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thesis entitled

A QUALITATIVE ANALYSIS OF SOCIAL INTERACTIONS
OF INDIVIDUALS WITH TRAUMATIC BRAIN INJURY

presented by

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has been accepted towards fulfillment
of the requirements for the

Ph.D. degree in Counseling, Educational Psychology, and Special Education

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Major Professor's Signature

May 9, 2007

A QUALITATIVE ANALYSIS OF SOCIAL INTERACTIONS OF INDIVIDUALS WITH TRAUMATIC BRAIN INJURY

By

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A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Counseling, Educational Psychology, and Special Education

2007

ABSTRACT

A QUALITATIVE ANALYSIS OF SOCIAL INTERACTIONS OF INDIVIDUALS WITH TRAUMATIC BRAIN INJURY

By

Jane Luanne Nichols

A qualitative research study was conducted using grounded theory to answer the research question, how do individuals with Traumatic Brain Injury perceive their social interactions? Persons with TBI may react inappropriately in social interactions due to disassociations between emotions and actions in complex and demanding social situations. Such disassociations can create significant problems related to social functioning and overall quality of life for individuals with TBI. Information from persons with TBI regarding their social interactions was useful for gaining a better understanding of the complex and multifaceted social schemas of individuals with TBI.

Two interviews were conducted with seven individuals; four men and three women, who were receiving individual neurocognitive rehabilitation services of various types, at either an inpatient or outpatient level. The results of the data analysis revealed that social interactions for individuals with TBI occur on the interpersonal and intrapersonal levels. Within the interpersonal level, primary social interactions occurred with family, and peers with TBI. On the intrapersonal level, the importance of understanding what it meant to live with TBI was a crucial factor in developing core relationships with individuals with TBI. The development of positive and negative images of self-occurred at this level along with questions about social competency. Paradoxes which arose from the narratives of the participants with TBI were related to the results of brain injury and rehabilitation research. These paradoxes pertained to the

importance of family relationships, the role of superficial relationships, the use of denial as a protective strategy against social stigma, and the drawbacks of the use of labels as symbols for disability.

Recommendations for rehabilitation professionals included providing social skills interventions in context taking into account the broad spectrum of factors that impact social interactions. Rehabilitation goals should focus on positive outcomes with a focus on autonomy and empowerment in social interactions utilizing natural supports. Counseling and training for key communication partners was recommended. Use of a detailed qualitative interview format was suggested for clinical purposes to obtain rich information about the individuals social interaction partners. The role of the rehabilitation professional is seen as crucial for assisting the individual with TBI in constructing realistic goals for attaining their positive, possible self.

This dissertation is dedicated to my mother and father, thanks for the great genes.

ACKNOWLEDGEMENTS

I would like to acknowledge all of the members of my dissertation committee, Timothy Tansey, Ph.D., Chandra Donnell, Ph.D. and Margaret Fankhauser, Ph.D. It was a pleasure to work with each of you. I like to express special thanks to my dissertation chair and program advisor John Kosciulek, Ph.D. Your patience with me on this project was tremendous. I would like to thank Steven Weiland, Ph.D. who generously volunteered his time to act as a consultant for me on the qualitative process. Thank you to the staff at Origami Rehabilitation for allowing me to utilize your facility and services. Finally, I am forever grateful to those individuals with traumatic brain injury who volunteered to talk with me about their lives with such great honesty.

TABLE OF CONTENTS

APPENDICES

Chapter 1

Introduction

Traumatic brain injury (TBI) is damage to the brain caused by a trauma to the head. The severity of a brain injury may range from minor, with few or no lasting consequences, to major, resulting in profound disability or death. In the United States, 5.3 million people are currently living with a long-term disability requiring the need for assistance in daily living as the result of TBI. Each year, up to 52,000 people die of a brain injury (Brain Injury Association of America, 2006). The cost of TBI in the United States is estimated at $60 billion annually including direct and indirect costs to families and society (e.g., lost earnings, work time). This figure does not include the costs associated with providing long-term vocational rehabilitation (VR) and social services for persons with TBI (Center for Disease Control, 2006). The rehabilitation needs of the individual with TBI are dependent on the extent and the location of injury (Prigatano & Schacter, 1991), with many people experiencing a variety of cognitive losses in addition to behavioral and emotional changes. Therefore, it is an established practice for practitioners in brain injury rehabilitation settings to assess patient neuropsychological strengths and deficiencies.

Post-injury cognitive, personality, and behavioral changes typically reported for many persons with TBI include loss of concentration, memory deficits, attention problems, and communication difficulties (Livneh & Antonak, 1997; Kosciulek, 1994$_a$; Prigatano & Schacter, 1991; Tate & Broe, 1999); self-centeredness, attention seeking behavior, irritability, jealousy and anger (Prigatano & Schacter, 1991; Tyerman & Humphrey, 1984); and self-focused conversations, frequent and sudden topic shifts, a blunt manner, overly familiar advances or remarks, inappropriate use of self-disclosure and slowness of comprehension (Helffenstein & Weschsler,1982; McDonald, Flanagan, Martin & Saunders, 2004). Researchers have linked the onset of social interaction problems to injury-related changes in cognitive and behavioral competencies (Farmer, Clark, & Sherman, 2003). A reduction in social supports also results from psychosocial consequences of TBI which can be more handicapping than the residual cognitive and physical disabilities (Kosciulek, 1993; O'Shaughessy, Fowler & Reid, 1984). Psychosocial adaptation to disability requires an accurate perception of reality, flexibility of thinking, and accurate self judgment (Livneh & Antonak, 1997). Such capacities are typically the ones negatively impacted by the brain injury.

Denial of neurological deficits is common in persons with TBI (Prigatano, 1986). It is as though the reality for some persons with TBI is comprised of a refusal to acknowledge complex, challenging, or difficult life events. For persons with TBI, denial may have some psychological utility as a defense mechanism motivated by a need to keep cognitive, perceptual, and motor deficits out of awareness, and it is thought to have an organic basis manifested as failure to self-monitor (Florian, Katz & Lahav, 1991; Livneh & Antonak, 1997).

Self-evaluation and self-monitoring are important in relation to psychosocial adaptation, interpersonal dynamics, and social interactions, which are the areas of interest in the proposed study (Florian, Katz, & Lahav, 1991; Galski, Tompkins, & Johnston, 1998; Willer & Corrigan, 1994; Ylvisaker & Feeney, 2000). A premise of this study is that the self-report of individuals with TBI regarding their social interactions will provide important insights into their social experiences with others which may, in turn, lead to more efficacious treatment protocols and improved rehabilitation outcomes.

Statement of the Problem

Some adults with TBI experience difficulty demonstrating appropriate social skills due to post-injury personality, behavioral, and neurocognitive changes (Livneh & Antonak, 1997). Studies have shown that persons with TBI experience social skills deficits more frequently than individuals without disabilities (Brown, Wayne, & Spielman, 2003; Hoofien, Gilboa, Vakil, & Donavik, 2001; Kendall & Terry, 1996) and that deterioration of social relationships are common following TBI (Bond & Godfrey, 1997; Hoofien et al., 2001). It has been argued that such outcomes are due to problems related to the chronicity of neurological impairments, reduced cognitive speed, memory impairments, and an inability to monitor social self-presentation and emotional regulation (McDonald, 2002; Prigatano, 1986; Tate & Broe, 1999).

Individuals who exhibit socially competent skills are preferred in social interactions (Segrin, 2001). Spitzberg and Cupach (1984; 2002) and Riggio (1986; 2003) describe the following ingredients for socially competent social interactions. Socially competent people demonstrate interaction involvement (Spitzberg & Cupach, 1984) which includes perceptiveness, responsiveness, and attentiveness. They also engage others in social interactions with sensitivity to social norms, express interest in others, and demonstrate flexibility in their personal behavior as the social context requires (Riggio, 1986). Theoretically, in order to demonstrate these communication competencies, planning cognitions, modeling cognitions, and the ability to reflect and predict consequences are required (Duran & Spitzberg, 1995). These competencies are often impacted by the neurocognitive sequelae of TBI (Prigatano & Schacter, 1991).

Longitudinal studies indicate that post-injury cognitive sequelae range from mild to severe deficits and typically include memory impairment, compromised mental and motor speed, psychiatric impairment, and significantly reduced social functioning (Hoofien et al., 2001). Not surprisingly, reports of loneliness and a diminished quality of life continue to be common outcomes for persons with TBI (Bond & Godfrey, 1997; Burleigh, Farber, & Gillard, 1998; Callaway, Sloan, & Winkler, 2003; McColl, Johnstone, Minnes, Shue, Davis, & Karlovitz, 1998; Tate & Broe, 1999). This is particularly important because social relationships are intimately tied to our emotional and psychological well-being. Segrin (2001) has stated that quality of social relationships, which are synonymous with interpersonal relationships, are one of the most important aspects of human existence.

In their qualitative study on work adjustment, Power and Hershenson (2003) stated that persons with TBI reported that an important work need was interpersonal contact. Enjoyment at work meant to "meet new people" (p. 1027). Yet, less than half of the interviewees in this study felt confident in their work-related interpersonal skills. Participants indicated that they felt withdrawn, depressed, and anxious. In her ethnographic study, Krefting (1990) stated that interpersonal difficulties for persons with disabilities are aggravated by community norms and expectations in terms of "what others think of me" (p. 864), causing the person with TBI to use concealment strategies to attempt to perform in a socially acceptable manner. Kosciulek (1994_b; 1995), Willer and Corrigan (1994), and Godfrey, Knight, and Bishara (1996) have studied the effect of TBI on the family. These researchers indicated that families of individuals with TBI report feeling isolated, trapped, and abandoned by family and friends. The ongoing effort of attempting to enhance the social interaction skills of a member with a TBI and emotional drain of communicating with a socially-unskilled adult with TBI creates interfamily difficulties and interpersonal conflicts.

Significance of the Problem

Research has indicated that up to 60% of persons who sustain a TBI experience deficits in the area of social skills (Dilk & Bond, 1996; Hoofien et al., 2000; Kendall & Terry, 1996). It is not surprising that social skill deficits present a major obstacle to successful family and community integration and also contribute to low social participation, limited interpersonal relationships, poor self-esteem, depression, and other maladaptive behaviors for adult persons with TBI (Livneh & Antonak, 1997; McDonald, Flanagan, Rollins, & Kinch, 2003; McFall, 1982). Life functioning difficulties to which social skills problems have been related in persons with TBI include unemployment, peer rejection, educational failure, alcoholism, depression, social isolation, marital distress, and suicide (Bond & Godfrey, 1987, McFall, 1982; Mukherjee, Reis-Panko, & Heller, 2003; Ylvisaker & Feeney, 2000). The impact of social skills deficits for people with TBI have been studied empirically from medical (Damasio, Tranel, & Damasio, 1991; Levin, Eisenberg, & Benton, 1991; Prigatano, 1991), neuropsychological (Bogner, Corrigan, Misew, Clinchot, & Fugate, 2000; Wallace & Bogner, 2000; Prigatano, 2002) and behavioral viewpoints (Schlund & Pace, 2000; Ylvisaker, Jacobs, & Feeney, 2003). Results of these studies indicate that some individuals have little or no neurological abnormality and display an apparently "normal" social appearance yet have subtle neurobehavioral difficulties that interfere with performance in everyday activities (e.g. short-term memory or attention deficits) (Wood & Rutterford, 2005). For others, gains are seen in psychosocial function with no improvement in cognitive functioning (Kendall & Terry, 1996). Subjective information from individuals with TBI pertaining to their perception of their social interactions is limited, due to a lack of inclusion of subjective experiences in measurements of social adaptation following TBI (Levack, McPherson & McNaughton, 2004). If the significance of social contact lies in it's meaning to the participants, then the narratives of individuals with TBI pertaining to their social interactions are needed to empower individuals with TBI, and to contribute to the existing research on social interactions. Individuals with TBI require an opportunity to inform researchers and rehabilitation professionals about their own experiences and what they experience as deficits and what they do not. Due to the mixed findings presented in the empirical literature, there exists a need for additional research in the area of social interactions among individuals with TBI.

Theoretical Framework

For the purpose of this study, Riggio's (1986) theoretical model of social skills is particularly applicable as it describes the ability to communicate and interact with others in a way that is appropriate and effective for developing and maintaining social relationships (Riggio, 1986; Flora & Segrin, 2003). Social interactions are a communicative activity which are goal-directed and require the use of verbal and non-verbal messages (Berger, 2003). Studies show that both verbal and non-verbal abilities contribute to positive social interactions (McDonald, $2000_{a;}$ Riggio & Feldman, 2003).

Such interactions also require a substantial knowledge of interaction procedures, strategies, and the social contexts within which persons are interacting (Berger, 2003).

Social interactions involve interpersonal skills which, as noted earlier, are synonymous with social skills. Effective social interaction requires social expressivity and sensitivity (Riggio, 1986). Expressivity and disclosure of emotion have been identified as components of positive social interactions and have been linked to the development of friendships and rapport (Butler, et.al, 2004; Harker & Keltner, 2001).

Sending, receiving, and regulating information and one's behavior during social interactions contribute to a positive perception of social skill (Godfrey & Shum, 2000; McDonald, 1992; McFall, 1982; Riggio, 1993). Riggio (1986) refers to these competencies as encoding (sending), decoding (receiving), and controlling (regulating). Performing these tasks successfully involves the application of suitable emotional and social expression, sensitivity to others, and control of behaviors and emotions in context.

Persons with TBI may experience difficulties with social perception (McDonald, 2004; Prigatano & Pibram, 1982). Problems with perception have been translated into difficulty in identifying emotions, intentions, beliefs, and meanings of speakers and their exchanges (McDonald, 2004; Togher, 2000). Perception difficulties may contribute to the obstacles persons with TBI encounter in monitoring their own social behavior and reactions as well as comprehending the behavior and reactions of others (McFall, 1982; McDonald et. al., 2003; Riggio & Feldman, 2003; Segrin, 2001). Another important aspect of perception is being able to understand and consider others' points of view. Some of the subtler meanings of speech such as humor or sarcasm may be misinterpreted by individuals with TBI. They may perceive direct verbal communication but not perceive the intent of non-verbal communication or cues intended to add depth and meaning to the communication act (Krefting, 1990; McDonald, 2000_b).

Purpose of the Study

Studying the factors that contribute to the success or failure of social interactions of individuals with TBI is a salient rehabilitation issue. Persons with TBI may react inappropriately in social interactions due to disassociations between emotions and decision-making in complex and demanding social situations. Such disassociations can create significant problems related to social functioning and overall quality of life for individuals with TBI. By focusing on the perceptions of people with TBI regarding their social interaction experiences, it is anticipated that the results of the proposed study will add new findings that will contribute to the rehabilitation literature regarding this issue.

Persons with TBI are at a disadvantage in social interactions from a number of different perspectives. First, they are seen as people who from the outside may appear "normal" but who may display socially abnormal or unacceptable behaviors. Second, they may have lost the ability to flexibly adapt according to social rules (Godfrey & Shum, 2000). Third, persons with TBI may lack the capacity to express themselves adequately to persons without disabilities (Nochi, 1998). Persons with TBI also may experience difficulties in discerning emotions in others such as happiness, anger, sadness, and disgust (McDonald, 2000; Prigatano & Pibram, 1982).

Given the potentially significant impact of TBI on an individual's interpersonal functioning and overall quality of life, additional research is needed regarding the social interactions of persons with TBI. Therefore, the purpose of this proposed study was to seek to understand the social interactions of individuals with TBI. To accomplish this task, the following research question was addressed: How do individuals with TBI describe their social interaction experiences?

Chapter 2

Literature Review

The purpose of the proposed study was to seek to understand the social interactions of individuals with TBI. The research question of interest in this study is as follows: How do individuals with TBI describe their social interaction experiences? In order to address the purpose and research question, a comprehensive, contemporary literature review was needed. To accomplish this task, a literature review was conducted in three primary domains: (a) factors which influence the social interactions of persons with TBI as conveyed by individuals with TBI and their family members and friends, (b) the effect of psychosocial deficits resulting from TBI on community integration, and (c) empirical research and theory on social interaction and social skills.

First, this literature review will describe the epidemiology and psychosocial consequences of TBI. Individuals with TBI have been found to demonstrate various functional changes in physical, cognitive, and behavioral domains depending on the size and the location of the brain damage (Nochi, 1998). Psychosocial problems can have many influences, symptoms, and results. Some of the factors that affect psychosocial functioning after brain injury are conditions of cognitive, behavioral, and emotional disturbances. The effects of these disturbances are clearly distinguished when an individual with TBI must interact with others to meet his or her own needs, or meet the needs of others, or to attain mutual goals. The literature review will demonstrate how the problems of behavior, emotions, and cognition, which typically present after a brain injury, can impact and disrupt an individual's social interactions and, consequently, their social relationships, roles, and life satisfaction.

Second, the literature review will inform the research and provide a context for the investigation under study by examining the variables that impact the interactions between the individual with TBI and his or her family members, friends, coworkers, and the community in general. The available research suggests that persons with TBI experience a number of difficulties which appear to have their origins in the problematic interactions they experience with other people in their lives (Lezak, 1989). To be successful in social interactions requires the establishment and maintenance of a variety of interpersonal skills and the ability to be flexible in adapting to social roles (Gardner, 2006). Behavioral regulation and emotional factors appear to significantly predict social activity among individuals with TBI (Tate & Broe, 1999). In addition, the passage of time post-injury continues to exert an effect on the individual's psychosocial functioning, contrary to the view that outcome may be determined within the first year or two post-trauma (Hammond, Hart, Bushnik, Corrigan & Sasser, 2004; Hoofien, et.al., 2001).

Finally, the literature review will describe prominent social interaction and social skills theories which have contributed to the development of the methodological framework of this study. The Social Skill and Competence Model (McFall, 1982), Self-Verification Theory (Swann, 1981), Social Intelligence Theory (Kihlstrom & Cantor, 2000), and the Social Skill Inventory (Riggio, 1987) all will be examined in relation to the social interactions of persons with TBI. Each of these theories has contributed to a clearer understanding of the importance of social interaction for human development, learning, and ultimately for social survival.

Overview of Traumatic Brain Injury

Etiology

Traumatic brain injury is a term that encompasses a variety of conditions involving external insults to the head culminating in brain damage. TBI is an insult to the brain, not of a degenerative or congenital nature, caused by an external force that may produce a diminished or altered state of consciousness, which results in an impairment of cognitive abilities or physical functioning. It also can result in the disturbance of behavioral or emotional functioning (Livneh & Antonak, 1997). Acquired brain injury is injury to the brain which is hereditary, congenital, or degenerative. Open head injury results from penetrating wounds (Brain Injury Association [BIA], 2006). In this study, the term TBI is used to be inclusive of all of the above types of injuries to the brain.

The current leading causes of non-fatal TBI are accidental falls at 28% (primarily among the elderly and children), followed by motor vehicle crashes at 20%, being struck by or against an object at 19%, and assault-related incidents at 11% (e.g., domestic violence, substance abuse-related) (BIA, 2006). Blasts are a leading cause of TBI for active duty military personnel in war zones (DVBIC, 2006). Between July and November 2003, Walter Reed Army Medical Center screened 155 patients who had returned from Iraq and were deemed as being at risk for brain injury. 62% were identified as having sustained a brain injury. Non-injury related brain damage can occur from medical conditions such as aneurysms or stroke (Fabiano, 1991).

Prevalence of TBI

Internationally, the prevalence of TBI in industrialized countries is estimated at 1 in 2000 persons (Hoofien, et.al, 2001). In the United States, the Center for Disease

Control (CDC, 2006) estimates that at least that 1.4 million people sustain a TBI yearly that 52,000 die from their injuries, 235,000 are hospitalized and 1.1 million are treated and released from emergency departments. Unfortunately, these estimates are considered "undercounts" (Eden & Steven, 2006, p. 2), as many incidents of TBI remain undiagnosed or unreported. These numbers also do not reflect repeated injuries. Once an individual has sustained a TBI, they are three times more likely to incur a subsequent TBI (BIA, 2006).

Males are 1.5 times more likely to sustain a TBI than females (Parker, 2001). Adolescents between the ages of 15-19 continue to show high rates of brain injuries. Further, statistics indicate a shift in high incidence age groups to include more of the very young (ages 0-5). TBI's are occurring with greater frequency within this age group (1,100 TBI's per 100,000 per year) due to accidental falls. Health care professionals consider this climb alarming since the accident rate for this group is 38% greater than for adolescents and young adults age 15-24, who only a decade ago were considered the highest risk category (Eden & Stevens, 2006; Kosciulek, 1995). Another demographic group with alarming increases in numbers of TBI's is the elderly, ages 65 and older (Eden & Stevens, 2006; Kosciulek, 1995).

TBI is more common in lower socio-economic groups and among individuals of ethnic minority status (Burnett et al., 2003; Langlois, Rutland-Brown, Thomas, 2006). American Indians and African Americans are at a higher risk of death and hospitalization from TBI than Whites, and generally tend to be young men who have been involved in motor vehicle accidents (Burnett, et.al, 2003). African American men are more likely to die from TBI than any other ethnic/racial demographic group (CDC, 2006). For all racial groups, predisposing TBI risk factors include sports, risk taking activities, alcohol abuse, and active military duty (Eden & Stevens, 2006). For persons in the military, TBI is considered the "signature injury" for the war in Iraq (DVBIC, 2006).

Diagnosing TBI

When a TBI occurs it may happen in a specific brain location or be diffuse involving various parts of the brain. The effects may be temporary or permanent and involve physical, cognitive, and/or behavioral changes (Moore & Stambrook, 1995). Persons with TBI usually make the fastest gains in recovery during the first 6 months after injury and by 12 months the rate of recovery slows considerably (Levin, Eisenberg & Benton, 1991). The rate of recovery depends on a variety of factors including premorbid factors, age at the time of injury, the length of coma, and the extent of physical and neurological damage (Fabiano, 1991). The temporal course of recovery is usually lengthy (months to years), and the rate of recovery may vary over time. For each individual, neural recovery may exhibit regional and functional differences (Levin et al., 1991).

Identification of neurological and physical impairment exhibited immediately post trauma is typically reported by medical and rehabilitation staff using the Glasgow Coma Scale (Teasdale & Jennett, 1974). Based on this measure, the initial severity of the individual's injury is rated as being mild, moderate, or severe. The majority (85%) of TBI's are classified as mild (CDC, 2006; Eden & Stevens, 2006). This label can be misleading as the term "mild" may lead to expectations of an insignificant injury with limited residual damage. Yet, families and survivors of TBI report that the consequences of mild brain injuries can have devastating effects on personal lives, relationships, and employment (Wallace, et al., 1998; Kosciulek, 1995).

After conducting a national survey of state brain injury associations and model brain injury rehabilitation systems, Eden and Stevens (2006) reported to the National Academies, Institute of Medicine on TBI, that, "It is far more important to address the consequences of TBI than to address acute TBI as mild, moderate, or severe" (p. 43). This recommendation suggests that TBI rehabilitation professionals should focus their attention on the long-term effects of brain injury related to the individual's activities of daily living, their return-to-work abilities, development of social skills, their relationships, and community participation, rather than relying on categorization of severity to define the impact of TBI.

Neurocognitive Change

Neurocognitive changes resulting from TBI may include a reduction in initiative, cognitive inflexibility, distractibility, and memory deficits (Levin, et.al, 1991). Problem-solving deficits have been characterized as deficiencies in purposeful, logical, analytical thought. Such deficits include sequencing deficits, lags in response time, and new learning problems (Shallice & Burgess, 1991). Neurocognitive changes also may impair language, auditory comprehension, speech, motor coordination and vision (Damasio, Tranel & Damasio, 1991). Other physiological sequelae related to neurological damage from TBI may include a variety of movement disorders, seizures, headaches, and sleep disorders (NIH, 2006). Essentially, any sensory, motor, and autonomic function may be compromised following a TBI.

It is generally agreed that damage to certain sectors of the brain are responsible for specific impairments (Anderson, Bechara, Damasio, Tranel, & Damasio, 1999; Kendall & Terry, 1999). For example, damage to the pre-frontal and frontal cortex is typically associated with impairment in social behaviors. Yet, controversy continues about which areas of the brain contribute to this specific psychosocial phenomenon. Persons with brain injury may perform well on highly structured, affectively neutral tasks (Rath et al., 2000). Nonetheless, these same individuals may still have reduced self-regulatory resources available for dealing with unstructured, emotionally-laden everyday problems. Such deficits contribute to a dependent social existence among persons with TBI (Ben-Yishay, 1987; Wood & Rutterford, 2005). Accordingly, much research has been conducted in the area of neurological deficits and their impact on social skills.

Anderson and colleagues (1999) have hypothesized that the disruptions of neural systems that hold covert, emotionally-laden, related knowledge of social situations in memory contribute to defects in social behavior. When this information is no longer available or is insufficient to ensure adequate social behavior in real life due to TBI, the individual is left without the resources to make response choices in social situations. The somatic-marker hypothesis (Bechara, Damasio & Damasio 2000) proposes a similar theory. Damasio and colleagues (1991) have theorized that a neural mechanism exists by which emotional processes can guide (or bias) behavior, particularly decision-making. They posit that individuals with TBI experience behavioral difficulties in social interactions due to a defect in the activation of somatic markers which would allow them to choose the correct response from options in the social environment.

Other researchers have discovered that persons with TBI may be able to recall portions of their social past, using semantic knowledge with episodic memory which provides only factual information, but not with autobiographical memory which provides information accompanied by subjective feelings (Hirano, Noguchi, Hosokawa, & Takayama, 2002). These researchers report that this neurological deficit contributes to inappropriate affect and difficulties in responding correctly to social cues. It is this diminished sensitivity to contextual cues and the inability to identify the subtle cues and actions of others that can lead a person with TBI to think or act inappropriately (McDonald, 2000$_{b;}$ McFall, 1982).

Personality and Behavior Change

There is some controversy about how to characterize behavioral problems as they are tied in many ways to the previously described cognitive problems. The relationship appears to be bi-directional in that one cannot exist without the other. Behavior that is insufficient to meet social demands, inappropriate social behavior, and the inability to respond to complex social interaction sequences are the primary behavioral deficits noted in the literature (Corrigan, Bogner, Mysiw, Clinchow & Fugate, 2001; Farmer et. al, 2003; Godfrey & Shum, 2000; Hanks, Temkin, Machamer, & Dikmen, 1999; Leary & Kawalski, 1995; Lewinsohn, 1974; Livneh & Antonak, 1997; Prigatano, 1986; Tate & Broe, 1999; Whiteneck, Gerhart, & Cusick, 2004). In addition, impulsivity, agitation, lability, passivity, denial, withdrawal, disinhibition, hostility, irritability, depression, and anxiety are common reactions following a TBI. These reactions were endorsed by more than 40% of the 76 participants with TBI who participated in a 10-20 year longitudinal study conducted by Hoofien and colleagues (2001). Families also have reported observing these behaviors and that such behaviors persist over time (Anderson, Bechara, Damasio, Tranel, & Damasio, 1999; Kendall & Terry, 1999; Kosciulek et al., 1993). Each of these noted deficits have neurological or cognitive underpinnings. It is also recognized that a portion of the behavior and personality change observed among many people with TBI is attributable to their gradual awareness of the loss of capability in areas (e.g. neurological, physical) where they had been proficient prior to the TBI.

Denial of neurological deficits is viewed in two primary ways. First, it is described as a psychological defense mechanism used early in the recovery process to keep cognitive, motor, and perceptual deficits out of consciousness (Livneh & Antonak, 1997). Second, Prigatano (1991) reported that denial has organic origins which impact an individual's ability to self-evaluate and self-monitor. From either perspective, lack of awareness has been found to interfere with needed skills such as social judgment and perception. Individuals with TBI frequently report emotional problems related to impaired social perceptions (Eden & Stevens, 2006). Problems including difficulties in making and keeping friends and difficulties in understanding and responding to the nuances of social interaction have been reported (Godfrey & Shum, 2000). The impact of impaired self-awareness on these problems in social interactions continues to be investigated.

Changes in self-concept following TBI have been well-documented in the literature (Tyerman & Humphrey, 1984) and appear to be correlated with an individual's social perception. In their study of 25 patients with TBI, Tyerman and Humphrey (1984) discovered that individuals with TBI underwent profound changes in self-concept. Similar findings were reported by Crisp (1993) and Nochi (1998; 2001) in their qualitative studies of persons with TBI. Among the findings noted in these studies, individuals with TBI felt that they had changed significantly as a person with some persons reporting that they no longer felt they were a whole person. Further, participants in these studies reported feeling they were a burden, that they were too slow, and that they did things wrong. Finally, fear of stigma and social ostracism also were reported by persons with TBI (Crisp, 1993; Nochi, 1998, 2000).

For persons with TBI who experience a low self-concept, it is likely they also will experience difficulty in improving their social interactions (Tyerman & Humphrey, 1984). Research has demonstrated that people who have negative evaluations of themselves will have less effective social interactions with others (Riggio, 1986; Flora & Segrin, 2003). Such a relationship between self-evaluation and social relationships may explain why individuals with TBI experience difficulties in achieving their goals in the course of their social interactions.

Social Interaction Contexts of Persons with TBI

Interactions within the Family

In today's evolving social structure, the term family can refer to many different combinations of people; the traditional heterosexual couple with genetically-related offspring, the single parent, same-sex parents with adopted children, or grandparents raising grandchildren. Subsequently family theorists have conceptualized family 'units' according to structure, orientation, and transactional processes (Fitzpatrick & Wamboldt, 1990). For the purpose of this study, the transactional definition will be used as it reflects the most diverse concept of family, distinguished as a group of intimates who generate a strong sense of loyalty and emotion that experience a history and a future (Fitzpatrick &

Coughlin, 2002). The transactional definition of family also focuses on interactions between family members, how cognitions and emotions affect exchanges, and the encoding and decoding of messages between people (Riggio, Throckmorton, & Dipaola, 1999). Adopting the view espoused by Vash and Crewe (2004), in the proposed study, communication and interaction are terms used interchangeably and encompass all aspects of information exchange between individuals with disabilities and their family members including speech, auditory, visual, and written data.

Brain injury exerts a large toll on the psychological and the emotional functioning of the family (Kosciulek, 1994$_a$) in describing a circumplex model of family adaptation to TBI, Kosciulek (1994$_b$) recognized the importance of positive family interactions for facilitating successful family adaptation to brain injury. Families poised for ease of adaptation to the changes brought on by having a family member with TBI are capable of maintaining pre-morbid family coherence, flexibility, and communication through post-injury challenges. They also have the capacity to allocate family resources to accommodate stressful family changes to facilitate healthy family functioning. Kosciulek (1996) referred to these families as 'balanced.'

Family adaptation to TBI is critical to the discussion of social interaction of persons with TBI as research has shown that increases in family burden, or imbalances, are likely due to a combination of decreased tolerance for the injured family member's negative behavior (Brooks, Campsie, Symington, Beattie, & McKinlay, 1986) and a collapse in family communication (McDonald, 2000$_a$). Antonak and Livneh (2000) have also suggested that non-adaptive or socially unacceptable behavior by individuals with disabilities trigger generalized negative attitudes toward them. Examples of negative behaviors reported by families that have an impact on the structure and social interactions of the family of a person with TBI include bizarre, puzzling, or inappropriate social behavior, gestures of violence or physical violence involving assault on the relative, childishness, talking too much, getting easily upset even by small changes in routine, trouble with the law including breach of the peace, drunk and disorderly charges, illegal drug use, and driving violations (Brooks, et al., 1986).

A blunt communication style, poor memory, an inability to express feelings, lack of ability to interpret nonverbal cues, decreased ability to self-monitor behavior and decreased sensitivity to the need of others also contribute to an ineffective style of interaction for persons with TBI (McDonald, et al.,1998; Riggio, 1986; Riggio, Watring & Throckmorton, 1993). As a result of such communication difficulties, family interactions become strained, and as these unsuccessful interactions grow in number, family members and the individual with TBI grow increasingly distant (Togher, McDonald, Code, & Grant, 2004; Tyerman & Booth, 2001). This distance reflects the family system functioning aspect that Kosciulek (1996) referred to as 'lack of cohesion.'

Interactions for the person with TBI may be framed by their perception of family and social roles. Cognitive deficits may interfere with an individual's ability to decode and interpret interactions where affect and message do not match. Examples include humor or satire (McDonald, 2000_{a}). Another example is the double-bind in communication (Krefting, 1990; Segrin, 2001). According to the double-bind hypothesis, interactions have multiple levels of meaning, including the literal content and a metamessage at a higher level that provides meaning about the interpretation of the message content or the relationship between the sender and the receiver. A classic example of a double-bind is, "I order you to disobey me!" Family members of persons with TBI have been found to send paradoxical and contradictory messages in which the verbal message is contradicted by the nonverbal or the metamessage (Crisp, 1983; Krefting, 1990; Nochi, 2000). As Segrin (2001) pointed out, "Such communication corrupts choice because any potential response can be expected to receive a punishing response." Similarly, persons with TBI may perceive they are the recipient of various criticisms from the family and friends. Examples of such criticisms include that the individual with TBI is an adult child, is dependent on others for financial, emotional, and social support, and that their current poor performance in social functioning is in contrast to their "former, normal, selves" (Crisp, 193; Krefting, 1990; Nochi, 2000 ; Phillips, 1990).

Interactions with Friends

People tend to define themselves in terms of their friends, interests, and social interactions. Unfortunately, many persons with TBI report that they are impoverished when it comes to friendships, old or new (Hoofien et al., 2000). Friendships are fragile, voluntary relationships which differ from family or marital relationship as there are no formal rules or ties (Callaway, Sloan, & Winkler, 2005). Further, friendships are vulnerable to major lifestyle changes such as TBI. Outcome studies indicate that over time the number of the injured person's friends dwindles as social integration deteriorates (Burleigh et.al., 1998; McLeod, Stewart & Robertson, 2002). Finset, Dyrnes, Krogstad, and Berstad (1995), in a study of individuals with TBI, found that 57% of the participants in their study reported a decline in their social network two years post-injury, 43%

reported little or no interaction with friends, and 33% reported not having a close relationship with anyone.

Many of the same personality and behavior changes noted as significant for individuals with TBI and their families also apply to their interactions with friends. Most researchers agree that an individual's dysfunctional behavior and personality change are the most significant factors in the disruption of friendships and are the greatest barriers to forming new relationships (Finset et. al., 1995; Gardner, 2000; Weddell, Oddy, & Jenkins, 1980). Rosenthal and Bond (1990) noted that apathy, sexual disinhibition, and aggression were the most significant barriers to social interactions for persons with TBI. These behavioral and personality barriers not only reduce the frequency, but also the nature and quality of friendships of the individual with TBI (Weddell et. al., 1980).

Lezak (1989) highlighted mental inflexibility as a primary contributor to limitations in the social interactions of individuals with TBI and their friends. Such inflexibility is particularly displayed by individuals who sustain head trauma as adolescents or young adults. As they interact with peers, people with TBI remain the same as they were when they sustained their injury, "as if psychologically frozen in time" (Lezak, 1989, p.128). Their friends, however, mature and develop new interests and pastimes. Therefore, it is not surprising that individuals with TBI may choose not to interact with their peers, preferring family or younger associates, as they feel 'different' and unable to fit in to leisure situations which they used to enjoy (Segrin; 2003;Ylvisaker, 2000).

The ability to adequately reinforce others through social interactions is required to maintain interpersonal relationships (Callaway & Winkler, 2005; Tate, Lulham, Broe, Strettles, Pfaff, 1989). Researchers who have studied the communication patterns of individuals with TBI have described their interactions as egocentric, as they lack the ability to consider social situations from another's perspective (Gardner, 2006; McDonald, 2002). Bond and Godfrey (1997) recorded the conversation patterns of 62 persons with TBI with a matched, orthopedic control group. The TBI group was rated as less rewarding, more effortful, and less interesting than the control group. During the interactions, the interlocutor was required to prompt more frequently with the TBI groups and individuals with TBI took longer turns in speaking than control group members. Consequently, the interlocutor carried most of the burden in the TBI group conversations and had less opportunity to make any personal disclosures, which are necessary to sustain and enjoy social interactions. Subsequently, persons with TBI were perceived as "unrewarding" during social interactions (Bond & Godfrey, 1997, p.327).

Interactions with Coworkers

One of the most discouraging consequences of TBI is unemployment (Crisp, 1999). Return to employment is one of the factors related to an individual's demonstrated life skills, which can influence their perceived quality of life (Rubin, Chan, & Thomas, 2003; Steadman-Pare et al., 2001). Not surprisingly, the interplay of cognitive and physical sequelae of brain injury (Cifu et al., 1997) and resulting personality disturbances (Gardner, 2006; Lezak, 1989) combine to affect a person's ability to return to work. Weddell, et al. (1980) found that individual's who experienced personality change as a result of a TBI were significantly less likely to have returned to work than those without personality change.

Multiple researchers have indicated that disinhibition; loss of control of behavior and emotions, and lack of initiative can all significantly impact a person's ability to work successfully in a competitive position (Bolton, Bellini, Brookings, 2000; Gamble & Moore, 2003; Johnstone et al., 2003; Kosciulek, 1993; Kreutzer et al., 2003; Power & Hershenson, 2003; Whiteneck et al., 2004). Prigatano (1986) has reported deficits in social judgment and the inability to either initiate activities or anticipate change as major barriers to employment for persons with TBI. Spitzberg and Cupach (1989) noted that lack of communication competence and difficulty interacting with coworkers and supervisors in an appropriate way would negatively impact an individual's ability to work.

Once in the work place, persons with TBI may appear to approach tasks in a vigorous way. However, individuals with TBI often overestimate their capabilities resulting in increased stress (Prigatano, 1981). Individuals with TBI may also have difficulty articulating needs for assistance once on the job. When persons with TBI do request and accept assistance to overcome functional limitations, this can become an additional source of stress. As one individual with TBI reported, "I am not able to make new friends because, when you get into a new work place, you go in there as a head injured person, and you go in there with a job coach. That makes them think of you differently, because I have a job coach and I am head injured, they may not treat me the same as an ordinary person," (Nochi, 1998). Working is important for persons with TBI as it provides an opportunity for social interaction, interpersonal contact, and the possibility to develop new relationships and engage in activities with others. Weddell et al. (1980) reported that individuals with TBI who did not successfully return to work had significantly fewer leisure activities and described themselves as feeling bored more frequently when compared to individuals with TBI who did return to work.

Interactions in the Community

Diffuse relationships (Callaway et al., 2005) are defined as those that are not defined by closeness, reciprocity, or familiarity. This term refers to people in the individual's larger community and those persons an individual comes in contact with on a daily basis but shares no personal ties with. As an example, diffuse relationships may exist with shopkeepers, public or private system employees, and healthcare workers. Because persons with TBI may experience deficits in encoding and decoding social information, the rejection they experience in the interpersonal domain may also be felt in their social experiences in the community (Riggio, 1986). Impaired social interaction can prevent individuals with TBI from full community membership and from engaging in community influence (Callaway et al., 2005; Farmer et al., 2001).

Regaining a psychological sense of community can be difficult for all persons who experience the sudden onset of disability, particularly those with cognitive and communicative disabilities (McMillan & Chavis, 1986). Social interactions with individuals with whom the individual with TBI shares diffuse relationships are influenced not only by internal characteristics of the individual with TBI, but also by external factors. External factors include sociocultural issues, experiences with environmental and social barriers, public policy, and the level of understanding received from family peers and professionals (Darragh, Sample & Krieger, 2000). The primary external factor influencing individuals with TBI is stigma, or the negative attitudes of others (Whiteneck, Gerhart, & Cusick, 2004).

Many individuals with TBI go to great lengths to develop strategies to manage or conceal negative self-images including secluding themselves entirely (Crisp, 1993; Krefting, 1989; Nochi, 2000). Individuals with TBI have expressed fear that they will be labeled as mentally ill or developmentally disabled two groups of individuals with disabilities which have been stigmatized in the United States for many years (Rubin & Roessler, 2001). Understanding how the threat of stigmatization could lead to individual isolation is not difficult when one considers the amount of value society places on intellect and a fully functioning brain and body.

Theories Which Explicate Social Interaction

Social Skills

McFall (1982) suggested that when a concept such as social skill is invoked for a diverse set of psychological problems, such as alcoholism, juvenile delinquency, divorce, schizophrenia, and unemployment, that concerns must be raised as to how that concept can still retain its specificity and utility of meaning. McFall's statement over 20 years ago pre-empted an extensive stream of research that has been conducted involving the concept of social skills. McFall's (1982) research resulted in the framework upon which many of today's contemporary theories of social skills are based. According to McFall (1982), *social* is a term which is used generally to define the arena in which a behavior is demonstrated, and *skills* are specific abilities required to perform the behavior competently. *Social skills* may be innate or acquired through practice, however they are not general attributes or personality traits that will manifest themselves across all situations. Subsequently, individuals demonstrating social competency in one setting may not able to apply those same social skills in another setting.

McFall's (1982) model contains three sequential steps which involve: (1) decoding or receiving of information, (2) decision making which involves a search and test sequence for the best possible response for the given social situation, and (3) encoding which involves the selection and coordination of motor, verbal, and non-verbal responses appropriate for the task. It is in the final encoding step where the individual receives feedback and the recycling of the entire social skills process begins as the individual's impact on the environment necessitates the use of decoding again.

McFall (1982) proposed that competency in social skills involves the whole person functioning efficiently at three system levels. These system levels include the *physiological system* (behaviors, actions), *the cognitive system* (human attentional processes) and *motor skills system* (verbal and non-verbal expressions). Regulations of physiological activities, much of which are unconscious, play a significant role in social interactions and can influence judgments of social competence. Cognitive skills represent the process by which the individual transforms the information they receive into meaning, and later into behavioral programs that become evident in performing social tasks. Motor skills including verbal and non verbal skills, are related to expressive behaviors and when interrelated with the other systems, lead to judgment of social competence.

McFall (1982) defined *social competence* as part of the model and as being related to social skills, yet he is clear that the two terms although used interchangeably throughout the literature, are not the same. Social competence is demonstrated through needed skills and performance requirements to meet the demands of social tasks. Social skills are judged to be competent by taking into consideration the social rules governing task. This tenet is particularly important for exploring social interactions, which are rule governed and organized (Kunkel, 1997).

An important aspect of McFall's (1982) model is that it requires the ability to apply social skills flexibly according to the rules of social interaction. Godfrey and Shum (2000) have argued that the inability to flexibly apply behaviors according to rules due to executive dysfunction, could account for many of the problems that individuals with TBI may experience in social interactions. In fact, McFall (1982) and Godfrey and Shum (2000) have maintained that some individuals may never manage to acquire certain skills to perform adequately on some social tasks because it is beyond their capacity to acquire those skills.

Self and Social Behavior

When people receive feedback from others, there are questions they might ask themselves such as: Is the feedback convincing? Is the informer reliable and trustworthy? What implications does the feedback have in light of what I know about myself? The literature suggests that individuals typically pose such questions in a manner that promotes the maintenance of self-views (Banaji & Prentice, 1994; Devos & Banaji, 2003; Swan). In 1981, Swann and Read proposed that individuals use their social interactions as opportunities to advance and to validate their self-conceptions. Based on the writings of the early symbolic interactionists (Cooley, 1902; Mead, 1934), self-verification theory is viewed as a process of predicting the responses of others and making sense of the world. Therefore, self-views figure prominently in predicting the reactions of other people, influencing the interpretation of incoming information, and guiding behavior (Swann, Polzer, Seyle, & Ko, 2004).

From this vantage point, self-views represent the "lens" through which people perceive their worlds and organize their behavior (Goffman, 1959). Self-views also enable people to establish workable agreements about who-is-who in social interaction, agreements that provide the social psychological glue that holds social interaction together (Swann et al., 2004). As such, it is critical that these "lenses" maintain some degree of integrity and stability; otherwise, the visions of reality they offer will be shifting and unreliable. For these reasons, people are motivated to stabilize self-views, and they pursue stable self-views by working to bring others to see them as they see themselves (Banaji & Prentice, 2003; Bosson & Swann, 1999; Devos & Banaji, 2003). Individuals create environments that confirm self-views, primarily by choosing interaction partners who confirm self-views, or interpreting and remembering their interaction as confirming self-views (Devos, Banaji, & Prentice, 1994; Swan, 2003). Social interactions provide the ideal opportunity for the pursuit of self-verification and self-improvement as people choose their interaction partners in ways to maximize the benefits to the self (Swann, 1990; Wood & Taylor, 1991).

There is also a downward comparison theory of self-verification which pertains to social interactions (Wood, 1989). In theory, individuals who are experiencing a crisis, illness, low self-esteem, or depression, will compare themselves to others less fortunate, as a means of self-enhancement (Banaji & Prentice, 1994; Bosson & Swann, 1999; Swann, 1985). In Nochi's (2000) qualitative study of persons with TBI, a large percentage of participants (7 of 10) who interacted with the researcher were described as "coming to understand their own injuries through other people's problems" (p. 1798). They "soothed their grief about their losses" (p. 1797) by noticing others with TBI who were in worse condition. Nochi (2000) commented that participants reported learning these self-verification strategies early in their TBI experiences from others such as nurses at the hospital, television, and reading written materials regarding TBI.

Individuals with TBI prefer acquaintances whose appraisals confirm their self-conceptions (Crisp, 1993; Man, Tam, & Li, 2003; Nochi, 1998, 2000; Swan, 1982; Ylvisaker, 2000). However, the literature is clear that self-awareness deficits among persons with TBI can lead to difficulty in establishing relationships and in realistically assessing social behavior (Prigatano, 1991). The question to be raised is what occurs for the individual with TBI when the lens through which the individual views their world loses integrity and stability and becomes shifting and unreliable? TBI research has indicated that challenging incongruencies in an individuals self-views can be difficult, resulting in oppositional behavior and resistance to friends, family, and professionals who try to re-shape goals and behaviors (DiMaggio, 1997; Ylvisaker, 2000).

Social Intelligence

As originally coined by E.L. Thorndike (1920), the term social intelligence referred to the person's ability to understand and manage other people, and to engage in adaptive social interactions. Since Thorndike's original definition, social intelligence has defined in a number of ways, with the most cohesive definition being the ability to understand the feelings, thoughts, and behaviors of persons, including oneself, in interpersonal situations and to act appropriately upon that understanding (Marlowe, 1986). According to Kihlstrom and Cantor (2000), social intelligence is related to cognitive ability and an individual's fund of knowledge about the social world. These authors theorized that social intelligence is specifically geared to solving the problems of social life, and in particular managing the life tasks, current concerns, or personal projects which the person selects for him or herself, or which other people impose on him or her from outside.

On the procedural side, a substantial portion of an individual's social intelligence repertoire consists of interpretive rules for making sense of social experience. Examples of such interpretive rules include inducing social categories and deducing category membership, making attributions of causality, encoding and retrieving memories of behavior, predicting future events, and testing hypotheses about social judgments (Cantor & Kihlstrom, 1987; Kihlstrom & Cantor, 2000). It is hypothesized that some interpretive rules are enacted deliberately while others are automatically engaged without much attention and cognitive effort (Wegner & Bargh, 1998).

Social intelligence is classified into two broad categories: *declarative knowledge*, consisting of abstract concepts and specific memories, and *procedural knowledge*, consisting of the rules, skills, and strategies by which the person manipulates and transforms declarative knowledge, and translates knowledge into action (Kihlstrom & Cantor, 2000; Sternberg, Conway, Ketron, & Bernstein, 1981). The individual's fund of declarative knowledge, in turn, can be broken down further into context-free *semantic* memory about the world in general and *episodic* memory for specific events and experiences (Tulving,1983). Similarly, procedural knowledge can be subclassified in terms of cognitive and motor skills. These concepts, personal memories, interpretive rules, and action plans are the cognitive structures of personality. Together, they constitute the knowledge which guides an individual's approach to problem-solving during social interactions.

Social intelligence is viewed as part of a larger repertoire of knowledge used to solve practical problems in the social world (Sternberg, 1988) and, therefore, it cannot be evaluated in the abstract but must be evaluated in context, according to the life tasks it is intended to serve (Cantor & Kihlstrom, 1987). "Adequacy," as noted by Kihlstrom and Cantor (2000), could not be judged solely by an observer but must include the viewpoint of the subject whose life tasks are in play. For individuals with TBI, deficits in social intelligence would be similar as those noted for social skills (McFall, 1982); in that failed social interactions would be observed when the demands placed on the person and their ability to meet those demands did not match.

Kihlstrom and Cantor (2000) maintain that there are no standards by which impaired social functioning or impaired social intelligence can be determined. They refer to Greenspan's (1979) hierarchical model of social intelligence, developed for diagnostical studies of social cognition among persons with developmental disabilities. This model consists of three components: *social sensitivity* reflected in role-taking and social inference; *social insight* including social comprehension, psychological insight and moral judgment; and *social communication* including referential communication and social problem solving. In this model, social intelligence is viewed as a requirement for successful social interactions, and social intelligence is therefore considered an element along with physical competence, socioemotional adaptation, and practical intelligence as part of the broader construct of psychosocial adaptation (Greenspan, 1997).

Social Interactions and Nonverbal Communication

Riggio's (2003) work in the area of social skills and nonverbal communication was initially influenced by Thorndike (1920) and Marlowe's (1986) definitions of social intelligence, which are summarized as the ability to understand the feelings, thoughts, and behaviors of persons, including oneself, in interpersonal situations and to act appropriately upon that understanding. Riggio (2003) proposed that success in social interactions requires a balance between an individual's ability to regulate nonverbal affect in social interactions and the ability to be spontaneously, emotionally expressive through the use of verbal communication. Individuals also must be able to interpret other people's nonverbal messages by awareness of nonverbal cues signifying the communication partner's expectations, and by accurate identification of social norms (Rosenthal, 1979; O'Sullivan, 1983).

Riggio's (1989) social skills model includes two domains in which social interactions occur, the emotional and the social. In both domains, interactions with others are required for judgment of social skills. The domain identified as *emotional,* refers to nonverbal sending, receiving, and decoding of nonverbal communication in social interactions. The *social* domain refers verbal communication and social self-presentation. It also refers to the knowledge of social norms that govern interactions.

In Riggio's model, there are three classes of basic social skills; *encoding* (sending), *decoding* (receiving), and *controlling* (regulating), the feelings, thoughts, and behaviors of persons, including oneself, in social interactions. For each class there are two dimensions, *emotional* and *social expressivity* for the levels of encoding and decoding information, and emotional and social control for control of information (Riggio, 1989).

Expressivity is described as the ability to transmit emotional states spontaneously and accurately, and the ability to engage others in active communication. Riggio (2003) defines social expressivity as skill in verbally speaking to others in social interaction. For individuals with TBI, feelings of security or avoidance in social interactions may play a part in their expressivity. Tucker and Anders (1998) discovered that avoidance relates negatively to expressivity in interpersonal relationships and that security relates positively to expressivity.

Sensitivity is described as accuracy in the interpretation of the needs and feelings of others. Social sensitivity is the ability to decode and interpret verbal messages regarding what others are thinking and feeling (Riggio, 2003). Social sensitivity also reflects the degree to which a person is motivated to avoid criticism from others (Guerrero & Reiter, 1998). Collins and Feeney (2000) conducted research in the area of social support and care giving, which demonstrated that emotional sensitivity and emotional sensitivity varied by individual attachment style. Prosocial orientation, interdependence, and trust mediated the association between a positive attachment style and caregiving. These findings may be very important for understanding the interactions between individuals with TBI and their families and others caregivers.

Control is described as the ability to "use conflicting emotional cues to mask felt emotional states" (Riggio, 1986, p. 651), to moderate the display of strong felt emotions. Social control is represented as the ability to manage impressions, to take on new social roles, to assume leadership positions by general skill in self presentation including tact, self-confidence and social adeptness. If individuals with TBI are fearful or anxious in their social environments, they may have difficulty demonstrating social or emotional control. In a study conducted by Guerrero (1996), individuals who were classified as fearful/avoidant showed more difficulty maintaining composure and social fluency than individuals with other attachment styles.

Riggio (1989) has hypothesized that that social expressivity, emotional expressivity and social control are the three basic social skills that should be the most closely related to the formation of positive first impressions. This hypothesis was based on the tenet that highly expressive and socially controlled individuals should receive favorable evaluations s from others in initial encounters. Recent studies have supported these findings among diverse populations and across multiple settings (Baron, 1997; Carton, Kessler, & Pape, 1999; Costanzo & Archer, 1993; Goleman, 1995; Mayer & Salovey, 1997; Nowicki & Duke, 1992; Riggio, Throckmorton, & DePeola, 1990; Riggio, 1992; Riggio & Taylor, 2000; Riggio, Salinas & Cole, 2003).

Based on the review of the literature (Goleman, 1995; Riggio & Feldman, 2005; Salovey & Mayer, 1990; Segrin, 2001), several broad conclusions can be made regarding nonverbal communication and social interactions. First, the context in which interchanges takes place matters. One of the reasons nonverbal communication is difficult to translate consistently is that culture and context plays a central role in the specificity of the nonverbal cues used. Second, individual differences matter. The ability to convey (encode), interpret (decode), and regulate nonverbal behavior differs among individuals. The examination of individual differences has important implications for understanding the effectiveness of nonverbal communication within clinical populations (Phillippot, Douilliez, Pham, Foisy, & Kornreich, 2006). Third, expectations affect interpretation of nonverbal behavior. We may expect others to act or behave in a certain way which impacts how we interpret their nonverbal behaviors and expressions (Harris & Rosenthal, 1985). Finally, nonverbal communication patterns are not unchangeable. Intervention efforts have been successful in teaching individuals to be more aware of and change their nonverbal communication patterns (O'Sullivan, 2006; Segrin, 2001).

Chapter 3

Method

Participants

The population of interest in this study was adults with TBI. For the purpose of the proposed study (i.e., to seek to understand the social interactions of individuals with TBI), it was originally anticipated that a minimum of 7 adult participants would be needed to meet the requirements for data completeness and saturation (Schutt, 2001). Because of its exploratory nature and given the use of smaller numbers of participants in prior qualitative studies involving individuals with TBI (Crisp, 1993; Nochi, 1998, 2000) a minimum of 7 participants was believed to be sufficient.

The study sample was drawn from a brain injury rehabilitation program located in a Midwestern state. The program offers a variety of specialized services to individuals with TBI including occupational therapy, physical therapy, psychology, speech therapy, vocational rehabilitation, and community integration. All programming integrates a hierarchy of neuropsychological functions (Ben-Yishay & Gold, 1990) to promote the development cognitive skills that facilitate individual improvement and progress. Length and type of stay ranges from residential to transitional to outpatient treatment. The goal of the program is to improve cognitive functioning and increase compensatory strategies necessary for independent functioning.

Criteria for participant inclusion in this study included: (a) the individual was at least 9 months post-injury, (b) the individual demonstrated observable communication abilities for participating in an interview, (c) the individual was at least 18 years of age at the time of study participation, and (d) the individual was participating in outpatient rehabilitation services.

Participants were asked to provide demographic information including age, gender, cause of injury, educational level, ethnicity, highest grade level completed, living situation, marital status, months since injury, number of children, number of siblings, type of rehabilitation program in which they were participating, work hours or school attendance, and the job held prior to injury. This demographic information allowed for a "thicker" ethnographic account of the study participants (Geertz, 1973; Marshall & Rossman, 1999). Adding demographic data to elaborate on primary research findings has been described as beneficial by other TBI investigators (Corrigan & Deming, 1995). The *Demographic Information Sheet* that was used to collect participant demographic information can be found in Appendix A. The following is a summary of these characteristics, as provided by the participants:

The average age of the participants was 37 years old with a range of ages from 24 to 55 years old. Five males and two females participate. One participant was a Native American Indian while the remainder indicated they were Caucasian. Although the ages of participants ranged from 9 months to 264 months (approximately 22 years), the majority of the participants were approximately 12 months post injury. All of the participants had been involved in accidents involving automobiles.

Educational levels ranged from completion of the 9th grade to a bachelors degree with six having their high school diplomas. Two of the participants were married, one was divorced and the remaining four were single. Three lived independently in the community. Two were living in transitional housing, and two were living in inpatient rehabilitation centers awaiting approval for participation to a transition program.

Procedure

Following notice of Human Subjects Approval from the Michigan State University Institutional Review Board (IRB), the investigator attended a staff meeting at the research site. A brief, written outline of the study was distributed to program staff which accompanied a 15-minute PowerPoint presentation. This documentation provided the staff with details related to study procedures and objectives. Written information was also provided including the Informed Consent Form and a copy of a flyer to be used in the rehabilitation setting, announcing the beginning of the study. The *Study Announcement/Flyer* copy is attached as Appendix B. The purpose of attending the staff meeting was threefold:

1. To hold a question and answer period will be held pertaining to the research project.
2. To provide specific contact information for reaching the investigator will be provided to staff.
3. To have the opportunity to interact with program staff whose cooperation and assistance is necessary for scheduling interviews and recruiting potential participants. The staff members were encouraged to display the recruitment flyer, (see Appendix B) in key areas at the rehabilitation program to attract potential study participants.

Subsequent to this meeting several staff members indicated an interest in assisting in recruiting potential participants. Contact was made with the program director to obtain permission to visit the site once per week to facilitate the ease in which participants and the researcher could have in making the initial contacts. Permission was granted and the researcher attended a Brain Injury discussion group once per week for one hour, and also visited with participants in the rehabilitation program in the community room for a four hour period once per week. The weekly visits greatly increased the researcher's ability to generate interest in the study among participants. In person contact also created a more relaxed atmosphere for the participants and more natural approach to the interview questions for the researcher.

Once initial interest was expressed, the researcher followed up with the potential participant directly by telephone to discuss the purpose and process of the research in more detail. This initial telephone contact provided participants an opportunity to make further inquiries regarding the study and for the investigator to arrange for the first, in-person interview.

In-person interviews took place at the rehabilitation program. The first interview lasted approximately 15- 30 minutes in length, dependent on the participant. Five of the seven of the participants filled out the demographic information form on their own. The researcher filled out the demographic form for the remaining two participants. The purpose of the first interview was to:

1. Ensure individuals meet study inclusion criteria.
2. Administer informed consent procedures.
3. Gather participant demographic information
4. Establish rapport between the investigator and participant.

The investigator discussed informed consent procedures with each participant individually, by verbally describing the purpose of the study, assumed risks, benefits, participant rights, and confidentiality. The informed consent form was read to the participant and the participant's signature was requested to indicate voluntary agreement to participate in the study. A copy of the informed consent form was provided to the participant and a signed copy was placed in the investigator's interview portfolio. This information has been secured at the researcher's office along with other confidential data obtained during the study.

Following completion of the informed consent procedure, the *Demographic Information Sheet* was used to collect participant demographic information. Next, arrangements were made with the participant for the time and place for the second interview. Finally, the participant was provided a copy of the *Interview Guide* that was used in the second interview. A copy of the *Interview Guide* is shown in Appendix C. Providing the *Interview Guide* to the participants allowed some of them to feel more comfortable and to respond with greater ease during the second, tape-recorded interview.

The second interview lasted approximately 45 to 60 minutes for most participants. Each participant chose their own pseudonym so it would be easier for them to respond naturally during the interview. As expected, some participant's were more conversational than others and more willing to provide detailed information. The second interview was audio tape recorded. In addition, notes and multiple memos were written by the researcher throughout the data gathering process to document the participant's behaviors, interactions with the investigator that were not part of the taped interview, and non-verbal expressions during and after each interview. Following each interview, the investigator listened to each audiotape. The tape was then labeled with the pseudonym, a random identification number, and date, and delivered to a professional transcriptionist for typing. Pseudonyms and identification numbers were used as identifiers for each tape to protect confidentiality. The transcribed tapes were returned to the investigator as electronic documents, which were then printed and catalogued.

The tapes, electronic copies, printed documents, memos and field notes will be retained for a minimum period of 7 years to be used for future research. All of this data will be stored in a secured and locked location in the office of the investigator. Any information entered onto a computer will be secured through password identification, Norton Anti Virus, SpyBot, and Windows firewall protection.

Instrumentation

Data for this research was generated through intensive interviewing. Intensive interviewing relies on open-ended questions and is semi-structured (Schutt, 2001). Rossman and Rallis (1998, p. 126) refer to the intensive interview as a "conversation with a purpose" as the researcher is engaged much more actively with the participant than they would be in a structured interview. In the second interview, the *Interview Guide* was used to ask a series of questions designed to elicit verbal narrative descriptions about participant social interactions. Attention was paid to non-verbal cues (Riggio & Feldman, 2005), expressions with symbolic value, and the ebb and flow of the investigator's own feelings during the interviews (Luttrell, 1997). Sub-questions or probes were used to uncover assumptions and to make explicit what the person speaking may have left implicit (Luttrell, 1997; Rossman & Rallis, 1998).

Interview Guide

The *Interview Guide* was developed to gather information in key topic areas related to the social interactions of persons with TBI. A copy is provided in Appendix C. The guide was sequenced in a way that would make logical and practical sense to participants, asking about their social interactions in the following four life domains: family, friends, employment/school, and the community in general (Berry, 1999; Kvale, 1996). The *Interview Guide* follows the illness trajectory as supported by literature, in that initially following injury onset, individuals with TBI are likely to interact most frequently within a limited circle of family and friends, extending outside of this circle as they become more independent (Dijkers, 2000; Kosciulek, 1995).

The content and structure of the *Interview Guide* was developed from a variety of sources including:

1. The empirical and conceptual TBI, social skills, and social interaction literature.
2. An emerging conceptual framework regarding the communicative processes of persons with TBI.
3. Qualitative literature pertaining to the development of case studies.
4. The investigator's clinical rehabilitation counseling experience with individuals with TBI.
5. Review and input by TBI rehabilitation professionals.

Questions in the four life domains of family, friends, employment/school, and general community focused on three phases. First, participants were asked to describe their *perception of themselves* in each of these social interaction domains. Second, participants were asked to comment on how they believed they *were perceived by others* in each domain. Third, participants were asked to describe how their perception of their *interactions may have changed* from pre-injury to post-injury.

Participants did refer to the *Interview Guide* during the interview process. The investigator used the guide to establish consistency among the interviews and focus participants on areas of social interaction significance during the semi-structured conversations. Not all of the participants were asked the same questions as their life situations differed. One question was added as the variable of communication type and style emerged during the interview process. In keeping with grounded theory inquiry, this was added as a new, potential determinant of the social interaction process.

Research Design

When considering which research design to utilize to explore the research question, both quantitative and qualitative methods were considered. Quantitative analysis including Analysis of Variance and Multiple Regression has typically been used to explore social interactions and communication research question (Kenny, 1996). However, the purpose of this study was to acquire to take a more dynamic, naturalistic approach to the analysis of social interaction data. Given the multiple factors involved in social interactions, the mixed findings in empirical literature regarding social skills, and the limited availability to individuals who could participate in the pilot study, it was determined that qualitative inquiry could best address the research question. Researchers in a number of fields have explored external factors which contribute to the success of persons with TBI in re-integrating into the community (e.g., Kosciulek, 1995; McColl, Johnstone, Minnes, Shue, Davis & Karlovitz, 1998; Miller, 1993; Nochi, 1998; Olver, Ponsford & Curran, 1996; Yates, 2000). These include environment, context, culture, family, and social norms. As such, in order to further enhance our understanding of the social impact of TBI and expand the TBI literature, it was a natural step to turn to individuals with TBI for additional information regarding their personal social interaction experiences.

To accomplish this task, the grounded theory method was employed in this study. "A grounded theory is one that is inductively derived from the study of the phenomenon it represents. That is, it is discovered, developed, and provisionally verified through systematic data collection and analysis of data pertaining to that phenomenon" (Strauss & Corbin, 1990, p. 23). A grounded theory approach is supported given the exploratory nature of this study and the focus on gaining real, rich, and deep data (Glaser & Straus, 1967; Marshall & Rossman, 1999).

In order to understand and interpret the perceptions of individuals with TBI regarding their social interactions, it was necessary to generate some general guidelines for inquiry, and to identify the conditions under which specific social interaction processes or intentions emerged or were muted (Charmaz, 1997). Utilizing grounded theory provided these guidelines. Constructing grounded theory for this research involved the elucidation of themes and the analysis of the audio-taped and transcribed dialogues of individuals who volunteered to participate in the semi-structured interview process.

It is believed that qualitative research involving persons with TBI provided a revealing lens through which the social interactions of persons with TBI could be viewed. In relation to rehabilitation research and disability services, Wright (1983) indicated that considering the position of the insider to the outsider held "important consequences for rehabilitation" (p. 47), in that the insider is more likely than the outsider to take the nature or characteristics of the situation being explored or evaluated into account.

Data Analysis

The analysis of interview transcripts and field notes were based on an inductive approach geared to identifying patterns in the data by means of thematic codes. Patterns, themes, and categories of analysis came from the data, "they emerge out of the data rather than being imposed on them prior to data collection and analysis" (Patton, 1980, p. 306). Analysis began with an open-coding process, which included a line-by-line review of each transcript to identify words or phrases attributable to participant implications throughout the interviews (Rubin & Rubin, 2005). This data was analyzed using the constant comparative method whereby line, sentence, and paragraph segments of the transcribed interviews were reviewed to decide what codes fit the concepts suggested by the data (Glaser & Strauss, 1967; Strauss & Corbin, 1990). An inductive analysis was used to group the emerging codes into concepts. Concepts represented important phrases in the transcripts (Rubin & Rubin, 2005) and were compared across participant data sets.

The process of coding and conceptualizing the data is one of the most difficult and yet compelling aspects of the qualitative research process. The challenge is to stay true to the story that is being told. Data analysis was conducted with an emphasis on keeping the researcher close to the research through in person contact, use of audio tapes and transcripts. As outsiders to the participant's experience and as instruments of the research process itself, topics can be approached in a number of ways. The researcher can make use of analogies and comparisons drawn from a range of theoretical domains or their own experience to interpret the data. A second option is to elucidate the key notions expressed by the participants in a number of different symbolic forms. This research represents a combination of both of these methods. For example, symbols that were invoked by participants to describe their social world were highlighted. The goals described by the participants in their social interactions were coded as well as how they judged their actions, and by what standards. Each code was regularly compared to all the other identified codes to discover similarities, differences, and general patterns. In this way the data was ultimately reduced and analyzed by means of thematic codes and concepts (Strauss & Corbin, 1990). The thematic codes and concepts were merged to create themes that represented summary statements of the experiences and the information that defined the social interaction processes in which the participants were engaged (Rubin & Rubin, 2005). These themes are elaborated upon in the Results section with quotes from the transcribed dialogues.

The bulk of the data analysis was completed by hand by the researcher using highlighters, folders, notes, and a file folder system. All of the field notes and memos were hand written. This investigator used a trial version of NVivo (2005) computer software as an aid in data analysis including word searching, word queries, retrieval, and to permit between-case searches for words. However it was more useful to conduct the majority of the data analysis by hand, than to utilize qualitative computer software for such a small number of participants. Use of computer software for data management is common in qualitative research when there are a larger number of participants (Drisko, 2004; Ritchie & Lewis, 2003, Sandelowski & Barroso, 2003).

Strauss and Corbin (1998) suggested that the researcher should recognize bias and maintain objectivity when describing the position the researcher should assume in relation to the participants and the data. Conversely, they have emphasized that "it is not possible to be completely free of bias" (Strauss & Corbin, 1998, p. 97). To contain researcher bias, contact was made with research partners, and memos were written to the field notes, so that issues of bias would be documented as part of the research data. Establishing an audit trail in this manner documented any bias and also provided a means to provide simultaneous dependability and confirmability of the data (Lincoln & Guba, 1985; Padgett, 1998, Ritchie & Lewis, 2003; Sandelowski & Barroso, 2003).

For this study, a Michigan State University doctoral student was identified who was involved in the process of the developing study and with whom the researcher met on three occasions, once prior to the beginning of the data gathering, and twice after the data had been gathered to review the results. This auditor had the responsibility of independently reviewing all of the available information related to this study including the tapes, the transcribed copies of the tapes, the researcher's memos, and all documentation associated with the coding of the data. An auditor was used to establish some form of triangulation and to confirm the reliability and the validity of the researcher's findings. Denzin (1978) suggested that triangulation can involve multiple data sources and researchers/evaluators to promote a better understanding of the data. In this study, triangulation was used to offset researcher bias and to establish reliability through consistency in researchers' interpretations' of the findings. The "auditor" and the investigator have reached 100% agreement regarding thematic codes and concepts which emerged from the data and no changes were recommended.

Chapter 4

Results

The purpose of this study was to seek to understand the social interactions of persons with TBI. The quality of social relationships is one of the most important aspects of human existence. The literature has indicated that social skill deficits present a major obstacle to successful family and community integration for individuals with TBI. These deficits have also been contributors to low social participation, limited interpersonal relationships, poor self-esteem, depression, and other maladaptive behaviors. Given the potentially significant impact of TBI on an individual's interpersonal functioning and overall quality of life, and the lack of qualitative information from the individual who were most directly affected, the research question of interest in this study was how do individuals with TBI describe their social interaction experiences?

The term "behavioral deficit" has been used to characterize the social interactions of poorly adjusted persons with TBI that renders them less socially rewarding (Bond & Godfrey, 1997). The behavioral deficit most studied in rehabilitation counseling literature is that of social skills deficit. Impairment of social skills is common and typically long-lasting following a TBI (Oddy, Coughlan, Tyerman & Jenkins, 1985). Over the past 30 years, research within and outside of the field of rehabilitation counseling has established that correlations exist between a lack of social skills and important areas of psychosocial adjustment for persons with TBI including; school adjustment (Gresham, Sugai & Horner, 2001), unemployment (Tate & Broe, 199), segregation (Marinelli & Del Orto, 1984), poverty (Chinnery, 1990), fractured interpersonal relationships (Weddell, Oddy & Jenkins, 1980), peer rejection (Lilich & Landau, 1989), significant reductions in social activity (Brown, Gordon & Spielman, 2003), depression and substance abuse (Willer & Corrigan, 1994). What have not been explored or measured are areas beyond the control of the rehabilitation team (Moore and Stambrook, 1995) including antecedent events, attitudes of others in the community, social networks, cultural or subcultural issues, stigma, legal resources, and the occupational environment among others (Yates, 2003). Through the qualitative interviews, this study attempted to approach some of these topics. The data analysis yielded information which suggested that both positive and negative changes in social interactions from pre to post-injury occurred at multiple levels for individuals with TBI. This information will be presented in this chapter. The following three areas of social interactions were identified: Interpersonal Aspects of Social Interaction, (b) Intrapersonal Aspects of Social Interactions, and (c) Social Interaction Paradoxes and Symbols.

Interpersonal Aspects of Social Interactions

Interpersonal communication is the process used to communicate ideas, thoughts, and feelings to another person. Our interpersonal communication skills are learned behaviors that can be improved through knowledge, practice, feedback, and reflection (Spitzberg & Cupach, 2002). Social interaction is a negotiation of identities between people in a given environment (Goffman, 1959). Theoretically, one's identity is comprised of both a personal, internal identity which will be referred to in further discussion as the core-self, and a public, social identity which will be referred to in further discussion as the relational-self. As people engage socially, they project aspects of their core self and their relational self, into a social identity for others to perceive. It is upon these inductive, conceptual categories that the primary concepts of family, friends and others were considered. For the individuals with TBI who participated in this study, these groups represented their most important interpersonal interactions.

Family

As noted in the literature review, the data analysis revealed that interactions for persons with TBI were appreciably framed by their perception of family roles. The families of the individuals who participated in this study were of the transactional type. The transactional definition of family was used for this study as it reflected the most diverse concept of family, distinguished as a group of intimates who generate a strong sense of loyalty and emotion that experience a history and a future (Fitzpatrick & Coughlin, 2002). Within the sample of participants, there were individuals with two set of parents, divorcee's, individuals who had been raised by extended family, unmarried heterosexual couples, some with siblings who were not genetically related, and several individuals who were being cared for by step parents.

Establishing the definition of family is important to the research findings related to family interactions, as family researchers have emphasized that the make-up of the family unit has an impact on how cognitions and emotions affect exchanges (Fitzpatrick & Coughlin, 2002). The data analysis focused on how cognitions and emotions affected exchanges between family members including parents, significant others, primary caregivers, siblings and children. Dialogues focused on change, dependency, relationship improvement and frictions. Participants appeared to be searching for ways to control negative interactions when they did occur. For many, participants, families provided a buffer against illness and seclusion (Cohen & Willis, 1985). James reported:

> "So it's good to have a strong – you know a good family background – for some they didn't. If somebody went through what I went through and didn't have a family to depend on it would really – it would've been a lot worse."

Data analysis pertaining to changes in care giving roles placed strains on family interactions. This was not surprising since Kosciulek (1996) noted that families who were not poised for adaptation to the changes brought on by having a family member with TBI may experience a lack of coherence. Based on the responses provided, it appeared that role changes created challenges. Dependency appeared to alter and strain relationships and interactions. Lynn, who felt comfortable with her identity as a caregiver is no unable to provide care to her husband. She stated:

> "I've always been the caregiver and it's not as easy for him to be the caregiver because I was always the one doing the shopping, I was always the one going to the grocery store and it's not in his nature to grocery shop and to make meals and to you know … he's a great cook, I can't take that away….but it's just not in his nature to go to the grocery store you know so." Guilt and self-doubt were expressed regarding the shift in care giving responsibilities, "And he tells me that I'm, I'm nice to everybody else when I'm mean to him so I don't know. I don't see that, but I uh, I don't know where he gets that. So I've got to work on that."

In relation to role changes following TBI, June expressed anger and resentment as well:

> "I just dropped my life and moved in with her and when it came time for me you know.....And they didn't know what to do. I can't get out what I'm trying to say..... She is always rushing me, "Hurry up, say it", you know and it makes, she gets impatient with me and I get impatient with myself because it is constant...and I have no car, no money..."

Randall implied that his disability had caused a change in roles between himself and his younger brother:

> "Uh, I and my younger brother were, and my brother that's 20, me and him were extremely close. After the accident you know he was up at the hospital every day....and like we had a lot of mutual friends that we'd hang out with, but I think he kind of got to the point of you're taking too long to get better sort of thing. It's the perception, I think my, my mom sees that too. You know, just like he's sick of all this....yeah, the weekend before the accident he had come over and we had hung out you know and it's like we could go and do stuff and hang out and –and now I guess we can't. You know it's like more of he was taking care of his older brother sort of thing. So I think he kind of got, he kind of got to the point where he was sick of it, you know just like he's sick of you know

> having to look after his older brother, whereas before he could just be hanging out with his older brother."

Participants also noted the emergence of new, positive interactions between family members following TBI. Such positive family relations were attributed to the additional time created by the injury for family interactions that had previously been neglected. Lynn stated:

> "Before the accident I really didn't spend a lot of time doing that because I was working. So I'm – I see my – I find myself doing a lot more of those things and I'm much happier now that I can do that."

Randall reported:

> "It's gotten more like intense I guess, more like open and honest with her (his mother). I mean we've always been like that but I guess with, now there's more interaction because she's more involved in my life."

Shane also felt that the brain injury had brought him closer to his family:

> "Yeah I try to pay as much attention to them as possible...Before I didn't really call my mom and I went like six years without talking to my sister Allison."

Friendships

Friendships are fragile, voluntary relationships which differ from family or marital relationships, as there are no formal rules or ties (Callaway, Sloan, & Winkler, 2005). Data analysis revealed that friendships were vulnerable to lifestyle changes that occur as a result of TBI. All of the participants in the study indicated that there were changes in their friendships and in their interactions with friends as a result of living with TBI. According to the perspectives of the participants, there was a clear delineation between old friends and new friends. In only two cases did individuals report that old friends had remained steadfast through the recovery process. Analysis of the perspectives of participants with TBI revealed that the residual effects of TBI impacted their ability to participate in activities with old friends. Four participants reported that old friends continued to take part in activities such as drinking or doing drugs, which poses a significant risk for people with TBI (Taylor, Kreutzer, Demm, & Meade, 2003). Two others stated said that old friends simply stopped visiting or calling. When asked, June said:

> "I don't have any friends. I used to have friends. But they all left me one by one. In fact, my best friend, she sat with me all day in the ER the day I was... of the accident, she came and sat with me but she's gone. She drifted off because it was too difficult, I'm too difficult. Hard to communicate, hard to understand, hard to... I don't know what it is."

Roland provided a similar story regarding interactions with old friends:

> "I don't hang out with any of my friends anymore at all. Like there was a lot of people before that you know we had car buddies, you know we'd go hang out you know on Saturday night we'd all go you know cruise or something or go you know there's a parking lot that all the cool cars in town would go hang out at and like I

> don't see any of those people anymore… like all my friends are getting married and having kids and stuff so I understand."

Making new friends or maintaining a social circle at work or school was reported to be difficult for some participants due to personal, social or institutional interference. Prior to his TBI, James had developed a social circle of individuals that he could trust. After his accident he discovered that he lacked the intuitive sense to determine who would make a good friend and who would not. On this topic he reported:

> "You know I honestly I don't, my friends were ripping me off for my medications. I mean I have a couple friends you know but uh I would, I would be better off calling them acquaintances, not true friends because I – because the trust is not there. I'm a people person. I mean I don't have a problem with making friends at all, it's making the right friends you know – now I learned my lesson – now it's hard – it's very easy for me to make acquaintances but now it's, how do you determine when they're a true friend or an acquaintance?"

This statement suggested that James may lack coherence in emotional sensitivity (Riggio, 1986) which theoretically enables an individual to decode emotional communication rapidly and efficiently.

Limited contact with others outside of the rehabilitation facility during the early portion of the recovery process was interpreted by two individuals as a limit to their freedom to develop new relationships or what Potts (2005) referred to as social capital.

James indicated that insurance limited him from entering transitional housing as soon as he would like. Roland relayed the following limitations in group activities:

> "And they're way out at (rehabilitation facility) there's nothing for them to really do – they have to make special trips into town to go to the mall to walk around or whatever and they don't really have money to spend so it's like, what's the point of coming here, can't, can't do nothing, can't you know, buy a coffee here –We couldn't, we didn't get to go around in the stores. But, you know they (clients) just said whose really injured here, the clients or the staff? Because even though the staff would hear what you're saying, it's like they didn't process it and they just kind of let it go."

Three participants noted that friendships were not a priority based on their schedules and the presence of neuro-fatigue. Lynn said she was not developing any new friends since maintaining contact with her old friends was hard enough. She reported that:

> "Friends have become a burden you know, it seems like because I have been – it seems like I have so little time for them."

Roland reported:

> "They'll call me up and you know say you want to do something and it's just like I don't have the desire to drive to it (get a ride) and you know I've got to be home by 10 or else I'm going to be useless. That neuro-fatigue, when that sets in it just hits you like a wave. I mean it literally hits you like the worse feeling of being hung over…"

Value changes impacted with whom the participant's chose to interact. The value change finding was significant in relationship to peer groups. Randall's response was representative of this concept:

> "The accident really opened my eyes...I think that a lot of people's interests are very shallow ...I'll admit you know like before the accident I, you now, I wanted to be like, oh look what I got, look at this, you know, but now it's like that doesn't matter. That does not matter one bit so I guess I don't really have an interest in friends that are shallow like that."

Roland's feedback was similar:

> "I think people younger than me, like teens, twenties, and they've got a little bit too much of an attitude now. So I kind of relate more to the older folks that are more mature."

Others

Data analysis revealed that participants referred to individuals who were not family, friends, or peers with TBI, as "people" or "others". A word search using NVIVO revealed that the term people occurred 632 times within the 7 interview transcripts. The term "people" was correlated with professionals, co-workers, students, supervisors, and teachers. It was also used to refer to anyone that the participants felt did not "understand" or know about TBI. This section describes the participants in their social interactions with people in the community, who were not considered family or friends.

Casual interactions in the community were considered non-problematic by all of the individuals who participated. In this study, none of the participants felt that they had any difficulty in having their needs met in the community. Roland attributed this to a social identity of "normalcy":

> "Uh, nobody really suspects an injury – they don't suspect an injury, they don't know unless I tell them. Yeah I have a head in – you know brain injury and then they're all shocked – you do? You seem pretty normal to me. I like well – I try (laughs)."

In situations requiring interactions with people in authority positions, James and Shane provided detailed accounts in which they had used what Riggio (1986) would refer to as social and emotional control to achieve their goals. The examples provided were negotiating with insurance companies and transportation companies. However, in alternate social contexts, these participants were not able to apply the same social skills. This lack of adaptability of social skills t new social situations was a common theme among those interviewed for this study. For example, when asked whether he would be able to begin a casual conversation with a stranger at a social gathering, Shane responded:

> "No. Because I don't want to sound like an idiot. I don't want to go up and sound like an idiot by interrupting them or getting into their way of thinking because their way of thinking is not like mine."

When asked the same question James said:

> "I don't worry about it but you know if I did say something the wrong way, I would hope people would let me know – to do it the right way – you know what I mean? To keep me on track, you know to keep me in check you know or if I get upset over something that I really shouldn't I would hope somebody would….that they would let me – that they would try to help me, you know? Rather than being on the defense and not wanting to (talk to me)..."

Although Roland felt that his interactions with strangers or acquaintances were positive, he believed his interaction with authority figures, particularly his interviewing skills had been affected:

> "Instead of being excited about being in an interview and possibly getting a job, I'm just kind of laid back and –you know, talking to the guy and he might see that well this guy doesn't seem to be very excited about getting a job. I don't want to – I don't want to make it look like I'm over excited which maybe I wouldn't look that way but I would probably feel that way….I don't have a problem with smiling –and things like that when I'm talking to somebody. It's just when I know it's something serious just, I don't know –It's hard to, it's hard to feel uh naturally calm I guess –You're just kind of thinking, 'I really need this, what's he going – what's he thinking – what's he going to say, da-dah-da-dah, if I could stay relaxed, that wouldn't be problem."

This heightened concern over the impact he experienced in relation to interviewing is suggestive of the less constructive aspects of social sensitivity described by Riggio (1986). These aspects include preoccupation with self-presentation which contributes to the detriment of social performance and heightened sensitivity to the perceptions of others.

Aaron provided the most significant example of the impact of TBI on socializing with others. Of all the participants, Aaron provided the most unmistakable example of a lack of social and emotional expressivity (Riggio, 1986). Like Roland, he is highly sensitive about the impact he is having on others in his social interactions, particularly with classmates who he considered "strangers". However in contrast to Roland, his relational self is limited and subdued which affects his ability to participate fully in social interactions. Aaron described going to school, being in groups, and requesting help from his instructor as "a struggle." Pertaining to his peers he reported:

> "Sometimes I am not comfortable interacting with them because I really don't know them, you know, so in fact, if I think I have stuff in common with them, I don't have a problem interacting with them. A person who seems like they are really intelligent I may have a harder time interacting with them."

Aaron proceeded to describe his experiences at varsity meetings, where failure to interact has implications for the development of social networks related to future educational and employment prospects. He described his aversion to these gatherings as "resistance":

> "I have attended a few meetings. I mean I want to be involved, just I'm kind of afraid of doing it. What they're going to think and I don't know. I might try it again next year. I want to, you know, meet people, build my resume, but this year I'm just kind of not sure what I should do. Because they all know each other, so I was kind of new, I don't know anybody. Some of them were pretty nice. The other ones were kind of, try to start a conversation with them and they would act like you weren't even there, a couple of guys I talked to, nice guys, but the other ones kind of made me uncomfortable with going there, I didn't really want to go anymore. I feel awkward to the point where I don't go at all, even to help get a job or put it on a resume, so I'm just resistant."

Peers with TBI

An unexpected finding in this study was the identification of successful interactions between the participants and their peers with TBI. With the exception of one individual, all of the participants endorsed their interactions with other people with TBI as being positive. Friendships with peers helped the participants experience relationships that both validated and helped them construct a core self-view, and preserved their self-image. Shane, who at first said he had no friends, later named eight people who are individuals with TBI with whom he maintains a relationship. He stated:

> "In this place people know me. I've gotten used to them. And outside of this place people don't know me. I don't want people to

> get the wrong idea, but it's kind of hard for them not to get an idea about me because I don't talk to them."

Shane reported that he is at ease interacting with individuals with TBI because of familiarity. When he referred to "not talking to others so they do not get the wrong idea", he explained that on a social basis, he is afraid that others who do not know him in the community will perceive him as developmentally disabled if he attempts to interact. To avoid this risk, he does not reveal his core or relational self.

James saw himself as an experienced peer who could help others. He is comfortable in most social interactions, particularly those that involve individuals with TBI. According to Riggio's theoretical framework (1986) James could be described as emotionally expressive, and socially sensitive.

> "I help anyone that walks through that door, I try to make them feel at home you know and I know what it's like, I went through it when I first got here and so I kind of do that you know and, and there's people that come to me all the time you know. Because I'm not, I'm not of higher power, I'm not a coach which is like a guard –I'm a peer to them, I'm just another client –so they'll listen to me. I can calm them down, I can sit down, I can talk to them, I can help them out –as far as social interactions (with others with TBI), I've had a year and a half to practice, you know –so everyone that comes through that door, I'll help anyway I can."

June reported that she had participated in a women's group that became her main social outlet until it was disbanded:

> "There were probably six of us and we'd sit around a table and just basically talk about things. We all had the same symptoms, the same things going on and it was really neat to know that there was someone else out there like me …Because they know where I'm coming from. I don't have to put on a facade. I don't have to try hard. I don't have to be this other person. I can be me. I can just you know... they understand. I don't have to explain. If I'm having a bad day, I'm having a bad day. And they know why."

Lynn, a person who had described friends as being "a burden", finds time to spend among friends with TBI. Lynn demonstrated characteristics of emotionally sensitivity and expressivity as described by Riggio (1986) during this portion of the interview:

> "I try to turn bad situations into something good and if, and if I, like some of the other people that I've been around with the same – with a similar - that have been into a similar situation that I am in, I have tried to get them to come around into being happy, and I've tried to talk to them and tried to get them out of their shell. You know, I'd say hey you know, what's going on today?"

There was urgency in the messages expressed by the participants about their hope that participation in this research project would generate more knowledge regarding TBI. The need for a celebrity spokesperson, similar to Lance Armstrong or a player from the NFL where concussions are frequent were mentioned. Embedded in these messages were appeals for autonomy, if not for self then for others. Of particular concern for the participants were those persons with TBI who had been more severely injured than they were. One participant referred to them as "lifers" referring to the long term care needs which required these individuals to be in rehabilitation facilities for the rest of their lives. Roland stated:

> "I know Billy, Candy, Darrel, Michelle and maybe Phillip they're – they're lifers, they'll never get out of (there) you know, so they have to deal with somebody telling them what to do for the rest of their lives….I– I don't even know if there's a point in saying anything 'cause I doubt I'd be able to do anything about it. And the others at (the rehabilitation facility) you know, they, a lot of them don't have an outside source that would speak for them."

Intrapersonal Aspects of Social Interactions

Gardner (1983) defines the term intrapersonal intelligence as the capacity to understand oneself, including one's own desires, goals, emotions, and capacities. Self-knowing is a core process in the intrapersonal realm. Intrapersonal knowledge is a complementary ability to interpersonal knowledge (Goleman, 1995, Swann, 1982). It involves the capacity to form an accurate, truthful depiction of oneself, and to be able to use that depiction to operate effectively in life.

Intrapersonal aspects of social interactions were detected in the participant narratives by identifying passages reflecting self-awareness and an understanding of goals, strengths, limitations, moods, anxieties, desires, and motivations. Intrapersonal aspects of social interactions took place on multiple levels within the social lives of the individuals with TBI. Data analysis revealed that on an intrapersonal level, there was intrapersonal disequilibrium for most of the individuals as reflected in reports of their changing moods, self-confidence, motivations, and use of self-deception and denial.

However, the statements of the participants suggested that they were striving to gain a better understanding of their core sense of self. Each individual appeared to understand that although their intrapersonal thoughts may be unspoken, that these beliefs were reflected in behaviors in their social behavior and had an impact on their social environments. The primary concepts of intrapersonal aspects of social interaction for individuals with TBI included the themes of knowing, questioning identity, disclosure of disability and ways of communicating with others.

Importance of Knowing

Knowing is defined in many ways. Among the various synonyms for knowing are intelligence, acceptance, grasp, and common view (Merriam-Webster, 2004). In social interactions, most people intuitively believe they know a good deal about others, particularly family members, friends and significant others (Gill & Swann, 2004). However, research has shown that despite a person's confidence in these predictions, their accuracy is quite modest (Dunning, Griffin, Milojkovic, & Ross, 1990). This has been attributed to the fact that individual perceptions of knowing include only what we need to know and may leave out information that we do not need or want to know about (Gill & Swann, 2004). Subsequently, knowing is a more complicated concept than it may originally seem. The data analysis revealed that the majority of the participants placed an emphasis on the importance of knowing in all of their social interactions, crossing the confines of family, friendship and community. They found it important that individuals with whom they interacted know them at the core, objective and subjective level.

People who interacted with the participants in the study fell into two conceptual categories of knowing, as described by the participants. Each category impacted the type of interaction and the strategies which the participants with TBI used to facilitate their continued interactions with these other people. First identified was a mutual or shared knowing between the individual with TBI and the other person. This would involve a combination of communication and willingness by each party toward maintaining a sustained connection with an interest towards the others needs (Luttrell, 1997). The second type of knowing was more pragmatic. Indicators of pragmatic knowing did not involve mutual communication and were one-sided, relying solely on the beliefs of the person without TBI. These pragmatic interactions were limited in scope and unsatisfying according to the reports of the participants with TBI.

Participant responses about social interactions revealed that individuals with whom they interacted successfully were able to separate the relational aspect of the person from the core person living with TBI. Those individuals who could not make this separation made the participants uncomfortable in social interactions. On an intrapersonal level, it appeared that individuals with TBI relied on those closest to them to exhibit a mutual understanding of the circumstances their disability had placed them in, in all aspects of their life. If this type of knowing did not exist, respondents reported that they implemented strategies to change the situation. These strategies may also have been efforts to satisfy the participant's need for self-verification in their social interactions, as described in the literature review (Swann, 1982). Strategies ranged from educating significant others about their disability, to disengaging with others, to deflecting or discounting the opinion of the other person.

For example Lynn stated:

> "The ill – the, the accident has brought us back together and, and now learning about um, learning about the after accident and how to get better has brought us together closer because he is learning – he's getting educated. At first he didn't accept – he couldn't accept that I had an um brain injury. So, so I try to help educate the family and that will allow them to get involved in helping me get better."

Randall transcends the singularity of his situation and treats it pragmatically with humor, so others can understand:

> "(TBI) rips away your independence. I mean just takes your independence and squashes it up and throws it. You can't, I mean you, I always make this joke, this has never really happened, it's a joke, you run out of toilet paper; you can't drive to the store and get some. That's never really happened to me but it's a joke I always make, that kind of lets people see, like you know what it's like."

Randall also provides an example of disengaging:

> "My family members understand because they see me on a daily basis and they see you know how rough everything has been (but) as far as like friends, I don't want to like switch over to the friends,

> they, they have no clue. I mean they have no clue what's going on. They think you know, oh, you broke some bones, you got, you know you got banged up, you're going to be better but you know they don't understand it you know I'm tired all the time because you know my brain is still healing or whatever portion of it's not like that anymore...so... I don't want to (make friends)."

June reported that she felt abandoned by others after her injury because of her difficulties in communicating. In her interactions with me during the interview, she downplays the significance of these circumstances with laughs and shrugs of her shoulders. Her parents are no longer living and she has one adult daughter. When asked about interactions with significant others at present compared to the past, she responded:

> "No, and it's worse than before, but no, because they don't understand. Nor do they want to. Nope, they don't care. I lost my fiancé while I was at Origami. He broke up with me after almost nine years, nine years. So, no they don't want to understand and they just see me as different and they don't like it. Well I don't like it either, but you know."

Still June engages with her daughter who she reportedly has had a negative relationship with for some time. June described her daughter as being impatient with her recovery process and unable to conceptualize her mother as being brain injured. June reported that she loves her daughter but finds that being dependent upon her is difficult particularly when she does not want to learn anything more about TBI:

> "She doesn't understand, "…my daughter she is very impatient you know and she's got her own life and she is 34, 5… I don't know. Anyway, she has just got her own life and can't be bothered. I mean when the accident happened we were here together, we lived in this house. She lived here and I lived in that room, but she didn't, we hardly spoke and you know it was just kind of, I was isolated…"

Finally, another excellent example of the importance of knowing is Jessie's description of her relationship with her supervisor at work. Mutually knowing or understanding in the workplace clearly relieves the anxieties that an individual with TBI may have about how they are valued on the job:

> "Anyway, Jessie is cool because she understands...I have to stand on my feet for six hours and my back was hurting today. So, in order for me to sit down, which with Jessie its okay, she says its okay, that she understands I need to sit down once in a while.....she has talked to the people from Origami. They've come in to check on me and see how I do my job, how I interact. I had an audit. I got 99... 99 out of 100."

Identity Questioning

The theme of identity questioning is grounded in part, upon the theoretical findings of Swann (1983) and Charmaz (1997). Swann (1983) held that people form self-views so that they can understand and predict the responses of others and know how to act toward them. However, any event or crisis that causes people to question who they are may intensify people's efforts to self-verify or question identity (Swann, 1987). The incident of TBI created such a crisis for the participants in the study. Charmaz (1987) has suggested that identity questioning occurs when a person is immersed or absorbed in their illness. Conceptually, participant identity questioning included acknowledging identifications of the self in the present, comparing their past identity with the present, and questioning future identities.

June's response to questions about interactions with others at work and her coworker's perceptions, provide clear examples of identity questioning. She continues to be employed in customer service, her occupation of many years, but she questions this vocational identity based on anxieties experienced in the present as a result of her TBI. She reported:

> "I've had (done) customer service all my life. Every job I've ever had deals with the public. I'm a people person, or I was. Things I'm realizing that I used to be I'm not anymore. Like I'm not real sure I'm a people person anymore and I've been saying that, I'm a people person. I put on this facade, but it's harder and harder. It's really hard now to do that and I don't even smile anymore. Its like I'm really, I'm burnt out."

In some situations, it appeared that authority figures, particularly practitioners, imposed self-images upon participants which caused them to question their own identities. This was evident in participant reflections about conflicts surrounding agency and mutuality. Here the term mutuality refers to the participant's reported understanding of the need for reciprocal relationships with authority figures, while agency refers to the individual's desire for power or self-efficacy. Participants became particularly frustrated when they perceived that they were being seen as "helpless" or were told they would not be able to fulfill a goal that they believed they could accomplish.

James reported:

> "Like somebody telling me that I'm too slow, that I will never be able to keep up. I would never be able to keep up with this, with this line of work you know and here I'm a contractor, I know how to do all kinds of things. If they have a problem with something that I'm doing then I'll listen to them and maybe I am wrong but when I am right, when you're 45 years old, just because you've got a brain injury don't mean that you don't remember what you used to be like."

Here, James is still connected with his past identity, which is in conflict with the image that is being imposed upon him by others related to his reduced capabilities.

Roland cannot question his past because he has no recollection of it, as he sustained his TBI when he was eight-years-old. Roland stated:

> "I wouldn't even have known (what I was like), I actually wonder what I might have been like if I hadn't of had the accident."

In his search for validating information about himself in the present, he must rely on his own perceptions and those of others. Roland perceived himself as a good listener and felt his family would identify him the same way. He saw himself as the kind of person that people can come to with their problems. He believed that others would describe his as a good worker, but he reported that he had trouble taking orders. In Roland's experience, authority figures and professionals treated him like "a child". He reported:

> "And with a head injury, especially being at (the rehabilitation facility), everyone tells you what to do, or anywhere basically. 'Sorry, we just can't have that', and after awhile you just get tired of it."

Randall has sought diagnostic information to confirm his present identity and to resolve his own identity questioning. He uses this information to guide his interactions with others. He reported:

> "I think that – that's another thing is I think that, like apparently my verbal IQ is very high but my performance IQ is the one that got, that got damaged. So I think that I try to overcompensate for my injury by sounding smarter, you know trying to use bigger words and stuff, and I think that like when I do have to interact with people, it's like, you know I try to sound as smart as I can I guess. So they're not just like oh, this guy is a retard you know so they don't really have that perception..."

Aaron refrains from acknowledging his new identity. He instead prefers to find security in his past identity at this point in his recovery from TBI. Revealing his new identity would leave Aaron open to receiving potentially discrediting information about his behavior. Aaron stated,

> "I really don't like to talk about like deficits or... because I get fatigued easy and I really don't want to talk about it, so, I just kind of try to work through the fatigue, try to be like I was before. Generally it makes people

> uncomfortable to talk about it, because they really don't know much about it. I just, kind of feel out of place and...You know, it's kind of weird not to have people say anything about it. I think, I just, people my age they just kind of, if I actually remember feelings, feel uncomfortable about it. They don't really know much about it, so they don't really want to talk about."

Analyzing the last sentences suggests that Aaron uses knowledge of who he was, even how he felt in the past about persons with disabilities, to make sense of how other people may perceive him in their interactions now.

Immersion in illness (Charmaz, 1997) caused some individuals to reject the negative identities that they had assigned to themselves. Multiple participants identified themselves as better people as a result of living with TBI. James provided a clear example of this. He was a construction worker and an entertainer. He had also developed a significant drug and alcohol problem. In fact, he reported that when he came to the neurocognitive rehabilitation facility he had been told by his family that he was being taken there for substance abuse rehabilitation. Otherwise, he would never have agreed to come since he was inwardly afraid to deal with the reality of his injuries.

Although he did not report use of drugs or alcohol at the time of the accident (this was not an area that he wanted to discuss openly on tape), he did reiterate that the accident was not his fault and that he did not cause it as he was not driving. It was important to him that this was known. This is seems a clear example of how conceptions of disability, which have historically been based on a perceived need to detect deception are reflected in the perceptions of individuals with TBI (Shapiro, 1994). Society's view of the individual with the disability may be colored by whether or not a person had control over their condition. For some individuals in society responsibility may be a key factor in distinguishing the deserving from the undeserving in the receipt of services (Stone, 1984). These assumptions seemed to be reflected in James' comments.

James went on to report that his previous social interactions involved being around unscrupulous people that reinforced his identity of being, as he put it, "A bad-ass, with a bad attitude". When asked how he thought others perceived his social interactions now, he stated that he was not sure. He felt that time was creating the opportunity he needed to develop a new and improved version of himself. He described his perceptions this way:

> "I did a lot of bad things, I hung around with some bad guys – but I came a long way you know I still get out – but I just got to really watch it you know. I still get out and socialize and play guitar. So I got some deficits from the accident, brain injury but, but it made me do a lot of thinking and made me articulate in other ways. Time I think – the time and the challenge, you know the time and the need of something to do to take my mind off things. I just opened other pathways I think. I've learned of good ways to pursue my life after this, as a chance to make it better than before, make it better than it was."

Choosing to Disclose

The importance of disclosure as a process in social interactions for individuals with TBI emerged during the interview process. Disclosure developed from a conceptual category to a primary concept of social interactions for persons with TBI after analyzing the data for reports of the participant's emotions, desires and motivations pertaining to their presentation of self to others. The phenomenon of the choice to disclose one's disability revealed itself when analyzing the data for references to participant self-knowledge concerning stigmatizing situations or events.

Disclosure of TBI carried both benefits and risks for the participants. For some, disclosing allowed the participants to feel a part of a social minority (Phillips, 1990). It was used as an informative tool where participants would tell other people what it was like to have TBI or to inform peers with TBI about how their symptoms were like everyone else's. Strategic disclosure, referred to as strategic announcing by Charmaz (1997), was used to boost the participant's importance or self presentation in interactions. Risks included revealing limitations and opening oneself up to stigmatizing events.

At work, June reported that she sees "much older workers" performing jobs similar to hers without accommodations and wonders what a new boss will think of her need for special equipment that affect her ability to do her job. She reported:

> "And now Jessie, she's well, she's going to be leaving, she is leaving and they have someone else. They're not going to understand, and they're not going to care to understand, and they're just going to get rid of me."

Shane provided an example of strategic disclosure when describing an interaction at work. Shane is a bottle counter at a retail facility. His communications skills are limited as are his social interactions. Shane communicates with others very little due to concerns that he will be thought of as developmentally disabled. His use of strategic disclosure in the following interaction is important to highlight given his fears of revealing his disability. Strategic disclosures are necessary when (1) illness remains unacknowledged, reduced or ignored, or (2) when the illness or disability requires someone to get help or to reduce previous obligations (Charmaz, 1997). In the work situation Shane described, another employee with higher seniority who also had sustained a TBI was working fewer hours than Shane. This perceived inequity upset him. In the following narrative, Shane reminded management of the extent of his own disability. He used strategic disclosure as a means of leverage to bring attention to his own disability. The dialogue is difficult to follow yet, the following is an excellent example of a number of variables which impact the social interactions of individual with TBI. The first variable is choosing to disclose, and the second is lack of flexibility in adapting to social roles (Gardner, 2006). Shane reported:

> "He has (the coworker) been there about two years longer than me, and well he had brain injury (and he is not doing his job). Finally, I asked him (the supervisor), I said,' did he die? Did he die twice? (Referring to the coworker). The supervisor responded 'Well we don't know.' I said to them, 'Where do you think I live?' (Slang for, do you think I am stupid?) I died at the scene, they got me going, and then I died on the way to the hospital and they got me

> going again. They (supervisors) said, "Well we don't know if he died like that or not.' So I asked them why he (the coworker) can't do a job he has done for two years longer than me. Why are they keeping him (letting him get away with) from that?"

Shane's logic included making sure that his own disability was acknowledged perhaps as superior, or more devastating, with the hope that his supervisors would follow this logic to reassign the coworker more hours. Spitzberg and Cupach (1989) have noted deficiencies in communication and difficulty in interacting with supervisors (and potentially coworkers), could negatively impact on an individual's ability to maintain employment.

The literature review also suggested that some individuals with TBI have little or no neurological abnormality and display an apparently "normal" social appearance, yet have subtle neurobehavioral difficulties that interfere with performance in everyday activities (e.g. short-term memory or attention deficits) (Wood & Rutterford, 2005). These appear to be the circumstances for Randall. He stated:

> "I think that, that you know most people that, that don't know you have one just treat you like anybody else...People that have TBI they can get away their whole life without ever telling anyone they do and they don't have to because they can hide it."

Aaron does not tell anyone he has a TBI, not even his instructor at school. He finally had to reveal his disability when his grades started to slip and he required assistance from the disability resource center. His concern:

> "I have felt that people thought I was retarded."

As noted in this text, the fear of being mistaken for a person with a more serious cognitive disability was mentioned by more than one participant as a reason not to disclose. Social interaction experiences such as this one relayed by Lynn lends credence to the fears of those with TBI:

> "We went to the Comedy Club and uh we – as a group one night and there was about, I would say I think eight of us that went and this one gentleman in our group kept just blurting out laughing at anything, and the way he laughs he was perceived as either being drunk or severely retarded. And so the guy on the stage started – first of all he was just making light of it and making jokes. Then he started getting offended because the guy was laughing too much out of turn kind of thing and then uh – so he started making jokes bad at him and stuff and then he would say, listen here, the retard section's over there, and something like this. So then when he got done with his set he went down and set over in a different area and was selling his tapes. I went over and I educated him on TBI and why we were there, and I told him um, first of all I asked if he had ever heard of TBI and he said no, and asked what it stood for and I said then, we're all from – where we were from and I said some of us have it worse than others and um and some of us cannot control ourselves as much as others and uh you know I just more or less – give him a down the road – but he made us all feel like you know

> he put us all in a category as mentally retarded or developmentally disabled."

Ways of Communicating

An important primary concept of social interactions for persons with TBI that arose out of data analysis was the identification of communication differences. In two interviews participants made distinctions in the way they accomplished social interactions. Subsequently, in keeping with the process of grounded theory, communication methods were explored by incorporating a related question into the interview guide to investigate the relevance of in-person, telephone or alternate means of interaction used by persons with TBI. Data analysis revealed that not all social interactions are perceived to be the most effective when conducted in person.

Randall reported that he is much more successful in his social interactions via the Internet. He indicated why this works so well for him and how he uses the Internet to his advantage given the residual limitations imposed by his TBI:

> "I think it's, it's good too because I can, I can go over what was said to me and re-read it and make sure I understood the concept, whereas, you know if somebody said you know, said something over the phone to you or face-to-face, it was just like you know they might have said something that I may have taken the wrong way but if you read it you could re-read it four times and then see that, oh that's not what they meant....the new friends I have met like we'd send messages back and forth and like I would never talk to them on the phone or I'd see them face-to-face on Thursday

> nights, but if there was, you know, a need to ask something or you know vice-versa, email is the easiest way."

All of the participants had cell phones. All of the participants also reported that they were at least minimally computer literate. Three had personal digital assistant devices and one had an all-in-one electronic mobile phone, email device, web browser and organizer.

Even given these advances in computerized communication technology, Lynn also reported that she prefers to write things down in order to improve her interactions with others:

> "Yeah, oh yeah, it's, it's the accident, it's um, I'm just not getting the wording right-on either – I'm either going too fast without pausing, um I, I've learned a lot in my um, the communication classes that I've taken – I have learned a lot and it's helped a lot but I, I still know that I've got a ways to go – um but I just – you know I have – it's frustrat- it gets frustrating. And, and I want to stop and, and just say, let's, let's wait a minute or I want to write it down. You know 'cause I feel like if I, if I write it down that I can get it across better you know and then maybe it will be easier for them to read it." She reported that she has distanced herself from "others", because phone conversations are difficult, "....when the phone has rang it's just like, oh no, you know, and it's just – it's hard, it's really hard 'cause you just don't have the energy."

June interacts with the public and she reported that she has done so successfully for some time. Customer service is frequently described as stressful. Customer service workers should demonstrate strong social skills including sensitivity and expressivity and emotional control (Riggio, 1986). However, when asked about a preferred method of communication June replied "by phone." Specifically for what June perceives to be a personally confrontational situation, she prefers to interact by phone. She stated:

> "I think it's easier to talk to her (daughter) on the phone. It's just that confrontational, yeah, yeah, she gets…she's just impatient. (In person) I see hers and she sees mine (body language). She can't, I can't get out what I'm trying to say because she is always rushing me...So on the phone is a little easier, but still the same thing, she gets impatient."

In another context, in a phone conversation with her former therapist,

> "I raised my voice, she raised hers louder, and was talking over me, and oh I hate that. My daughter does that all the time too. So we were just... we were duking it out on the phone and I was like oh, I can't deal with this."

Her means of resolving the impasse was to hang up and turn on the answering machine.

In response to questions about alternate forms of communication, James prefers in person contact but he reported that creative writing allows him to interact with a broader range of individuals. He stated that he wrote music prior to his accident, but now he has begun to practice creative writing with some success. This newfound outlet for expression came as a surprise to James. He stated,

> "I write, you know like articles about people or about subjects and you know and I am actually putting together a newspaper. So it's like I write up the sports section about the Colts and any special events. And there's another article I'm doing about something going on around here that nobody else is taking responsibility to get done....I'll do it, and it just comes natural to me you know."

Social Interaction Paradoxes and Symbols

During analysis of the information presented by participants regarding their social interactions with others, a number of interesting paradoxes arose that are worthy of discussion. These paradoxes arose from the narratives of the participants. A paradox according to the Merriam-Webster Collegiate Dictionary (2004) is 1.A statement or tenet contrary to received opinion or belief, discordant with what is held to be established truth; 2. A statement that is seemingly contradictory or opposed to common sense, and yet is perhaps true...an argument that that apparently derives self-contradictory conclusions by valid deductions from acceptable premises; 3.One having seemingly contradictory qualities or phases (p.898).

There are benefits to locating paradox within social systems. Rappaport (1981) has observed that frequently in social systems, two equally positive values are mistakenly viewed individually, so that one is being maximized while the other is being ignored. This is referred to as "antinomy" (p.2), a basic notion related to paradox which refers to a contradiction in two equally binding laws. An example might be equality and justice. Where equality is focused upon, justice may be ignored.

The paradoxes identified in the data analysis suggest that antinomies exist between basic and binding assumptions regarding mutuality and independence, practice and advocacy, and acceptance and disclosure for individuals with TBI. It may be that over time given the complexity of the problems facing individuals with TBI in their recovery, that one solution has been adapted without consideration of opposite alternatives that may be equally effective. In this way the identification of paradoxes through the subjective analysis of the responses of individuals with TBI is helpful to rehabilitation practice, as it offers new perspectives to complex problems.

Symbols representative of the participants reflections of social interaction were identified for relationships and groups. For this discussion, symbols are defined as unique meta-communicative statements made by the participants about the qualities of intimacy, caring and solidarity which they equated with their communication dyads (Bockner, 1984; Baxter, 1987). Expressions of social roles were also considered symbolic. Social roles are symbols with which an individual creates a self-understanding to communicate self-relevant information to others (Firth, 1973; Meade, 1934). From a sociological perspective, Meade (1934) theorized that responses to symbols are part of the organizing process required for social interactions, and in recognizing symbols individuals take into consideration the feelings of the other person who interact with him or her. For Mead (1934), symbols are important in allowing human interaction to occur, and it is the shared understanding of the significance of symbols and what they denote that brings life into social interactions.

Theoretically, symbols may emerge out of a time specific context in the history of relationships (Baxter, 1987). For individuals with TBI, they can create a bridge for transition between the familiar past self and the forces of change which impact the creation of a possible new self in the present. Another finding pertinent to individuals with TBI is related to symbols and self conceptualizations. According to research (Schouten, 1991; Solomon, 1983; Wicklund & Gollwitzer, 1982), people who feel less secure in the role or status to which they are committed will be more likely to use stereotypical symbols of role competency in forming their self-conceptualizations, in order to reinforce perceptions of adequate performance. It has been hypothesized that sudden changes in behavior may serve as an act of symbolic self-completion during or following role transitions (Schouten, 1991).

For some of the individuals in this study, any threat to a valued element of their self-concept (e.g. experienced limitations to their ability too interact with others, or negative feedback from others) caused them to become highly motivated to seek some sort of social recognition of that element of their identity (Wicklund & Gollwitzer, 1982). For example Lynn reported that she was no longer in charge of shopping and later told of a shopping trip in which she took charge which aggravated her husband. Randall expressed a huge loss in identity from not being able to race fast cars so he now focuses much of his time on electronics, a piece of his past identity as a web designer. June and Aaron continue to return to friends and places where they held some social status in the past, despite repeated personal hardships and challenges encountered when they interact in the present as individuals recovering from TBI.

Symbols may be recognized only within a specific culture, religion, or discipline. Firth (1972) has noted similar functions of symbolism as those noted above within anthropological literature regarding cultures. For example, symbols recognized within the disability culture which may impact social interactions with others include objects such as canes, wheelchairs and prosthetic devices (Charmaz, 1997). In the following segment of this chapter, the emergent concepts of paradox and symbols are explained in detail. They include organization/societal, superficial social contact, family, role models, disclosure, and diagnostic labels.

Organization/Societal Paradoxes

The organization/societal paradox of social interaction is related to the perception that individual's with TBI have pertaining to their disability. Earlier in this document, theories reported by Swann (1983) and Charmaz (1997) were summarized related to questioning identity. Swann (1983) held that people form self-views so that they can understand and predict the responses of others. Charmaz (1997) suggested that identity questioning occurs when a person is immersed or absorbed in their illness. When important symbols—indicators of self-definition—are lacking, such as a job title, educational level, or association with some group (for example: musicians, sports car drivers), the person will strive after further, alternative symbols of the self-definition (Lemay & Ashmore, 2004). To summarize, an individual with TBI is an individual who immersed in their life situation, attempts to form an authentic self-view and a coherent, symbolic representation of themselves through communication and interaction with others in the present.

Paradoxes become apparent when assessing the barriers which are created for persons with TBI by society, organizations and the professionals who are there to help them. Research identified in the literature review referred to these conditions as "double binds" (Crisp, 1983; Krefting, 1990; Nochi, 2000). In order to take action in the theoretical process to achieve authenticity and identity, the individual with TBI must make subjective and objective decisions about the means that they will use to achieve their goals. There is a natural assumption that all professional intervention is helpful; however, there is ample evidence that unintended side effects of interventions may cause harm. For example, a living environment that provides for all of a person's needs without their participation can be a barrier to developing independence (COMBI, 1995).

Service systems and funding sources present many of the biggest challenges to community integration for persons with brain injury (Willer & Corrigan, 1994). For example in an event which James reported during his interview, his health insurer allegedly refused to reimburse for community integration but would pay for continued inpatient treatment. He explained his frustrations with the barriers created by insurance organizations this way:

> "Almost two years after my accident you know, no help from the insurance companies, nothing. You know I, I, my brother had to take care of me and my mother and the insurance company doesn't want to pay for {community integration) – they're paying for this and everything else you know but they don't want to pay that extra. They'd rather sit and keep me in this high dollar (rehabilitation center) – for me to be here rather than pay one more (dollar) for me to start to (integrate) out to be able to get an apartment you know. I mean the money they're paying here they could buy me a house. Now they will pay enough for eight houses (after the lawsuit). It just doesn't make sense."

Subsequently, the participants with TBI expressed a lack of control. They found themselves unable to transcend the symbol of disability which they equated to helplessness and dependency.

The Paradox of Superficial Social Contact

Literature regarding social interactions suggests that the significance of social contact lies in its meaning to the participants. In these interviews, even the most superficial levels of social contact at the time of the accident or injury were symbolic to the participants. For example, those participants who maintained that they disregarded friendships or "hated people" were included among the participants who specifically mentioned persons who had visited them hospital, some whom they had only seen once since the time of their injury. They also remembered those who sent cards and who called around the time of the accident. Friends who went out of their way to stop by to see how they were doing were noted in every participant interview. These individuals were identified as special. The exodus of these special people from the lives of the individuals with TBI, who were present from the moment of the accident, was painfully noted. For example, Randall's brother was at the hospital everyday but now is out of his life. June noted that her best friend was with her daily immediately after her injury, but recently had not called her in months.

Paradox of Family

The context most meaningful to participants was the family context. Not surprisingly, it was interactions with family that participants referred to most frequently. Although the literature review indicated that as a result communication difficulties, family interactions become strained, such that family members and the individual with

TBI grow increasingly distant (Togher, McDonald, Code, & Grant, 2004; Tyerman & Booth, 2001), the majority of the participants perceived their interactions with family to be positive. Several, participants reported that the experience of living with TBI had brought the family closer together. With the exception of peers with disabilities, it was within the family context that participants expressed the most social vulnerability, and expended the most effort to bring others to see themselves as they really are. As such, these findings are paradoxical to the theoretical findings in the literature review.

The Paradox of Disclosure

Only one participant was spontaneous about her willingness to disclose her disability to anyone who asked. June felt "OK with it," and her comments suggested she fully identified as a person with a TBI. To her knowledge, she had not experienced any stigma as a result of being identified as a person with a disability. The remainder of the participants reported not being spontaneous with others about their disability, with disclosure ranging from partial disclosure of specific limitations associated with the disability, to avoidance of the topic of any limitations whatsoever. Data analysis revealed that to the extent that they were able, participants attempted to control the amount of information that was disclosed about them.

A paradox exists between disclosure and denial of disability since failing to disclose can be interpreted in several different ways. Studies have suggested that there may be little distinction between impaired self-awareness and denial of disability following brain injury (Prigatano & Klonoff, 1998). Therefore, individuals who do not verbalize their limitations or acknowledge their disability may be perceived as being in denial. Denial of disability is often viewed as a precursor to poor adjustment to disability (Livneh, 2001).

However, analysis of data in this study suggests that failure to disclose did not operate as denial. Participants provided multiple examples of their limitations in the interviews. In choosing not to acknowledge their disability with others, it appears that they chose to reject the stereotypes that they believed were in the minds of people in the community (Finlay & Lyons, 2005). These reports from the participants confirm findings reported by Krefting (1990) who found that interpersonal difficulties for persons with disabilities are aggravated by community norms and expectations in terms of "what others think of me" (p. 864), causing the individual with TBI to use concealment strategies to attempt to perform in a socially acceptable manner. These findings are significant to consider for psychosocial interventions. If adjustment to the disability is not the same as adjustment to other people's interpretation of the disability, then interventions need to be aimed at transformations in the individual in addition to transformations within sociocultural institutions that affect how the lives of individuals with disabilities will unfold.

Paradox of Isolation

One of the most surprising paradoxes involved friendships and isolation. None of the participants who were interviewed reported being isolated or alone. Although friendships had changed for the individual participants, none reported that they felt isolated, alone or depressed, terms frequently used in the literature regarding social skills and TBI (Bond & Godfrey, 1987; Callaway, et.al., 2005; Godfrey & Shum, 1994; Ylvisaker & Feeney, 2000). Several of the respondents noted their frustration with others and their lack of motivation to be around other people. Three participants indicated that there were times when they did not interact with others because they were not motivated to do so. Analysis of the data suggested that individuals with TBI adapted to changes in friendships by narrowing or changing their work or pastime pursuits, spending time with family, eliminating friendships entirely and staying home more often. Time seemed to work either as an ally or as an adversary for the participants relative to friends. Although rehabilitation and health related activities were commonly reported as time-consuming and a barrier to maintaining friendships, several participants reported that when these activities were done they had too much idle-time. Half of the participants reported that the length of their recovery impacted on their ability to maintain and establish friendships. These reports are paradoxical to research findings which suggest loneliness and isolation are predominant characteristics among individuals with TBI. Perhaps this behavior suggests that individuals with TBI make a distinction between isolation and solitude, a distinction not often clarified on typical survey measures or in treatment plans.

Paradox of Role Models

Another paradox was within the area of role models among person without disabilities regarding appropriate social interaction skills. It would be expected that positive role models would exist for persons with TBI. Since social rules and norms are what individuals with TBI are evaluated upon relative to social skill adjustment, it is reasonable to assume that within the general community of individuals who do not suffer cognitive deficits, which individuals reintegrating themselves into social settings could expect to find at least adequate skills in social interactions. By the reports of the participants this was not always the case.

More than one participant reported being an observer or a participant in an inappropriate social interaction with an individual with no disability, either during rehabilitation or in the community. Randall's story provided an example of a less than positive experience. Although he maintains that he "hates people" in other responses Randall shares a good deal of concern about others. Another way to interpret this story paradoxically would be to understand Randall as venting or projecting his own anger about the process of adjusting to TBI. On a subconscious level he may have registered his own inability to move quickly and his own lack of patience with people who anger over the insignificant:

> "This whole accident has made me hate people. Like I hate people. People suck. They're just like – I don't know every body they're so wrapped up and like this guy got all pissed off because this cashier was taking too long at the gas station. I know one time me and my brother were going and we stopped by for some pop or whatever and this guy was just getting just pissed off and it's just like – I don't know it just made – it just frustrated me that this guy thought it was the end of the world because this cashier was going as fast she could...and you know it's like she's doing the best that she could and this guy just thought it was the end of the world. So I hate people. I'm not big into people."

The Paradox of Labels as Symbols

The literature reviewed suggested that a majority of participants should have been dissatisfied with their social interactions. On the contrary, the majority of participants were happy with their social interactions. When they were not, the participants attributed the problem to themselves. In more than one interview, this was directly related to the participant's reliance on terms that they had acquired through rehabilitation education. The terms became symbols of disability and of self to the participants, paradoxical to their original intent.

Exact terms including disinhibition, adynamia, neuro-fatigue, compensation, control, and memory were used to describe performance in interactions. Four of the participants had so entirely incorporated the holistic cognitive rehabilitation model (Ben-Yishay & Gold, 1990) being used at the rehabilitation facility that at certain points in our interviews it was necessary for them to retrieve a copy of their notes or to find a picture of the rehabilitation model (the rehabilitation facility has pyramid diagrams within group areas of the facility) to facilitate their explanation of their experiences in social interactions. These individuals would point to the model and their particular level of diagnostic awareness (adynamia, attention/concentration, etc.) relating this to their lack of ability to be successful in interactions with others. Recall that according to Meade (1934), responses to symbols are part of the organizing process required for social interactions, and in recognizing symbols individuals take into consideration that they are sharing feelings as well as information. In addition research has suggested that individuals who are less secure in their self identity may be more likely to use stereotypical symbols of role competency in forming their self-conceptualizations, in order to reinforce perceptions of adequate performance (Schouten, 1991; Solomon, 1983; Wicklund & Gollwitzer, 1982).

Given the information received from the participants and existing theory, it is reasonable to assume that a paradox exists between the rehabilitative purpose of the diagnostic categories of the model (Ben-Yishay & Gold, 1990) and its interpretation and use by individuals with TBI. From their own reports and observed behavior, these individuals had significantly incorporated these diagnostic symbols and terms into their own definition of self, and used them as a means of self validation and identification. Using symbols (the pyramid) to form an authentic self-view and a coherent, symbolic representation of self is paradoxical. Symbolic images of disability had become consistent with the participants current sense of self, and their justification for ineptitude in social interactions.

Chapter 5

Discussion

The purpose of this study was to seek to understand the social interactions of individuals with TBI. To accomplish this task, the following research question was addressed: How do individuals with TBI describe their social interaction experiences? Social interactions are a communicative activity which are goal-directed (Berger, 2003). Individuals who exhibit socially competent skills are preferred in social interactions (Segrin, 2001). The literature states that personality changes that impact the social reintegration of individuals with TBI are common (Ylvisaker, et.al, 2006) and research has indicated that up to 60% of persons who sustain a TBI experience deficits in the area of social skills (Dilk & Bond, 1996; Hoofien et al., 2000; Kendall & Terry, 1996).

Factors that may contribute to ineffective social skills include pre-injury communication problems, impairments tied directly to the injury, persisting behavior disorders and a variety of cognitive impairments (McDonald, 2002; Prigatano, 1986; Tate & Broe, 1999). Many individuals with TBI may experience significant difficulties in demonstrating competence in social interactions due to a combination of transient or persistent disinhibition, impulsiveness, anger control or generally poor social judgment (Hoofien et al., 2001). Given that participating in quality social interactions is one of the most important aspects of life, exploring factors that impact social interactions for individuals with TBI is a salient issue for research.

The sections which follow will discuss the findings in relation to social skills theory (Riggio, 1986; Swan, 1983), and to previous brain injury research. In addition the implications of findings for brain injury rehabilitation practice will be described.

Finally, the chapter will conclude with recommendations for future research on social interactions of people with brain injuries. Prior to presenting a summary of the findings, the limitation of this study will be addressed.

Limitations of the Study

Rigor in qualitative research focuses on research consistency (reliability), bias, generalisability (external validity), confirmability (objectivity), and credibility (internal validity) (Krefting, 1991; Guba & Lincoln, 1985; 2005). Yet, rehabilitation and related literature has well documented the methodological difficulties created when interviewing individuals with TBI (Paterson & Scott-Findlay, 2002; Taylor, Kreutzer, Demm, & Meade, 2003). Individuals with TBI may not be accurate historians; they may have inaccurate recall, or lack self-awareness (Prigatano & Klonoff, 1998). Deficits in conversational ability following TBI may be related to a variety of different processes including cognitive (e.g. planning, adopting organizing schema, retrieving from memory), linguistic (e.g. syntax) and psychosocial factors (e.g. communicative effectiveness in various contexts) (Bond-Chapman, 1997, Togher & Hand, 1999). Individuals with TBI may have difficulty in recalling and articulating experiences, feelings, and perceptions. These factors may have influenced the accuracy, completeness, and the consistency of the data gathered during the interview process, a potential limitation.

Since the purpose of this research was to establish how social interactions occur, as opposed to the accuracy or detail of the information conveyed, inconsistencies in data gathered can be interpreted as a representation of the naturalistic, subjective experience of the participant. From a qualitative perspective, such inconsistencies add authenticity and descriptive credibility to the study. To further enhance consistency, specific attention was paid to participant actions, behaviors, and words during the interviews. The interview notes and transcripts included "who did what, why they did it, and how it occurred" to facilitate the development of the critical concepts and themes.

Researcher bias also may have impacted the findings. In qualitative terms, the researcher is the participant-observer and subjectivity and reflexivity are expected constituents of the qualitative process. Data analysis figuratively involves a conversation between the researcher and data in which the researchers' own views have important effects (Weiland, 2003). The most important aspect for a qualitative researcher to maintain is to remain "faithful to the phenomenon" (Atkinson & Delamount, 2005, p. 21). Researcher bias during this study has been documented through memos, meetings with research partners, additional readings, the provision of an audit trail, and the use of a second reader, a university doctoral student. Using a second reader provided triangulation by making segments of the raw data available for another party to analyze the researcher's to interpretation of the findings (Lincoln & Guba, 1985).

In this investigation, there also were limits related to the generalizability of results. In a naturalistic situation, the investigator can only provide sufficient information that can then be used by the reader to determine whether the findings are applicable to the new situation (Lincoln & Guba, 1985).The number of study participants was low but similar in sample size when compared to qualitative studies utilizing individuals with TBI (Crisp, 1993; Nochi, 1990, 1997, 2000). While the demographic information suggests that the participants generally represent the average recipient of neurocognitive rehabilitation services at one year or more post injury based on previous study samples (Crisp, 1993, Kendall & Terry 1996; Nochi, 1990; Rubin, Chan, & Thomas, 2003) the cultural diversity of the sample was limited. This study also relied on a convenience sample because the population of interest was difficult to access. The individuals who volunteered to participate were not randomly selected and were drawn from only one clinical setting. Subsequently, results should be applied with caution when being considered with other groups of individuals with TBI. The study results can only be discussed in relation to the sample obtained at the point in time which the data was collected (Ylvisaker et.al. 2006). Thus, for each of the individual participants, the long-term evolution of psychosocial adjustment relative to social interactions will be difficult to predict on the basis of this study alone.

Credibility and confirmability were addressed through the use of a second reader who reviewed all of the researcher's transcripts, memos, NVIVO records and notes to provide feedback to the researcher regarding themes and concepts. Ideally, the best means of establishing credibility would be through the participants themselves (Lincoln & Guba, 1985). While the interview questions and process were received positively by the participants, it was an a priori decision that the research results would not be shared with the participants due to potential breaches in confidentiality as many of the participants were acquainted with one another through the rehabilitation program.

Narrative Summary of Results

While research has been conducted which indicates that most individuals will alter the way they interact based upon who they are interacting with (Leary & Kowalski, 1990), little research has been completed to explore how relationship types affect the social interactions of individuals with TBI. Embedded in the responses of individuals with TBI regarding their interactions with others was important and new information about their social life, self-views, family relationships, friendships, and rehabilitation goals. On the basis of the data gathered, participant responses clearly suggested a ranking of social relations (Charmaz, 1997), created in part by the initial isolation caused by the chronicity of the illness. Family members ranked first, followed by siblings, others who had a TBI, then friends, and finally co-workers or fellow students. This ranking appeared to follow the trajectory of the recovery process from the injury. It may also be a precursor of difficulties the individual may experience at a later date, when experiencing transitions created by life and disability, and have limited social resources from which to draw.

A common message from participants was that persons with TBI need to be understood as effective partners in social interactions. The following two domains of social interactions were identified: interpersonal aspects of social interaction, and intrapersonal aspects of social interactions. Within these domains, the participants made multiple decisions in their social interactions with others. They tightened their essential relationships with others or jettisoned their more difficult relationships. Theoretically, the individual chose to relate to others that revealed themselves in two distinct ways which intersected but were uniquely different in their presentation. These were the relational self and the core self of the individual with TBI.

On the relational level, participants reported that they were more concerned with the efficiency of their verbal expression as it impacted their day–to day activities and common social interactions. It was at the relational level that they felt the most self conscious regarding how they were being perceived by others. In their relationships with those who did not share a mutual understanding of what it was like to live with TBI, they expressed a greater amount of fragmentation between who they were before and who they were now post injury. Several participants expressed frustration at time pressures imposed by others to "get their facts straight" during social interactions.

During the interview process and in part due to probes by the researcher, participants appeared to become more willing to talk about themselves at a more revealing core level. Discussions occurred pertaining to the development of an identity as an individual with a TBI. At the core level, and in relationship to others that "understood", participants felt free to experiment with their feelings and their actions. Matters that related directly to personal meaning and beliefs about TBI, including the incorporation of symbolic representations and communication styles were shared. Motivation to participate in social interactions and personal decision making appeared to occur at this level, as well as rationalizations pertaining to trust, friendships, family relationships and the future.

Participants described family as people who understood and accepted them as they were. However, role changes caused disruption and created challenges for social interactions for several of the participants. In this study, individuals with TBI reported that they had few friends. For most of the participants, old friends had drifted away or they were not encouraged by the participant's to stay in touch. One individual reported that creating new friends was a "burden". Some participants reported tense relationships with former friends due to value changes. TBI symptoms such as neurofatigue and memory loss were noted as reasons for friendship loss. Participants reported that there was an expectation among some friends and family that the individual with TBI would return to the way they were before, and participants noted "impatience" from others as a result of their "slow recovery process." For those who were employed, data analysis revealed that employment provided a positive pathway for developing new relationships, confirming the findings of researchers' regarding the importance of work for individuals with TBI (Rubin, Chan, & Thomas, 2003; Steadman-Pare et al., 2001; Weddell et al., 1980).

Disability and frustration have been typically linked together in the rehabilitation literature (Prigatano & Schacter, 1991; Tyerman & Humphrey, 1984). Some of the participants expressed frustrations about the community's lack of understanding of TBI. Few frustrations were noted by the participants regarding their disability, with the exception of neurofatigue and its impact on the ability to socialize. A compound query using NVIVO searching for the words frustration, anger and mad using the search option "near content" TBI or brain injury, revealed no results. This finding suggested that the participants who did express frustration did not express it in direct relation to their injury. Instead, frustrations were related to changes within the environment or within the outlook of others on their capabilities to be independent.

The results of the data analysis suggested that social stigma created a greater barrier to social interactions than dysfunctional behavior and personality changes. Issues surrounding failing to disclose the disability to avoid stigma and discrimination substantiate this. Some participants reported going to great lengths to develop strategies to manage or conceal negative images of themselves, including choosing to not interact within their communities. There are potential risks to these strategies. Research has suggested that individuals with disabilities, who are upset with restrictions imposed by their limitations, including those which arise from negative interactions in the community, may react with intensified resistance to caregivers who then respond with increased control, resulting in cycle of negative mental imagery and experience for the individual with the disability (Krefting, 1990, Ylvisaker & Feeney, 2000). Subsequently, preparing individuals with TBI with appropriate responses to social stigma as an antecedent for potentially unconstructive social interactions in the community would be significant in any program of rehabilitation for individuals with TBI.

The results of this study have indicated that the antecedent events and the goals of social interactions of individuals with TBI are associated with personal, social and community issues. Rappaport (1981) has suggested that an important task for anyone interested in these issues is to look for paradox and antinomies. Discovering the paradoxes and understanding them is part of the job of researchers, professionals and educators in rehabilitation counseling. Some of the more important paradoxes revealed in this study were associated with disclosure of disability and the integration of diagnostic symbols into self-identity. Each of these findings has potential implications for psychosocial intervention strategies.

Current research in psychosocial adaptation to brain injury has been focused on objective, empirical investigations to explore ways that persons with TBI perceive various changes in the body, self and person-environment interactions (Livneh & Antonak, 1997). A call has been made for an increase in empirical research studies for the development of more sound, pragmatic evidence upon which to develop appropriate interventions strategies. With these strategies, individuals with TBI can be taught coping skills to live in typical community settings (Livneh & Antonak, 1997).

While the press for empirical evidence has taken place, the focus on the subjective experiences of the individual with TBI may have been ignored. Both objective and subjective information have equal value as contributors to the psychosocial adaptation of individuals with TBI, particularly given the extreme variability that is manifested in the psychosocial adaptation process for TBI. What is clear from the review of the data from this study is the need to emphasize the individual needs of participants in rehabilitation practice, particularly surrounding the reconstruction of self. While diagnostic terms may be complementary for use by practitioners and for other service providers, they may fall short of fulfilling the needs of positive self-identification required for individuals with TBI.

It is also important for rehabilitation professionals to pay attention to the social conditions under which individuals with TBI live as part of the diagnostic and psychosocial adaptation process, as social conditions played a large part of the stories told by the participants who participated in this study. It is not useful to provide interventions when the individual re-enters a community that is unwilling or unable to provide the consistent positive feedback required for durability of the gains made in the rehabilitation setting. In the area of social integration this is particularly important.

Relationship of Findings to Social Skills Theory

Swann (1983) held that people form self-views so that they can understand and predict the responses of others. Most of the participants seemed to remain immersed in their disability and their responses suggested that living with TBI had destabilized their identity or self-view, thus they were unable to predict the responses of others. Participant responses indicated that they believed a set of behavioral or personal characteristics by which they were recognizable as a member of a group in the past had changed as a result of their disability. Many were unable to separate how they were before the TBI from who they were in the present. For many, the use of diagnostic terms and representations of those terms became symbolic of a disabled identity.

The data gathered suggested that individual's with TBI stabilized their self-conceptions by creating social environments around them that provided acceptability for their self-conceptions. This included family and trusted friends, or others who shared a mutual knowing of the lived meaning of TBI. According to Swann (1983) the stability inherent in these environments will in turn stabilize an individual's self-views or diminish their identity questioning. In some cases, individuals did not interact with others at all for fear of being mistaken as a person with a developmental disability. All of the participants shared the fear of being mistaken as intellectually lacking.

For destabilized identities to change, two things must occur, one at the intrapersonal level and the other at the interpersonal level (Swan & Hill, 1982). At the intrapersonal level individuals with TBI must reorganize their self-view. This is the focus of many of the behavioral and psychotherapeutic interventions that occur during neurocognitive rehabilitation. Individuals with TBI must decide that they are not the persons they once were. But even after the individual with TBI has entirely accepted this new self- view, they must be supported through interpersonal relationships that validate and legitimize these new self-views. By providing support, a transformation process transpires where information is interchanged between the level of self and the level of social interaction. Theoretically, changes in self-view for individuals with TBI will be durable only when there is a change in the social environment that allows individuals with TBI to experience success in their new self-identity (McCall & Swann, 2004).

Riggio (1986) referred to a basic framework of social skill competencies including components for interactions/interchanges between the self and the social environment. The course of social interactions defined by Riggio (1986) includes encoding (sending), decoding (receiving), and controlling (regulating) information. Riggio's dimensions of these components included emotional and social expressivity, emotional and social sensitivity, and social and emotional control as the components for social skills. Theoretically, individuals with suitable emotional and social expression, sensitivity to others, and control of behaviors and emotions in context would be preferred in social situations. Given the above criterion, and according to the data analysis, from a subjective standpoint the participants met the requirements for positive social skill competency during the interview process. The participants' reports suggested that they were capable of sending, receiving, regulating, and controlling information since the time of their TBI. They were also able to understand the meanings of other people's points of view and to consider other people's feelings. However, when analyzing the narratives, a range of responses along Riggio's social dimensions were noted.

While the purpose of this study was not to apply Riggio's (1982) social skills theory, it was instrumental in the development of the interview document. Subsequently, it was expected that some indirect or direct references to Riggio's dimensions would emerge from the narratives. While some participants appeared to meet Riggio's (1982) theoretical criterion for social expressivity or emotional sensitivity, their narratives suggested that depending on context, their behavior ranged from the normal to the extreme for the related dimension. For example, according to Riggio (1982), a socially sensitive person has a good understanding of social rules and norms; however, because of the knowledge of rules and norms, they may become over-concerned with their own behavior and the behavior of others.

In extremes, people with high social sensitivity may become preoccupied with social appropriateness. This preoccupation may lead to anxiety and self-consciousness, which may inhibit the person's participation in social interaction. In this study, all of the participants appeared to be aware of social rules and norms for appropriate social interactions. Importantly for participants in this study, knowledge of social rules and norms was stringently self-applied, so that any limitations created by their disability appeared to become magnified.

A similar interaction between the social skill and the disability (TBI) was noted for social expressivity. Participants who were capable of easily engaging others in social interactions reported that they were told they "talked too much." Participants who considered themselves expressive received feedback from others that they were "like a bull in a china shop," which would be socially expressive to the extreme. Emotional expressivity accounted for some of the participants difficulties in social interactions because they reported that they lacked the ability to be fully expressive. Others reported that they usually said what was on their mind, and that they had difficulty masking emotional states. These references may be an indicator of limited emotional control or an inability to self monitor according to the Social Skills framework (Riggio & Friedman, 1982). As per participant reports, they appeared to be emotionally sensitive, meaning they were able to decode emotional information rapidly and be emotionally sensitive to others. Riggio (1982) describes this dimension as involving attention to non-verbal cues. In summary, the use of Riggio's (1982) social skills theory is useful for describing the results of the present study.

Relationship of Findings to Previous Brain Injury Research

There were several findings of this study that were contrary to what was anticipated of individuals with TBI given information available from the TBI literature review. Existing literature has stated clearly that lack of self-awareness of deficits in social skills among persons with TBI can lead to difficulty in establishing relationships and in realistically assessing social behavior (Prigatano, 1991; Prigatano & Klonoff, 1998). The majority of the participants reported that their social interactions were not problematic. When challenges were noted, the participants attributed these communication challenges to being engaged in interactions that they had not chosen to be in, or they took responsibility for the miscommunications by attributing them to their own limitations in communication ability. These responses suggested a functional level of self-awareness for social interactions which was contrary to what has been reported in the literature (Mesulam, 1985).

During the interviews, participants appeared to take the role of active and sensitive listeners. However, this sensitivity to others stood in contrast to the participants' ability to estimate how others would perceive them. Each participant's response on this question was very limited or based on what someone else had told them. This finding may be exemplary of deficits in social perception referred to by Nowicki and Duke (1994) who coined the term dyssemia, which refers to a lack of insight into the thoughts of others about their own behavior.

Changes in self-concept following TBI have been well-documented in the literature and have been associated with reduced self confidence and emotional reactions such as depression (Tyerman & Humphrey, 1984). The majority of individuals who participated in the study felt that the changes had been for the better with three participants reporting that their lives had definitely been improved as a result of the TBI. These individuals saw their near-death experience as a means of turning their lives around and re-ordering their priorities. Others noted that they had more time for family or that they were being given an opportunity to take better care of themselves as opposed to the amount of time they had pre-injury.

In situations where there were poor family relationships prior to the TBI, the injury either brought the individual closer to the family or the previous family gap remained unchanged. The fact that the TBI brought at least two disengaged families closer together was a surprising finding given the existing literature regarding the psychological and the emotional toll that TBI exerts on the functioning of the family (Kosciulek, 1994_a). It would be interesting to follow these participants over a period of time to determine if these positive family changes are maintained as time passes. As the literature has suggested, as personal independence and the ability to perform daily functions have been found to improve over time for most persons recovering from TBI, the opposite has been true for interpersonal relationships (Livneh, 1997, Prigatano & Schacter, 1991).

Some of the findings of this study appeared to support existing brain injury research. Neurocognitive studies have suggested that neural systems may be affected by TBI which would impact the processing of declarative and procedural memory for individuals with this disability (Anderson, et al, Damasio et al. 1991; Hirano et al. 2002). According to studies by Damasio and colleagues (1991) behaviors of individuals with TBI in social settings which are novel would tend to be more constrained with a tendency toward impulsiveness to immediately present environmental cues. Some participants did report that out of their normal routine, responses to unique social situations caused unusual responses ranging from unease to avoidance. The participants provided examples of the use of declarative memory and prior social schema's to describe their current social interactions. However some participants appeared to have limited access to the subjective emotional states associated with those memories not directly related their accident. Roland, whose onset of TBI occurred at age 8, lacked any recollection of developmental social interactions. In fact he commented on this during our interview, questioning himself about what he would have been like had he not had a TBI. He commented that at times his own behavior puzzles him. He indicated he often does not know how to respond (lacks access to somatic markers for decision making in social situations according to Damasio and colleagues, 1991) which appears to contribute to his lack of responsiveness.

The presence of neurofatigue, memory loss, disorganization, lack of metal flexibility, and unpredictable emotional volatility were all reported by the participants. Some of the participants' also reported a change in speech patterns, physical changes related to lack of coordination and difficulty with vision. Each of these sequlae of TBI have been identified in the existing brain injury literature (Ponsford et al., 2000; Prigatano & Schacter, 1991)

In conclusion, it is important to note the importance of the variability between individuals with TBI. In the reports examined as part of the literature review, many referred to individuals with TBI and their deficits and capabilities in the broadest of terms. In meeting with these seven participants it became clear that the variability among them in regard to social interactions and responses to interview questions was exemplary of what would be referred to as a heterogeneous group. In their comments on providing effective rehabilitation services to those with TBI, Corrigan and Willer (1994) have referred to "sweeping statements in the literature" about individuals with TBI as misleading, indicating they suggest individuals with TBI are homogenous groups. It would be best for researchers to monitor the reporting of their findings to assure that they are not including all individuals with TBI in one category when there is so much variance within this population of individuals. The results of this study suggest that individual variance does exist related to the impact of TBI on social interactions. Subsequently, solutions to the problems associated with social interactions for individuals with TBI should be diverse and differ from person-to person.

Implications of Findings for Brain Injury Rehabilitation Practice

In most traditional, medical/rehabilitation inpatient models, services are focused upon reducing the underlying impairment through recovery of cognitive skills, improved structure (control), improved motivation; understanding brain injury and it's effects; internal acceptance and redefinition of self; and skill development including improved social skills and treatment/education in using decontextualized training tasks

(O'Hara & Harrell, 1991; Willer & Corrigan, 1994). Individuals with TBI expressed a great interest in learning more about TBI and the strategies they could use to help them communicate with others in more efficient manner. Through their responses all of the participants conveyed the belief that they would be dealing with the residual impairments of TBI for their lifespan and that what was lost could not be regained. They expressed loss coupled with hopefulness. Most of their rehabilitation related concerns were related to loss of control and autonomy related to the illness. The used metaphors such as "(TBI) rips your independence away" and "being treated like a baby" to express the depth of their feelings about their awareness of TBI.

Rehabilitation professionals can help individuals with TBI in their struggle to balance the control they relinquish in some areas of their lives in order to gain control in others, by developing rehabilitation goals that are directed toward client autonomy and empowerment. Rappaport (1981) describes empowerment in the following way:

> "Empowerment implies that many competencies are already present or at least possible, given niches and opportunities...empowerment implies that what you see as poor functioning is a result of social structure and lack of resources which make it impossible for the existing competencies to operate. It implies that in those cases where new competencies need to be learned, they are best learned in a context of living life rather than in artificial programs where everyone, including the person learning, knows that is it really the expert who is in charge (p.16)".

This is not to say that rehabilitation programs are contrary to positive outcomes for individuals with traumatic brain injury. It explains that problems associated with empowerment of persons with disabilities with are divergent in nature and being divergent problems, there are many solutions. If a problem has many solutions it can have a diversity of people and environments in which it can be solved. Consequently, the criterion for determining the most appropriate rehabilitation services and goals related to autonomy and empowerment in social settings shifts from a one sided standard of competence to recognition that problems involving social skills typically have many different answers.

Rehabilitation goals should be viewed as positive outcomes rather than the absence of negative outcomes (Olkin, 1999). For example, referring to poor social skills as skills deficits explains little and in fact may have negative effects (Cavell, 1990). A strict skills deficit response to team identified or client reported failure in social interactions may be ineffective to resolve the issues which are the true cause of the problem. Given the scope of factors that potentially influence social performance including antecedent events, societal responses, identity issues, the effects of pre-injury emotional development, and pre-injury behavioral development, there may be a "gap between the individual's social thought and social action" (Cavell, 1990, p.119). It is critical for rehabilitation professionals to ask their clients whether they think their disability is the cause of the socially situated problem. In this study, participant responses revealed that they frequently take responsibility for ineffective social interactions and attribute this to their TBI. Rehabilitation professionals can help determine from an outsider's perspective what factors were involved and clarify with their client the personal, environmental and social factors involved. Subsequently, identifying individuals who need social skills training would require an examination of a broader range of functioning than social interactions alone.

Most social skills interventions are provided in an applied behavioral context which assumes that the individual is motivated to change their behavior (Kihlstrom & Cantor, 2000). In regard to motivation, not all individuals strive to, nor are they capable of becoming proficient social communicators. For some individuals adequate social skills may be the best they can achieve. Adequacy in social functioning, as noted by Kihlstrom and Cantor (2000), cannot be estimated solely by an observer but must include the viewpoint of the participant whose life tasks are in play. McFall (1982) also held that social functioning is most usefully measured in terms of the adequacy of the individual's performance in relationship to their social tasks. Adequacy may be measured by understanding what determines a successful social interaction for the individuals with TBI and what products they hope to gain from the interaction. Theoretically, determinants of successful social interactions include sending, receiving and regulating or controlling emotional and social communication including sensitivity and expressivity (Riggio, 1986). Products of successful social interactions may include social attainments, peer acceptance and global judgments of social competence (Cavell, 1990). For rehabilitation professionals, obtaining clear information about both the determinants and the products of social functioning are essential for rehabilitation planning.

One of the more important themes of the data analysis was that individuals with TBI are vulnerable to the development of positive and negative mental imagery regarding the self on the basis of their social interaction partners. Therefore it would be critical to determine who the key communicative partners are in each individual's social schema. Utilization of an interview guide based upon a similar framework as the one used in this study could be useful for a thorough social skills interview. Rehabilitation professionals should not only assess the interpersonal aspects of the individual's social interactions but also explore the intrapersonal aspects of the individual's perception of their social interactions as well.

For those individuals who are experiencing difficulty during the transition of identity from past to present as noted in the data analysis, the process of identity reconstruction can be facilitated by rehabilitation counselors through exploration of personal values, goals, fantasies and perceptions of social expectations. Initially, possible selves may be loosely articulated (Schouten, 1991) but their future elaboration appears dependent on motivation. People are motivated to pursue desirable selves and unmotivated to pursue undesirable ones (Markus and Nurius, 1986). Attainability of the possible self also affects its motivating power. Perceived attainability depends on situational characteristics such as personal resources and social constraints. The rehabilitation professional can assist the individual with TBI in constructing realistic goals for attaining their positive, possible self.

Rehabilitation professionals should utilize natural supports, including important communication partners in the client's life, in addition to identification of environmental supports for individuals with TBI. Training of communication partners has been shown to have a positive effect the effectiveness of mutual social interactions for individuals and reacquisition of communication skills for individuals with TBI (Togher, McDonald, Code & Grant, 2004). Given the unanimous response from participants pertaining to their preference for interacting with other individuals with

TBI, individual peer support or peer support groups would facilitate social skills interventions.

Denial of disability was shown to be a protective strategy against social stigma and also a factor of the identity questioning process, according to the responses of participants in this study. In addressing the client's internal acceptance and redefinition of self, rehabilitation professionals also need to prepare their clients for the reactions of others to their disability. Rehabilitation professionals will want to counsel their clients on disclosure strategies and assist them in developing a plan of action for disclosure in a variety of social situations. In doing so, the rehabilitation professional is helping their client to protect themselves and their relationships.

Use of professional jargon, theories and diagnostic diagrams to explain aspects of the disability to individuals with TBI has been proposed as a useful aspect of an overall rehabilitation therapy (Ben Yishay & Gold, 1990). However in application, emphasis on the diagnostic descriptions and representations should be used with caution. As noted in this study, the use of diagnostic descriptions had become personally imbedded for some of the participants. According to the participant narratives, symbolic images of disability had become consistent with their current sense of self. Greenwald and colleagues (1987) confirmed the existence of a self-prophecy effect, which involves attention to discrepancies between actual and ideal selves. For individuals with TBI, such a situation can create a means of making participants mindful of discrepancies between persons with and without social deficits. While inadvertent, this situation may impact counseling efforts if the individual with TBI assimilates these attributes as unchangeable.

Future Research on Social Interactions of People with Brain Injuries

Recommendations for future research include longitudinal studies to determine whether social interactions change for persons with TBI over the life span. Studies should use mixed research design methods for gaining information about social skills. By relying on responses to surveys, or utilizing instruments that have been developed for other uses, researchers may be miss the more richly detailed and accurate data that can be gathered through a combination of research methods. Such information can be gathered through ethnographic studies, descriptive case studies, and nominal group techniques (Fleming, Strong, & Ashton, 1996).

Given the diversity in response to the affect of TBI, some individuals with TBI may enjoy a comfortable reintegration into the community. For others, research has reported a downward spiral, as social, academic and vocational failures create negative self-views, which in turn exacerbate the challenges tied directly to the TBI (Hoofien et al. 2001; Nochi, 1998; Tougher, 2004; Ylvisaker & Feeney, 2000). These findings suggest that research must continue to explore the lifelong needs of individuals with TBI as the needs of the individuals with TBI and their caregivers will last a lifetime. This is most important in the area of social interactions. Through such research, it may be demonstrated that the provision of life-span resources will help prevent the costlier problems which are directly attributable to poor social integration, including family abandonment, mental illness, alcoholism, unemployment, criminal acts and the potential for second injuries (Antonak & Livneh, 2000, Brooks, et al., 1986; Kosciulek, 1996; Tyerman & Booth, 1996).

Future research into the use of peer support as part of the treatment plan will be useful for rehabilitation providers. This study demonstrated that interactions between peers with TBI were the most rewarding for the participants. Prior qualitative research has also shown that individuals with TBI have come to understand their own limitations and capabilities more clearly through talking with other's about their problems. These findings suggest that a healing effect of peer support and interaction structures may exist.

This study has added to the small but growing number of qualitative research studies being conducted in the rehabilitation research arena, particularly with the TBI population. It was undertaken as a means of adding to the qualitative research that has been completed for individuals with other disabilities such as mental illness and developmental disabilities. As reported by the participants in this study, living with TBI is perceived as an intruder. Recovering from TBI reportedly devours time, involves losses and gains, and plateaus which seem to extend forever. There are questions which remain unanswered by this study, questions about what will occur in the lives of these seven individuals over the next several years. Given the straightforward responses of these individuals and their expressed willingness to learn from their experiences, it is easy to be optimistic for them. The seven participants who volunteered to participate in this study wanted to be heard and they wanted what they said to make a difference for others with TBI. This study adds just a drop of information to the vast amount that can be learned from the stories and insights of the individuals who are impacted most by traumatic brain injury.

APPENDICES

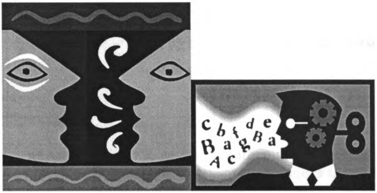
APPENDIX A

DEMOGRAPHIC INFORMATION SHEET

Name/Pseudonym:	
Participant ID#:	
Date of Interview:	
Age:	
Gender:	☐ Male ☐ Female
Ethnicity:	☐African American ☐Asian and/or Pacific Islander ☐ Caucasian ☐Hispanic ☐Native American ☐Other
Marital Status:	☐ Married ☐ Single ☐ Divorced ☐ Widowed
Siblings: YES NO	Ages: Number:
Children: YES NO	Ages: Number:
Living Situation:	
Date of Injury:	
Cause of Injury:	
Highest grade level completed:	
Current work status:	○ Employed full-time ○ Employed part-tine ○ Not employed ○ Retired ○ Student ○ Volunteer
Program:	☐ Residential ☐ Outpatient

APPENDIX B

RECRUITMENT FLYER



Let's Talk

- **Will you participate in two short interviews with a Michigan State University College Student here at Origami?**
- **This is a project to describe what it is like to have a traumatic bran injury and communicate with other people: your family, your friends, your doctor, your therapists, your co-workers, other patients.**
- **Is it different? Easier? Harder?**
- **This is a chance to tell someone all about it.**
- **Receive a $10.00 Meijers gift card as a Thank You for participating.**
- **Only a few participants needed.**

Call or e-mail me, I am interested in hearing from you soon!

Or, let a therapist at Origami know you are interested, so I can contact you.

Jane L. Nichols
517-980-6337
nicho216@msu.edu

APPENDIX C

INTERVIEW GUIDE

I. Questions about Family and Significant Others

A. (Global) I would like to begin by asking you about your interactions with your family?

B. Probes

1. Self-perception

    a) Are you closer to anyone in particular in your family?

        i. Is it easier to express your emotions to any one person?

    b) How do you understand your own interactions with family? members?

    c) How accurate are you in telling other family member's

        i. Do you conceal your true feelings from family members?

2. Others Perception

    a) How do you think your family members/significant other perceive you in their interactions with you?

        i. When depressed do you make people around you depressed too?
        ii. Would they say you are good at controlling your emotions?
        iii. Do you worry that others misinterpret you?

    b) Are there times that are easier/more difficult for you to communicate with family members/significant other?

        i. In a group
        ii. Alone, face to face
        iii. On the phone

    c) Are there subjects that are difficult for you to communicate with family members/significant others about?

3. Change

    a) What were things like before?

    b) How are they different from your interactions now?

C. How might things improve for you in your social interactions with your family/significant other?

II. Questions about Friends

A. (Global) When you are with your friends how would you describe your social interactions?

B. Probes

1. Self Perception

a) How you would describe yourself in your social interactions, how do you picture yourself as seen by friends?

- i. Are you able to fit in well with your age group
- ii. Do you attend get together and parties?
- iii. Can you adjust to social situations?

b) Is there social setting in which you feel more comfortable?

- i. Do you like being the center of attention or part of a large group?
- ii. Do you enjoy socializing with many different people?
- iii. Are you comfortable leading a discussion?

c) Are there types of people with whom you find it easier to maintain closer social relationships?

- i. Are you comfortable meeting strangers?
- ii. Do you find pleasure being with people?
- iii. Do you like it when other people tell you their problems?

2. Others Perception

a) How would your friends describe you based on your interactions with them?

- i. Do friends seek you out to ask your advice or tell you their problems?
- ii. Would friends say you maintain a calm exterior even when upset?

3. Change

a) Were you at ease in social interactions before your accident?

b) Have friendships stayed the same for you or are they different now?

c) More or less?

C. How could your interactions with your friends and significant others be improved?

III. Questions about Co-workers and Classmates

A. (Global) When you think about your interactions with them, how are your co-workers/classmates?

B. Probes

1. Perception of Self

a) What are your greatest struggles/triumphs in the workplace/classroom with regard to social interactions?

b) How do you feel about going to work or school and interacting with others?

2. Others Perception

a) Do you feel other people seek you out to talk to you at work (or school)?

b) How do you think your classmates and co-workers would describe your social interactions?

c) How about your supervisor?

3. Change

a) Have things changed for you in these interactions since the time of your accident?

C. What might be done to improve your social situation at work or school?

IV. Questions about the General Community

A. (Global) We all interact with people in the community such as the cashier at the store, the pharmacist, customer service staff, legal authorities, and so on. How are these experiences for you?

B. Probes

1. Self-perception

a) Are there situations where you are required to interact with others in your communities that are easier for you, more difficult?

i.e. People in authority, returning something, waiting in line, describing something.

- i. Are you able to understand others?
- ii. Are they able to understand you?

b) How successful are you in interacting with others in the community on a day to day basis?

- i. Are you comfortable meeting strangers?
- ii. Do you enjoy interacting with different people: different classes, genders, races?

2. Perception of others

a) How do you think people who do not know you might describe you after having had a chance to interact with you?

b) Why do you think they would describe you that way?

c) Would they say you are successful in interacting in the community?

3. Change

a) Did you interact with people in the community much prior to your accident?

b) What were things like then, the same? Different?

C. What can be done to change these interactions, to improve them?

V. Concluding Question

A. Is there anything else that is important to you about your perceptions of your social interactions that you would like to add, something that I have not asked you about or that you wanted to share with me before we conclude our interview?

B. Say "Thanks" and give a reminder to participants about respecting confidentiality, availability of counseling services for debriefing if needed. Present gift card.

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