. A feeling of isolation was reported by single participants. The third case (6 years post-injury) included many of the above but also depression, anxiety and difficulty becoming interested. These were mentioned by the others as problems they had experienced but no longer had. It may be that these difficulties ameliorate in the very long term but a much larger study would be needed to ascertain if this is the case.

DISCUSSION

A significant difference was found in the mean acceptability of the consequences of THI across employer groups which supported the original hypothesis. As expected the professional/managerial group found the consequences of THI least acceptable, followed by the sales/service group, then the manufacturing/construction/trades group and finally the farming group. These differences between individual groups were statistically significant, except for the difference between the manufacturing/construction/trades and farming groups. The failure of the difference between these two groups to reach statistical significance may have reflected a lack of difference in the acceptability of the consequences of THI between the groups, rather than deficiencies in analysis, as sample sizes were similar and both distributions were close to normal.

These results provide important information for those engaged in the vocational rehabilitation of people with THI as very little research has been carried out in the area of employer acceptability of the consequences of THI. The only similar research that could be found was Blair and Spellacy's (1989) article. They reported that employers in a service group found the six consequences of THI presented significantly less acceptable than those from a general labouring group. The present study supports Blair and Spellacy' findings, although considerable differences exist between the studies. Their research was limited in the extent and level of occupations surveyed. They received only 48 responses from employers and so combined four groups to form a general labouring group (agriculture, forestry, manufacturing, construction) and a service group (wholesale, retail, service). This reduced the ability to distinguish between employer groups, except in the widest sense. There were no professional

or management positions included in their study. Also, their research only covered the lowest level in occupations which represents an area where there would be expected to be a greater tolerance for mistakes and deficits. Those returning to work following a THI often, initially at least, attempt to return to their prior level.

The differences in the levels of acceptability found across employer groups also complemented reports in the literature which found that those in high-level occupations had more difficulties following a return to work than those in other occupations. Fraser, Dikmen, McLean, Miler, & Temkin (1988) reported job-related difficulties in 81% of their professional subjects, well above the 63% reported for sales/service occupations and 50% reported for structural occupations. Brantner (1992) also reported that employment barriers for those with THI were particularly significant for those in the professional and technical occupations.

The section covering the importance of good public relations skills provided some very interesting results. As expected employers requiring good public relations skills found the consequences of THI significantly less acceptable than those who didn't. What was interesting was that the results showed the same pattern as the results of the mean acceptability of the consequences of THI across groups. The professional/managerial group had the highest requirement for public relations skills (100% of responses), followed by the sales/service group at 95%, the manufacturing/construction/trades group at 41%, and the farming group at 25%. It may be that public relations skills were one of the factors that impacted on the differences found between employer groups but further research would be needed to determine if this was indeed the case. However, these results do indicate possible employment directions for those with consequences from THI that impact heavily on public relations

skills.

The same pattern was not shown with regard to the question 'it is important employees can work as part of a team'. The variability in responses between groups was fairly small and it is possible that 'need to be able to work as part of a team' was not a contributing factor to the differences in the mean acceptability between employer groups. However, the failure of tests, between the affirmative and negative responses, to reach significance may also have been due to there being only five negative responses. A larger sample would be needed to confirm this.

Differences in acceptability levels due to employer gender were also sought but results were inconclusive due to the small number of women participants. When a t-test covering all employer groups failed to reach significance another was carried out using only those groups which contained women employers. It was thought that an extraneous variable may have been introduced due to the concentration of women in the professional/managerial and sales/service groups. However, differences still did not reach significance and this section of the research needs to be repeated with a larger sample of women. As women employers form a very small proportion of total employers the lack of results in this area does not have a major impact on the importance of this study.

Differences in question acceptability across groups were not marked, giving further support to the homogeneity of the scale used. The PS consequences surveyed were all generally unacceptable to employers as all failed to reach an acceptable score.

Of the 45 items in this research the least acceptable were: lack of dependability, being irresponsible, socially-inappropriate behaviour, losing temper at minor irritations and lack of ability to get along with co-workers. The most acceptable were: low tolerance to bright light, needing to do

things slowly to get them right, being obsessive with tasks, needing a quiet working space, anxiety, tiredness, difficulties expressing ideas clearly or being able to follow conversation involving more than one person. Blair and Spellacy (1989) found distractibility to be the least acceptable consequence of THI to employers and lack of initiative the most acceptable. As they only appear to have covered six consequences (lack of initiative, memory problems, movement/fatigue problems, personality difficulties and distractibility) it was very difficult to compare the results of this research with theirs. Distractibility was described as one of the less acceptable items in the present research, as it was in Blair and Spellacy's. Memory difficulties were ranked about half-way between the most and least acceptable items. Fatigue was one of the more acceptable items for employers in this research (except manufacturing/construction/trade) and lack of initiative one of the least. These results do not support Blair and Spellacy's research but the questions were framed differently which makes a comparison difficult. Blair and Spellacy coupled each of their items to a positive statement which an employer would have also reacted to and they required employers to choose between acceptable and unacceptable. They didn't provide for levels of acceptability or neutral responses as occurred in this research.

Studies in the literature (Prigatano, 1986; Fraser, Dikman, Miler, & Temkin, 1988) have suggested the presence of the following features may predict future unemployment: poor memory, slowness, lack of flexibility, emotional lability, and difficulties with problem-solving and communication. Information was gained via clinical knowledge of those who had returned to work and later become unemployed. The present study did not support the inclusion of `speech problems' or `slowness' as an indicator of future unemployability, as employers rated these as some

of the more acceptable items. However, speech may only be a part of the communication problems described as a barrier to employment in the literature. Neither `emotional lability', nor `lack of flexibility' were rated with the more unacceptable items. This also does not support the literature. However, `has difficulties following instructions' was one of the less acceptable items according to employers, which would tend to support the literature where problem-solving difficulties were described as a factor leading to unemployment.

In the case studies, the three people who had lost jobs cited memory and concentration problems, difficulty with co-workers (which included socially-inappropriate behaviour), and difficulty learning new procedures as problems they considered were responsible for their job losses. These features, with exception of memory difficulties, were described as least acceptable by employers. This does suggest a tentative link between employer attitudes expressed in the questionaire and employer behaviour in the work place. The link is very tentative, however, due to the very small number of case studies. This is an area needing more research.

The present study covered 45 PS consequences of THI and a very wide range of job types and levels. The division of employers into four employment areas has provided rehabilitation professionals with general information on the area in which their client has the best chance of success. It may be possible to divide employers into more distinct employment areas, although the number would be limited by the extent to which further divisions could be made before differences between the groups were no longer significant. A much larger sample would be needed to do this.

The identification of factors such as the least acceptable consequences of THI and the varying importance of public relations skills across employer

groups may also prove useful to rehabilitation professionals. The information could be used to identify areas requiring further rehabilitation, or employment areas in which success is more likely.

It is hoped this study may have provided information which may be used to avoid the situation experienced by those in the case studies and commonly reported in the literature. That situation is the return of people to employment areas with deficits which, after a period of time, result in their dismissal. Unfortunately, at least in New Zealand, this will require a much greater availability of rehabilitation services for those who have experienced a traumatic brain injury.

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APPENDICES

APPENDIX ONE

Draft List of Psychosocial Behaviours from the Literature

PS consequences of THI with source articles listed below

Numbers in parenthesis e.g. (No. 37) indicate the placing of the item in the questionaire.

agitated(No.37); 3,12,15,19.
argumentative/verbally aggressive(No.27); 21,22;
aggressive 2, 8,10,12,14,16,22.
aggressive physically; 3,9,13,14,18,24.
anxious(No.26);1,2,3,8,9,10,11,12,15,16,17,18,19,20,21,22. tension 2,12,18.
awareness of own behaviour is limited(No.3);4,19
childish behaviour(No.11); 2,4,14,18,19,23,24,25.
clumsy(No.36); 4,6.
easily confused (No.30); 10,12,13,15,21.
disorientated for people or places 20; gets lost 4.
concentration problems(No.5); 1,4,6,8,9,11,14,15,16,17,18.
delusions and hallucinations(No.18), 3.
depressed mood(No.35); 1,2,3,8,9,12,15,17,18,19,20, 22,24,25;
(crying more readily 1.)
easily distracted(No.48);5.
demanding of attention, 19,25.
difficulty following a conversation involving more than one person(No.19); 4,5,
dizziness; 1,11,16,17.
expression-difficulty finding the right words or expressing self clearly(No.16);2,3,4,5,14.
headache; 1,8,11,17.
impatient(No.32); 4,6,20,25.
impulsive(No.22); 5,9,19,22,25.
indifference(No.8) 1,3; apathy 16,22,23; difficulty becoming interested 4,6,14,19.
inflexible(No.45); 10,25.
initiative is lacking,needs constant guidance(No.33); 1,5,7,14,22,24,25.
inability to organise their work 5,15,21,25.

irresponsible(No.44); 10,25.
intolerant of bright light(No.2); 1,11.
intolerant of bustle;1.
intolerant of noise(No.21); 1,2,11,16.
irritable(No.41); 1,2,3,5,6,7,8,9,11,12,13,14,16,17, 18,
20,22,23,24,25.
lacks self-control(No.39); !0,22,25.(can't monitor or check
own behaviour; 9,25.
memory difficulties(No.1); 1,2,4,5,6,8,9, 11,13,14,15,16,
17,18,20,21,22,24
misses the point and takes things literally(No.46); 5; reduced ability for abstraction 9,15.
obsessive(No.6); 18,19.
paranoia(No.38) 2,5,10,19,21,25.
personality change; 2,5,18.
rapid mood changes(No.28); 2,7,8,9,19,25; inability to modulate emotions 8,9,14,20,22,23,
restless(No.20); 6,8,9,12,14,22,25.
self-centred behaviour((No.12); 22,25.
sleep disturbances; insomnia 11,16; needs more sleep; 1.
slow at tasks(No.7); 1,2,5,8,9,12,14,15,18,20;
slow to learn new information(No.25); 5,7,9.
can't deal with multiple pieces of information at one time(No.13), 5.
has difficulty understanding and following instructions(No.14)5,7,9.
socially-inappropriate behaviour(No.23); 2,3,8,14,19; inappropriate sexual behaviour 14.
Socially-inappropriate comments(No.17); 5,7,8,9,14,19,22; lack of tact 18; unable to pick up social cues 9,15,25.
speech is slow or difficult to understand(No.24); 8,14,15.
steals(No.34); 13.
talks too much(No.9); 2,5,10,13,21,22,24.
temper(No.31); bad temper 2; easily loses temper 4,6,11,14,20,22,23; anger 3,19;
becomes angry at minor irritations 7,12,13.
tires easily(No.15); 4,6,8,11,14,20,22,23;

fatigue 1,9,11,15,16,17; tiredness 2.

unable to profit from experience(No.49); 5,7,9,15,18,25;

refuses to admit difficulties 4,15,19.

unable to read the actions or intentions of others(No.10); 5,7,8,9,19.

upset by even small changes in routine(No.47)2,14.

1. Van Zomeren & Van den Burg (1985).
2. Brooks, Campsie, Symmington, Beattie & McKinlay (1986)
3. Lezak & O'Brien (1988).
4. Oddy, Coughlan, Tyerman, & Jenkins (1985).
5. Prigatano (1986).
6. Oddy, Humphrey & Utley (1978).
7. Crosson (1987).
8. Gronwall, Wrightson & Waddell (1990)
9. Moore & Bartlow (1990).
10. Newton & Johnson (1985).
11. Dikmen, Mclean, & Temkin (1986).
12. Levin & Grossman (1978).
13. Eames & Wood (1985).
14. Thomsen (1984).
15. Ostwald (1989).
16. Keshavan, Channabasavanna, & Reddy (1981).
17. Rutherford, Merrett, & McDonald (1979)
18. McClelland (1988).
19. Klonoff, P. S. & Prigatano, G.P. (1987)
20. McKinlay, Brooks, Bond, Martinage & Marshall(1981).
21. Prigatano,Fordyce, Zeiner,Roueche,Pepping, & Wood(1984).
22. Kinsella,Packer, & Olver(1991).
23. Brooks& McKinley (1983).
24. Crawford(1983).
25. Lezak, M. D. (1978).

APPENDIX TWO

TRIAL QUESTIONAIRE GIVEN TO HEAD INJURY PROFESSIONALS

Head Injury Study

I consent to participation in this study and understand that:

-All information given will be confidential.

-Information I have given will not be personally identifiable in the published form of the study.

-The questionaire I will complete will be destroyed after data has been collated for the purposes of this study.

For each of the following items state whether you think that the item may be a common, very common or uncommon consequence of head injury.

The choices are:

very common - would occur in 70% or more of head injury cases.

common - would occur in 40-70% of cases.

sometimes - would occur in 20-40% of cases

uncommon- would occur in less that 20% of cases.

not H.I.- this item is not a feature of head injury

don't know- I don't know if this item is a consequence of head injury or not

Please Tick

Consequence	very common	common	occurs sometimes	uncommon	not H.I.	don't know
1. poor memory -Forgets names, places, proceedures						
2. low tolerance to bright light						
3. has little awareness of their own behaviour						
4. constantly worries about own health						
5. has difficulty concentrating						
6. can be obsessive with tasks						
7. needs to do things slowly to get them right						
8. appears disinterested						
9. often talks excessively						
10. is unable to 'read' the intentions of others						
11.sometimes behaves childishly						
12. Self-centred, can't see things from another's point of view						
13.Can't deal with multiple pieces of information at one time						
14.Has difficulty understanding and following instructions						
15 tires easily						
16 has difficulty expressing ideas clearly						
17 makes socially inappropriate comments (e.g makes personal comments to people they don't know well						
18 has hallucinations						
19 is unable to follow a conversation-involving more than one person						
20. restless , easily distracted						
21. needs a quiet working space						

Consequence	very common	common	occurs sometimes	uncommon	not H.I.	don't know
22. is impulsive- begins activities without thought for the consequences						
23. socially -inappropriate behaviour e.g. inappropriate touching of self or others						
24. speech is difficult to understand						
25. has difficulty learning new information						
26. is often anxious						
27. can be verbally aggressive						
28. has rapid mood changes						
29. is easily frustrated						
30. is easily disorientated or confused						
31. loses temper at minor irritations						
32. is impatient						
33. Lacks initiative -needs constant guidance						
34. tends to steal						
35. is often depressed and withdrawn						
36. is clumsy						
37. is often agitated						
38. thinks people are out to get them						
39. lacks self-control						
40. has a low tolerance to noise						
41. is often irritable						
42. is not dependable						
43. sometimes wanders off and gets lost						
44. is irresponsible						
45. lacks flexibility						
46. Frequently misses the point and takes things literally						
47. Is upset by even small changes in routine						
48. Easily distracted						
49. Seems unable to learn from experience						

PLEASE ADD ANY OTHER FEATURES YOU CONSIDER IMPORTANT TO THE BACK OF THIS SHEET, ESPECIALLY THOSE RELATING TO EMPLOYMENT.

APPENDIX THREE

EMPLOYERS' QUESTIONAIRE

Study : Acceptability of selected employee behaviours

The purpose of this study is to identify differences in acceptability of selected behaviours across differing types of employment.

Thankyou for participating in this study.
-All information given will remain confidential.
-The published form of this study will not identify people or companies.

The study forms the main part of my thesis for an M.Sc.. at Massey University.
If you have any questions relating to the study ring Glenis Mobberley phone 3578850.

To allow classification of responses please provide the following information.

1.My area of Employment

is_____

(The name of your firm is not required but please be specific enough to allow classification of your reponse to this questionaire into employment group e.g. accountant, bakery-wholesale, bookshop).

2. I am male_____ (please tick)
female_____

3. In my employment area it is important employees have good public relations skills.
Yes_____(please tick)
No_____

4. In my employment area it is important employees have the ability to work as part of a team.
Yes_____(please tick)
No_____

For each behaviour listed please tick one of the reponse columns.

Employee behaviour	very acceptable	acceptable	neutral	unacceptable	very unacceptable
1. poor memory -Forgets names, places, proceedures					
2. low tolerance to bright light					
3. has little awareness of their own behaviour					
4. doesn't get along with coworkers					
5. has difficulty concentrating					
6. can be obsessive with tasks					
7. needs to do things slowly to get them right					
8. appears disinterested					
9. often talks excessively					
10. is unable to 'read' the intentions of others					
11.sometimes behaves childishly					
12. Self-centred, can't see things from another's point of view					
13.Can't deal with multiple pieces of information at one time					
14.Has difficulty understanding and following instructions					
15. tires easily					
16 . has difficulty expressing ideas clearly					
17. makes socially inappropriate comments (e.g makes personal comments to people they don't know well					
18. is unable to follow a conversation-involving more than one person					
19. restless , easily distracted					
20. needs a quiet working space					

Employee behaviour	very acceptable	acceptable	neutral	unacceptable	very unacceptable
21. is impulsive- begins activities without thought for the consequences					
22. socially -inappropriate behaviour e.g. inappropriate touching of self or others					
23. speech is difficult to understand					
24. has difficulty learning new information					
25. is often anxious					
26. can be verbally aggressive					
27. has rapid mood changes					
28. is easily frustrated					
29. is easily disorientated or confused					
30. loses temper at minor irritations					
31. is impatient					
32. Lacks initiative -needs constant guidance					
33. is often depressed and withdrawn					
34. is clumsy					
35.is often agitated					
36. lacks self-control					
37. has a low tolerance to noise					
38. is often irritable					
39. is not dependable					
40. is irresponsible					
41.lacks flexibility					
42. Frequently misses the point and takes things literally					
43. Is upset by even small changes in routine					
44.Easily distracted					
45. Seems unable to learn from experience					

APPENDIX FOUR

CLASSIFICATION OF EMPLOYER RESPONSES INTO GROUPS

RETAIL, SALES AND SERVICE (N= 61)
insurance agent
beauty therapy and electrolysis workers
art gallery assistants
museum/science centre worker
wholesale
funeral director
travel agent
business development
sales representative
catering, conventions
truck sales and parts
hospitality industry
hairdressing
real estate
insurance
public service
sales and marketing, pharmaceutical industry
special education worker
warehouse
finance-investment advice and financial analysis
research assistant
accountancy office-basic clerical position only
banking staff, tellers and clerical
commercial banking
banking teelers and clerical
hairdresser
rest home for the elderly
computer retailing
hairdresser
architectural services clerical
accounting clerk
clerical-administration/accounting/financial
marketing section for a manufacturing operation
wool marketing
accounting clerk
accounting clerk
insurance clerical
receptionist, medical practice
medical specialist's receptionist
veterinary clinic receptionist
wine retail & T.A.B. sub-agency
dairy-grocery

retail pharmacy sales staff
hardware, retail, timber supplies
retail pharmacy, sales staff
pharmacy, sales staff
health food retail
nursery and garden centre
bookshop
antique books, retail
hardware retail
furniture retail
garden centre
motor vehicle sales and service
frozen meat retailer
hardware, wholesale/retail
retailing
takeaways
timber and hardware retail
clothing retailer
furniture finishing and retail
computer retailing

PROFESSIONAL & MANAGERIAL (N=27)
dentistry
veterinary surgeon
manager, flour milling
aged-care nursing
dentist
nurse, theatre
education, polytechnic
lawyer
manager, medical imaging equipment sales and service
airline operations manager
manager, banking
teacher, secondary
church social services, counsellor
nurse
accountant
trustee company (accountant)
manager, tyre sales and services
electrical goods manager
banking, manager
research manager
teacher
pharmacist
chartered accountant
professional engineer
accountant

fabrication engineering manager
medical practice, specialist

MANUFACTURING, CONSTRUCTION AND TRADES (N=29)
mirror manufacture
woollen goods manufacturing
veterinary pharmaceutical manufacturing
transport, truck driver
printing
manufacturing, light industry
woollen mill
clothing manufacture
printing
fellmongery
bakery
furniture manufacturing and retail sales
furniture manufacturing
furniture manufacturing
laboratory technical support
petroleum distribution
plastics moulding
general engineering
property maintenance
building construction
manufacturing in the building industry
building industry
builder
farm machinery sales and service
garage, service station and repairs
butchery
medical laboratory technician
laboratory technical support
gas industry, installation and maintenance
gas industry, installation and maintenance

Farming (N=20)
farming
poultry farming
sheep and beef farming
farming
sheep and beef
sheep and beef
dairy farming
shearing industry
dairy farming

farm casual work
sheep farming
dairy farming
livestock farming
sheep and beef
farming
sheep, deer, beef
farming
dairy farming
farming
parks and reserves gardener

APPENDIX 5

Ranked mean acceptability of items by group

Prof./man.	sales/serv.	farming	manf/trade
NO. X score	NO. X score	NO. X score	NO. X score
(20) 3.44	(20) 3.00	(7) 2.75	(2) 2.72
(2) 3.62	(7) 3.02	(6) 2.90	(25) 2.90
(7) 3.77	(2) 3. 08	(18) 2.95	(16) 3.07
(6) 3.85	(25) 3.30	(20) 2.95	(7) 3.07
(25) 4.04	(6) 3.34	(15) 3.90	(6) 3.14
(15) 4.11	(16) 3.56	(2) 3.05	(18) 3.17
(37) 4.11	(18) 3.59	(25) 3.05	(20) 2.34
(16) 4.15	(10) 3.70	(16) 3.15	(23) 3.34
(18) 4.19	(15) 3.72	(9) 3.20	(28) 3.45
(10) 4.21	(9) 3.74	(23) 3.25	(10) 3.45
(23) 4.26	(13) 3.75	(31) 3.30	(42) 3.48
(9) 4.30	(42) 3.79	(37) 3.35	(37) 3.52
(34) 4.33	(41) 3.85	(42) 3.35	(11) 3.52
(24) 4.37	(28) 3.89	(10) 3.45	(32) 3.55
(28) 4.37	(34) 3.89	(41) 3.50	(13) 3.55
(41) 4.37	(43) 3.90	(13) 3.55	(33) 3.59
(12) 4.41	(23) 3.92	(11) 3.60	(24) 3.59
(43) 4.41	(12) 3.93	(28) 3.60	(9) 3.59
(44) 4.41	(21) 3.93	(35) 3.60	(3) 3.66
(11) 4.44	(24) 3.97	(17) 3.65	(31) 3.67
(13) 4.44	(29) 3.97	(24) 3.70	(27) 3.69
(1) 4.48	(31) 3.97	(32) 3.70	(35) 3.72
(3) 4.48	(19) 3.98	(38) 3.70	(38) 3.76
(5) 4.48	(44) 3.98	(1) 3.75	(41) 3.76
(19) 4.48	(33) 4.00	(12) 3.75	(43) 3.76
(21) 4.48	(11) 4.02	(19) 3.75	(34) 3.76
(32) 4.48	(27) 4.02	(33) 3.75	(12) 3.76
(35) 4.48	(32) 4.05	(34) 3.75	(1) 3.76
(42) 4.48	(35) 4.05	(44) 3.75	(44) 3.83
(31) 4.52	(5) 4.10	(29) 3.80	(26) 3.83
(8) 4.59	(38) 4.10	(43) 3.85	(15) 3.83
(17) 4.59	(36) 4.13	(5) 3.95	(14) 3.86
(38) 4.59	(14) 4.16	(27) 3.95	(29) 3.90
(45) 4.59	(3) 4.18	(3) 4.00	(19) 3.90

(33) 4.63	(26) 4.21	(14) 4.00	(45) 3.93
(4) 4.67	(8) 4.23	(26) 4.00	(5) 3.93
(29) 4.70	(45) 4.26	(30) 4.00	(36) 3.93
(36) 4.70	(22) 4.31	(21) 4.05	(30) 4.07
(27) 4.76	(1) 4.34	(4) 4.10	(17) 4.14
(14) 4.74	(4) 4.34	(36) 4.10	(8) 4.17
(26) 4.74	(17) 4.38	(8) 4.20	(4) 4.17
(40) 4.77	(30) 4.44	(45) 4.26	(21) 4.24
(30) 4.81	(37) 4.48	(22) 4.30	(22) 4.28
(39) 4.81	(39) 4.51	(39) 4.35	(40) 4.34
(22) 4.85	(40) 4.51	(40) 4.45	(39) 4.38

(Item number)

APPENDIX 6

MOST AND LEAST ACCEPTABLE ITEMS BY GROUP

The five most acceptable items by group.

Professional group

No. 20. needs a quiet working space

No. 2. low tolerance to bright light

No. 7. needs to do things slowly to get them right

No. 6. can be obsessive with tasks

No. 25. is often anxious

Sales/service group

No. 7. needs to do things slowly to get them right

No. 20. needs a quiet working space

No. 2. low tolerance to bright light

No. 25. is often anxious

No. 6. can be obsessive wth tasks

Farming

No. 7. needs to do things slowly to get them right

No. 6. can be obsessive wth tasks

No.18. unable to follow a conversation involving more than one person

No. 20. needs a quiet working space

No. 2. low tolerance to bright light

No. 25. is often anxious

Manufacturing/trades

No. 2. low tolerance to bright light

No. 25. is often anxious

No. 7. needs to do things slowly to get them right

No. 16. difficulty expressing ideas clearly

No.18. unable to follow a conversation involving more than one person

The five most unacceptable items by group

Professional/managerial

No. 22. socially-inappropriate behaviour

No. 26. can be verbally aggressive

No. 40. is irresponsible

No. 39. is not dependable

No. 30. loses temper at minor irritations

Sales/service

No. 4. doesn't get along with coworkers

No. 17. makes socially inappropriate comments

No. 37. has a low tolerance to noise

No. 39. is not dependable

No. 40. is irresponsible

Farming

No. 8. appears disinterested

No. 45. seems unable to learn from experience

No. 22. socially-inappropriate behaviour

No. 39. is not dependable

No. 40. is irresponsible

Manufacturing/trades

No. 4. doesn't get along with coworkers

No. 21. is impulsive

No. 22. socially-inappropriate behaviour

No. 39. is not dependable

No. 40. is irresponsible

APPENDIX SEVEN

SECTION THREE INTERVIEW FORMAT

SEX

AGE AT ACCIDENT

TIME SINCE ACCIDENT

TYPE OF ACCIDENT

PTA

WERE YOU EMPLOYED AT THE TIME OF THE ACCIDENT

TYPE OF WORK

TASKS INVOLVED (IF UNUSUAL JOB)

DID YOU RETURN TO WORK
HOW LONG AFTER THE ACCIDENT
FULLTIME/PART-TIME
SAME LEVEL AS BEFORE

WERE THERE ANY CONSEQUENCES FROM THE ACCIDENT THAT MADE YOUR WORK DIFFICULT

ARE YOU STILL IN THE SAME JOB
REASONS FOR LEAVING

OTHER JOBS SINCE

JOB	HOW LONG EMPLOYED	WHY LEFT

APPENDIX 8

CONSEQUENCES LIST FOR SECTION THREE

This list describes some of the problems people have following a head injury.

Did you have any of these problems following your head injury?

Do any of these things currently cause you problems?

(one tick indicates a past problem, two ticks if the item is still a problem)

Problem	Please Tick
1. poor memory -Forgetting names places, proceedures	
2. low tolerance to bright light	
3. little awareness of my own behaviour	
4. difficulty getting along with coworkers	
5. difficulty concentrating	
6. being obsessive with tasks	
7. needing to do things slowly to get them right	
8. appearing disinterested	
9. often talking excessively	
10. being unable to 'read' the intentions of others	
11. sometimes behaving childishly	
12. self-centred, not seeing things from another's point of view	
13. can't deal with multiple pieces of information at one time	
14. difficulty understanding and following instructions	
15. tiring easily	
16. difficulty expressing ideas clearly	
17. making socially inappropriate comments (e.g makes personal comments to people I don't know well	
18. unable to follow a conversation-involving more than one person	
19. restless , easily distracted	
20. needing a quiet working space	

21. is impulsive- beginning activities without thought for the consequences

22. socially -inappropriate behaviour e.g. inappropriate touching of self or others

24. difficulty learning new information

25. often anxious

26. verbally aggressive at times

27. rapid mood changes

28. easily frustrated

29. easily disorientated or confused

30. losing temper at minor irritations

31. impatient

32. Lacks initiative-needs constant guidance

33. often depressed and withdrawn

34. clumsy

35. often agitated

36. lacking self-control

37. low tolerance to noise

38. often irritable

39. not dependable

40. irresponsible

41. lacking flexibility

42. frequently misses the point and takes things literally

43. upset by even small changes in routine

44. easily distracted

45. unable to learn from experience