

TRAUMATIC BRAIN INJURY: A CASE STUDY OF THE SCHOOL  
REINTEGRATION PROCESS

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By

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(ABSTRACT)

The purpose of this linear-analytic exploratory case study is to illustrate the reintegration process from acute care and rehabilitative care to the traditional school setting after one has sustained a Traumatic Brain Injury (TBI). TBI is an unrecognized educational challenge. Few educational professionals are aware of the divarication of TBI. Traumatic Brain Injury is the leading cause of death and disability in children and adolescents in the United States. The review of literature reveals there is a void between the requirements of the law and educator preparedness regarding TBI. There is a need for a proactive means to enhance transition and reintegration of a TBI student from rehabilitation to the traditional school setting. The research study showed the schematic efforts of one school division to integrate a TBI student. This exploratory case study emphasized the importance of a proactive education treatment planning process that facilitates the transition to the school setting. The study is qualitative in design and examined the sequence of subtopics of the problem, a review of relevant literature, methods used, findings of the data collected and analyzed, and conclusions and implications from the findings. This case study is analogous to a single experiment. Data were gathered from archival records, educational records, medical records, teachers and therapists comments, friends' perceptions, family histories, recollections, and interviews with participants in the reintegration process.

There were three major domains that have been extracted from the case study. The first domain, the strengths and weakness of the student in the post traumatic brain injury environment were collated, collected, and analyzed. The second domain, the adaptation of Larry involved three general sub sets: (1) Larry's self adaptation, (2) the participants' roles in the student's adaptation, and (3) other influential factors in Larry's adaptation. The third domain centers on the strengths and weaknesses of the strategies used by the school division in the reintegration

process. The strengths fell into five general categories; (1) caring professional (2) existing structure for disabled students, (3) cooperation, (4) willingness of general education teachers to make accommodations, and (5) willingness of school-based clinicians to try a variety of approaches. The weaknesses consisted of seven categories; (1) little knowledge of TBI, (2) no in-house pro-active plan,(3) no historical data on TBI, (4) no written records, (5) not central structure (scattered resources), (6) no written plan, and (7) no roster teacher/case manager with authority to direct staff with TBI scenario.

The study will enhance the understanding of TBI and will provide a meaningful guide to parents, educators, and school based clinicians. The results illustrated that the data base of this study contained the critical pieces of evidence, this evidence was presented neutrally, and the evidence is valid.

A holistic overview of the findings included the major domains and data sources that were explored. Additionally, the integrant building blocks that support this holistic overview are provided. In conclusion this case study discusses implications and recommendations. Of note is the reconciliation of this case study with the literature on TBI.

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## CHAPTER 1

### THE PROBLEM

#### Context for the Study

Traumatic Brain Injury (TBI) in children and adolescents is a community-based medical and educational challenge. However, at the present time TBI is primarily an unrecognized challenge. Few community-based medical and educational professionals are aware of the incidence or consequences of TBI. It is imperative that a proactive plan be developed to assist the student with TBI in the transition from the rehabilitative setting to school.

#### Background of the Study

During the fall of 1994 I was employed as the Assistant Principal of a large elementary school in the southeastern United States. The initial teacher in-service day was scheduled to welcome new and returning teachers. Unfortunately, the English as a Second Language (ESL) teacher was unable to participate because a few days prior to the in-service she had been injured in an automobile accident. Two weeks later she returned to work and assured me she was recovering. However, her 16 year old son, an unrestrained back-seat passenger in the car, had sustained a Traumatic Brain Injury (TBI). He had been placed at Level VI on the Glasgow Coma Scale (see Appendix A) at the scene of the accident. She explained that her son had received acute care at Fairfax Hospital and had been transferred to the University of Virginia Medical Center in Charlottesville, Virginia, for rehabilitative care. He was recovering slowly, and she was commuting to Charlottesville each weekend to visit her son. Although I had not seen her son in several years, I remembered him as a bright and energetic elementary school student. He had been found eligible for the Gifted and Talented program and had enjoyed playing on the inter-school basketball team. This report of a brain injury to such a bright and enthusiastic student was devastating to me. I began to read and study the topic of traumatic brain injury. I wanted to investigate ways in which I could assist the family through such a difficult period in their lives. I felt the family and the student needed my support as well as the support of the professionals in the school division. I was concerned that this student might return to school and few teachers or administrators possessed sufficient experience to assist this young man who had sustained a Traumatic Brain Injury. Later that school year, this same teacher was diagnosed with non-



Hodgkin's lymphoma. She died the following summer. It now became my mission to do all in my power to see that her son reached his full potential.

#### Statement of Problem

“Traumatic Brain Injury is the leading cause of death and disability in children and adolescents in the United States. The most frequent causes of TBI are related to motor vehicle accidents, falls, sports, abuse, and assault. More than one million children sustain head injuries annually and approximately 165,000 require hospitalization. However, many students with mild brain injury may never see a health care professional at the time of the incident.” (NICHCY, 1993 Vol. 18, p.6). The Individuals with Disabilities Education Act (IDEA) (P.L. 101-476) was long awaited by advocates of persons with TBI. The law states that students with TBI are not mentally retarded, emotionally disturbed, learning disabled, or any other inappropriate category.

Under IDEA (P.L. 101-476) TBI became recognized as a separate and unique form of disability. There appears to be a void between the requirements of the law and educator preparedness regarding TBI. The problem or challenge to the local school system and individual teachers is to help students with TBI transition from rehabilitation to the traditional school setting. Typically a child who has sustained a Traumatic Brain Injury has received acute care and rehabilitative care. The school's reintegration process should be smooth and uneventful.

#### *Definition of Traumatic Brain Injury*

The following definition of Traumatic Brain Injury was published on September 29, 1992 and is a guideline for state departments of education:

Traumatic Brain Injury means an acquired injury to the brain caused by an external physical force, resulting in total or partial functional disability or psycho-social impairment, or both, that adversely affects a child's educational performance. The term applies to open or closed head injuries resulting in impairments in one or more areas, such as cognition; language; memory; attention; reasoning; abstract thinking; judgment; problem solving; sensory; perceptual and motor abilities; psycho-social behavior; physical functions; information processing; and speech. The term does not apply to brain injuries that are congenital or degenerative, or brain injuries induced by birth trauma.(U.S. Federal Register, 57 (189), September 29, 1992, p. 44802).

TBI is also referred to in literature as a head injury, TBI, acquired brain injury,

brain damage or injury, or may be referred to according to the severity of the injury (mild TBI, moderate TBI, or severe TBI) (Blosser & DePompei, 1994).

### *Characteristics of Students with Traumatic Brain Injury*

The National Head Injury Foundation calls TBI, “the silent epidemic,” because many children have no visible impairments after a head injury (Bell, 1994). Symptoms can vary greatly depending upon the extent and location of the brain injury (see Appendix E). Impairments in one or more areas (such as cognitive functioning, physical abilities, communication, or social or behavioral disruption) are common (1994). These impairments may be either temporary or permanent in nature and may occur in different degrees. The nature of the injury can range from mild to severe and the course of recovery is difficult to predict. It is important to note careful planning cannot be underestimated for the reentry into the school setting. A smooth transition from acute and rehabilitative care is critical. School personnel, therapists, family, and the student should be involved in planning the transition.

### *Purpose of the Study*

The purpose of this study is to develop an exploratory case study illustrating the reintegration process from the acute care and rehabilitative care to the traditional school setting. The case study, drawn from data collected through interviews, and documents will provide insight into a proactive intervention model. Additionally, the study will enhance the understanding of TBI and will provide a meaningful guide to parents, educators, and school based clinicians.

### *Research Questions*

The central question of this study is the following: How can system-wide strategies facilitate the school reintegration process for a student who has sustained a TBI? Additionally, this study will explore how one school system responded to the reentry of a student with TBI.

The central question relates to the development of a proactive model that ensures a smooth transition. Sub-questions of this study are guided by the proactive plan developed by Blosser and DePompei (1997) addressing pre-planning, planning, implementation and evaluation. Questions address the response of one school division, exploration of the roles, experiences, and suggestions of individuals involved in this transition process:

1. How did one school division respond to the reentry of a student who had sustained a TBI?
2. How do the following participants describe their roles and experiences in the transition process?
  - a. the student
  - b. the parents and family
  - c. the educators
  - d. the school-based clinicians
3. How do they describe conditions as either barriers or facilitators to reintegration?
4. What are the reasons and rationale of the above individuals in deciding what methods are more facilitative in the transition process?

#### Brief Overview of the Methods

The study will employ a qualitative design using linear-analytic exploratory case study methodology. According to Yin (1994) linear-analytic exploratory case study methodology is the standard approach for composing research reports. The sequence of subtopics involves the issue or problem being studied, a review of the relevant prior literature, the methods used, the findings from the data collected and analyzed, and the conclusions and implications from the findings.

#### Limitations/Assumptions

A qualitative research design will allow for a greater understanding of the case. It is important to note that this is a linear-analytic exploratory case study in which the sequence of subtopics involves the issues or problems being studied. The problems are the foci for the study. This exploratory case study will provide an in-depth description of this case coupled with a description of teams comprising the student, the family, educators, and school-based clinicians working together to ensure a smooth reentry. This incident occurred nine years ago and as a result memory may affect the content of the interviews. However, memory of details, which is a limitation of this study, will be minimized by the methodology stated in Chapter Three, subheading Assumptions and Rationale for a Qualitative Study (The Type of Design), whereby the seven subsets of the interview protocol will act as a trigger mechanism in the thought processes of the interviewees.

## Definitions

There are a significant number of terms associated with Traumatic Brain Injury. The following list supplies definitions found in the law or in literature that are most relevant throughout this study. An extensive glossary of terms is included in Appendix B. (Blosser & DePompei, 1994).

*Head Injury:* This injury is damage to any part of the head. It is a broad term that encompasses injury from internal accidents such as stroke or external forces such as a blow to the head. Head injury can imply injury to the face, scalp, skull or brain.

*Open Head Injury:* This is regarded as an injury in which the brain tissue is penetrated from the outside, as with an obvious wound to the head such as a gunshot wound or a crushing of the skull. The injury tends to result in localized (focal) damage and somewhat predictable impairments based on localization and degree of damage. (Jennett & Teasdale, 1981).

*Closed Head Injury:* There is no open wound to the head, with damage caused by a blunt blow to the head or an acceleration/deceleration of the brain within the skull. The injury results in more diffuse brain damage with resultant variable and unpredictable consequences (Vogenthaler, 1987).

*Acquired Brain Injury:* This is a more general term that includes all types of injury to the brain, both traumatic and non-traumatic. Causes for acquired brain injury indicated include: open or closed head injury; anoxic injuries caused by reduction of oxygen to the brain from anesthetic accidents, hanging, choking, near drowning, infections such as meningitis and encephalitis, strokes, tumors, metabolic disorders such as insulin shock and liver or kidney disease; toxic encephalopathy such as lead poisoning, mercury, crack cocaine, and other chemical agents (Savage, 1993).

*Brain Damage or Injury:* This is a broad term that includes congenital and acquired damage to the brain (Savage, 1993).

*Mild Traumatic Brain Injury:* This injury is very similar to post concussion syndrome. A very brief loss of consciousness is present at the time of injury. Signs of concussion include dizziness, headache, nausea, vomiting, lethargy, irritability, difficulty concentrating, and possible inability to recall the injury. Ninety percent of the symptoms

of the injuries resolve within days to several weeks. However, ten percent of the symptoms or residuals can last a lifetime. These lasting residuals can include inability to learn or organize, poor cognitive-communicative skills, problems concentrating, psychosocial difficulties, and headaches or dizziness (Blosser & DePompei, 1994).

*Moderate Traumatic Brain Injury:* This injury includes a loss of consciousness up to twenty-four hours. Neurological signs of trauma to the brain may include skull fracture, contusions (bruises), hemorrhage (bleeding), or focal damage identified by computerized tomography (CT) or Magnetic Resonance Imaging (MRI). Lasting residuals of moderate Traumatic Brain Injury can include physical weakness, cognitive-communicative impairments, difficulty learning new information, and psychosocial problems. Thirty-three to fifty percent of individuals with a Moderate Traumatic Brain Injury have residuals that last a lifetime (1994).

*Severe Traumatic Brain Injury:* This injury includes a loss of consciousness (coma) longer than twenty-three hours. Lasting residuals can include multiple cognitive, cognitive-communicative, physical, social, emotional and behavioral problems. Eighty percent of individuals with Severe Traumatic Brain Injury have residuals that last a lifetime (1994).

### Significance of the Study

Blosser and DePompei (1997) state that traditional deficit-centered clinical approaches may limit opportunities for professionals to effect change. Deficit-centered approaches are too narrow in scope to redirect the individual with TBI to real life situations. Rethinking, planning, decision making, and intervention strategies should form a proactive treatment planning process.

The intent of the proposed study is to examine a proactive educational treatment planning process that will develop effective treatment programs for individuals with TBI. The study will analyze and formulate the steps necessary for a smooth transition into the school setting. It will demonstrate the importance of creativity, flexibility, and ingenuity in services and program delivery. It will illustrate the critical component of teamwork involving many individuals in the process of planning and implementing the program. This proposed study will be useful to school personnel as they prepare to assist students with school reintegration.

## Overview of the Dissertation

The importance of careful planning for the re-entry to the school setting cannot be underestimated. A smooth transition from rehabilitative care to the school setting is critical. Research investigating the reintegration plan must be developed and implemented. The focus of this dissertation is the phenomena of Traumatic Brain Injury and the issues surrounding a smooth reintegration into the school setting. The roles and experiences of the student, the parents and family, the educators, and the school-based clinicians will be explored. What happens in TBI and an in-depth view of TBI will be forthcoming to include: a description of the insult to the brain; the impact on the subject, family, and friends; description of medical care and rehabilitation, and descriptions of what typically occurs during the school reintegration process.

The suggestions of individuals who serve on the pro-active team facilitating the transition process will be reviewed. A description of how pro-active teams comprised of the student, the family, educators, and school-based clinicians work together to ensure successful school reintegration. Finally there is little in-depth academic evaluation in education curricula on brain functioning. The dearth of specificity in the learning process via mechanisms in the brain is found wanting. Few educators have received detailed information on brain functioning processes in undergraduate or graduate school. Therefore, when a student returns to school following a TBI few educational professionals are prepared for the task of reintegration. Successful reintegration can only occur when pro-active teams of family and professionals work together to ensure a smooth transition.

Chapter 1 of this dissertation provides an overview of the purpose and methods for this study. Chapter 2 will examine the issue of reentry and TBI through research literature. Chapter 3 will describe the methodology in depth and Chapter 4 will present the findings of the case study. In Chapter 5, conclusions will be drawn to suggest a proactive reentry plan with implications for practice and recommendations for future research.

## CHAPTER 2

### REVIEW OF RELATED LITERATURE AND RESEARCH STUDIES

#### Scope of this Chapter

Each student who has sustained a Traumatic Brain Injury suffers degrees of physical, emotional, psychological, social, and economical consequences. Consequently, the student and his family are changed forever.

The primary purpose of this chapter is to examine existing literature in the field of TBI and how it relates to the reintegration process. The central question for this review is: How can a student who has sustained a TBI experience a smooth transition from acute and rehabilitative care to the school setting? In order to provide background and to answer this question the following will be considered initially: (a) a description of what typically happens in a brain injury; (b) the affect on the student; and (c ) strategies to assist the family, and the school in reintegration efforts.

This chapter will synthesize selective research studies that provide insight to the case study central to this dissertation. In addition, conceptual issues will be discussed. Furthermore, this review will specify the need for continued research and a proactive methodology to provide a smooth transition for students returning to school following a traumatic brain injury.

Computerized data searches of ERIC, PYSCHINFO, and Dissertation Abstracts International were conducted. Additional sources regarding TBI students and school reentry were found in references located in texts, books, journal articles, and dissertations. Search terms used were traumatic brain injury, school reintegration, school reentry, planning, transition, brain injury, neuropsychological, treatment, instructional strategies, Americans with Disabilities Act (ADA), PL 101-476, and Individuals with Disabilities Education Act (IDEA) PL 94-142. The searches were limited to the period after the enactment of the federal special education law in 1975.

Key words used to find studies and sources reviewed and cited included but were not limited to traumatic brain injury and acquired brain injury, developing a proactive plan, transitional stages from rehabilitative care to the school setting, student functioning within the school setting, and application of a proactive model.

Although numerous scholarly treatises and diverse research have been forthcoming in the field of special education, there still is not sufficient pointed and conclusive research into TBI vis-à-vis the educational process. During the 1990s extensive literature was written on the brain and brain injury. Thus the 1990s is often referred to as the “Decade of the Brain.” Nevertheless, this decade produced minimal in-depth studies on TBI.

In order to gain a broad base of knowledge about TBI, academic studies and works of the following scholars were reviewed: Jean L. Blosser, Professor and Director of the Speech and Hearing Center at the University of Akron and co-author of *Pediatric Traumatic Brain Injury* (1997); Jeffrey S. Kreutzer, Associate Professor, Departments of Rehabilitation Medicine and Neurological Surgery, Medical College of Virginia and Paul Wehman, Professor, Department of Rehabilitation Medicine and Special Education, Medical College of Virginia, co-authors of *Community Integration Following Traumatic Brain Injury* (1990); Mary P. Mira, The Children’s Rehabilitation Unit, the University of Kansas Medical Center, Kansas City, Kansas; Bonnie Foster Tucker, Head Injury Association of Kansas and Greater Kansas City, Shawnee Mission, Kansas, and Janet Siantz Tyler, Department of Special Education, the University of Kansas Medical Center, Kansas City, Kansas co-authors of *Traumatic Brain Injury in Children and Adolescents* (1992).

In addition the following scholarly works were reviewed: Joan E. Finefrock, doctoral dissertation “Relationship between Traumatic Brain Injury Training and the Likelihood of Endorsing Proposed Best Practices: Transitioning the Student with Traumatic Brain Injury” (Doctoral dissertation, University of Akron, 1996) and Nadine Metro, doctoral dissertation “School Reentry after Traumatic Brain Injury: How the Child Neurologist and School Psychologist Can Ease the Transition.” (Doctoral Dissertation, Widener University, 1994)

#### Examining Studies

Finefrock (1996) presented a thorough examination of the relationship between TBI training and successful school reentry. The participants in this study were 72 special education directors from the Ohio public schools during the 1994-1995 school year. These directors had one or more identified TBI students in their school district. Special education directors were selected as participants because of the profound effect they have on the service delivery of children with disabilities. The survey instrument used in this study was a three-part instrument



developed to collect data from Ohio special education educators who documented the presence of student(s) with TBI's in their school districts. Respondents were asked to respond to each item twice. The first response was based on the special education director's perception of the extent to which each recommendation is present in their school setting. The second response was based upon the special education director's perception of the importance of the variable to the student with TBI in the school district. The usable response rate was 68%. As early as the development of Public Law 94-142, special education directors have been expected to develop a purpose for the children, develop learning communities, achieve high performance outcomes, and generate learning and decision making (Burrello & Sage 1979). The research design used in Finefrock's study was ex post facto. An ex post facto design was chosen because it contains an attribute or assigned variable that can demonstrate relationships, (Kerlinger, 1973).

The survey was designed to analyze the relationship between training and the use and perceived importance of recommendations suggested by leading researchers to be best practices in returning the TBI student to school. Based on the review of literature Finefrock (1996) identified the following 14 recommendations made by leading researchers: (1) designating a staff member to act as a facilitator; (2) obtaining medical records; (3) visiting the referring hospital or rehabilitation facility before the student is discharged; (4) providing TBI in-services for all involved in working with the TBI student; (5) including experts from the medical field in TBI in-services; (6) seeking input from medical experts pertinent to the education of the student with TBI; (7) involving the family in TBI in-services; (8) involving the rehabilitation and medical agencies in the development of the Individual Educational Plan (IEP); (9) providing TBI education for peers of the TBI student; (10) counseling the family regarding placement and educational issues; (11) having the hospital or rehabilitation facility provide ongoing follow-up after the student returns to school; (12) initiating communication with the medical setting before the student reenters school; (13) seeking family recommendations in the development of IEP goals; and (14) taking the physical layout of the school into consideration when planning the student's schedule and class selection. Additionally, Finefrock asked respondents to identify what barriers existed which prohibited a smooth reentry to school.

Finally, Finefrock (1996) stated that Blosser and DePompei (1994) present an exemplary ongoing planning procedure for TBI students. Their four-part procedure includes the following: (1) evaluation (maintaining ongoing multiple assessments from a variety of sources); (2)

preplanning (forming networks, obtaining medical and educational histories, observing a variety of contexts, assessing school's capabilities and availability as well as the student's performance and behavior, preparing staff, analyzing modifications; (3) implementation (taking action on plans, continuing to observe the student, self-evaluating teaching, providing supplementary materials); and (4) planning (seeking input from parents, teachers, rehabilitation professionals, specialists and administrators, discussing specifics of the case, describing current status, identifying the student's strengths and weaknesses, and discussing the school's capabilities and brain-storming to reach an ideal plan). In summary, Finefrock identified the key factors in transitioning a TBI student from acute and rehabilitative care to the school setting. These factors are increasing networking and increasing knowledge about TBI.

Metro (1994) explored the consequences of traumatic brain injury in children and their return to school. Metro further stated child neuro-psychologists and school psychologists can serve important roles in helping the student transition back to school and in providing ongoing support. Child neuro-psychologists and school psychologists who are experienced in working with traumatically brain injured students can appropriately assess and support the student and their family as the student reenters the school setting. Additionally, they can act as advocates for students in the school setting.

The participants in these case studies were two traumatically brain injured students. One was a female adolescent (age 16) who was the victim of a motor vehicle accident that impaired both receptive and expressive language. Mary (a pseudonym) was a tenth grade student at a private high school. She was an average student but an outstanding athlete (played on three school teams). She was an unrestrained passenger in a motor vehicle accident. Upon arrival at an acute care hospital she was classified as scoring 12 on the Glasgow Coma Scale (Appendix A). She was later transferred to a pediatric rehabilitation unit for evaluation and rehabilitation. Her most notable deficits were severe to moderate expressive and receptive aphasia. Mary was able to follow simple commands. However, expressive language was characterized by preservation of single words and neologisms. Her reading skills were also impaired. Mary was discharged from inpatient hospitalization after a two-month stay. She participated in a daily out-patient program at the same hospital for approximately one year. She then returned to the private high school she had previously attended with an abbreviated academic schedule and reduced difficulty of course level.

Unfortunately, Mary's private school was not entirely cooperative with the recommendations of the rehabilitation staff. Consultation from hospital staff was denied by the private school administrator and negotiating was employed to secure services of a speech therapist from an outside agency. Mary reported that school was not difficult despite the fact that she was now taking very basic level courses in order to graduate. She often experienced periods of depression and anger about the limitations of her recovery. In summary, Mary had to exert extraordinary effort to keep up with her peers academically, and it was obvious that the implications of the injury were profound.

The second participant (case study) was John (a pseudonym) a 10 year old fifth grade student. His academic history was remarkable for the number of programmatic shifts. He spent a portion of his first four academic years receiving home instruction. He attended an "alternative school" for much of the fourth grade and was then placed in a public school. John was outgoing, attention seeking, and often exhibited disruptive behavior. He was described as the "class clown." John sustained a severe closed head injury when he was struck by a car while riding his bicycle. He was unconscious at the accident scene. The CT scan revealed a left thalamic hematoma and depressed left frontal skull fracture. A follow-up CT scan showed post contusional change of the brain stem, left and right parietal subcortical regions. The initial neuro-psychological evaluation revealed a profound compromise of cognitive, linguistic, motor, and attention functioning. When John returned to public school, he was placed in a regular education classroom with a full-time aide. He received physical and occupational therapy and moved through the school by way of a motorized scooter. Severe behavioral problems were noted and included John "accidentally" driving into other students at school, using rubber bands as projectiles to sting male students, and inappropriately "brushing" against female students and female faculty and staff. Moderate to severe impairments persisted post injury. Motor impairment was the most pronounced in all motor areas -- fine, gross, and oral. His significant oral motor problems affected his speech, making it slow and dysarthric. Although intellectual functioning was generally within the average range, the ability to recall material over time was impaired.

The study was qualitative in design and the settings included acute and rehabilitative hospitals and private and public schools. Metro's (1994) findings revealed that an alarming number of children are affected by traumatic brain injury and the consequences of TBI are often

lasting and profound. Traumatically brain injured students can go unidentified and not receive the support and special services they need. Moreover, identified TBI students may not receive the support needed if rehabilitative facilities and the school do not work in concert to ensure a successful school reentry.

### *Perspectives on Brain Injury*

The largest killer and disabler of children is brain injury. It is estimated that brain injuries to children between birth and 19 years of age annually result in: (a) 7,000 deaths in children; (b) 150,000 hospitalization; (c) hospital care costing over \$1 billion; and (d) 30,000 children becoming permanently disabled (Savage, 1993, p.14). Additionally, brain injury occurs twice as frequently in males as it does in females (Tyler & Colon, 1994). The most frequent causes of TBI are related to motor vehicle accidents, falls, sports, abuse, and assault. More than one million children sustain head injuries annually. Approximately 165,000 require hospitalization. However, many students with mild brain injury may never see a health care professional at the time of the incident, (NICHCY, 1993 Vol. 18, p.6).

Federal statutes and literature have attempted to identify and clarify school-aged students who have sustained brain injuries. According to Savage and Wolcott (1994) Acquired Brain Injury can be described as follows (see Appendix C).

An acquired brain injury is an injury to the brain that has occurred since birth. It can be caused by an external physical force or by an internal occurrence. The term acquired brain injury refers to both types of traumatic brain injuries. Such as open or closed head injuries, and non-traumatic brain injuries, such as strokes and other vascular accidents, infectious diseases (e.g., encephalitis, meningitis), anoxic injuries (e.g., hanging, near-drowning, choking, anesthetic accidents, severe blood loss), metabolic disorders (e.g., insulin shock, liver and kidney disease), and toxic products taken into the body through inhalation or ingestion. The term does not refer to brain injuries that are congenital or brain injuries induced by birth trauma.

Acquired brain injuries result in total or partial functional disability or impairment that adversely affects educational performance. The acquired brain injury may result in mild, moderate, or severe impairments in one or more areas, including cognition; speech-language communication; memory; attention and concentration; reasoning; abstract thinking; problem

solving; sensory, perceptual, and motor abilities; psychosocial behavior; physical functions; and information processing.

Acquired brain injuries can be divided into traumatic and non-traumatic as follows (Savage & Wolcott, 1988): (see Appendix C).

#### *Traumatic Brain Injuries*

1. Open head injuries caused by accidents, falls, abuse, assaults, and surgical procedures that result in a penetrating wound to the brain
2. Closed head injuries caused by accidents, falls abuse, and assaults in which the skull and protective tissue surrounding the brain remain intact but damage to the brain comes from internal compression, stretching, or shearing actions

#### *Non-traumatic Brain Injuries*

1. Anoxic injuries caused by a reduction in the oxygen to the brain from anesthetic accidents, hanging, choking, near-drowning, severe blood loss
2. Infections of the brain, such as meningitis and encephalitis
3. Strokes and other vascular accidents
4. Tumors of the brain
5. Metabolic disorders that affect the brain, such as insulin shock, liver and kidney diseases
6. Toxic products taken into the body, including lead, mercury, crack cocaine, and other chemical agents, either ingested or inhaled

Efforts to clarify and classify brain injuries are helpful to both the educator and the parent. A brain injury may have a significant impact on the educational, vocational, and social life of the child. Since the brain is the center of learning it is necessary for educators to understand how students learn and what happens when learning does not occur.

#### *An Historical Perspective on Brain Injury*

Savage and Wolcott (1994) stated that in order to understand the brain and its functions it is important to look back in time. The function of the human brain oftentimes has been misunderstood. Aristotle (384-322 BC), the great Greek philosopher, thought the brain was a reservoir of fluids, thus, eyes cried, noses dripped, and mouths watered. Actually, at the time,

Aristotle's deductions of brain functioning made sense. During this era it was contemporary wisdom that blood was the essence of life. Therefore, when blood ceased flowing, the individual was dead. The ancient Egyptians opened the skulls of the deceased and discarded the brains. Later the "mummy's" skull was filled with jewels or mementos of the deceased. During the middle-ages individuals suffering from mental illness or seizure disorders had holes bored into their heads to let out the evil spirits. Later, in the middle 1800s phrenologists were "feeling" people's heads for "bumps." According to the phrenologists these bumps could indicate personality traits. In fact, phrenology became very popular. Phrenology charts of the brain indicated character traits such as honesty, responsibility, perseverance, etc. During the phrenology period one of the first medical terms to describe a brain injury was used -- "lame brain." This term made sense at the time, and "lame" is still used to describe an individual with an injured arm or leg or to imply intellectual deficiency. Unfortunately, today the term "lame brain" has a derogatory implication. Understanding the human brain progressed significantly during the twentieth century. Today the brain is clearly perceived as the superintendent of the body. Higher order thinking, memory, expressive and receptive language as well as vision, emotions, and autonomic body functions are controlled by the brain. It has been a challenge to physicians, psychologists, and educators as how to best define brain injury. Smith, (1983), presented a historical perspective in this evolving understanding. She noted the following:

In the 1930s, Werner and colleagues worked with many mentally retarded children whose learning problems were traced either to biological events or to childhood accidents. They defined a brain-injured child as "a child who before, during, or after birth has received an injury to, or suffered an infection of the brain." Other educators and psychologists classified brain injury as organic drivenness (Kahn & Cohen, 1934), minor brain damage (Strauss & Lehtinen, 1947), organic brain disease (Bender, 1949), organic brain damage (Bradley, 1957), or minimal cerebral damage (Smith, 1959). (p 42)

In the late 1960s, the term brain injured most often was reserved for children for whom a label could be validated, i.e. cerebral palsy, hydrocephalus, etc. However, there was still another group of children, who were not mentally retarded or brain injured, of average or above average intelligence that were not academically deficient. These children in many cases had experienced minimal brain damage. The term minimal brain dysfunction which was used later evolved into the term learning disabilities. Over time, clearly identifying brain injuries through causal

determinants has been difficult.

According to Savage and Wolcott (1988) brain injuries that occur prior to or during the birthing process are defined as congenital; those that occur following birth are viewed as acquired (see Appendix D). Injury, disease, deformity, underdevelopment, and/or environmental factors may all contribute to brain dysfunction. Some brain injuries before or after birth can be caused by nearly identical circumstances. Neurotoxic poisoning by lead or substance abuse can occur before or after birth. Many times pregnant women unknowingly traumatized a fetus resulting in brain injury to the newborn. The aforementioned factors causing brain injuries and the subsequent following causal conditions of these brain injuries are indeed challenges to the educational community.

Throughout history terms have evolved that describe brain dysfunction. Many of these terms have been unscientific and derogatory. Terms such as congenital brain anomalies, head injury, organic brain damage, and minimal brain dysfunction are but a few that have been used historically without consistency in defining brain injury. Fortunately in recent years public law has defined traumatic brain injury. But, unfortunately, planning and instruction on the educative complexities of TBI has lagged behind.

### *The Contemporary Challenge: Programming for Students with Brain Injury*

Many children with moderate or severe brain injuries receive both acute care and rehabilitation intervention before returning to school. However, these children often need care long after this period. Even a child who has received a mild injury may experience residual cognitive and behavioral changes requiring the introduction of alternative approaches to learning in the classroom. Children may return to school in a normal condition but experience a number of subtle difficulties with memory learning, attention, or sensory processing (Bell, 1994).

In 1990, TBI was added to the list of disabilities that may qualify a student for special education services under the Individuals with Disabilities Act (IDEA). Local school districts and individual teachers faced with the prospect of a student returning to school following a TBI are confronted with a challenge. School personnel must recognize that a student who has sustained a TBI is part of a unique population.

Students who have incurred a TBI need individualized programs and strategies to assure their success in learning. Since no two brain injuries are alike, students with TBI are not exactly

like students with other types of disabilities. There are distinct differences that should be considered when planning for students with TBI. TBI is not a static condition. The healing process of the brain is ongoing therefore, changes may occur at various rates. Moreover, students may experience difficulties during different phases of development (Gearing & Carey, 1992).

### *Brain Functions and Brain Injuries*

It is important to be able to identify the various parts of the brain and its functions. The sections of the brain and the related functions are listed below:

1. *Frontal Lobe:* Higher order thinking motor response memory
2. *Temporal:* Memory, Expressive Language
3. *Parietal Lobe:* Receptive Language
4. *Occipital Lobe:* Vision
5. *Brain Stem:* Autonomic Body Functions

A TBI is an insult to the brain. It is caused by an external force that produces diminished consciousness or coma. When the skull is penetrated, the damage to the brain is called an open-head injury. Open-head injuries tend to be more localized than those sustained in a closed-head injury. The tissue damage is usually concentrated in the path of the intruding object (Straighen & Gregory, 1993).

Closed head injuries are far more common than open head injuries. The predominant damaging force, in a closed head injury, is that of impact. The blow at the point of impact is called the coup. The contusion and laceration is located at the coup. However, the damage is not always confined to the point of impact, but occurs in the area called the contrecoup (1993).

### *What Happens in a Brain Injury*

The brain is surrounded by cerebrospinal fluid and is encased in a bony skull which provides protection. When a TBI occurs, the force of the acceleration and deceleration moves the brain rapidly within the skull (Blosser & DePompei, 1994). This rapid movement can result in the following types of brain damages as described by Blosser and DePompei, 1994, p 16):

1. *Coup-contrecoup:* The damage can be localized (or focal) to the area at the point of impact (coup). A second focal injury (contrecoup) can occur as the brain bounces from the point of impact to the opposite side of the skull.
2. *Focal contusions:* There are bony projections within the skull. When the brain is



accelerated rapidly it can be pushed into these bony protuberances. Bruising and an increase of blood or fluid will occur. This can lead to hemorrhage and formulation of blood clots.

3. *Diffused axonal shearing*: The brain is floating in cerebral spinal fluid, it moves slower than the skull. The brain rests on the brainstem similar to a flower on a stem. Twisting and swirling movements can produce a forcing together of tissues, or pulling apart of tissues and a tearing or shearing of axonal fibers. Diffuse axonal injury often results in coma. Diffuse axonal injury is a major contributor to overall cognitive damage.

There can be secondary complications after an initial injury. They include the following: edema, hypoxia, hemorrhage, or hematoma and seizures. All complications contribute to a diminished level of brain functioning.

#### *What Happens After a Brain Injury*

Blosser and DePompei (1994) state a variety of physical, social, behavioral, cognitive, communicative, and emotional problems can occur in individuals with TBI. A list of characteristics that can occur in individuals with a head injury appears in Appendix E. These types of impairments can occur in a number of combinations but no two individuals will demonstrate the same patterns. All complications contribute to a diminished level of brain functioning. Also, communication process may be impaired or observable in individuals with a traumatic brain injury. According to Blosser and DePompei (1994, p. 20) these include:

*Attention*: The ability to maintain awareness long enough to respond to a stimulus. Often children and adolescents have poor vigilance and are unable to sustain attention long enough to respond. Dividing attention in the presence of two or more stimuli also is a frequent problem. Attention is critical to the assessment and intervention process and must be a primary consideration of language competencies after a TBI.

*Long-Term Memory*: The ability to mentally record and store events, feelings, actions and reactions, and then recall them as needed. Semantic and episodic memory skills may be lacking after a TBI.

*Short-Term or Working Memory*: Information that is not stored, but is used to process and appreciate stimuli, allowing the ability to follow directions or hold information in

memory long enough to act on it. Short-term or working memory is often impaired in TBI. This has an impact on the ability to follow directions in school or work and is often the type of memory problem that is the most difficult for persons with TBI.

*Executive Functioning:* The ability to self-analyze and monitor and to set goals and determine success measures. Executive functioning develops throughout childhood. TBI can interfere with the development of self-awareness and insight and, therefore, affect executive functioning.

*Reasoning and Problem Solving:* The use of a series of steps to arrive at a solution. Traumatic Brain Injury can interfere with the natural development of deductive, inductive, and analytic reasoning in children.

*Anomia:* Difficulty with word retrieval or naming tasks. This can be caused by poor memory, inappropriate processing, lack of vocabulary development over time, or weak categorization and association abilities. Many children and adolescents with TBI demonstrate this characteristic.

*Hyper verbal Speech:* Inappropriate control of the conversation by maintaining long spoken sentences containing little relevant content. Poor pragmatic skills, inability to recognize or react to other's nonverbal communication, or lack of self-monitoring skills are often present.

*Tangential Speech:* Inability to remain on a specific topic or to return to a topic area. Poor pragmatic skills, including topic drift during conversation or narrative discourse, as well as inability to recall may be seen.

*Confabulation:* Untrue aspects of connected speech, story telling or filling in information. This may be attributed to memory impaired for recalling actual information.

*Expressive Speech or Language Problems:* Children may exhibit difficulty formulating phonemes, words, or sentences after TBI. Motor impairment may be present, dysarthria (difficulty in forming words or speaking them because of weakness of muscles used in speaking) or cognitive processes maybe impaired, and the ability to recall and retrieve words or formulate sentences may be problematic. Effects of this difficulty can extend to the printed work and affect both reading and writing.

*Receptive Language Problem:* Inability to follow directions, process auditory information. Central auditory processing or attention difficulties can create receptive

problems. Additionally, peripheral hearing loss may occur and always should be evaluated as a possible contribution to receptive problems.

*Cognitive-Communicative Disorders:* The American Speech-Language-Hearing Association (ASHA, 1988) defines cognitive communicative impairments as, “Those communicative disorders that result from deficits in linguistic and non-linguistic cognitive processes” (p. 79). ASHA further states that there are many cognitive processes that underlie language development. When these processes are impaired, deficits in language will be the outward manifestation reflected by the underlying problems.

Cognitive-communicative impairments are the predominant language problem related to TBI, (Blosser & DePompei, 1994). Children and adolescents with TBI display ineffective learning and performance at home, school, or in the community. They also display poor social interaction. These impairments often lead to unsuccessful reintegration with family, peers, and the community.

The most common symptom indicating damage to the brain following a head injury is an altered level of consciousness, ranging from lethargy to coma (Tyler & Colon, 1994). There is extensive literature available describing recovery from a coma. Two of the most widely used recovery scales are the Glasgow Coma Scale (Jennett & Teasdale, 1981) and the Ranchos Los Amigos Scale of Cognitive Functioning (Hagan & Malkmus, 1979) (see Appendix F). The Glasgow Coma Scale is described in Appendix A.

### *Coordinating Educational Programming*

TBI has unique and varied impairments. Many disciplines and professionals are involved in service delivery. Health care, rehabilitation, and education professionals must respond proactively. Problems that arise as a result of the injury should be identified, anticipated or responded to, or prevented by treatment planners (Blosser & DePompei, 1994). Proactive planning acknowledges the importance of family, peers, teachers, professionals, and facilitators of reintegration.

Treating a student who has a brain injury, understanding TBI, and developing a plan to implement treatment is crucial to the school reintegration process. It is important for teachers, therapists, clinicians, rehabilitation professionals, and health care professionals to gain a clear understanding of children with TBI. If professionals can recognize the uniqueness of this

population, better programs can be provided for these students. It is important for clinicians and teachers to use effective and appropriate interventions to help these children and adolescents reach their potential. The manifestation of teamwork among educators and rehabilitation professionals is the key to maximum brain functioning of a student with TBI. Furthermore, teachers, clinicians, rehabilitation professionals, health care professionals, and family members must all work as a team to help children and adolescents who have sustained a TBI.

According to Farmer et al, (1996), it is critical that coordination among medical professionals, educators, and parents occurs to ensure the smooth transition for students returning to the school setting following a TBI. The public school system is by far the largest provider of services to students with TBI. Yet few educators have an understanding of the complex and unique issues facing this growing population. Most educators are unprepared to meet the needs of these students (Blosser & DePompei, 1991). Typically, a student who has sustained a TBI receives acute and rehabilitative care. This rehabilitative care following injury may include daily physical, speech, and occupational therapies. The level of services provided by schools may be disappointing to parents. Many school divisions can only provide services with therapists, and in some smaller school districts in which therapists serve large geographic areas, the level of service is diminished further. Additionally, TBI students pose a unique challenge to educators. According to Tyler (1997), as a result of their injuries, these students demonstrate a variety of cognitive, behavior and physical impairments that often require specialized educational programming. Unfortunately, even educators with special education backgrounds often have little or no knowledge about students with TBI. Teachers lack experience with TBI students because only since the 1970's have advances in medical technology made it possible for many children with severe brain injuries to survive and return to school. Furthermore, information regarding TBI has not been routinely included in the curriculum of teacher preparation programs. As a result of not having received training in TBI the learning and behavior problems displayed by TBI students may be mistaken for other disabilities. Even if the student is identified as TBI, educators are often ill prepared to meet their educational needs. Therefore, the typical reentry scenario would include a TBI student that is ready to reintegrate from rehabilitative care to the school setting and a school division that is ill prepared for the transition.

Effective collaboration and communication between family and professionals is essential.

A lack of communication can lead to ineffective planning, inappropriate educational placement, and inadequate educational services. Family, professionals, administrators, educators, and site-based clinicians have to affect the reintegration process. To achieve a successful reentry all personnel involved in the process should work in concert and in a positive manner. Family members and school personnel set the tone and climate for the collaborative proactive team. A proactive team approach defines the roles and responsibilities of family members, administrators, educators, and school-based clinicians. The team approach illustrates how communication between the family, the student, the school, and the community can assist with a smooth transition to the school setting. The student is the central focus of the proactive collaborative team.

The team should determine and define the situation and then define the team's mission. The next step is planning and execution with all of the various components i.e., administration, communication, problem solving, coordination, and assignment of tasks. Each team member shares expertise and makes contributions. Typical members of the proactive team would include the following: family members, medical and professionals (physician, nurse), educational professionals (regular or special education teacher, psychologist), rehabilitation professionals (speech-language pathologist, physical therapist, occupational therapist). Other collaborating professionals may include an administrator, social worker, counselor, tutor, instructional assistant, support groups, case managers, and resource specialists. There are several advantages to implementing this proactive team approach for students with TBI. Multiple service providers work in concert to coordinate instructional strategies. Teachers (generalists) will feel supported as they embark upon this experience of instructing students with unique problems. Smooth transitions from class to class and grade to grade will occur. Additionally, all of the members of the proactive team will benefit from gaining knowledge and insight regarding traumatic brain injury. Two types of collaboration should occur, one between the school and team members, and the other between the family and other resource persons. The proactive team should consider the following: establishing and maintaining frequent communication between family and professionals, determining ways to access a variety of available services, and developing ways of sharing the progress the student is making.

Families should be actively involved in the intervention process. Blosser and DePompei (1994) refer to the work of Winton, Craio, and Urbano, recommending specific strategies based

on their work with the families of infants and toddlers with developmental disabilities. They suggest the following strategies to be used by families: (a) involve families as equal partners in the assessment, planning, and intervention process; (b) assist families with decision-making skills while protecting their rights and wishes; (c) encourage families to express their emotions about their child's disability while listening attentively and responding meaningfully; (d) recognize the individuality of families and adapt services to meet those needs; (e) recognize the family's goals and priorities while acknowledging their strengths and needs; (f) provide necessary information to families in terminology that is easily understood; deliver services following coordinated and "normalized" approaches; (g) assist families to access support groups; and (h) allow sufficient time to work with families and assist with treatment programs (see Appendix G).

Additionally, an Individualized Family-Peer Intervention Plan (IF-PIP) similar to an Individualized Education Program (IEP) is useful for defining how each meeting with family or peers should be implemented. Appendix H shows a sample of this plan. Each plan should include the following: family and peers to be involved; educational format to be employed; family characteristics and needs; goals; topics to be covered; method of evaluation of sessions and means to determine need for future sessions.

Providing a plan to work with each family or group of peers may be challenging for a number of reasons. Each plan must be individualized similar to an IEP. Secondly, resources such as the professional's time and financing this planning and implementation may be limited. Finally, families and peers may be selected on the needs and the willingness to participate.

The family can provide critical information regarding the child's performance at home. The family should always be considered an equal partner on the proactive team. Blosser and DePompei (1994) state that family members need to be especially well prepared for their roles as equal team members in planning school reintegration and service delivery. It is important for professionals to help family members understand the pivotal role they can play in planning for effective programming for their child. Family members should be prepared to explain the extent of the injury, the child's current status (post injury), educational history (pre-injury), rehabilitation status and reports, residual strengths and weaknesses, and functional skill areas that are impaired. Moreover, families need to have a positive approach to the problem (see Appendix I). Families need to have a clear understanding of the structure of the local school

district, special education procedures, timelines, staff, and the school division's ability to provide services. The best way to obtain information about the school division and the school is to visit the school division and speak with the appropriate personnel.

Parents need to be coached in ways to make inquiries, express concerns, and assess services (see Appendix J). Parents should be encouraged to become advocates for their child with TBI and to take a leadership role in the planning and implementation of services for their child. Professionals should refrain from using medical jargon and proactive team meetings should occur in a quiet professional, unrushed, and distraction-free atmosphere.

The results of a TBI can be devastating. The psycho-social condition of the student, parents, and family are changed forever. The TBI student who is reentering school presents a variety of challenges that requires the expertise of a host of educators.

#### *Pro-Active Planning in an Exemplary Model*

The following four phases of proactive planning recommended by Blosser and DePompei (1994) enables planners and professionals to systematically plan interventions. These interventions will provide an ongoing program of maintenance and improvement. Appendix K illustrates the Proactive Planning Process.

1. *The Pre-Planning Phase* comprises the following elements: (a) form inter-professional and interagency networks; (b) collaborate with family and significant professionals; (d) obtain medical and educational histories; (e) assess performance; (f) clearly describe behaviors (strengths, needs); (g) analyze demands, expectations in various environments, situations; (h) observe performance in various contexts; (i) assess capabilities of the environment (staff, competencies, resources, motivation) (j) analyze modifications necessary; and (k) prepare staff and others in environment to understand, problem-solve, and assist.
2. *Planning Phase* includes the following components: (a) gather and collate information from family, teachers, rehabilitation professionals, specialists, health care providers, and administrators; (b) discuss history; (c) describe current status; (d) summarize anticipated demands and potential problems; (e) indicate expectations, fears; (f) explore strengths and talents; (g) identify needs and recommendations of modifications; and (h) brainstorm an ideal plan.

3. *Implementation Phase* includes the following components: (a) take action on plans; (b) observe the child's behaviors, performance, and responses; (c) self-evaluate interactions, behaviors, use of strategies and procedures; and (d) supplement instructional materials with additional resources and technology.
4. *Evaluation and Improvement Phase* includes the following components: (a) interweave implementation strategies into all interactions, learning, working, and playing situations; (b) maintain ongoing observation; (c) reassess only if necessary; (d) continuously gather information from people in the child's environment; and (e) collaborate to determine need for program revision.

Moreover, an Ecological Model of Educational Environments adopted from Urie Bronfenbrenner (1996) illustrates the home as the nucleus and the classroom, school, district, and medical community as subsequent levels. Bronfenbrenner (1996) described what he termed the "ecological structure of the educational environment" (p. 63). The levels he developed provide a useful structure which illustrates the school environment that a returning TBI student would face (see Appendix L).

### *Reintegration*

There are a number of relevant issues that should be assessed when proactively planning for the children and adolescents with TBI. The list should include the following: (a) medical history; (b) developmental history; (c) effects of medication on performance; (d) educational and work history; (e) test environment; (f) timing of assessment; (g) redundancy across agencies; (h) use of consumer advocates; (i) recognition of strengths of individuals; and (j) involvement of family members. Proactive planning should also include the formal and informal testing opportunities focused on the following areas: (a) attention; (b) motor skills; (c) language; (d) reasoning; and (e) executive functioning (Blosser & DePompei, 1994).

Returning to the school setting is a great challenge to the student with TBI. A smooth transition is critical. Medical and rehabilitation staff, school personnel, and family need to work collaboratively to ensure a smooth transition. A comprehensive school reintegration plan should have participatory input from all in The Reintegration Team (TRT) – the student, the parents and family, the educators, and the school-based clinicians. The following recommendations by Blosser and DePompei (1994), may serve as a guide to all involved with the reintegration



process:

*The School Reintegration Planning Guide*

I. Prior to Returning to School

- A. Identify one individual at each facility, who will serve as liaison and coordinator of networking. (Make the decision jointly with family).
- B. Follow all established school policies and procedures for exchanging information and communicating with other agencies.
- C. Schedule a meeting to discuss plans for the student. Invite family members and people who have been involved with the student's rehabilitation as well as former and new educators.
- D. Compile as much information about the student as possible based on comments from family and friends, test data, and observations.
- E. Establish a plan for exchanging information, educating one another, and developing an effective reintegration plan.
- F. Learn about the student's present status (including impairments, strengths, needs, interests).
  - 1. Obtain medical and rehabilitation records.
  - 2. Investigate the medical aspects of the injury (nature and extent of damage).
  - 3. Construct a record of treatment history and progress.
  - 4. Generate a profile characterizing the student's skills and capabilities as well as needs at the time of reintegration. (Update as frequently as changes occur).
  - 5. Identify the physical, cognitive-communicative, and social behaviors that are likely to interfere with learning and social activities at school.
  - 6. Obtain samples of the student's work that are representative of current capabilities and levels of performance.
- G. Relate information gained to the general requisite needs for educational success.
  - 1. Discuss characteristics of the school and various class settings, including expectations for performance, routines, learning materials, and classmates.
  - 2. Determine the student's readiness to participate in school activities based on

- the recognized demands of the educational setting.
3. Discuss options and educational choices available to the student.
  4. Strive for a high level of inclusion.
- H. Evaluate the school's readiness and capabilities for meeting the student's needs at the time.
1. Discuss applicable school policies and procedures regarding meeting a student's special needs (including special education and related service options, eligibility criteria, and staff capabilities).
  2. Make arrangements for pertinent assessments to obtain information for educational planning.
  3. Determine obstacles that may interfere with successful reintegration. Look at the student critically from the perspective of program offerings, personnel, and so on.
  4. Search for the most appropriate class selection and personnel.
  5. Determine how to modify, eliminate, or reduce the obstacles. Establish objectives (for the environment, the educators, and the student).
- I. Search for the most appropriate classes and personnel to meet the student's needs. Consider several critical elements:
1. Review the instructional objectives associated with the selected class.
    2. Determine if the objectives are compatible with the student's capabilities and long-term needs.
  3. Analyze the socialization characteristics, demands, and needs.
  4. Observe the classroom climate and environment.
  5. Evaluate the teacher's willingness to learn and the level of understanding of children with a Traumatic Brain Injury.
  6. Determine if key educator characteristics are present including: flexibility, acceptance, patience, supportive attitude, competence, and repertoire of teaching techniques.
- J. Prepare an Individualized Education Program (IEP) addressing the student's needs

and confirming specific recommendations for modifications of the environment and techniques educators and others can use to help the student.

II. After the Reintegration

- A. Maintain an ongoing communication about the student's performance through an organized flow of information.
- B. Look ahead to the next stages in the student's educational experience. Determine other educators who will be involved. Formulate a plan for preparing them to meet the student's needs.
- C. Develop peer support systems by educating peers, altering them to the student's problems and ways of helping, and providing opportunities for involvement in extracurricular activities.
- D. Gather family and personnel who have been involved with the student. Summarize the student's performance and the overall success of the reintegration.
- E. Decide what program aspects can be changed, eliminated, or increased to enhance future potential of program.
- F. Prepare a transition plan to enable proactive response to situations to be encountered (Blosser & DePompei, 1994).

The methodology described in Chapter 3 draws upon the literature cited in Chapter 2. Voluminous material relating to brain injuries and the school reintegration process was perused and researched. However, only that which was cited in Chapter 2 was directly germane to the methodology cited in Chapter 3. The statement of the problem, purpose of the study, research questions, significance of the study, conceptual framework, type of design, data collection procedures, and presenting the results in Chapter 3 were all gleaned from the research presented in the review of literature in Chapter 2.

## CHAPTER 3

### METHODOLOGY

#### Statement of Problem

According to NICHCY, 1993 Vol. 18, p.6, over one million head injuries were sustained by children annually in the United States. These Traumatic Brain Injuries were the leading cause of death and disability (NICHCY). Unfortunately, more than 16.5% of the brain injuries were serious enough to require some type of hospitalization. Statistically, over 83% of these adolescents rarely seek medical attention at the time that the injury is sustained or thereafter. Consequently, there were different degrees of impairments that may go unnoticed in the 83%. The term, TBI, as used in this study does not apply to congenital or degenerative brain functions, or injuries concomitant with birth trauma. TBI is an acquired injury caused by external traumatic force. Head injuries can be open or closed. The resultant data from these injuries can be manifold. These impairments can range from various psychomotor disturbances, speech abnormalities, psychosis, compulsion, transference, dissociation to lack of memory, attention, abstract thinking, motor ability, speech, and problem solving. Obviously, these conditions and others associated with TBI adversely affect a child's educational performance (see U.S. Fed Register, 57 (189) Sept 29, 1992 p. 401-1-3).

This dissertation is not a mechanistic endeavor. The empirical research conducted is hopefully accompanied by logical thinking. Because of the subject matter, methodology in data collection, and design unit, the research will be qualitative not quantitative in scope. As in most case studies where the investigator has little control over events within a contemporary phenomenon "how" and "why" questions will be posed. The case study strategy incorporates design analysis and reporting issues as well as data collection and some fieldwork. Moreover, this case study is exploratory rather than explanatory or descriptive. This study was conducted by design as a single case study to investigate a research issue. Through the phases of design, data collection, analysis, and reporting this case study investigated holistic and germane characteristics of reintegration into a public school setting of a student who has sustained a TBI. Ostensibly, when conducting "how" and "why" questions as the preferred methodology in examining conterminous events where relevant behaviors cannot be manipulated, direct

observation and interview procedures became the foci of the empirical inquiry. This case study deliberately covers contextual conditions as opposed to a controlled laboratory environment.

This exploratory single case comprehensive research study is driven solely by contemporaneous variables rather than data points. This is as designed by the very fact that the study deals with contextual conditions. The investigation of this specific empirical topic was conducted within specifically set, systematic procedures. Due to the aforementioned effects of TBI the problem arose as to the strategies necessary to successfully reintegrate a student into the school environment. Linear Analytic is the standard approach for composing research reports. The sequence of subtopics involves the issue or problem being studied, a review of the relevant prior literature, the methods used, the findings from the data collected and analyzed, and conclusions and implications from the findings.

#### Purpose of the Study

The purpose of this inquiry is to present a linear-analytic exploratory single case study depicting a student who sustained a Traumatic Brain Injury and illustrating his reintegration to the public school setting. Data was collected through interviews, observations, and documents. The case study examined the question is there a need for the development of an educational system-wide proactive reintegration plan which will ensure a smooth transition from rehabilitative care to the school setting. For clarity of purpose the phases of analysis and design in the study lend themselves to a definition and explanation of the disability category known as TBI.

#### Research Questions

Yin (1994) stated that defining research questions are probably the most important steps to be taken in a research study. It is important to understand that research questions have both substance and form. Therefore the “how” and “why” questions were to be the focus of the study and these questions were asked about a contemporary set of events over which the investigator had little or no control.

The substance of the research question that guides this study is the following:

How can a system-wide response facilitate the school reintegration process for a student who has sustained a TBI? Additionally, this study explored how one school system responded to the reentry of a student with TBI.

The central question relates to the development of a proactive model that ensures a smooth transition. Sub-questions of this study included the response of one school division, exploration of the roles, experiences, and suggestions of individuals involved in this transition process:

1. How did one school division respond to the reentry of a student who had sustained a TBI?
2. How did the following participants describe their roles and experiences in the transition process?
  - a. the student
  - b. the parents and family
  - c. the educators
  - d. the school-based clinicians
3. How did they describe conditions as either barriers or facilitators to reintegration?
4. What were the reasons and rationale of the above individuals in deciding what methods were more facilitative in the transition process?

The research strategy showed the schematic efforts of one school division to reintegrate a TBI student and the suggestions that were made from the data. The sub-questions of the study examined the transition process, the roles and experiences of the participants, the suggestions of the individuals facilitating the transition process, the conditions that served as the barriers, and how teams composed of the student, the families, educators, and school-based clinicians worked together to ensure a smooth transition. The aforementioned research questions contain the guide to the substance and form of the exploratory case study.

### Conceptual Framework

It is imperative that a Proactive Plan continually be revised in order to accommodate changes in environment, skills, adaptation, particularities, and changing situation of the TBI student. Blosser and DePompei's incisive guide for the aforementioned has been incorporated in this study. Preplanning is the crucial step in any reintegration process. It is the building block for eventual success in evaluating one's modus operandi and the interweaving of implementation strategies. Ostensibly, a fine-tuned preplanning process is essential to the development of a workable plan. During the planning phase the team members analyzed the information gleaned

during the pre-planning phase. From this information, strategies were forthcoming to enhance the student's reentry. All collected and collated student information was examined including but not limited to the following: the history, the current status, the anticipated demands, the potential problems, the expectations, the strengths, the talents, the needs and the recommendations for modifications. The implementation phase was a dynamic learning curve for all participants and the student. It was the time to observe the student's performance and responses. In this regard, strategies and procedures were honed whereby additional resources and instructional materials were supplemented.

Evaluation was an iterative process whereby improvement on the plan was continuously reviewed as to workability, strategy selection, modification, and possible elimination of nonviable goals. As various scenarios occurred, flexibility in addressing goals was paramount. According to Blosser and DePompei (1994) as a child progresses from the hospital through rehabilitation into school and in various transitional situations, the planning process can be maintained on a continuous basis. This will support an ongoing program maintenance and improvement.

### Significance of the Study

Kramer and Blacher (1997) stated that children with TBI demonstrate a complex number of neurological impairments that have a profound impact on their current adaptability as well as on their future level of functioning. However, regardless of the degree of neurological impairment, the TBI student will eventually leave the hospital or rehabilitation facility and return to the school setting.

The study emphasizes proactive strategies that facilitate the transition to the school setting. A proactive plan provides the steps necessary to ensure a smooth transition by the use of creative, flexible, and substantive empirical modus operandi of program delivery. This proposed study will be intrinsically useful to the student, family, educators, and school-based clinicians as they assist students with school reintegration.

This case study is intended to generate a keen awareness among educators and general public interest in educating students with TBI. Although not a complete revelatory case, the study reflects a real-life situation as well as an urgent need for a comprehensive school proactive reintegration policy and plan for students with TBI. The boundaries in this study were

established as a function of the phenomenon studied and its context, the collection of relevant evidence, and the type of design. The in-depth examination of pertinent evidence was conducted in ways that minimize bias and that capture cultural views, and other perspectives. Critical evidence contained in the study is presented neutrally; a personal research matrix was developed in order to check the validity of the evidence. According to Yin (1994) simplicity and clarity are the additional aims of case study research.

### Assumptions and Rationale for a Qualitative Study

#### *The Type of Design*

The study is qualitative in design and utilizes a linear-analytic single case study. This case study allows the investigation to retain the holistic and meaningful characteristics of real-life events. According to Yin (1994) the rationale for conducting an exploratory study is to develop pertinent hypotheses and propositions for further inquiry. The linear-analytic structure in research examines the sequence of subtopics of the problem being studied, a review of the relevant prior literature, the methods used, the findings from the data collected and analyzed and the conclusions and implications from the findings. There are no propositions in this exploratory study. The unit of analysis is the subject student who has encountered TBI. Therefore, this case study is analogous to a single experiment. It is unique in the sense that a particular individual with a particular brain injury was reintegrated into the school system. One may question how an interviewer will deal with decade-old memory of those interviewed. A similar methodology, as the legal evidentiary process in a court case was used to garner evidence, factual knowledge, and event chronology in this case study. In so doing the onus was on the interviewer to be able to verify factual matters. In addition, circumstantial matters/evidence may or may not be corroborated by the interviewer and other interviewees. The research and present empirical knowledge of the interviewer was germane in analyzing information gathered in the interview process. By using a holistic approach of the interview protocol, the interviewer's knowledge of selected facts and interviewer techniques aptly applied were to a great degree offsets to "decade-old memories". However, it has been previously noted that this was not a complete revelatory case study. Nevertheless, this case study fits most criteria for a linear-analytical exploratory single case study.



### *The Researcher's Role as a Participant Observer*

According to Yin (1994) participant-observation is a special mode of observation in which the researcher is not merely a passive observer. Instead, the researcher may assume a variety of roles within a case study situation and may actually participate in the events being studied. Participant-observation provides certain unusual opportunities for collecting case study data. The researcher can gain access to events or groups that are otherwise inaccessible to scientific investigation and the researcher may have the ability to perceive reality from the viewpoint of someone “inside” the case study rather than external to it. Additionally, the participant-observer may have the ability to manipulate minor events such as calling a meeting of a group of persons in the case study. Only through participant observation can such manipulation occur. These manipulations can produce a greater variety of situations for the purposes of collecting data. The major problems related to participant-observation have to do with potential biases produced. The researcher may, at times, have to assume positions or advocacy roles contrary to the interests of good scientific practices. The participant-observer is likely to become a supporter of the individual or group being studied. Finally the participant-observer may not have sufficient time to take notes or to raise questions about events from different perspectives. The aforementioned opportunities and problems have to be considered seriously and therefore I maintained a daily research journal.

The Daily Research Journal consisted of a chronology of who was interviewed, what they said, particularly those comments that could be considered “out of the box” (KM 81JO). For ease of referral, a guide was used consisting of who, what, when, where, comments, notations of others, and documentation that would “back up” any information already known or received that day. Personal notes were inscribed as to the researcher’s belief in veracity, competence, professionalism, proficiency, attitude etc. of all sources of information – in other words a diary by the researcher for perusal over the span of the research that would give insights into the strengths and weaknesses of the school division in the reintegration process.

The researcher attempted to link any daily information gathered with the Review of the Literature (Chapter 2) and the references as outlined in this dissertation. For instance, the first reference, Adamovich, B., Henderson, J., and Augerbach, S. (1985). *Cognitive rehabilitation of closed head injured patients* San Diego: College-Hill Publications, would be numbered one (1).

The remaining references would be numbered sequentially until the last reference numbered ninety nine (99), Ylvisaker, M., and Szekeres, S. (1998) *Management of the patient with closed head injury*. In R. Chapey (Ed.), *Language intervention strategies in adult aphasia*. (pp. 474-490). Baltimore: Williams and Wilkins. For instance, if the researcher wanted to link information with Janus, P. L. (1994), *The role of school administration* Texas: Pro-Ed., the researcher would enter number forty (40) next to that specific information. In this way the journal became an instrument of ready reference to the literature that the researcher was already familiar.

### *Interview Protocol*

The Interview Protocol as reflected in Appendix N consisted of 6 tables which were utilized to gather and analyze data pertinent to this case study. Table 1, a Reflections Letter, was mailed to prospective interviewees in order for them to consider and prepare for the follow-on in depth interviews on the planning and implementation of the reintegration to school of a student with TBI. The letters gave the interviewees a “heads up” on 13 topics concerning Larry and 5 topics regarding the various aspects of his reintegration. Table 2, Interview Protocol, posited numerous questions to the interviewees which were tabulated in Table 3, Investigative Query. The Investigative Query was formatted so that the interviewee’s responses could be easily collated by Blosser and DePompei’s categorization of preplanning, planning, implementation, and evaluation.

Table 4, Investigative Query Addendum Sheet, was used as an adjunct to the Investigative Query in the event that an interviewee had substantial remarks on one or more of the preplanning, planning, implementation and evaluation (PPIE) categories in the Investigative Query. These remarks were transcribed from the taped interviews to the Addendum Sheet. Table 5, Expected Evidence, formatted to Blosser and DePompei’s plan provided columns to record, document, and interview information. For example the preplanning phase included some of the following statements: form inter-personal and interagency networks and collaborate with family and significant professionals. This was easily recorded in the columns denoted as documents and interviews. Table 6, The Journal was merely a tool set up to be an adjunct to more readily handle all information garnered in the research. The Journal was designed to link daily information in the least cumbersome manner. The overwhelming majority of the data in tables 1 through 5 were categorized and tabbed in a binder for ease of access and referral. This binder

was my working informational resource for this study.

As the researcher I have 32 years experience in public education: 18 years as an elementary general education classroom teacher, 8 years as an elementary and secondary assistant principal and 6 years as a central office administrator. My responsibilities and experiences at the administrative division-wide level have included supervising the following programs: Title I, Head Start, Pre-Kindergarten, Kindergarten, Media Specialists, Gifted and Talented, Minority Achievement, and Standardized Testing. This extensive background in public education exposed me to a myriad of programs and policies.

When a faculty member approached me to explain that her son had been seriously injured in a motor vehicle accident and had sustained a traumatic brain injury, I was initially uninformed regarding this medical diagnosis. However, as a result of daily conversations regarding this injured student, a rapport was established between the parent and me. At that time I began investigating the topic TBI and explored models of reintegration. Although the student was improving slowly according to his mother, the overall unanswered question remained: How can a TBI student successfully be reintegrated into the public school setting? Moreover, what system-wide strategies can facilitate the school reintegration process?

### *Gaining Access and Entry*

The focus of this qualitative research case study was a 16-year old high school student who sustained a TBI. The research procedure involved conversation and interviews regarding TBI and the school re-entry process. Larry met with me at his high school to discuss, to describe, and to comment on TBI throughout the school year. Larry was not expected to perform any activities or functions and no testing instrumentation was used. The entry point was the director of special education for the school division and the high school principal. Rapport was established with the director through the initial phone contact and subsequent site visits.

The transition from hospital care to rehabilitative care to the school setting may be a difficult process for students who have previously sustained a TBI. Successful re-entry requires school personnel to acknowledge that the student with TBI is unique and requires individualized planning. The tangible benefit of this study was to ensure that a successful reintegration occurred.

### *Setting Selection*

The setting for this qualitative research case study was a 6,600-student school division

located in a suburb of a large eastern metropolitan city. The school division currently serves a 9 square mile area. The student membership continues to grow primarily due to an influx of Hispanic families. The division contains 1 high school, 1 middle school, 5 elementary schools and 1 alternative education center. A new intermediate school is scheduled to open in the fall of 2005.

The school division serves a diverse student population. The following is a profile of the student demographics:

Table 3.1

*Student Demographics*

Ethnicity	Percentage
White	54%
Black	17%
Hispanic	24%
Asian	5%

In the fall of 2002, there were 1786 students in the division’s high school. The high school offers a wide variety of curriculum choices including college preparatory, work-study programs, vocational and technical training, honors, advanced placement, and dual enrollment opportunities. The average general education class size at the high school is 25/1. All of the division’s schools have achieved a full state accreditation. The following is a profile of the high school student achievement data:

Table 3.2

*Standards of Learning(SOL) Results*

*High School End-of-Course Tests (EOC)*

Subject	Percent Passing
English/Reading	85
English/Writing	86
Algebra I	78
Algebra II	77
Geometry	74
U. S. History	70
Earth Science	71
Chemistry	78
Biology	83
World History I	79
World History II	83

Table 3.3

*SAT Scores*

SAT Average Score	Verbal	517
	Math	527
Students Taking the SAT		231
Students Receiving Advanced Studies Diplomas		164

The FY 2003 School Board Adopted Budget was \$68,597,438.00. The per pupil expenditure was \$8,926.00. Expenditures included the operating fund, technology initiative fund, debt service fund, food services fund, and capital improvement fund.

Teachers in the division have an average of 13 years of teaching experience. The school division provides \$400.00 yearly to each teacher to fund graduate school tuition. The division employs 552 instructional employees, 307 classified employees and 27 administrators.

The division's location provides students with numerous cultural opportunities including access to the libraries, fine art centers museums, national parks, museums and programs at state and private colleges and universities.

The division's new high school was completed in 2000 at a cost of \$27,377,404. This 309,284 square foot facility is replete with state of the art technology. All instructional spaces are wired for computers and with access to the internet. There are six (6) department computer laboratories, twelve (12) science laboratories with adjoining prep areas and five (5) business laboratories. The building boasts of a new photo lab and dark room, journalism laboratory, classroom with TV studio capability, career center, orchestra, band and drama rooms, media center and a 998 seat auditorium. The specific setting for this study was a well-equipped special education classroom.

### *Participation Selection*

This study focused on a 16 year old, white male (the name Larry will be used as a pseudonym) who sustained a Traumatic Brain Injury in August, 1994. Larry was an unrestrained back-seat passenger in a motor vehicle accident. The Glasgow Coma Scale (see Appendix A) was 6 at the scene of the accident Larry was unable to respond to words and directions. The Computerized Tomography (CT) Scan revealed that Larry sustained a deep cut on his forehead near his scalp, and broke a facial bone near his right eye. Additionally he broke his right collar bone and received a deep cut on his left hand. Larry received acute care at Fairfax Hospital until he was transferred to the University of Virginia Medical Center for rehabilitative care in the fall of 1994. He was discharged from the University of Virginia Medical Center in mid-winter 1995. The Hospital Discharge summary stated Larry was at Level VI, "Confused and Appropriate" on the Ranchos Los Amigos Cognitive Scale upon discharge. Larry left the hospital and returned to his community and to his school without the cognitive and physical skills that he once possessed.

Larry's mother, an elementary school teacher, immediately submitted a parent referral to the school-based Special Education Child Study Committee. A full educational and psychological evaluation was initiated by the Child Study Committee. The results of the full

evaluation were as follows:

*WECHSLER INTELLIGENCE SCALE FOR CHILDREN (WISC III)*

Type of Scale	Score
Verbal Scale Score	80
Performance Scale Score	80
Full Scale Score	80

*WECHSLER INTELLIGENCE SCALE FOR ADULTS (WISA - Revised)*

Type of Scale	Score
Verbal Scale Score	89
Performance Scale Score	78
Full Scale Score	83 (+ or – 6)

*WOODCOCK-JOHNSON PSYCHO EDUCATIONAL ASSESSMENT (Revised)*

Assessment	Assessment Score
Reading	99
Math	89
Written Language	87
Broad Knowledge	92

The post-injury test results indicated that Larry was a student of low average ability with deficits in speech and language. He experienced difficulties in formulating sentences, recalling sentences, and sentence assembly. He was found eligible for Special Education Services with the disability category of Traumatic Brain Injury (TBI) with the following related services: Speech/Language and Occupational Therapy. He re-entered the public school setting in

February, 1995. His schedule was composed of the following college preparatory classes: English, Geometry, Spanish, Special Education Resource, Art, International Food, and Drivers Education. Later, he graduated with a general high school diploma.

A 16-year old student who sustained a TBI was observed and interviewed for this single subject case study research. Administrators, teachers, school-based clinicians, family members, and friends were interviewed for pertinent information for this study. Pre and post injury information were collected. Post injury medical documents as well as acute and rehabilitative care reports were reviewed.

### *Assurance of Confidentiality*

Larry is identified by a pseudonym. Any and all discussions are confidential. All data will be destroyed after the research was complete. Additionally, at no time will information be released regarding the study to anyone without the written consent of the research participant. No financial compensation was given to the participant. The participant was free to withdraw from the study at any time and free not to answer any questions given at any time. A consent form that was submitted for approval for use to the institutional review board from the university was utilized.

## Data Collection Procedures

### *Means of Collecting Data*

This study employed a qualitative design using linear-analytic exploratory case study methodology. Data was gathered in the form of archival records, educational records, medical records, teacher and therapists' comments, friends' perceptions, family histories and recollections, observation notes, and interviews with participants in the reintegration process. The participants included Larry, family members, classmates, administrators, teachers, paraprofessionals, and school-based clinicians.

### *Interview Procedures and Protocols*

Interviews were conducted with approximately 10 to 20 individuals including the student, the family, the principal, the special education teacher, and school-based clinicians. Each interview began with an explanation of the purpose of the study, the procedures for the interview, awareness of confidentiality, and gaining written consent for participation. The



interview protocol for each category of interviews was included in the appendices. Each protocol asked for demographic and contextual information about the school and individual. Then questions were presented regarding pre-injury status, the injury, post-injury disabilities, recovery, transition, and reentry. The interview protocol served as a guide for questioning but was left open-ended to allow for further elaboration from the interviewees. The length of each interview was approximately 30 to 60 minutes. With the permission of the participants, each interview was tape recorded and transcribed verbatim for future data analysis.

### *Document Data Collection and Recording*

Document data collection in this linear-analytic exploratory case study was accomplished through examination of the procedures recommended by Yin (1994). Data was collected through open-ended and focused interviews. Open-ended interviews asked the key respondents for the facts of a matter as well as for the respondents' opinions about events. Focused interviews only lasted a short period of time -- an hour or so. Focused interviews remained open-ended and assumed a conversational manner. Nevertheless, the researcher was more likely to be following a certain set of questions derived from the case study protocol. The specific questions were carefully worded to ensure that the researcher was unbiased about the topic which allowed the respondent to provide new or additional information about the topic. When further investigation was needed, a journalistic approach was employed. This approach established the sequence of events by deliberately interviewing persons known to hold different perspectives.

A major strength of case study data collection is the opportunity to use many different sources of evidence. Using multiple sources of evidence far exceeds single research strategies such as experiments, surveys, or histories. Additionally, the use of multiple sources of evidence allowed for the development of converging lines of inquiry (see Appendix M).

Within the "Convergence of Multiple Sources of Evidence" the triangulation method was appropriate in certain instances. Triangulation is defined, according to Stake (1995), as working to substantiate an interpretation or to clarify its different meanings. (Denzin, 1978) p. 61, further states there are four types of triangulation; data triangulation, investigator triangulation, theory triangulation, and methodological triangulation. With triangulation, the potential problems of construct validity can also be addressed.

The multiple sources of evidence used in this single case study were the following: open-

ended semi-structured interviews, documents, archival records, medical records and school division records. Data collected for this study were intended to reflect the concern for construct validity and reliability and make the process as explicit as possible.

### *Assessing the Cultural Context*

This study, which employs a qualitative design using linear-analytic exploratory case study methodology, focuses on a 16 year old white male, who sustained a Traumatic Brain Injury in August, 1994. The culture of this study is both that of the family and the school system. Observation indicated that Larry had a loving, caring family. His family unit was composed of a father, a Ph.D., his mother, a school teacher, and one college aged sibling. His high school was traditional in nature. Larry was a hard working student who had been found eligible for the Gifted and Talented Programs in the school division. Larry was an avid soccer and basketball player. In fact the family had previously lived in Buffalo, New York where Larry participated in all types of winter sports. Prior to his injury Larry played in the band and his outside interests included scouting. Although he was too young to hold a part time job, he was known for his work ethic, drive, and volunteerism.

I had a close association with Larry and his mother. He had many acquaintances and a small circle of close friends. His friends were “clean cut” in appearance. He was at ease with female classmates and his peers stated that Larry was sincere, and loyal. He respected diversity and was sensitive to the concerns of friends from various ethnic backgrounds. His teachers reported that Larry was respectful, mature, and motivated to succeed. Whether in academic or athletic pursuits he displayed endurance and wisdom beyond his age. In summary, both in pre-injury or post-injury circumstances, Larry was a pleasant, quiet young man.

### Data Analysis Procedures

Data analysis consisted of examining, categorizing, tabulating, or recombining the evidence to address the initial propositions of a study. The four dominant analytic techniques that were considered are the following:

1. Pattern Matching - a logical strategy that compares an empirically based pattern (or with a predicted one or with several alternative predictions).
2. Explanation Building – a special type of pattern-building in which the goal is to analyze the case study data by building an explanation about the case (Yin, 1994).

The goal is not to conclude a study but to develop ideas for further study.

3. Time-Series Analysis – there may only be a single dependent or independent variable. In these circumstances, when a large number of data points are relevant and available, statistical tests can even be used to analyze the data.
4. Program Logic Designs – this strategy employs a combination of pattern matching and time-series analysis. The pattern being matched is the key cause – effect pattern between independent and dependent variables. The analysis deliberately stipulates a complex chain of events (pattern) over time (time series), covering these independent and dependent variables.

Miles and Huberman (1994) recommend various analytic techniques such as: putting information into different arrays, making a matrix of categories and placing the evidence within such categories; creating data displays -- flowcharts and other devices -- for examining the data; tabulating the frequency of different events; examining the complexity of such tabulations and their relationships by calculating second -- order numbers such as means and variances; and putting information in chronological order or using some other temporal scheme. One general analytic strategy often used in case study research is to develop a case description. This description is the framework for organizing the case study. The original purpose of this single case study was an exploratory one. Oftentimes, a second analytic strategy “explanation building” is employed as a mode of analysis. The goal is to analyze the case study data by building an explanation about the case. A professional educator has acted as an inter-rater of the data analysis during the investigative processes of this study.

### *Addressing Quality*

Miles and Huberman (1994) stated that in qualitative research, issues of instrument validity and reliability ride largely on the skills of the researcher. In essence the researcher/investigator observes, interviews, and records. This above mentioned process is modified on a case by case basis dependent upon field experience and other significant historiography. Furthermore, according to Miles and Huberman (1994) good investigative skills should include doggedness, the ability to draw pertinent information from those interviewed, and the ability to ward off premature closure.

On the other hand, Yin (1994) suggested that a complete research design covers the

following five components; the study's questions, its propositions, its unit(s) of analysis, the logic of linking the data to the propositions, and the criteria for interpreting the findings. These five components require the development of a theoretical framework for the case study. Therefore, the time and effective effort in the development of a theoretical framework becomes paramount in any case study.

There were no impendent threats to the validity of this case study. It was noted in the study that internal validity is a concern only for causal (or explanatory) case studies. In many instances in this investigation I determined whether single events led to other events. The researcher must constantly be on the guard to determine causal relationships and to be aware that because one event leads to another event there may or may not be a definite causal relationship. The researcher must be constantly aware of the foregoing and not make inferences that affect the validity of the study.

Conclusions of a case study gain added usefulness when these conclusions are connected to theoretical networks beyond the immediate study. Moreover, if careful interpretation is applied, the "what is" process is similar to translating, refuting, or synthesizing two or more studies of a particular subject. One can arguably make a strong case that the interest in this study was determined by the various audiences who utilize this study for further research and methodology.

### *Data Management*

In order to facilitate analysis the data base was organized in different arrays as to ease in cross referencing the data. Multiple sources of evidence were arrayed similar to the Convergence of Multiple Sources of Evidence as depicted in Appendix M. Three sources of evidence were used: (1) Documentation; (2) Archival Records; and (3) Interviews. The initial creation of the case study data base included notes, documents, tabular materials, and narratives.

With the aforementioned, a simple yet effective numerical system was used to maintain the chain of evidence. This numerical system enhanced the researcher's ability to effectively retrieve, separate, verify, classify, tabulate, and/or chronologically index all pertinent data. Where practical, various analytical techniques were applied such as placing information in different arrays, a matrix system, flow charts, tables of event frequency, evidentiary numerical tabulation, and chronological sequencing. It was imperative that the inherent volume of data

collected in this case study be systemically managed in order for all pertinent data to be analyzed and extraneous and non-pertinent data be quickly eliminated from the heretofore mentioned three sources of evidence.

The set-systematic procedure for data management as outlined has one primary focus and that is to simplify the extraction of germane data from the case study in the most efficient and effective manner. All data management techniques were but a means to an end -- simplification. Ostensibly, with that being said, five overriding factors were the apex of this study; organization, retrieval of evidence, collation of evidence, clear presentation, and the researcher's prior empirical knowledge of similar circumstances and studies.

### *Presenting the Results*

The results of the case study are presented in a written dissertation entitled *Traumatic Brain Injury: The School Reintegration Process*. The dissertation includes detailed chapter headings, references, appendixes, and charts. Although this study can be presented in oral form, the primary means of presentation is by compositional configuration. Extensive data collected and collated in the study that is not germane or non-pertinent to the analytical process as depicted in the sub-heading Data Management, was not presented in the compositional study.

This case study may have a wide range of audiences due to the nature of the subject matter. Specifically, colleagues will be interested in its findings, previous research, methodology, and the real-life setting, all of which is documented and presented. Of note, is the result of the description and analysis of a specific event that conveys information on the general phenomenon of traumatic brain injury and the school reintegration process. This single case study is invaluable as a springboard for further studies on the subject.

Of critical importance is the presentation of the results of this case study. These results are presented in such a way as to insure conveyance to the audience that the database of this study contained the critical pieces of evidence, this evidence was presented neutrally, and the evidence was valid.

## CHAPTER 4

### FINDINGS

Data derived from personal interviews and documents, permit a solid array of findings and detail to be presented that substantiate the need for a commitment to a pro-active planning process for students with TBI. These findings are in no way intended to negate the dedication of those educational professionals in this case study that utilized the existing programs and personnel to aid a TBI student. Ostensibly, these findings are gleaned toward improving the preplanning, planning, implementation, and evaluation in the proactive planning process.

With the aforementioned in mind this chapter initially provides a holistic overview of the findings including the major domains and data sources. Additionally Chapter 4 also provides the integrant building blocks that support the holistic overview.

The purpose of this exploratory case study was to develop for TBI students an illustrative reintegration process from acute and rehabilitative care to the traditional school setting. In so doing, Tables numbered 1, 2, 3, 4, 5, and 6 of the Interview Protocol provided the underpinning for these findings (see Appendix N). The totality of the Interview Protocol enabled me as the researcher to eliminate non-germane information, cross check existing information, substantiate facts from perception, use selected interviewees and their informational response as “triggers” for additional information from other interviewees, collate germane factual information by categories, and pinpoint selected pertinent information for further analysis.

#### Engaging the Participants

Interviewees were presented with a “reflections” letter up to two weeks prior to the interview. The intent of the letter was to ask the interviewee to reflect on the subject matter being discussed in the case study, namely remembering Larry and the reintegration process. By design the letter was intended to jar the memories of the recipients while giving them time to think about the various and varied factors involved in the reintegration. Although the actual interview included all the points in this initial letter, the interviewee was encouraged to give additional information, facts, perceptions, and ideas pertaining to the case study. The “reflections” letter proved to be a simple yet effective tool to insure that the interviewees were cognizant of the case, more readily prepared to answer queries and were valued contributors to a study that

possibly could have a positive impact on the educational system as it pertained to TBI students.

Inherent in the actual interviews were the “how” and “why” questions. In this study events could not be manipulated therefore documents and interviews were the main procedural expedients to gather germane information and factual knowledge of events. The interview procedure further enhanced information gathering because this study dealt with contextual conditions rather than a laboratory environment.

In striving to replicate data collection procedures, the same format and same questions were initially asked of the interviewees. The replication of the format and same questions were used to insure that similar answers to queries could more readily be analyzed. This procedure in no way thwarted the interviewees from opening up and discussing other factors in the case study. The Interview Protocol was a plan designed to elicit information per the discussion in Chapter 3. In some interviews the “opening up” provided educational information and candor that was useful for the interviewer’s follow-up questions to the present interviewee and for subsequent interviewees. All information was further triangulated and verified through information provided by others, interviewees, and documents.

The interviews were conducted in comfortable and private environments. The interviewees were treated professionally, courteously, and made to feel as learned contributors to a case study that might have a positive impact on the school system. In addition, interviews were conducted in a non-threatening manner. These interviews although designed to be pointed, were always directed as colleague to colleague discussions thereby insuring open dialogue, constancy, continuance, equipoise, balance, and active participation.

### Conceptual Framework

The systematic replicable collection of data as previously discussed was superimposed over Blosser and DePompei’s (1994) guide incorporated in this study. In so doing, the conceptual framework of a proactive plan (i.e. preplanning, planning, implementation, and evaluation) was used to illustrate the findings.

The preplanning phase incorporated continuous information gathering from all participants and pertinent records. Appendix Q lists 62 documents consisting of 195 pages of relevant informational documentation. Internal and interagency networks were formed and capability assessments of the staff, resources, and environment were made. In this regard,

competence, motivation, and professionalism were assessed. While this assessment was underway, participants were requested to assist. They were briefed on the necessity to understand the environment, the need for problem solving, and that the researcher's success was based on their professional assistance.

Of the 10 interviewees only one established contact with the family in the preplanning phase. This was deemed unsatisfactory from the standpoint of Blosser and DePompei. They believed the collaboration in the preplanning phase with the family and significant professionals was essential for building a cohesive groundwork for the all important planning phase. Although a number of the interviewees did maintain communication and implemented collaborative efforts in the planning, implementation, and evaluation phases, their late start in enjoining the family to the proactive planning process "after the train has left the station and playing catch-up was obviously more difficult in establishing rapport" (KM77JO).

In the planning phase, information that was gleaned in the preplanning phase was analyzed for the purpose of honing the strategies for re-entry of a student with TBI into the school environment. In so doing, all collated information collected up to this time was examined. The history of Larry was discussed extensively with colleagues and his current status was described in detail. Talents and strengths of known participants were evaluated. And, as an eye to the future, needed participatory talents and strengths were evaluated. The preliminary steps for initiating brainstorming techniques for an ideal plan were established.

The primary direction in this study during the implementation phase was to take action on those indices in the preplanning and planning phases. This no doubt was a learning curve for all participants. In recalling the student's performance and responses, strategies and procedures were honed. Additional resources in the form of records were used as supplemental material. Further evaluation was made regarding interactions, behaviors, strategies, and procedures.

The evaluation phase was an iterative process. Improvement on a plan was continuously reviewed. Modifications were forthcoming and strategy selection was collaborated with participants to determine the possible need for program revision. Ongoing within this phase was the elimination of non-viable goals.

### Overview of the Findings

The data sources in this study consisted of participant interviews, discussions, and



information obtained from non-redacted documents listed in Appendix Q. These documents consisting of 195 pages are currently safeguarded by the researcher.

The research questions guiding this study were framed by the proactive planning process proposed by Blosser and DePompei (1994). The findings address the questions of (a) How did one school division respond to the reentry of a student who had sustained a TBI; (b) how do the participants describe their roles and experiences in the transition process; (c) how do they describe conditions as either barriers or facilitators to reintegration; and (d) what are the reasons and rationales of the above individuals in deciding what methods are more facilitative in the transition process? The findings address the research questions holistically in three major domains extracted from the case study.

Data supporting the first domain, the strengths and weaknesses of the student in the post traumatic brain injury environment were collated, collected, and analyzed. Matrices were outlined with the above information as illustrated in Appendix N, Table 3 in the Interview Protocol.

The second domain, the adaptation of Larry involved three general sub sets: (1) Larry's self adaptation; (2) the participants' roles in Larry's adaptation; and (3) other influential factors in Larry's adaptation. Larry's methodology in self adaptation was assessed. Of course, Larry was not capable of thinking in methodological terms but nevertheless his actions and reactions to certain stimuli gave a picture of a student with TBI viewing his situation within his mindset and trying desperately to come to grips with the environment that he found himself facing. In addition, the participants' methodology with regard to the adaptation of a student with TBI is of importance. Also examined was the participants' aid in the student adaptation procedure. There were other helpers in the adaptation process (i.e. documents, other students, social groups, and interested parties) that were not participants of this particular study.

The third domain centers on the strengths and weaknesses of the strategies used by the school division in the reintegration process. The strengths fell into five general categories: (1) caring professionals; (2) existing structure for disabled students; (3) cooperation; (4) willingness of general education teachers to make accommodations; and (5) willingness of school-based clinicians to try a variety of approaches. The weaknesses consisted of seven categories: (1) little knowledge of TBI; (2) no in-house pro-active plan; (3) no historical data on TBI; (4) no written records; (5) no central structure (scattered resources); (6) no written plan; and (7) no roster

teacher /case manager with authority to direct staff with TBI scenario.

### Explaining the Coding Procedure

Appendix R contains the detail for the researcher’s coding procedure. This simple yet effective coding procedure enables one to readily cite research material. The Reflections Letter, all of the Interview Protocol (Tables 1 -6) and the Documents are numbered sequentially for ease of reference.

The following interviewees participated throughout the Interview Protocol:

Table 4.1

#### *Interview Participants*

	Position	Letter Category	Name
1.	Speech Pathologist	SP	Ginny Thompson
2.	Occupational Therapist	OT	Beth Peters
3.	Art Teacher	AT	Patty Cook
4.	School Nurse	SN	Mary Edwards
5.	L. D. Resource Teacher	RT	Mark Lee
6.	Special Education Department Chair	SE	Leigh Reynolds
7.	School Psychologist	PI	Paula Sang
8.	School Psychologist	P2	Donna Thornburg
9.	School Principal	PS	Annette York
10.	TBI Student	TBIS	Larry

Note: The names listed in Table 4 .1 are pseudonyms.

#### *Portrait of Larry Post TBI*

Larry was initially referred to the Child Study Committee by his mother after acute and rehabilitative care. Larry entered high school with an abbreviated schedule. The partial day schedule included attending the high school in the mornings and receiving homebound instruction in the afternoon. During the partial day schedule Larry received occupational therapy and physical therapy, as well as speech services. The Child Study Committee determined that

Larry was placed on a 504 Plan to address his academic needs.

Larry's teachers reported that he exhibited significant deficits in processing of verbal and written information, logic, and planning. In addition Larry also displayed visual-perceptual deficits and has difficulty reading maps and grids, which have been addressed through occupational therapy. However, despite the many interventions and assistance offered Larry, he appeared to have reached a plateau in his progression. It had been reported that he was experiencing days of total confusion which, in turn, has led to frustration for Larry. Considering Larry's limited progress, significant difficulty, and extensive intervention, the committee recommended a full evaluation. Larry on the WISC-III was found to be functioning, overall, within the Low Average range. Larry evidenced strengths, in associative thinking, auditory short term memory with rote information, and analysis and synthesis using block patterns. Larry also evidenced deficits in processing speed and visual-motor integration. It appeared especially difficult for Larry to process information across channels. In addition, although Larry generally appeared to have a positive outlook and perceived his family as very supportive, he harbored some feelings of insecurity, inadequacy, and frustration, particularly in academic areas. Based on the above the following recommendations were offered:

1. Allow Larry to keep a set of textbooks at home and a set at school.
2. Allow Larry increased time for completion of written work.
3. Reduce the amount of written work required.
4. Allow Larry to use a computer whenever possible in the completion of written work.
5. Instruct Larry in memory strategies and have him play memory games, i.e., concentration, to help develop this skill.
6. Develop routines for Larry, i.e., routine before going to school – washing, shaving, dressing, eating breakfast, checking off homework needed for class, getting lunch or lunch money, etc.
7. Have Larry use various organizational strategies, such as checklists, calendars, organizers, etc.
8. Emphasize Larry's strengths, such as analytical ability, and apply them toward other areas.
9. Encourage Larry to participate in extracurricular activities that he enjoys to keep him involved with others.

10. Have Larry work with a buddy at school that can help him with organization or other areas of difficulty.
11. It is also suggested that Larry's cognitive and academic achievement progress be reviewed in one year, rather than waiting for a triennial review, to more closely monitor his development and growth.

Larry was referred for further evaluation, as part of an early review of his special education placement. This review revealed Larry's performance on the Wechsler Adult Intelligence Scale – Revised (WAIS –R) was consistent with prior assessment on the Wechsler Intelligence Scale for Children III Edition (WISC-III), where he performed overall within the Low Average range. Strengths were noted in short-term auditory memory for rote information and analysis and synthesis using block patterns. Larry performance on the Bender indicated a continued weakness with visual-motor integration. In addition, Larry was a pleasant, cooperative and motivated young man who appeared to feel strong support from his family. Based on the above, the following recommendations were offered:

1. To assist Larry with visual-motor weaknesses: allow him increased time for the completion of written work; reduce the amount of written work required; allow him to use a computer whenever possible in the completion of written work.
2. Continue to stress organizational strategies for Larry to increase his confidence and security. Have him use calendars, organizers, and checklists, etc.
3. Emphasize Larry's strengths, such as his analytical ability, and apply this toward other areas.
4. Encourage Larry to work in cooperative groups, small discussions groups, etc. to increase his verbal skills, to increase his interaction with others, and to increase his self-confidence.
5. Assist Larry with the transition from high school to either higher education or the world of work through educational and vocational planning, counseling, and guidance.

Most interviewees did not read or have access to the University of Virginia Medical Center Discharge Summaries (DO119) (DO120) and (DO121) as re-summarized in Appendix S and Appendix T.

### *Describing Larry's Strengths*

The strengths and weaknesses of Larry in the post traumatic brain injury environment were assessed in the matrices provided via Tables 3 and 5 of the Interview Protocol, Appendix N. In Table 3, each question was geared to the four phases of Blosser and DePompei's (1994) guide (i.e. preplanning, planning, implementation, and evaluation). In addition Appendix P provides selective illustrative quotes.

The interviewees presented a general commonality of Larry's characteristics. There were the four "P's" that were cited by most of those interviewed and those that had dealings with Larry after the TBI. He was pleasant, polite, positive, and persistent. The four "P's" were innate traits of Larry pre and post TBI. These traits no doubt were the catalysts for a solid relationship between Larry and the staff. He endeared himself to all through his attitude and gentlemanly conduct. More often than not Larry was consistent in his attitude and his positive outlook toward improving his academic performance. His attitudinal concurrent efforts engendered empathy on the part of the staff. Therefore, a positive rapport and solid relationship was readily established between Larry and staff educators despite Larry's denigrated cognitive functioning and a diminution in his reasoning. Larry personified neatness, cleanliness, and a well groomed appearance. Larry's well behaved demeanor and positive outlook engendered the staff's growing fondness for Larry. Data portrays a picture of a student who has a strong desire to succeed and please those around him and a staff who wanted this student, who was once eligible for the gifted and talented programs, to be able to thrive in later life. Larry's solid demeanor formed a cooperative bond that surrounded him throughout his school years.

Larry was known by all of the interviewees, on average, for a little less than three years. Therefore, they had a substantial feel for his pre and post TBI condition. "He had a pleasant personality before his accident and that same lovely personality stayed with him," (LR15IP). Behaviorally Larry was an "ideal student" (PC3IP).

But, his post TBI status indicated that he was slower to respond than most, and spoke softly in a monotone. He showed lack of humor and had difficulty with reasoning, understanding consequences, abstraction, and deduction. Nevertheless, because he was polite, respectful and "sweet" (PC3IP), he was given a great deal of attention by the interviewees and other teachers.

His fortitude should be noted in that Larry arose each day, prepared for high school, and

participated in the school day with alacrity and enthusiasm. Although his skills were weak, he had to have a modicum of problem solving skills coupled with sheer determination in order to follow the experiments and assignments of six to eight teachers.

This in itself, considering his condition, was outstanding, “We all must remember that he graduated from high school” (LR67AS).

A common recognized thread ran through the data of the Addendum sheets in regards to behavioral concerns, integrity, perseverance, attitude, and problem solving. His attitude and respectful demeanor coupled with his upbeat personality and striving to please his teachers were large pluses in his successful attainment of a high school diploma. It was obvious that the foregoing positive traits overshadowed his poor problem solving and other academic concerns. Larry although frustrated and aware of his academic and physical ability, possessed the determinable trait of perseverance. He did not know it at the time but he was the living picture of the words of Winston Churchill; “Never give in, never give in, in things large or small, great or petty, never give in, Never, Never, Never!” (KM81JO).

#### *Describing Larry’s Weaknesses*

Despite Larry’s poor coordination, visible scars, frail appearance and weak motor skills, it can be said that Larry presented a picture of one strongly desiring to help himself but was hampered by his poor problem solving and organizational skills coupled with poor dexterity, social skills, lack of initiation, and confusion. Larry was hindered and impeded by his physical and mental impairments. There was little doubt as to the frustrations of the staff in their attempt to attain progressive academic performance for Larry. Nevertheless, despite these frustrations, the staff had a positive attitude toward Larry’s plight.

Additionally, he was now a student of low average ability. He could not multi-task and showed very little creativity. “He was innocent to a fault, and was unaware when he was being “dooped (sic)” (GT22IP).

Larry’s weak executive functioning, weak processing speed, weak pencil grip, and weak creativity no doubt exacerbated his poor social skills, lack of expression, monotone speech, low voice volume, and his flat affect. Notwithstanding his weaknesses in exacerbating his poor social skills, when one was aware of his circumstances, Larry’s positive traits of integrity, trustworthiness, and his stick-to-it-ness held the day. This is best illustrated through the

comments of Beth Peters: “Homework and classroom assignments were completed in a timely fashion, perseverance was a huge strength, and remember Larry graduated from high school” (BP24IP).

#### *Interpretative Commentary – Regarding the Student’s Strengths and Weaknesses*

In analyzing Larry’s strengths and weaknesses from the voluminous data, a general portraiture of Larry evolves. According to Patty Cook Larry’s “willingness to try” despite his many weaknesses caused by TBI was indicative of his innate self worth. Patty Cook further stated that she was amazed by the perseverance displayed by Larry. He was aware of his limitations which added immeasurably to his growing frustrations in his weak motor and problem solving skills. He wanted to please those around him. Therefore he was polite, pleasant, courteous, and cooperative--“never a behavior problem” as reported by Beth Peters.

Nevertheless, Larry’s poor organizational and social skills coupled with his poor problem solving skills and his weak executive functioning skills eroded his cooperation and perseverance. He was indeed affected by his visible and invisible scars. He became withdrawn around those who were not participants. Although he impressed clinicians and staff with his upbeat demeanor, he was shy, quiet, and portrayed poor social skills around acquaintances, thus diminishing his circle of friends.

When participants spoke of his strengths and weaknesses a portrait of Larry appears. He lost his peer group, he lost his academic standing, and he lost his athletic ability. As Leigh Reynolds, the Special Education Department Chairperson, remarked, “He still has a shot but he does not understand the game.” In the final analysis, his strengths were all part of his persona as a solid young man who viewed others in a positive sense and was appreciative of those nurturers and of those in authority who were doing their best to alleviate his problem. Unfortunately, the problems were physical and mental, which was realized by Larry and despite his efforts to please and do well, he was unable to reach a satisfactory level in his mind due to his physical and mental inabilities.

#### *Describing Larry’s Adaptation*

The adaptation of Larry was influenced by the trilogy of Larry’s actions, and reactions, the participants’ roles in Larry’s adaptation, and other influential factors. As in the first domain, pointed interviews were conducted, documentation as listed in Appendix Q and tabulated in

Table 5 of the Interview Protocol was evaluated and analyzed, and the participants taped interviews were summarily transferred to text and then further categorized in Table 3 of the Interview Protocol.

A review and analysis of all data, made it apparent that Larry recognized and was fully aware that he had limitations. Larry's awareness was definitely a primary step if he was to reintegrate into the school system. This awareness on the part of Larry coupled with the fact that he realized he must relearn life skills, academics, and physical skills, was indeed Larry's pre-TBI hypostatical nature coming to the fore. It becomes obvious that the seriousness in the gradation of physical impairment of TBI students despite their "awareness" will have a sustained bearing on a TBI student's physical, emotional, and academic performance. In Larry's case, despite a number of positive factors and traits, certain particular characteristics negated a full and viable mental and physical transition to the life he had before the TBI. For instance, Larry was physically weak, quiet, and not outgoing. Because of these characteristics, Larry was not proactive and was content to observe others in their roles as students and peers. He was not talkative and had a tendency to study and watch others in order to grasp clues of what was expected of him. The question arises whether he could not or would not initiate actions. Many participants spoke of how he was often confused and occasionally became lost in the school building. According to Mary Edwards, the school nurse, "a schedule was devised using both students and staff to assist Larry navigating the school building." Additionally, according to Patty Cook, the Art Teacher, he "chose to sit in the front of the room." She noted that he "needed to over-learn procedures but, was always grateful for any help and assistance." Although he would repeatedly try to master a task, he would oftentimes fail despite his persistence and perseverance. Despite Larry's politeness and dutiful demeanor all indications pointed to the fact that Larry could not initiate meaningful actions. He needed extensive assistance.

A large part of Larry's success was with the Art Department. He felt he could re-create and make progress in the Art Department. In Larry's mind he accomplished his tasks in art by his own efforts. This was in contrast to his studies in chemistry and geometry. "He would not have gotten through chemistry and geometry without direct help from his dad" (BP66AS). "I helped him a lot in math and chemistry so he could visually understand the subjects" (BP66AS).



### *Interpretative Commentary Regarding the Student's Adaptations*

The participants' role in Larry's adaptation were meaningful and helpful. However, as discussed in the third domain, a proactive plan for students with TBI must consist of a written systematic in-house program that is structured to designate authority, responsibility, decision making, follow through, and accountability (Blosser & DePompei, 1994).

In general, the data suggest that the participants' roles were carried out professionally. School-based clinicians provided some therapeutic functions. These clinicians worked in concert. The roster teacher, a special educator, managed the case and communicated with and among other professionals and family. The staff members and general education teachers made a point of "looking after Larry" as reported by Leigh Reynolds. Under the then present system, the participants were positively engaged in Larry's welfare. From their perspectives, they did all they could within their accountability, responsibility, and decision making authority to enhance Larry's adaptability to the school environment.

### *Examining the School System in the Reintegration Process*

Although there were many positive factors within the school division with regard to the reintegration process, there were numerous negative consequences for Larry. Barriers and negative aspects can be alleviated if they are identified early with follow-on procedures being timely, interactive, and decisive. It is imperative that all professionals involved with a TBI student be aware of the case history, the medical evaluations, the school's written guidelines, the specific processes established by the school, communication procedures, responsibilities, and the functioning of a case manager or roster teacher who would be the primary decision maker with authority to direct all school participants. In other words, what is needed is an organizational structure that works. The case manager would follow the recommendation and direction of the IEP Committee but would serve as the individual professional leader/authority on a day to day basis, thus ensuring that the proactive plan is implemented and that no components of the plan were neglected.

In examining the reintegration process the data collecting, collating, and analyzing process was utilized to examine the strengths and weaknesses of the school system in this particular case study. All information from Tables 1 through 6 in the Interview Protocol, (see Appendix N) were gathered from multiple sources to include documents, taped interviews,

textual components of the documents and interviews, formal and informal discussions, and the study of literature.

Although there was an existing structure in the school system through the Special Education Department to serve disabled students, there was no in-house pro-active plan for students with TBI. Ostensibly, this structure could be the basis for a prepense ad hoc committee that would initiate the implementation of a written, established, and selective plan for a student with TBI.

In this case, although special education timelines were adhered to and special education procedures were adequate, it was evident that general education teachers were not given information regarding the new disability category of TBI. Furthermore, interviewees remarked that little or no information was available on TBI, and, in addition, that the school division exhibited a lack of organization.

It is interesting to note that the Kluge Rehabilitation Center was praised for forwarding detailed reports regarding Larry after his discharge from the center. Yet, there was little or no contact with the Kluge Rehabilitation Center after these initial reports. These staff comments about the Kluge Center were indicative of the lack of follow-through and a lack of responsibility of assignments to insure that certain parameters were adhered to by selective and chosen staff members. Moreover, the lack of follow-through was inherent in the statement by a school-based clinician, Leigh Reynolds that no follow-up occurred from the Department of Rehabilitative Services.

Some members of the staff felt that Larry's pre-injury status and post injury status were considered and studied in depth. It should be noted according to Patty Cook, the Art teacher, "Special Education teachers were comfortable with the school system's review and response to Larry's reintegration however the generalists felt they were out on a limb." But on a positive note, the IEP Committee worked as a cohesive team despite the numerous quotes of the weaknesses of the school division (see Appendix P, Illustrative Quotes). In addition, further data suggested that there was no reintegration plan was in place, no proactive plan was considered, no notification that a TBI student would be arriving, and few rehabilitative services were available.

Most staff constructive criticisms were explicitly directed toward specific needs of a TBI student. Participants remarked that there was little doubt that a TBI specialist was needed. It was critical that this specialist have an extensive TBI background in order to assist the students and

staff. In addition, to insure continuity a designated staff member must be assigned the task of serving as the case manager or roster teacher. Continuity can only be assured if this case manager is responsible for implementing the IEP and continuing with the student until graduation. Additional comments indicated that a vocational coach should be provided by the Department of Rehabilitative Services. This individual should provide job placement services to include interview skills, resume writing, and employment search techniques.

However, there were implicit criticisms by the staff and substantiated by the data that the techniques used by the school division for the reintegration of a TBI student must be improved. There was poor transition from middle school to high school as well as poor transition from high school to the community college or to the work world. At the forefront of many interviewee comments there was a common thread--lack of follow through, poor transitions, lack of communication, unaware of responsibilities, improper placement, and staff inadequacies.

#### *Strengths and Weaknesses of the School Division in the Reintegration Process*

The school system received detailed reports from the Kluge Center immediately after Larry was dismissed from the hospital. But, there was very little contact with clinicians from the Kluge Rehabilitation Center after the receipt of these initial reports. These reports were invaluable to the IEP Committee that worked as a cohesive team. Larry's post injury status was studied in depth and Special Education timelines were met. These positive aspects created a awareness among personnel that there was a problem with Larry's learning and that the problem needed a solution from the existing school structure.

However, according to several participants, there was no re-entry plan in place , and as Beth Peters pointed out, "no pro-active plan was considered." The school division exhibited a lack of organization for a number of reasons. There was little information available on TBI. General education teachers were not provided information or any in-services on the newly recognized disability category--TBI. The L.D. Resource Teacher, Mark Lee, was concerned that Larry 's half-day placement in a self-contained special education class, with what he called "an eclectic group" of students weaker academically than Larry, was a stop-gap measure to meet his needs. Mary Edwards, the school nurse, reported there was "no notification that a TBI student would be arriving at the high school." This was an unfortunate situation for both the TBI student and the school nurse since the school nurse was one to the first individuals that Larry sought for

assistance. In retrospect, Leigh Reynolds, the Special Education Department Chair remarked that “all teachers, school based clinicians, and other professionals should have been notified of the imminent arrival of a TBI student.” A viable communication process was not in effect.

Planning to assist Larry in making the transition from school to work was also missing. According to Beth Peters, “there was poor transition from high school to the community college or the work world.” Moreover, according to Donna Thornburg, the School Psychologist, “there was no follow up from the Department of Rehabilitative Services after Larry’s graduation. A vocational coach was needed. DRS should have provided a job coach. Larry needed interview skills and he needed help with job placement.” Unfortunately, these supports were not in place. It would have been in Larry’s interest if he had been referred to the Woodrow Wilson Vocational Center at the time of his graduation. He was not referred to the Center. Donna Thornburg stated “teachers and parents did not follow through.” Exacerbating this problem was the fact that the case manager or roster teacher was changed from year to year. As a result, some consistency was lost.

These data suggest that in dealing with TBI students, knowledge is paramount in the sense that efficiency and effectiveness depend on participants who are more readily able to address problems, seek viable solutions, and create an environment conducive to proper planning. In this particular case study the knowledge and ramifications of TBI were not always fully understood thereby limiting efficiency and effectiveness. The result was a “scattered approach” to the problem as many participants were seeking solutions without a solid grounding in the nuances, distinctions, and variations in students with TBI. This diminution of knowledge of TBI has a profound effect on impending approaches to the problem. Furthermore, without a clear-cut awareness of a TBI student’s academic, physical, emotional, and actions and reactions to placement in a school environment, consistency in problem solving by the staff was weak. In this case, there was little historical data therefore there were no written records. Many of the staff had to fall back on their previous experiences with students in special education. While this is understandable because of the operating circumstances of the time, it created an initial false sense of progress. The road they were following was the one based on their empirical knowledge gained from special education procedures not from the knowledge of students with TBI in particular. It was apparent from the data that a comprehensive pro-active plan should have been available within the school division.

Although the interviewees, at times, were eager to point out short falls in the process of reintegrating a student with TBI into the school system, they were less eager to denigrate the professionalism and performances of their colleagues in the process. Of course, this in no way skewed the findings of the study as to pitfalls, timelines, more efficient programming and processing, and exigencies for effective preemptive guidelines. There was a commonality among the staff that a plan was needed, that TBI is serious business, and that Larry was a persevering student with diminished academic and physical skills.

Sufficient data were gathered due to the structure of the interview process (see Appendix N, Tables 1-6). In addition, the interviews were always conducted on a colleague to colleague basis and in a conversational form. This enhanced the process of not only insuring that the researcher's established queries were answered but voluntary information was collected, and analyzed for additional substantive information germane to the case study. When one is at ease and in a comfortable environment they are more prone to "open up" provided that one adheres to the conversational approach. The foregoing approach was valuable in establishing positive attitudinal interviewee awareness of the need for this study but more importantly, in hind sight, this approach was instrumental in discerning fact from opinions. It raised the cognizance of staff, school-based clinicians, and educators of the portraiture of Larry, the need to form team alliances of school-based clinicians, the disconnects in transitions and rehabilitative care services, and renewed interest in the subject and research of TBI.

### Discussion of Findings

In light of the purpose and framework of this exploratory case study it has illustrated the reintegration process of a student with TBI from acute care and rehabilitative care to the traditional school setting. The review of literature purports to show that Larry's injury and problems in the post injury environment, assessments, and his subsequent rehabilitation were generally consistent with the review of literature. Although some of the literature discusses strategies, intervention, mechanisms of damage, and neurobehavioral recovery, the literature was general in nature but non-relevant to any specific case. This was understandable in that every individual case is unique. With that being said, there was sufficient literature information on recognizing and treating deficits in the integration process, educational dimensions of acquired brain injuries, and cognitive rehabilitation.

Some of the literature reviewed and presented in this study explicitly delved into what typically happens in a brain injury, the affect on the student, strategies to assist the family, and school integration procedures. The numerous and diverse research provides a plethora of information on the brain, brain injury, and special education. Nevertheless, the literature produced minimal in-depth studies on TBI. Finefrock (1998) identified 14 recommendations made by leading researchers which in many respects correlated to Blosser and DePompei (1994) The School Reintegration Planning Process which defines 38 tasks (Chapter 2, p.39). In this case study, Finefrock's and Blosser and DePompei's research was combined into an analytical framework that was a catalyst for queries into Blosser and DePompei's Proactive Planning Process (see Appendix K).

Fortunately Finefrock (1996) and Metro's (1994) case studies served as reinforcing tools in the need for a proactive plan. These case studies clearly identified that TBI students may not receive that support and special services needed if rehabilitation facilities and the school do not work in concert to ensure a successful school reentry.

The research literature supporting this case study provided knowledge about the brain and TBI and in many cases acted as a springboard in my research into school reintegration procedures, strengths, and weaknesses of integration of TBI students into a school system. Some literature was more easily reconcilable with the Interview Protocol, Investigative Query, and Expected Evidence than other cited literature. There was solid factual information garnered from across the literature to aid me the researcher, in navigating the winding road toward the need for organization, planning, and follow through based on a comprehensive written proactive plan.

#### Interview Protocol

It was generally felt by most of the interviewees that there was a dearth of preplanning, planning, implementation, and evaluation involving the TBI student, Larry. Nevertheless, there was sufficient staff concern of the problem.

"I did many things that were non-traditional" (BP12IP). The Occupational Therapist color coded various study cards for Larry. In addition, other teachers spent considerable time and effort on visual displays in geometry, chemistry, and other subjects. Larry had a difficult time absorbing simple concepts even when these concepts were visually displayed. The Driver's Education "road and range" experience was extremely difficult for Larry. His reaction time was

slow and he had difficulty with left/right orientation. Flash cards were made available from the DMV instructional manual. Larry's reaction time was not up to par. It was obvious that his motor skills (coordination and flexibility) were below average. Most interviewees made note of this as well as the researcher on many occasions (KM77JO). Therefore, Larry had to repeat this driving experience and at the conclusion of the course it was determined that Larry should not drive a motor vehicle.

### *Poor Interagency Coordination*

The University of Virginia Medical Center, and the Kluge Children's Rehabilitation Center Research Institute had in place therapies that would fit the preplanning phase of Blosser and DePompei, (1994). However, there was little in the way of forming inter-personal and interagency networks between the medical centers and the school system. In addition there was little collaboration with family and significant professionals in the preplanning phase.

In both documentation and interviews there was undetectable evidence during the preplanning phase of:

- 1) Analyzing demands, expectations in various environments and situations.
- 2) Observing performances in various contexts.
- 3) Assessing capabilities of the environment (staff, competencies, resources, and motivation).
- 4) Analyzing necessary modifications.
- 5) Preparation of staff and others in an environment so they could understand, problem solve and render assistance.

During the planning phase one could see a marked improvement although all school participants involved were behind the power curve. A letter from Larry's mother to the school made reference to Larry's stay at the Kluge Children's Rehabilitation Center et al. generated awareness in some school professionals whereby a modicum of gathering and collating information from family, teachers, rehabilitation professionals, specialists, healthcare providers, and administrators was forthcoming.

Larry's history and current status was discussed but there was little direction toward summarizing Larry's anticipated demands and potential problems. Again, because of the late start and a poor preplanning phase only a cursory exploration of Larry's strengths and talents

were forthcoming. There were some identification of Larry's needs yet no discernable recommendations of modifications. It should be noted that within the school system there was no brainstorming for an ideal plan for this TBI student. In summation the seven sub sets in the Planning Process as outlined by Blosser and DePompei might have entered the thought processes of some of the participants but there was never a systematic approach to Larry's condition in the Planning Process.

Larry began to show some improvement in the 10<sup>th</sup> grade. His Individual Education Program (IEP) was signed 8/24/95 by seven participants, teachers, administrators, clinicians, and agreed to by Larry's father (DO138). This 15 page document purports to show that there was an awareness of a problem and the staff was implementing steps to rectify the problem. "Current testing (language) indicates a significant 15 point gap between receptive and expressive skills, receptive being stronger. There appears to be significant difficulty in formulating sentences from the given word. These defects adversely affect educational performance to a significant degree" (DO138).

According to Blosser and DePompei (1994) during the Implementation Phase one must take action on the previous plans. Yes, action was taken on Larry's condition but without the adherence to a systemic approved re-entry plan by one person in overall charge. "One cannot run a train by committee" (KM85JO). On a personal planning level, the school district's IEP addressed Larry's behavior, performance, and responses. He was provided with supplemental instructional materials with additional resources and technology (DO138). However, on a district level, data reflected an absence of self-evaluative interactions, supportive behaviors, use of strategies, and procedures.

With regard to the implementation phase, in summation the interviewees continued to observe the circumstances surrounding Larry's condition yet reassessment, information gathering, and program revision was limited. With regard to the evaluation phase, it was recommended by the School Psychologist that Larry's cognitive and academic achievement progress be reviewed on an annual basis rather than waiting for a triennial review (DO141). Larry was reevaluated (DO159). This reevaluation was in keeping with Blosser and DePompei's Evaluation Phase.



### *Disconnect Between the Family and the School System*

The family was not treated as an equal partner in the assessment, planning, and intervention process therefore a disconnect occurred. A minimum of services were designed to foster the family's decision making skills while protecting their rights and wishes. Whether there was consistent encouragement by staff members to have the family outwardly express their concerns, ideas, and fears was not clearly discernable from this data to reflect whether the staff were listening attentively to family members and followed up on their requests.

According to Savage and Wolcott (1988), participation of staff members should, "Recognize the individuality and variability in families and modify services to meet unique needs, degrees of involvement, and styles of interaction." Additionally, "Recognize the family's strengths, and needs, as well as their goals and priorities-- incorporate the information gleaned into the service plan." As explained in Chapter 4 there was no written proactive plan so total measurable incorporation of Savage and Wolcott's (1988) principles of integrating families into the intervention process was virtually nonexistent.

In Larry's case his father had earned a PhD and one could assume that Savage and Wolcott's axioms of providing complete information, using terminology that was easily understood, assisting in accessing support networks, and building sufficient time to work with the family into treatment seemed to be an easier task than other less educated families. However, the question arises that it might have well been an easier task but to what degree were these axioms followed and did the staff realize there were guidelines available but not in a school plan for integrating families into the intervention process.

Blosser and DePompei (1994) have provided a Sample Individualized Family – Peer Intervention Plan that should be incorporated into any written proactive plan within a school system, (see Appendix H). Appendix I outlined family competencies needed to participate in the planning, implementing, assessment, and treatment.

1. To understand and interpret medical and clinical reports....
2. To demonstrate a working knowledge of all rehabilitation and educational programs in which the TBI student is enrolled.
3. To predict problems... or to identify problems as they occur and to suggest multiple strategies... to remedy problems.

4. To develop an awareness and inventory of resources that can be shared with others as the TBI student progresses through transitional situations, Blosser and DePompei, (1994) p. 78.

*Failures and Successes in the Proactive Planning Process*

After all data were analyzed by the researcher the following numerical values are provided for the school division using the Proactive Planning Process developed by Blosser and DePompei. There were only 3 categories of “no evidence” found, one in the Preplanning Phase and two in the Evaluation Phase. As expected there were 23 categories of “some evidence” found spanning all phases. There were two (2) categories of “Clear and Compelling Evidence” in the Planning Phase.

Table 4.2

*Categories of Evidence*

No Evidence	1
Some Evidence	2
Clear and Compelling Evidence	3

Note: Matrices were developed from all data sources. Values were assigned to reflect the strength of the evidence.

*Pre-Plan*

Form inter-professional and interagency networks	2
Collaborate with family and significant professionals	2
Obtain medical and educational histories	2
Assess performance	1
Clearly describe behaviors	2
Analyze demands, expectations in various environments, situations	2
Observe performance in various contexts	2
Assess capabilities of the environment	2
Analyze modifications necessary	2
Prepare staff and others to understand, problem solve, and assist	2

### *Plan*

---

Gather and collate information from family, teachers, rehab professionals, specialists, health care providers, and administrators	2
Discuss history	3
Describe current status	3
Summarize anticipated demands and potential problems	2
Indicate expectations, fears	2
Explore strengths and talents	2
Identify needs and recommendations of modifications	2
Brainstorm an ideal plan	2

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### *Implement*

---

Take action on plans	2
Observe youngster's behaviors, performance, and responses	2
Associate findings with impairments	2
Self-evaluate interactions, behaviors, use of strategies and procedures	2
Supplement instructional resources and technology	2

---

### *Evaluate*

---

Interweave implementation strategies into all interactions, learning, working, and playing situations	1
Maintain ongoing observation	2
Reassess only if necessary	2
Continuously gather information from people in the youngster's environment	2
Collaborate to determine the need for program revisions	1

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Chapter 2 reviews related literature and research studies. We have recently discerned what TBI is, how it affects students, and methods of comparing and contrasting TBI with

acquired brain injuries. While this information is important we still lack well written proactive plans that can be an overall guide for a step-by-step approach in the execution of a plan.

There is no doubt that TBI must be understood before a proficient, effective, and solid plan can be developed. The existing literature leans heavily on educating the reader on the nuances and effects of TBI but little on coordinating staff efforts in a systematic approach to executing school integration.

It seems ironic that while brain injuries are the largest killers and disablers of children that more attention has not been forthcoming in a tried and true process for integrating TBI students into the school system.

## CHAPTER 5

### CONCLUSIONS, IMPLICATIONS, RECOMMENDATIONS

Overall the school division, in this case did not respond in a timely, interactive, and decisive manner to the reentry of a TBI student. As a result of this inherent indecisiveness a “scattered approach” to the reintegration process was the norm. Underlying this scattered approach was the fact that authority and responsibility among staff members was blurred. There were indications that many of the staff were unaware of the unique circumstances surrounding the returning student with a TBI. It was apparent that the lack of a written guide exacerbated this unawareness.

It was also evident that, in addition to the absence of a comprehensive written guide, no one person was designated with the responsibility and overriding authority to direct, who was “in charge”. There seems little substitute for organization, responsibility, authority, knowledge, and follow-through. These five prime elements as revealed through interviews, documents, and records are necessary in problem-solving situations. These components were lacking in varying degrees. As such, a disorganized approach led to a lack of definitive yet flexible time-lines, insufficient ongoing contact with other agencies, and inadequate staff. The foregoing in no way indicates a lack of resources but does indicate an overall lack of organization and follow-through. Ostensibly, everyone must be looking at and adhering to the written guide.

#### Implications

##### *Providing Clear Leadership*

Every organization takes on a mindset of its own. This mindset is established over time from the leaders and the staff. At times, mindsets of some staff members must be altered to accommodate the smooth transition and adherence to selective structural changes in the system i.e. definitive guidelines, a change in hierarchical structure, reporting procedures, responsibility and authority awareness, and performance evaluations, etc. The proposal of definitive guidelines with emphasis on team effort as recommended by research literature and by the findings of this case study should override bureaucratic individual turf issues. Recommendations reflecting the need for greater clarity and communication are addressed in the following section. Nevertheless, it is necessary that the educational staff identify a responsible leader with overall authority,

designation of the staff's specific duties and responsibilities, and the need and direction for continuous collaboration during all phases of an established proactive plan.

It is apparent from the findings of this exploratory case study not only should educators become more aware of, and conversant with, traumatic brain injuries but become advocates for a proactive plan that incorporates the iterations mentioned in this study. A "scattered approach" and "make a plan as you go" has no place in professional organizations. With the increasing awareness, particularly since the 1990s, of the ramifications and the nuances of TBI coupled with the emphasis in the IDEA, the groundwork has been laid for an extensive overview of the transition of students with TBI into the school systems. Advocacy for more emphasis on students with TBI and well-grounded directive programs must come from the hierarchy in the school structure. Without such impetus from senior staff of school divisions, the wheels of progress will not go forward. If solid, emphatic, all encompassing, directive, and utilitarian proactive plans are to be developed and utilized, it becomes incumbent on all participants to become fully involved.

#### *Providing a Pro-active Plan*

The following brief guide is designed to support school systems in being successful in the reintegration process of students with TBI. Critical to successful integration is the understanding of TBI coupled with treating TBI. With both of the foregoing one is then open to developing a proactive plan. Leadership for plan development can be shared, but leadership to initiate this important process must come from those in positions of authority within school systems.

There are five primary elements necessary for problem-solving situations. Smooth reintegration of students with TBI is a problem that should be solved with efficacy and effectiveness. There has to be an overall authority that is recognized and accepted by the participants. This authority must have decision-making prerogatives. Responsibility goes hand in hand with authority. But both authority and responsibility must act within the realm of organization either in place or formed to solve a specific problem. Finally there must be a modicum of knowledge among the participants. Ostensibly, however, organization, responsibility, authority, and knowledge rarely work without follow-through.

With the foregoing in mind, the essential components for successful reintegration are the following: (a) identified leadership; (b) professional staff; (c) in-place organization; and (d) a written definitive proactive plan. This written plan must cover the pertinent facts of TBI

researched from existing literature. The plan must portray an organizational chart. The plan must be specific as to who and/or what organization/staff/section has responsibility for certain actions. At the least the plan must cover the following items in detail:

1. Situational TBI including specific situations
2. The task (mission)
3. Execution (How, who, where, when etc.)
4. Administration
5. Communication procedures and control

Moreover, there must be a definitive written directive initiated by the Director of Special Education and Related Services identifying a responsible leader for each TBI case. This directive would provide a means to identify the case manager and leader who would implement the previously written proactive plan.

These four essential components if implemented correctly should lead to the efficient and effective reintegration into the school setting of a student with TBI. Although this brief guide is simplistically stated, it tends to be violated often in many problem-solving cases.

Finally, when dealing with the reintegration process of a student with TBI it is strongly recommended that a study guide be initiated for a framework for a Proactive Plan. An overall study guide must include a fictional scenario in which a sample proactive plan is written from this fictional scenario. This sample proactive plan must vividly show the step by step complete process necessary in writing a plan from a scenario (fictional).

The fictional scenario and the sample proactive plan are merely lead-ins to the final goal, a detailed formatted proactive plan. This plan, as a guide, must have all possible iterations that should be covered in a viable plan. This would enable the drafters of any plan to be able to easily discern all steps that could be written into a plan.

#### Recommendations for Further Research

It is recommended that a study be conducted that incorporates a framework for a proactive plan for the reintegration into a school system of students with TBI. This framework should include and expand but not be limited to Blossers and DePompei's (1994) Proactive Planning Process: (1) preplanning; (2) planning; (3) implementation; and (4) evaluation, (PPIE). The framework should encompass additional development of PPIE that is adjusted to the

uniqueness of a student with TBI.

A study guide on TBI that encompasses an overview of the characteristics of TBI should be part of this overall recommended study. This recommended study should contain a detailed fictional scenario similar to this case study. This fictional scenario must be in-depth and realistically portray all of the ramifications, nuances, and characteristics of a student with TBI. The singular purpose of this fictional scenario will be the all-encompassing plot for a follow-on sample proactive plan written from the information presented in the fictional scenario. Thus, the fictional scenario is the lead into an illustrative sample pro-active plan that gives to the reader a “feel” for the nature, direction, guide, setting, possible complexity, process, and approach necessary in drafting a proactive plan. It must be kept in mind that this plan is a sample plan based on the fictional scenario. The last part of this recommended study must consist of a detailed format of a proactive plan for the mechanistic textual conveyance of all possible iterations necessary to insure proper reintegration of a TBI student. The formatted plan will be the detailed guide necessary to write a comprehensive plan for any real life scenario. Not only will this plan entail those recommendations outlined in the Interpretive Commentary in Chapter 4 but should contain but is not limited to the aforementioned comments.

Secondarily, this study could be a catalyst and informational well spring for a number of follow-on research options. As such, additional future research studies could utilize this study as an expedient tool to compare and analyze similar sets of circumstances that were presented in this study. One recommended approach could be a study of three or more students with TBI, located in different schools. Researchers could compare and contrast all aspects of this case study with the reintegration of TBI students into their respective school systems. In so doing, future researchers could readily identify the strengths and weaknesses within their school system. It is imperative that the researchers in their studies explore the strengths and weaknesses of the school division regarding the school staff, the in-house guidelines, the plan for reintegration and the adaptation of the TBI student. In this way research into TBI via case studies would be initiated from a research start point rather than “starting from scratch”.

#### Personal Reflections on Larry and his Reintegration

The impetus for this study began with a terrible automobile accident. Involved in the accident were a colleague and her 16 year old son who sustained a traumatic brain injury.



Although the colleague was seriously injured in the accident, she devoted all of her energies to the recovery and rehabilitation of her son. Unfortunately, several months later, the colleague was diagnosed with non-Hodgkin's lymphoma. She died the following summer.

Prior to the accident, Larry had been found eligible for the Gifted and Talented Program. Now, he was facing a lengthy recovery period. It was quickly realized by those knowledgeable of his medical progress that Larry's reentry into the school would be difficult. This relative newly identified TBI disability category was not fully understood. It was obvious that additional research could shed substantially more light on TBI in general and Larry's case in particular. As I developed my dissertation research I questioned how could this family, educational professionals, and other interested parties be assisted in this matters related to TBI? What would be the best avenue to take? What process was most favorable to Larry? Within the school's existing resources, who could have performed what and how could this performance have been more effective in reintegrating Larry into the school setting?

As the researcher, my keen interest in this subject emanated from three dissimilar yet connected particulars: (1) I knew Larry personally; (2) I have a stepson with a similar disorder; and (3) the research indicates there is no comprehensive and definitive mechanistic guide for the reintegration into the school setting of TBI for students, teachers, school-based clinicians, and staff. Thus, the discovery process was rewarding for me due to the close affinity to and with the student and for the clarification of a roadmap toward school reintegration of other students with TBI.

I served as a mentor to Larry during his last two years of high school. During the time I acted as mentor, the strengths and weaknesses of the school division in the reintegration process were noted by many personnel. There was considerable dialogue with and amongst school-based clinicians, teachers, and therapists. Eventually, Larry graduated from high school and entered the work world.

As my interest in TBI and my curiosity about Larry's situation increased, I went on to seek a paradigmatic situation similar to Larry's that would give sufficient insight and systemic guidelines to more effectively reintegrate a student with TBI into the school setting. Fortunately, research led to Blosser and DePompei's (1994) exemplary planning process. This, indeed, was a model that could be applied to TBI students. But it did not go far enough into developing an all encompassing step by step definitive guide (pro-active plan) for use by school divisions to insure

the most effective and efficient mode of procedure in dealing with students with TBI. Blosser and DePompei laid out a solid process but there was no mode of procedure. Of course, the requisite need for a mode of procedure was not entirely clear until this study was in its final stages. After considerable investigative research including reviewing documents and conducting interviews, I determined that treating a TBI student, understanding TBI, and developing a proactive plan to implement treatment is critical to successful reintegration.

### Reflections on the Research Process

More times than not, stating the problem in simple and understandable language takes considerable forethought. Although the law may recognize TBI as a separate and unique form of disability, the public at large including selective educators may not recognize TBI as a separate and unique form of disability. Therefore, it becomes incumbent in a study such as this to inform readers about TBI. This in itself takes on a lengthy contextual exposition of the topic. The writer or researcher must explain in detail, clarity and forethought what the problem is and inform the reader as to the veracity, timeliness, and urgency of the problem. The writer/researcher must strive to imbue the reader with an urgency of one “seeking the holy grail.” So merely stating the problem rarely enjoins the attention necessary to promote the nuances and understanding of the problem.

In the case of TBI not only is it incumbent upon the writer/researcher to define characteristics of students with TBI, purpose of the study, develop pointed research questions, initiate brief overview of methodology, discuss limitations and assumptions, compile an array of definitions, and explain the significance of the study but to encompass, list and selectively refer to related literature and research studies.

The statement of the problem indeed becomes the problem, in my view, if the aforementioned explanatory observations are not adhered to when attempting to present the study. You as a writer/researcher must insure that the reader is the educand.

### Methodological Approach

When your reader is informed on the problem it becomes much easier to win his/her support for your methodological approach. The reader will tend to be more readily acceptable to your restatement of the problem, the purpose of the study, your posed research questions, and the conceptual framework of your study. The reader now will have a better feel for the significance

and rationale of your study.

As such, the type of design selected for the study should be predicated on the in-depth explanation of the problem. In this particular case study a linear-analytic structure was deemed to be the best approach. There were no propositions in this case study. The unit of analysis was the student who had encountered TBI.

I assume a variety of roles as a participant observer. This enhanced the data collection because I was able to use unusual and selective opportunities for collecting data. By assuming the role as a participant observer I was able to gain access to other participants in their work environment and to monitor actions of selective groups and meetings that pertained to the subject matter being investigated. I was also able to manipulate certain minor events. The manipulatives afforded me a greater variety of situations for the purpose of collecting data. The catalyst for my role as a participant observer was taken from Yin (1994). I backed-up my participant-observer status with a Daily Journal which consisted of a chronology of who was interviewed, what they said, unearthed biases and cross tabulation of other data through the triangulation process.

My interview protocol reflected in Appendix N was my most important, influential and significant Corinthian column in my study. Ostensibly, the interview protocol plus the un-redacted documentation resulted in the majority of my data. My data collection procedures were developed by me with the aid of my research into Blosser and DePompei's Proactive Planning Process. I was able to query the interviewees extensively in a systematic and qualitative manner that lent itself to cross checking data procedures that further insured the validity of the study. In addition, I devised matrices of all the un-redacted documents in conjunction with the archival records and the interviewees statements. These matrices enabled me to more readily discern trends, repetition of data, and biases in some data.

### Findings

My findings from the extensive data were made a great deal less cumbersome because I devised a simple yet effective coding system, various matrices for cross checking data, a coded and bound compendium of data sources, and a daily journal. These data sources were the instrumental conductors in establishing the student's strengths and weaknesses, the examination of the school system in the reintegration process, the strengths and weaknesses of the school division in the reintegration process, discussion of the findings, and reflections. Moreover, the

data sources gave me an in-depth look at the failures and successes in the proactive planning process. In addition, I was more able to review the literature in relation to the heretofore explanation of the data sources. I was able to be definitive in the overall support that was found in the literature as well as some degrees of non-specificity in the literature in relation to my recommendation of a need for written all encompassing proactive plan.

It was a journey. It was a challenge, it brought satisfaction. If I were to start the journey over again I would proceed via the identical modus operandi when I took my first step in September, 1994.

### Concluding Statement

This case study with all of its twists and turns, moments of frustrations, and separating the wheat from the chaff, was indeed personally satisfying. Increasingly, as data were reviewed and analyzed, it became more apparent that a definitive written guide for the reintegration of students with TBI into the school setting was necessary.

As additional documentation and other pertinent information were unearthed, it became readily apparent that certain specific components were necessary to insure successful reintegration into the school setting of a student who had sustained a TBI. Professionalism, organization, and a substantial written proactive plan were essential.

For me, this case study was an expedition. It was exciting, telling, rewarding, and gratifying. Each case study is similar to a Lewis and Clark expedition. One does not know what challenges and discoveries are around the bend in the river. Similar to the expedition, each case study sails on uncharted waters. Therefore, one cannot nor should not draw inferences or conclusions until the journey's end. For me, this is the end of a journey, yet the beginning for another researcher to continue the voyage toward further research and discovery.

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## APPENDIX A

### The Glasgow Coma Scale

The Glasgow Coma Scale rates a patient's ability to open eyes, respond to verbal commands and verbal responses. Each level of response indicates the degree of brain injury.

<u>Glasgow Coma Scale</u>	
<u>Eyes</u>	<u>Score</u>
Open spontaneously	4
Open to verbal command	3
Open to pain	2
No response	1
<u>Best motor response to verbal command</u>	
Obeys verbal command	6
<u>Best motor response to painful stimulus</u>	
Localizes pain	5
Flexion - withdrawal	4
Flexion abnormal	3
Extension	2
No response	1
<u>Best verbal response</u>	
Oriented and converses	5
Disoriented and converses	4
Inappropriate words	3
Incomprehensible sounds	2
No response	1

The lowest score is a 3 and indicates no response from the patient. A person who is alert and oriented would be rated at 15" (Jennett & Teasdale, 1981, p. 24).

## APPENDIX B

### Definitions

#### Abstract Concept

A concept or idea not related to any specific instance or object, which potentially can be applied to many different situations or objects. Persons with cognitive deficits often have difficulty understanding abstract concepts.

#### Abstract Thinking

Ability to apply abstract concepts to new situations and surroundings.

#### Acalculia

The inability to perform simple problems of arithmetic.

#### Acquired Brain Injury

Acquired injury to the brain is the result of either an external physical force or internal causes, which results in an impairment of cognitive, emotional, and/or physical functioning. It is not of a degenerative or congenital nature but caused by an external physical force or by internal damage such as anoxia (lack of oxygen), stroke, disease, or tumor. It may produce a diminished or altered state of consciousness, which results in impairment of "thinking processes" and physical abilities. These impairments may be either temporary or permanent, and cause partial or total functional disability or psychosocial maladjustment.

#### Acute Care

The phase of managing health problems which are conducted in a hospital when patients need medical attention.

#### Acute Rehabilitation Program

Primary emphasis on the early phase of rehabilitation which usually begins as soon as the patient is medically stable. The program is designed to be comprehensive and based in a medical facility with a typical length of stay of 1-3 months. Treatment is provided by an identifiable team in a designated unit.

#### Affect

The observable emotional condition of an individual at any given time.

### Agnosia

Failure to recognize familiar objects although the sensory mechanism is intact.  
May occur for any sensory modality.

### Agraphia

Inability to express thoughts in writing.

### Alexia

Inability to read.

### Ambulate

To walk.

### Amnesia

Lack of memory about events occurring in a particular period of time.

### Aneurysm

A balloon-like deformity in the wall of a blood vessel. The wall weakens as the balloon grows larger, and may eventually burst, causing a hemorrhage.

### Anomia

Inability to recall names of objects. Persons with this problem often can speak fluently but have to use other words to describe familiar objects.

### Anosmia

Loss of the sense of smell.

### Anoxia

A lack of oxygen. Cells of the brain need oxygen to stay alive. When blood flow to the brain is reduced or when oxygen in the blood is too low, brain cells are damaged.

### Antergrade Amnesia

Inability to consolidate information about ongoing events. Difficulty with new learning.

### Aphasia

Loss of the ability to express oneself and/or to understand language. Caused by damage to brain cells rather than deficits in speech or hearing organs.

### Apraxia

Inability to carry out a complex or skilled movement; not due to paralysis, sensory changes, or deficiencies in understanding.

#### Arousal

Being awake. Primitive state of alertness managed by the reticular activating system (extending from the medulla to the thalamus in the core of the brain stem) activating the cortex. Cognition is not possible without some degree of arousal.

#### Articulation

Movement of the lips, tongue, teeth and palate into specific patterns for purposes of speech.

#### Astereognosia

Inability to recognize things by touch.

#### Ataxia

A problem of muscle coordination not due to apraxia, weakness, rigidity, spasticity or sensory loss. Caused by lesion of the cerebellum or basal ganglia. Can interfere with a person's ability to walk, talk, eat, and to perform other self care tasks.

#### Atrophy

A wasting away or decrease in size of a cell, tissue, organ, or part of the body caused by the lack of nourishment, inactivity or loss of nerve supply.

#### Attention/Concentration

The ability to focus on a given task or set of stimuli for an appropriate period of time.

#### Audiologist

One who evaluates hearing defects and who aids in the rehabilitation of those who have such defects.

#### Balance

The ability to use appropriate righting and equilibrium reactions to maintain an upright position. It is usually tested in sitting and standing positions.

#### Behavior



The total collection of actions and reactions exhibited by a person.

#### Bilateral

Pertaining to both right and left sides.

#### Brain Injury, Acquired

The implication of this term is that the individual experienced normal growth and development from conception through birth, until sustaining an insult to the brain at some later time which resulted in impairment of brain function.

#### Brain Injury, Closed

Occurs when the head accelerates and then rapidly decelerates or collides with another object (for example the windshield of a car) and brain tissue is damaged, not by the presence of a foreign object within the brain, but by violent smashing, stretching, and twisting of brain tissue. Closed brain injuries typically cause diffuse tissue damage that result in disabilities which are generalized and highly variable.

#### Brain Injury, Mild

A patient with a mild traumatic brain injury is a person who has had a traumatically-induced physiological disruption of brain function, as manifested by a least one of the following: 1) any period of loss of consciousness, 2) any loss of memory for events immediately before or after the accident, 3) any alteration in mental state at the time of the accident (e.g., feeling dazed, disoriented, or confused), 4) focal neurological deficit(s) which may or may not be transient; but where the severity of injury does not exceed the following: a) loss of consciousness of approximately 30 minutes or less; b) after 30 minutes, in initial Glasgow Coma Scale score of 13-15; c) Post Traumatic Amnesia not greater than 24 hours.

#### Brain Injury, Traumatic

Damage to living brain tissue caused by an external, mechanical force. It is usually characterized by a period of altered consciousness (amnesia or coma) that can be very brief (minutes) or very long (months/indefinitely). The specific disabling condition(s) may be orthopedic, visual, aural, neurologic,

perceptive/cognitive, or mental/emotional in nature. The term does not include brain injuries that are caused by insufficient blood supply, toxic substances, malignancy, disease-producing organisms, congenital disorders, birth trauma or degenerative processes.

#### Brain Plasticity

The ability of intact brain cells to take over functions of damaged cells; plasticity diminishes with maturation.

#### Brain Scan

An imaging technique in which a radioactive dye (radionuclide) is injected into the blood stream and then pictures of the brain are taken to detect tumors, hemorrhages, blood clots, abscesses or abnormal anatomy.

#### Brain Stem

The lower extension of the brain where it connects to the spinal cord. Neurological functions located in the brain stem include those necessary for survival (breathing, heart rate) and for arousal (being awake and alert).

#### Case Management

Facilitating the access of a patient to appropriate medical, rehabilitation and support programs, and coordination of the delivery of services. This role may involve liaison with various professionals and agencies, advocacy on behalf of the patient, and arranging for purchase of services where no appropriate programs are available.

#### Cerebellum

The portion of the brain (located at the back) which helps coordinate movement. Damage may result in ataxia..

#### Cerebral-Spinal Fluid (CSF)

Liquid which fills the ventricles of the brain and surrounds the brain and spinal cord.

#### Chronic

Marked by long duration or frequent recurrence.

#### Cognition

The conscious process of knowing or being aware of thoughts or perceptions, including understanding and reasoning.

#### Cognitive-Communicative Disorders

Communicative disorders that result from deficits in linguistic and non-linguistic cognitive processes.

#### Cognitive Rehabilitation

Therapy programs which aid persons in the management of specific problems in perception, memory, thinking and problem solving. Skills are practiced and strategies are taught to help improve function and/or compensate for remaining deficits. The interventions are based on an assessment and understanding of the person's brain-behavior deficits and services are provided by qualified practitioners.

#### Coma

A state of unconsciousness from which the patient cannot be awakened or aroused, even by powerful stimulation; lack of any response to one's environment. Defined clinically as an inability to follow a one-step command consistently; Glasgow Coma Scale score of 8 or less.

#### Communicative Disorder

An impairment is the ability to: 1) receive and/or process a symbol system, 2) represent concepts or symbol systems, and/or 3) transmit and use symbol systems. The impairment may be observed in disorders of hearing, language, and/or speech processes.

#### Community Skills

Those abilities needed to function independently in the community. They may include: telephone skills, money management, pedestrian skills, use of public transportation, meal planning, and cooking.

#### Comprehension

Understanding of spoken, written, or gestural communication.

## Concentration

Maintaining attention on a task over a period of time, remaining attentive, and not easily diverted.

## Concrete Thinking

A style of thinking in which the individual sees each situation as unique and is unable to generalize from the similarities between situations. Language and perceptions are interpreted literally so that a proverb such as “a stitch in time saves nine” cannot be readily grasped.

## Concussion

The common result of a blow to the head or sudden deceleration usually causing an altered mental state, either temporary or prolonged. Physiologic and/or anatomic disruption of connections between some nerve cells in the brain may occur. Often used by the public to refer to a brief loss of consciousness.

## Confabulation

Untrue aspects of connected speech, story telling, and/or filling in information.

## Cortical Blindness

Loss of vision resulting from a lesion of the primary visual areas of the occipital lobe. Light reflex is preserved.

## CT Scan/Computerized Axial Tomography

A series of X-rays taken at different levels of the brain that allows the direct visualization of the skull and intra-cranial structures. A scan is often taken soon after the injury to help decide if surgery is needed. The scan may be repeated later to see how the brain is recovering.

## Diffused Axonal Injury (DAI)

A shearing injury of large nerve fibers (axons covered with myelin) in many areas of the brain. It appears to be one of the two primary lesions of brain surgery, the other being stretching or shearing of blood vessels from the same forces, producing hemorrhage.

## Diffuse Brain Injury

Injury to cells in many areas of the brain rather than in one specific location.

### Diplopia

Seeing two images of a single object; double vision.

### Discipline

When referring to health care or education it means a particular field of study, such as medicine, occupational therapy, nursing, recreation therapy or others.

### Disinhibition

Inability to suppress (inhibit) impulsive behavior and emotions.

### Disorientation

Not knowing where you are, who you are, or the current date. Health professionals often speak of a normal person as being oriented "times three" which refers to person, place and time.

### Dysarthria

Difficulty in forming words or speaking them because of weakness of muscles used in speaking because of disruption in the neuromotor stimulus patterns required for accuracy and velocity of speech.

### Edema

Collection of fluid in the tissue causing swelling.

### Electroencephalogram (EEG)

A procedure that uses electrodes on the scalp to record electrical activity of the brain. Use for detection of epilepsy, coma, and brain death.

### Electromyography (EMG)

An insertion of needle electrodes into muscles to study the electrical activity of muscle and nerve fibers. It may be somewhat painful to the patient. Helps diagnose damage to nerves or muscles.

### Emotional Lability

Exhibiting rapid and drastic changes in emotional state (laughing, crying, anger) inappropriately without apparent reason.

### Executive Functioning

The ability to self-analyze, monitor, set goals and, determine success measures. Executive functioning develops throughout childhood.

## Expressive Speech or Language Problems

Difficulty in formulating phonemes, words, or sentences.

## Frontal Lobe

Front part of the brain; involved in planning, organizing, problem-solving, selective attention, personality and a variety of "higher cognitive functions."

## Glasgow Coma Scale

A standardized system used to assess the degree of brain impairment and to identify the seriousness of injury in relation to outcome. The system involves three determinants: eye opening, verbal responses and motor response all of which are evaluated independently according to a numerical value that indicates the level of consciousness and degree of dysfunction. Scores run from a high of 15 to a low of 3. Persons are considered to have a 'mild' brain injury when their score is 13 to 15. A score of 9 to 12 is considered to reflect a 'moderate' brain injury and a score of 8 or less reflects a 'severe' brain injury.

## Head Injury

Refers to an injury of the head and/or brain, including lacerations and contusions of the head, scalp and/or forehead.

## Hematoma

The collection of blood in tissues or a space following rupture of a blood vessel.

Regarding Brain:

Epidural – Outside the brain and its fibrous covering the dura, but under the skull.

Subdural – Between the brain and its fibrous covering (dura).

Intracerebral – In the brain tissue.

Subarachnoid – Around the surfaces of the brain, between the dura and arachnoid membranes.

## Hemiparesis

Weakness of one side of the body.

## Hydrocephalus

Enlargement of fluid-filled cavities in the brain, not due to brain atrophy.

### Hyper verbal Speech

Inappropriate control of the conversation by maintaining long spoken sentences containing little relevant content.

### Hypoxia

Insufficient oxygen reaching the tissues of the body.

### Intracranial ressure (ICP)

Cerebrospinal fluid (CSF) pressure measured from a needle or bolt introduced into CSF space surrounding the brain. It reflects the pressure inside the skull.

### Intrinsic Case

Study Researcher is interested in one particular case, a need to learn about one case, an intrinsic interest in the case.

### Kinesthesia

The sensory awareness of body parts as they move.

### Memory, Episodic

Memory for ongoing events in a person's life. More easily impaired than semantic memory, perhaps because rehearsal or repetition tends to be minimal.

### Memory, Immediate

The ability to recall numbers, pictures, or words immediately following presentation. Patients with immediate memory problems have difficulty learning new tasks because they cannot remember instructions. Relies upon concentration and attention.

### Memory, Long Term

In neuropsychological testing, this refers to recall thirty minutes or longer after presentation. Requires storage and retrieval of information which exceeds the limit of short term memory.

### Memory, Short Term

Primary or 'working' memory; its contents are in conscious awareness. A limited capacity system that holds up to seven chunks of information over periods of 30 seconds to several minutes, depending upon the person's attention to the task.

### Motor Control

Regulation of the timing and amount of contraction of muscles of the body to produce smooth and coordinated movement. The regulation is carried out by operation of the nervous system.

### Motor Planning

Action formulated in the mind before attempting to perform.

### Muscle Tone

Used in clinical practice to describe the resistance of a muscle to being stretched. When the peripheral nerve to a muscle is severed, the muscle becomes flaccid (limp). When nerve fibers in the brain or spinal cord are damaged, the balance between facilitation and inhibition of muscle tone is disturbed. The tone of some muscles may become increased and they resist being stretched – a condition called hypertonicity or spasticity.

### Neglect

Paying little or no attention to a part of the body.

### Neologism

Nonsense or made-up word used when speaking. The person often does not realize that the word makes no sense.

### Neurologist

A physician who specializes in the nervous system and its disorders.

### Neuropsychologist

A psychologist who specializes in evaluating (by tests) brain/behavior relationships, planning training programs to help the survivor of brain injury return to normal functioning and recommending alternative cognitive and behavioral strategies as well as with family members of the injured person.

### Non-ambulatory

Not able to walk.

### Nystagmus

Involuntary horizontal, vertical, or rotary movement of the eyeballs.



## Occipital Lobe

Region in the back of the brain which processes visual information. Damage to this lobe can cause visual deficits.

## Occupational Therapy

Occupational Therapy is the therapeutic use of self-care, work and play activities to increase independent function, enhance development and prevent disability; may include the adaptation of a task or the environment to achieve maximum independence and to enhance the quality of life. The term occupation, as used in occupational therapy, refers to any activity engaged in for evaluating, specifying and treating problems interfering with functional performance.

## Orientation

Awareness of one's environment and/or situation, along with the ability to use this information appropriately in a functional setting.

## Parietal Lobe

One of the two parietal lobes of the brain located behind the frontal lobe at the top of the brain.

## Phonation

The production of sound by means of vocal cord vibration.

## Plasticity

The ability of cellular or tissue structures and their resultant function to be influenced by an ongoing activity.

## Post Traumatic Amnesia (PTA)

A period of hours, weeks, days or months after the injury when the patient exhibits a loss of day-to-day memory. The patient is unable to store new information and therefore has a decreased ability to learn. Memory of the PTA period is never stored, therefore things that happened during that period cannot be recalled. May also be called Anterograde Amnesia.

## Pre-Morbid Condition

Characteristics of an individual present before the disease or injury occurred.

## Problem-Solving Skill

Ability to consider the probable factors that can influence the outcome of each of various solutions to a problem, and to select the most advantageous solution. Individuals with deficits in this skill may become “immobilized” when faced with a problem. By being unable to think of possible solutions, they may respond by doing nothing.

#### Prognosis

The prospect as to recovery from a disease or injury as indicated by the nature and symptoms of the case.

#### Psychologist

A professional specializing in counseling, including adjustment to disability. Psychologists use tests to identify personality and cognitive functioning. This information is shared with team members to assure consistency in approaches. The psychologist may provide individual or group psychotherapy for the purpose of cognitive retraining, management of behavior and the development of coping skills by the patient/client and members of the family.

#### Receptive Language Problems

Inability to follow directions and process auditory information.

#### Rehabilitation

Comprehensive program to reduce or overcome deficits following injury or illness, and to assist the individual to attain the optimal level of mental and physical ability.

#### Retrograde Amnesia

Inability to recall events that occurred prior to the accident; may be a specific span of time or type of information.

#### Speech-Language Pathology Services

A continuum of services including prevention, identification, diagnosis, consultation, and treatment of patients regarding speech, language, oral and pharyngeal sensorimotor function.

#### Tangential Speech

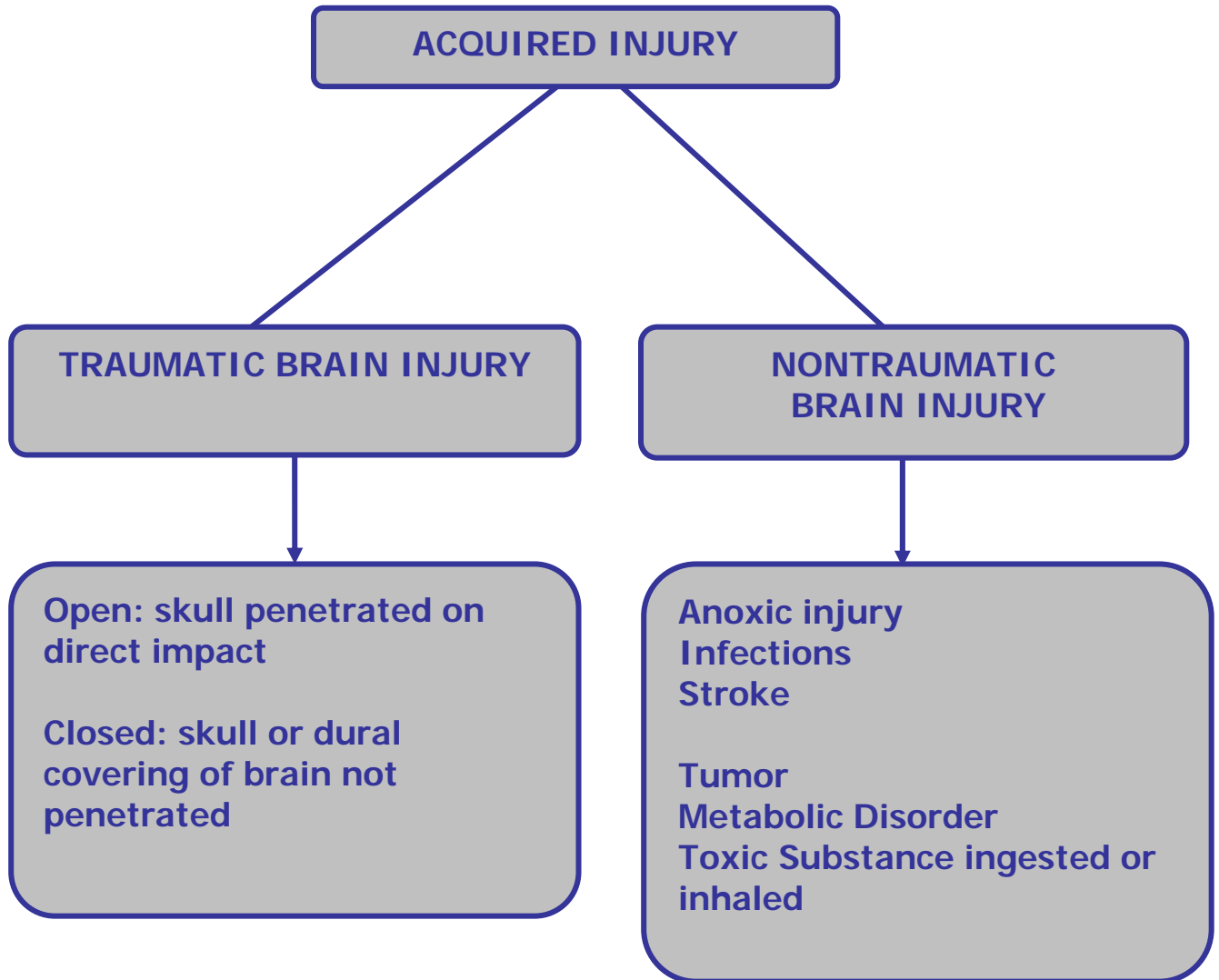
The inability to remain on a specific topic or to return to a topic area.

## Temporal Lobes

Temporal lobes are located on each side of the brain below the ears. These lobes allow a person to identify sounds, smells, sorting new information, and is believed to be responsible for short-term memory. The right lobe is mainly involved in visual memory, and the left lobe is mainly involved in verbal memory.

APPENDIX C

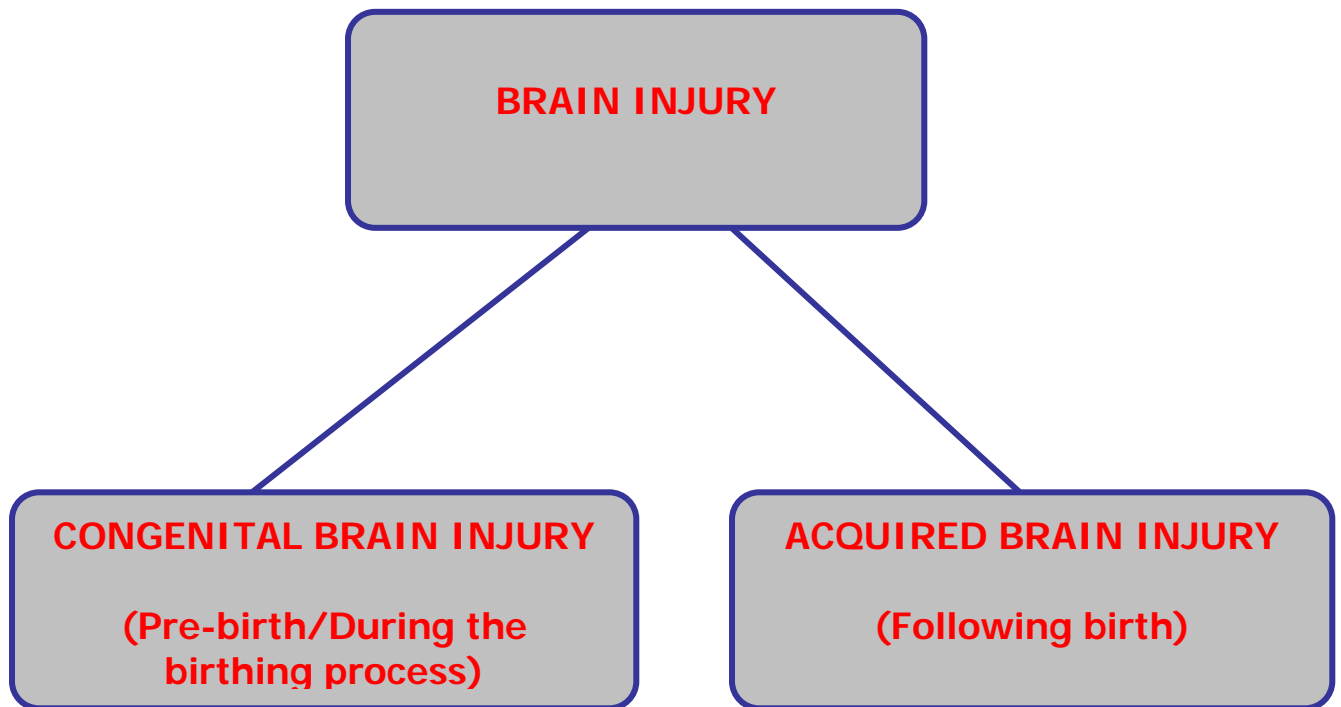
Differentiation of Acquired Brain Injury and Traumatic Brain Injury



Adapted from Savage, R. C. & Wolcott, G. G. (1994)  
*Educational Dimensions of Acquired Brain Injury*  
Austin, Texas: Pro-Ed.

APPENDIX D

Division of Brain Injuries – Congenital and Acquired



Adapted from Savage, R. C. & Wolcott, G. G. (1994)  
*Educational Dimensions of Acquired Brain Injury*  
Austin, Texas: Pro-Ed.

## APPENDIX E

List of characteristics that can occur in individuals with a head injury.

### **Medical:**

- seizures
- bowel and bladder control
- pain
- orthopedic

### **Sensory:**

- vision
- hearing
- smell
- touch
- kinesthesia (sensory awareness of body parts as they move)

### **Physical:**

- mobility
- hearing
- strength and balance
- coordination
- skilled motor activities
- endurance

### **Perceptual Motor:**

- visual neglect
- motor apraxia
- visual field cuts (inability to carry out a complex or skilled movement; not due to paralysis, sensory changes or deficiencies in understanding)
- motor speed and sequencing

### **Cognitive-Communication:**

- articulation
- language
- tangential speech
- abstraction
- hyper verbal speech
- reading comprehension
- writing
- anomia

**Cognitive:**

- memory (short & long term)
- attention
- thought process
- inability to anticipate and plan for the future
- concentration
- problem solving
- inability to plan action to meet desired goals
- self-awareness of abilities

**Behavior:**

- impulsiveness
- denial
- poor judgment
- depression
- emotional instability
- dependency

**Social:**

- not learn from social situations
- distract in noisy surroundings
- become lost even in familiar surroundings
- be bossy and argumentative
- demonstrate poor responsibility and dependency
- misperceive social actions and events
- be easily influenced by others

**Other behaviors that may be displayed:**

- loneliness
- restlessness
- stubbornness
- mood changes without reason
- unrealistic plans for the future
- sexually inappropriate behaviors
- hypersensitivity to noise or confusion
- reluctance to seek assistance when needed

Source: Reprinted from Blosser J. & DePompei, R., Professional training and development for pediatric rehabilitation. In C. Durgin, N. Schmidt & J. Fryer, Eds. *Staff Development and Clinical Intervention in Brain Injury Rehabilitation* p. 234 with permission of Aspen Publishers, Inc. Copyright 1993

## APPENDIX F

### Ranchos Los Amigos Cognitive Scale

The Ranchos Los Amigos Cognitive Scale describes levels of function and is used to assess the efficacy of treatment programs. The scale scores cover deep coma to appropriate functioning. Most survivors will demonstrate characteristics from several levels at once.

<b>LEVEL I:</b>	No response to pain, touch, sound or sight.
<b>LEVEL II:</b>	Generalized reflex response to pain.
<b>LEVEL III:</b>	Localized response to pain. Blinks to strong light, turns toward or away from sound. Responds to physical discomfort. Inconsistent response to commands.
<b>LEVEL IV:</b>	Confused and agitated. Alert, very active, aggressive or bizarre behaviors, performs motor activities but behavior is non-purposeful, extremely short attention span.
<b>LEVEL V:</b>	Confused and non-agitated. Gross attention to environment, highly distractable, requires continual redirection, difficulty learning new tasks agitated by too much stimulation. May engage in social conversation but with inappropriate verbalization.
<b>LEVEL VI:</b>	Confused and appropriate. Inconsistent orientation to time and place, retention span and recent memory impaired, begins to recall past, consistently follows simple directions, goal-directed behavior with assistance.
<b>LEVEL VII:</b>	Automatic and appropriate. Performs daily routine in high familiar environment in a non-confused but automatic robot-like manner. Skills noticeably deteriorate in unfamiliar environment. Lacks realistic planning for own future.
<b>LEVEL VIII:</b>	Purposeful and appropriate (Hagan & Malkmus, 1979, p. 33).



## APPENDIX G

### Principles of Integrating Families into the Intervention Process

1. Treat family as equal partners in the assessment, planning, and intervention processes.
2. Design services to foster the family's decision-making skills while protecting their rights and wishes.
3. Encourage family members to express their joys, fears, concerns, and ideas about their child's disabilities and needs – listen attentively and respond meaningfully to what they say.
4. Recognize the individuality and variability in families and modify services to meet unique needs, degrees of involvement, and styles of interaction.
5. Recognize the family's strengths, and needs, as well as their goals and priorities – incorporate the information gleaned into the service plan.
6. Provide complete information to families, using terminology that is easily understood.
7. Deliver services following coordinated and “normalized” approaches.
8. Assist families in accessing support networks.
9. Build sufficient time to work with families into treatment programs.

Savage, R. C. & Wolcott, G. G. (1991)

Savage, R. C. & Wolcott, G. G. (1998)

Blosser, J. & DePompei, R. (1994)

APPENDIX H

Sample Individualized Family-Peer Intervention Plan

<b>Individualized Family-Peer Intervention Plan</b>	
	School Year
Child's Name	School District
Address	School
	Grade
Phone Number	
Parent's Name	
Parent's Address	
I. Family and/or peers to be involved	
II. Staff to be involved	
III. Estimated number of sessions	
IV. Family or peer needs	
V. Goals per session	
VI. Topics to be covered	
VII. Techniques/Resources	
VIII. Evaluation	

Blosser. J. & DePompei, R. (1994)

## APPENDIX I

### Family Competencies Needed to Participate in the Planning and Implementing Assessment and Treatment

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1. To understand and interpret medical and clinical reports about the nature, extent, and impact of the child's TBI and resulting disabilities.
2. To demonstrate a working knowledge of all rehabilitation and educational programs in which the youngster is enrolled.
3. To predict problems prior to occurrence or to identify problems as they occur and to suggest multiple strategies that might be initiated to remedy problems.
4. To develop an awareness and inventory of resources that can be shared with others as the child progresses through transitional situations.

Blosser. J. & DePompei, R. (1994)

## APPENDIX J

### *Rehabilitation Center and School Networks*

1. Learn about TBI and its implications for education.
2. Know the special services offered by school systems in your area.
3. Make a personal call (with family permission) to the school or rehabilitation center and establish individuals at each facility who will maintain contact for planning purposes.
4. Relate the student's deficit areas to his or her ability to perform successfully on specific curricular tasks.
5. Invite professionals from the rehabilitation center to participate in the school's IEP meeting.
6. Share information about progress in the rehabilitation center with school personnel for school planning.
7. Encourage ongoing communication among rehabilitation facility, school, and family.

Blosser J. & DePompei, R. (1994)

## APPENDIX K

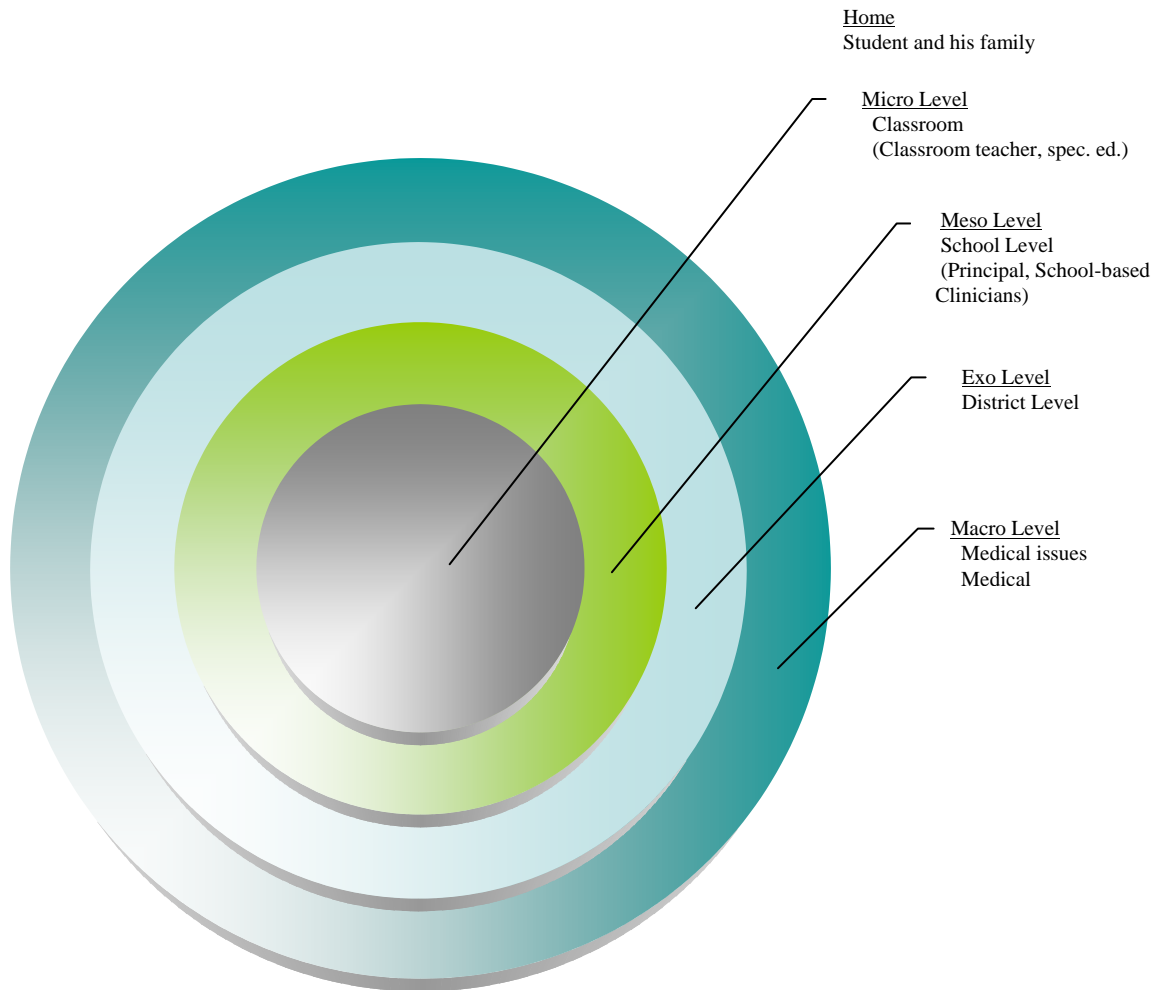
### PROACTIVE PLANNING PROCESS



Blosser, J. & DePompei, R. (1994)

APPENDIX L

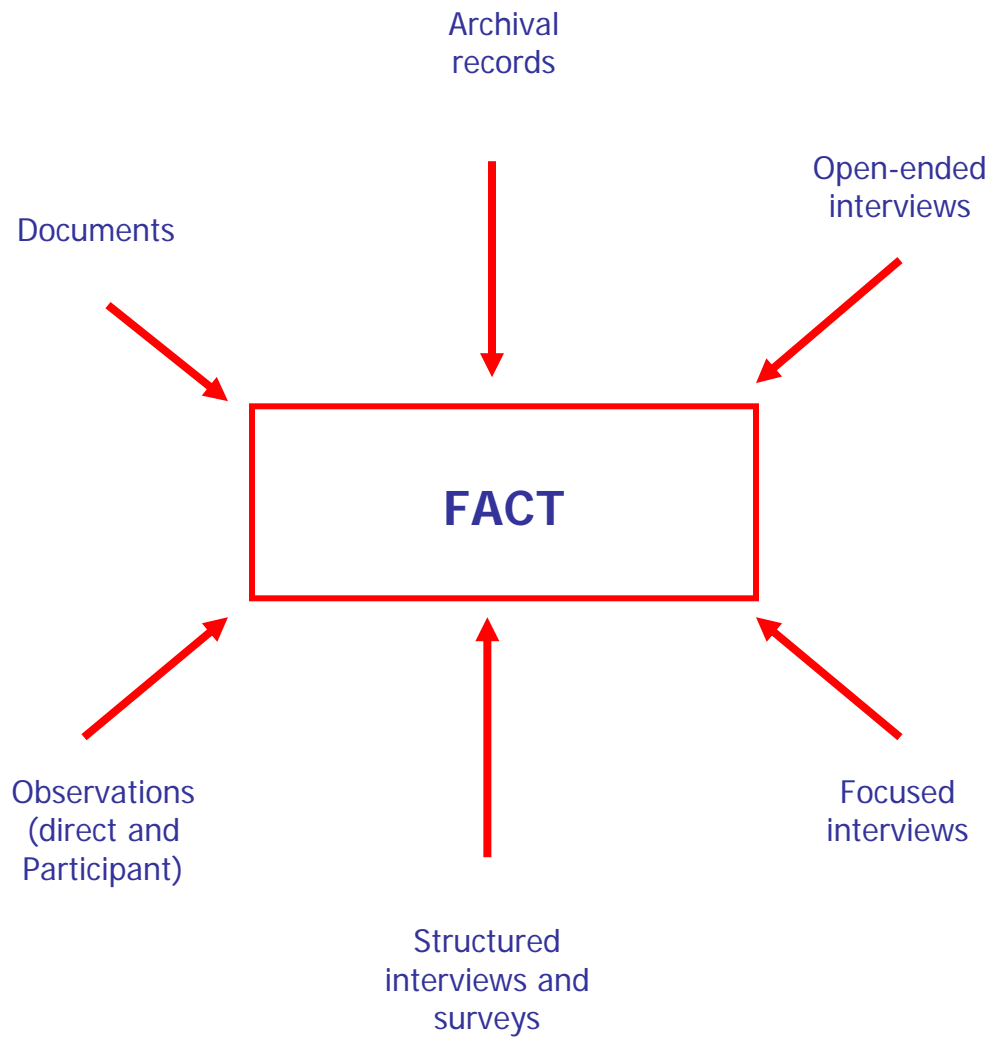
**Ecological Model of Educational Environments**



Source: Adopted from Urie Bronfenbrenner (1976)

APPENDIX M

CONVERGENCE OF  
MULTIPLE SOURCES OF EVIDENCE  
(Single Study)



APPENDIX N

**Interview Protocol**

**Tables 1 - 6**



**TABLE 1**  
**Interview Protocol**

**INTERVIEWEE REFLECTIONS ON THE TBI STUDENT**

Karen P. McWilliams  
12005 Bobwhite Drive  
Catharpin, Virginia 20143

Dear \_\_\_\_\_,

I would like for you to share with me some reflections on Larry so that my future interview with you will be more substantive. I will be asking you a number of questions when we meet. As you remember Larry please consider the following during the planning and implementation of his reintegration to school. The following “triggers” will give you an idea of what we will be discussing in the future.

1. Remembering Larry
  - A. Appearance (Pre and Post TBI)
  - B. Social Skills
  - C. Academics (Pre and Post TBI)
  - D. Motor Skills
  - E. Articulation
  - F. Medical Condition
  - G. Problem Solving
  - H. Adaptation to new surroundings
  - I. Cognitive Functioning
  - J. Creativity
  - K. Larry’s reintegration into the school setting.
  - L. Ways the reintegration could have been better
  - M. Your roles in the entire process
  
2. Please review the following as you consider the various aspects of his reintegration:
  - A. Appropriate actions of clinicians, teachers, etc. toward reintegration
  - B. Communication with family
  - C. Your assessment of what methods are more facilitative in the transition process.
  - D. Medical History
  - E. Test experiences

- F. Involvement of family members
- G. Evaluate school's capabilities for meeting Larry's educational needs.

I look forward to meeting with you in the near future. If you have any questions, please contact me at (703) 754-0396 or email me at [kmcwilliams@manassas.k12.va.us](mailto:kmcwilliams@manassas.k12.va.us).

Sincerely,

Karen P. McWilliams

## TABLE 2

### Interview Protocol

#### Introduction

I am in the process of researching the reintegration of a student who has sustained a Traumatic Brain Injury and is now returning to the public school setting after acute and rehabilitative care. Part of my research requires me to conduct in depth interviews with selected personnel who have some knowledge of the particular case.

#### QUESTIONS

1. What is your name?
2. What is your position?
3. What is your status and connection with Larry?
4. What is your role/experience with the following:
  - Preplanning
  - Planning
  - Implementation
  - Evaluation
    - To a smooth transition
    - Educational treatment planning process
    - Effective treatment programs
    - As facilitator
    - Member of the team
5. How long have you known the Larry?
6. Give an overview of your impression of Larry pre and post TBI:
  - Attention
    - Academics
    - Perseverance
    - Performance
    - Behavioral disruptions
  - Language
    - Articulation
    - Intonation
    - Volume
  - Motor Skills

- Coordination
- Flexibility
- Reasoning
  - Intelligence
  - Integrity
  - Creativity
  - Cognitive Functioning
- Executive Functioning
  - Appearance
  - Social Skills
  - Talents
  - Problem Solving
- Medical Conditions
- Strengths
- Weaknesses
- Adaptation to:
  - New Surroundings
  - Academic Challenges
  - Physical Challenges
  - Mental Challenges

7. From your perspective how was reintegration into the school setting?

8. What were your sources of information about TBI?

9. As you recall, what do you remember as barriers or facilitators to Larry's reintegration?

10. Why are you seeing these as barriers?

11. If applicable how did you:

- Maintain communication with family and professionals?
- Access available services?
- Develop ways of sharing student progress?

12. What is your assessment in this particular case of

- Structure of local school district
- Special Education procedures
- Timeliness
- Staff
- School division's ability to provide services

**TABLE 3**  
**Interview Protocol**  
**INVESTIGATIVE QUERY**

	<b>QUESTION</b>	<b>RESPONSE</b>	<b>PP</b>	<b>P</b>	<b>I</b>	<b>E</b>	<b>REMARKS</b>
1.	Name						
2.	Position						
3.	Status and Connection						
4.	Role/Experiences						
5.	How long have you known the subject?						
6.	Impression of the subject: Intelligence						
7.	Bearing						
8.	Social Skills						
9.	Academics						
10.	Perseverance						
11.	Integrity						
12.	Motor Skills						
13.	Articulation						
14.	Medical Condition						
15.	Performance						
16.	Problem Solving						
17.	Talents						
18.	Strengths						
19.	Weaknesses						
20.	Adaptation to: New Surroundings						

21.	Academic Challenges						
22.	Physical Challenges						
23.	Mental Challenges						
24.	Cognitive Functioning						
25.	Behavioral Concerns						
26.	Coordination						
27.	Flexibility						
28.	Creativity						
29.	How has the subject reintegrated into the school setting:						
30.	Your roles" (See p. 2)						
31.	What literature are you familiar with as it pertains to TBI?						
32.	Give an overview of your experiences with the use of effective and appropriate interventions of clinicians and teachers toward the reintegration process of TBI students						
33.	Did you maintain communication with family?						
34.	Did you maintain communication with professionals?						
35.	What is your assessment in this particular case of the structure of the local school division?						
36.	Special education procedures?						
37.	Timeliness?						

38.	Staff?						
39.	School division's ability to provide services?						
40.	Comment on: Medical history						
41.	Development						
42.	Effects of Medication						
43.	Education and Work History						
44.	Test Experience						
45.	Timing of Assessment						
46.	Redundancy across agencies						
47.	Use of Consumer advocates						
48.	Recognition of Strengths						
49.	Involvement of Family Members						
50.	Comment on the following: General requisite needs for educational success						
51.	Evaluate school's capabilities for meeting student needs						
52.	Preparations of Individualized Education Program (IEP)						
53.							
54.							
55.							

KEY: PP – Preplan  
P – Plan  
I – Implement  
E - Evaluate

**TABLE 4**  
**Interview Protocol**

**INVESTIGATIVE QUERY**  
**Addendum Sheet**

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

TIME: \_\_\_\_\_



**TABLE 5**  
**Interview Protocol**  
**EXPECTED EVIDENCE**

		DOCUMENTS	INTERVIEWS
<b>Pre-Planning</b>			
a.	Form inter-personal and interagency networks.		
b.	Collaborate with family and significant professional.		
c.	Obtain medical and educational histories.		
d.	Assess performance.		
e.	Clearly describe behaviors (strengths, needs).		
f.	Analyze demands, expectations in various environments, situations.		
g.	Observe performance in various contexts.		
h.	Assess capabilities of the environment (staff, competencies, resources, motivation)		
i.	Analyze modifications necessary.		
k.	Prepare staff and others in environment to understand, problem-solve and assist.		

		DOCUMENTS	INTERVIEWS
<b>Planning</b>			
a.	Gather and collate information from family, teachers, rehab professionals, specialists, healthcare providers, and administrators.		
b.	Discuss history.		
c.	Describe current status.		
d.	Summarize anticipated demands and potential problems.		
e.	Explore strengths and talents.		
f.	Identify needs and recommendations of modifications.		
g.	Brainstorm an ideal plan.		

		DOCUMENTS	INTERVIEWS
<b>Implementation</b>			
a.	Take action on plans.		
b.	Observe youngster's behaviors, performances, and responses.		
c.	Associate findings with impairments.		
d.	Self-evaluate interactions, behaviors, use of strategies, and procedures.		
e.	Supplement instructional materials with additional resources and technology.		

		DOCUMENTS	INTERVIEWS
<b>Evaluation</b>			
a.	Interweave implementation strategies into all interactions, learning, working, and playing situations.		
b.	Maintain ongoing observation.		
c.	Reassess only if necessary.		
d.	Continuously gather information from people in the youngster's environment.		
e.	Collaborate to determine the need for program revision.		

**TABLE 6**  
**Interview Protocol**

**Karen P. McWilliams**

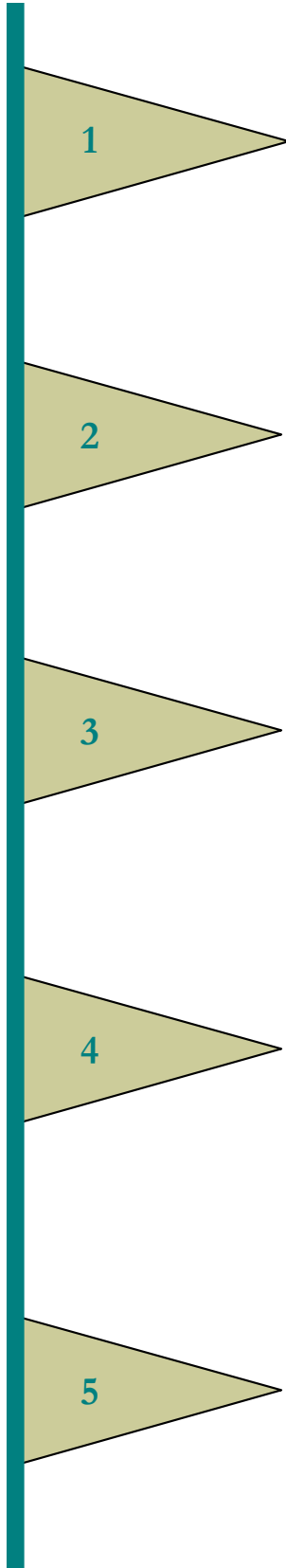
**Journal**

**Traumatic Brain Injury: The School Reintegration Process**

**Date:** \_\_\_\_\_

## APPENDIX O

### RECOMMENDATIONS



#### FRAMEWORK

1. Preplanning
2. Planning
3. Implementation
4. Evaluation

(Blosser & DePompei)

#### STUDY GUIDE

Textual Characteristics of TBI

#### FICTIONAL SCENARIO

(Example: Joe TBI Student)  
Similar to Larry in Traumatic Brain Injury: the School Reintegration Process by Karen P. McWilliams

#### SAMPLE PROACTIVE PLAN FROM SCENARIO

This sample proactive plan will be written specifically for the fictional scenario. This sample plan will cover all aspects of the fictional scenario. This is a learning tool to demonstrate how a plan can be written from a specific scenario.

#### DETAILED FORMAT FOR PROACTIVE PLAN

This all encompassing mechanistic format should be used as the general guide for all real-life TBI scenarios.

APPENDIX P

ILLUSTRATIVE QUOTES

**TABLE I**

**Larry's strengths generated from the data are summarized below with direct quotes:**

- |                               |  |
|-------------------------------|--|
| - "Endearing kindness"        | - "Grateful"   |
| - "Upbeat"                    | - "Honest"   |
| - "Pleasant"                  | - "Well-behaved"   |
| - "Polite"                    | - "Never a behavior problem"   |
| - "Perseverance"              | - "Clean-cut in appearance"  |
| - "Willingness to try"        | - "Integrity"  |
| - "Cooperative"               | - "Conscientious"  |
| - "Respectful"                | - "Perseverance was a huge strength"                                 |
| - "Courteous"                 | - "Pleasant personality"   |
| - "Ideal student"             | - "Remember – he graduated from high school!"                        |
| - "Neat, clean, well-groomed" | - "Appreciative of help given"                                       |
| - "Positive"                  | - "Homework and classroom assignments completed in a timely fashion" |
| - "Thankful"                  |  |
| - "Trustworthy"               |  |

**TABLE II**

**Larry's weaknesses garnered from the data are summarized below with direct quotes:**

- |   |   |
|---|---|
| <ul style="list-style-type: none"><li>- "Poor balance"</li><li>- "Poor coordination – not fleet of foot"</li><li>- "Shy"</li><li>- "Quiet"</li><li>- "Not articulate"</li><li>- "Reasoning, cognitive functioning diminished"</li><li>- "Few friends"</li><li>- "Weak social skills"</li><li>- "Inability to appreciate humor or value nuances"</li><li>- "Visible scars"</li><li>- "Bearing – slumped shoulders"</li><li>- "Frail, weak"</li><li>- "Weak motor skills"</li><li>- "Poor problem solving skills"</li><li>- "Could not multi-task"</li><li>- "Poor organizational skills"</li></ul> | <ul style="list-style-type: none"><li>- "Could not initiate"</li><li>- "Confused"</li><li>- "Poor dexterity"</li><li>- "Poor social skills"</li><li>- "Flat affect"</li><li>- "Could not comprehend materials in black and white – materials needed to be colored coded"</li><li>- "Not creative"</li><li>- "Executive Functioning – weak"</li><li>- "Weak processing speed"</li><li>- "Spoke in a monotone"</li><li>- "Voice - volume weak"</li><li>- "Needed to over-learn procedures"</li><li>- "Weak pencil grip"</li><li>- "Lacked expression"</li><li>- "Never had normal inflection pattern and could not recognize beat or rhythm."</li></ul> |
|---|---|

**TABLE III**

**Larry's adaptations to new surroundings garnered from that data are summarized below with direct quotes:**

- |   |  |
|---|--|
| <ul style="list-style-type: none"><li>- "Weak"</li><li>- "Not outgoing"</li><li>- "Choose to sit in the front of the room"</li><li>- "Quiet"</li><li>- "Not talkative"</li><li>- "Studied and watched the classroom environment"</li><li>- "Could not initiate"</li><li>- "Recognized he now had limitations"</li><li>- "Realized he must relearn life skills, academic skills and physical skills" (ice skating)</li></ul> | <ul style="list-style-type: none"><li>- "Movement in the building was difficult at first"</li><li>- "Often confused – lost in building"</li><li>- "Reluctant to ask for help"</li><li>- "Cooperative, polite, and dutiful"</li><li>- "Did not draw attention to himself – made every effort to fit in"</li><li>- "Needed to over-learn procedures"</li><li>- "Was willing to try and try again – even though he often failed"</li><li>- "Perseverance"</li><li>- "Grateful for any help or assistance"</li></ul> |
|---|--|



#### **TABLE IV**

**The participants' roles in Larry's adaptation garnered from that data are summarized below with direct quotes:**

- |  |  |
|--|--|
| <ul style="list-style-type: none"><li>- "Staff member helped him to navigate in the school facility"</li><li>- "Staff members assisted him by carrying his supplies, materials, and books"</li><li>- "School nurse worked with him each day the first two weeks, calling home when Larry became fatigued"</li><li>- "General education teachers were willing to help in any way possible"</li><li>- "School-based clinicians provided therapy"</li></ul> | <ul style="list-style-type: none"><li>- "Family was very supportive and cooperative"</li><li>- "Roster teacher managed case and kept communication open between professionals and family"</li><li>- "School-based clinicians worked "in concert"</li><li>- "School-based clinicians and teachers served a coaches"</li><li>- "General education teachers were understanding and helped to smooth a rough road"</li></ul> |
|--|--|

### **TABLE V**

**The strengths of the school division in the reintegration process are summarized below in direct quotes:**

- "IEP Committee worked as a cohesive team"
- "Pre-injury status was considered"
- "Post-injury status was studied in depth"
- "Kluge Center sent detailed reports upon discharge from the center"
- "Special education timelines were adhered to"
- "Special education procedures were adequate "
- "Small school division environment – not various levels of bureaucracy"

**TABLE VI**

**The weaknesses of the school division are detailed below:**

- |   |   |
|---|---|
| <ul style="list-style-type: none"><li>- "No reintegration plan was in place"</li><li>- "No proactive plan was considered"</li><li>- "School division exhibited a lack of organization"</li><li>- "Little to no information was available on TBI"</li><li>- "General education teachers were not given information regarding the new disability category of TBI"</li><li>- "Poor transition form middle school to high school"</li><li>- "Poor transition from high school to the community college or to the work world"</li><li>- "No continuum of services"</li><li>- "Inappropriate classroom placement" (example: the eclectic group in the LD Resource Class)</li><li>- "Little or no contact with the Kluge Rehabilitation Center after initial reports"</li><li>- "No notification that a TBI student would be arriving"</li><li>- "No follow up from the Department of Rehabilitative Services"</li></ul> | <ul style="list-style-type: none"><li>- "All teachers, school based clinicians, and other professionals should have been notified of the imminent arrival of a TBI student"</li><li>- "A vocational coach needed"</li><li>- "A TBI specialist needed"</li><li>- "Teachers and parents did not follow through"</li><li>- "Department of Rehabilitative Services should have supplied a job coach"</li><li>- "Job placement services were needed"</li><li>- "Interview skills should have been taught"</li><li>- "Few rehabilitative services were available at that time"</li><li>- "Larry should have been referred to the Woodrow Wilson Vocational Center at the time of graduation"</li><li>- "Number of special education staff was inadequate at times"</li><li>- "Case manager or roster teacher was changed from year to year"</li></ul> |
|---|---|

## APPENDIX Q

### Documents

119. University of Virginia Medical Discharge Summary
120. University of Virginia Occupational Discharge Summary
121. University of Virginia Medical Center Speech Pathology Report
122. Health Science Psychology Discharge Summary
123. UVa Kluge Rehabilitation Center Education Discharge Summary
124. UVa Health Sciences Center, Kluge Rehab Center Letter
125. Compuscore; KCRC – HEP, Achievement Scores
126. Letter from Larry's Mother
127. Occupational Therapy Evaluation (3 pages)
128. Occupational Therapy Evaluation (7 pages)
129. Section 504 Education Plan
130. Sectional 504 Education Plan –Speech Therapist
131. Section 504 Education Plan – Regression
132. Actions of Child Study Committee 11-18-94
133. Actions of Child Study Committee 4-26-95
134. Special Education Form – Teachers Narrative
135. Adaptive Physical Education Evaluation
136. Speech and Language Evaluation
137. Speech and Language Therapy Program
138. Special Education Forms, Individual Education Program (IEP) 8-24-95
139. Recommendations of Child Study Committee 5-9-95
140. Elementary School Record
141. Confidential Psychological Report
142. Speech and Language Therapy Program
143. Special Education Form 10 - Present Level of Education Performance
144. Special Education Form 10 – Short Term Objectives
145. Individual Education Program(IEP) Addendum 5-29-96
146. Individual Education Program (IEP) Addendum 10-10-95

147. Special Education Form 7 – Speech and Language Therapy
148. Special Education Form 2A- Letter to Parents
149. Special Education Form 2B – Recommendations of Child Study Committee
150. Confidential Social History
151. Confidential Educational Evaluation
152. Eligibility Notification
153. Student Observation – Educational Diagnostician
154. Occupational Therapy Evaluation 9-9-96
155. Speech and Language Evaluation, Grade 10
156. Social History Update
157. Confidential Social History
158. Appendix, Test Data
159. Confidential Psychological Report
160. Individual Education Program (IEP) 4-25-97
161. Individual Education Program (IEP) (Duplicate)
162. Individual Education Program (IEP) 4-20-98
163. Stanford Achievement Test, Ninth Edition
164. Cumulative Physical Fitness Test
165. Secondary School Transcript
166. Report Card - Grade 8
167. Report Card – Grades 10, 11 & 12
168. Differential Aptitude Test
169. Skills Evaluation Chart, Grade 9 & 10
170. Stanford Test, Academic Skills Grade 11
171. Career Interest Inventory – (14 years,10 months)
172. SRA Achievement Series Skill Profile
173. Virginia Literacy Testing Program, 1989-1990
174. Skills Evaluation, Grades 2-8
175. Student Evaluation Report, Grade 1
176. Standardized Test Record, Grade 2
177. Achievement Test Results, Grade 3

178. Registration 9-8-87 (Duplicate)
179. Entrance to School 9-8-87
180. Cumulative Health, Physical Fitness Record, 1987-1996
181. Letter requesting Social Security Number, 2-1-88
182. Curriculum Plan
183. Birth Certificate
184. Letter regarding Middle School Citizenship Award, 2-21-94
185. Release of Confidential Information

## APPENDIX R

### **Explaining the Coding Procedures**

In order to be able to quickly and accurately refer to the voluminous research material, I devised a simple yet effective numerical methodological procedure that enabled me and the reader to readily cite the aforementioned research material. All documents are numbered sequentially. The Reflections Letter (Table #1) is paged numbered 1 and 2. The Interview Protocol (Table #2) is page numbered 3 through 32. Pages 33 through 62 are the Investigative Query (Table #3). The Addendum Sheets (Table #4) to (Table # 3), Investigative Query, are page numbered 63 through 72. Expected Evidence (Table # 5) is page numbered 73, Preplanning (10 subsets), page 74, Planning (7 subsets) and page 75, Implementation/Evaluation; (5 subsets and (5 subsets). The Journal, (Table #6) are page numbered 76 through 90. Reporting the Findings are page numbered 91 through 118.

Documents continue being numbered sequentially from 119 to 185. Although a document may have more than one page the documents are numbered sequentially. More times than not, it is imperative that the entire document be read by the researcher to insure the intent and clarity of purpose being conveyed by the document. For instance, document number 138, Special Education Forms, Individual Education Program, consists of fifteen pages. For an in-depth understanding of document number 138, the entire document should be read.

It should be noted that documents numbered 119 to 185 consist of 66 documents with a total of 194 pages. A document will be referenced by document number preceded by DO. Thus, 141 illustrates a seven page Confidential Psychological Report that would be referenced numbered DO141.

On the other hand, an addendum sheet, (Table # 4) to (Table # 3) Investigative Query,

would be cited as GT69AS. This number signifies that the information comes from the person GT (initials), page 69, and from an addendum sheet (AS). As another example, BP98RF, would reference Beth Peters, an Occupational Therapist, page 98 from Reporting Findings from formal interviews.

The following is a quick ready reference to the Coding Procedure:

Number	Letter Category	Category
1 and 2	RL	Reflection Letter
3 and 32	IP	Interview Protocol
33 to 62	IQ	Investigative Query
63 to 72	AS	Addendum Sheet
73 to 75	EE	Expected Evidence
76 to 90	JO	Journal
91 to 118	RF	Report Findings
119 to 185	DO	Documents



## APPENDIX S

### Discharge Summary Kluge Medical Center

Larry was a 14 year old patient with traumatic brain injury who was referred to Recreation Therapy for daily intervention. The initial assessment and therapy plan included the following: (DO119):

1. Psycho-social stimulation.
2. Increase independence and mobility skills.

#### Program Objectives

1. Release tension through suitable recreational exercise and promote positive response to physical activity.
2. Challenge cognitive levels of function through low stimulation activities.
3. Facilitate and coordinate responses through selected motor patterns. Encourage use of right upper extremity while engaging in object control activities.
4. Encourage communication efforts through (Yes-No) responses.

Modalities Used in Therapy: Low stimulation object management games/drills, hydrotherapy and community re-entry activities.

Patient's Recreational Interests: Sport card collections, playing basketball and other sports.

During the initial period, the patient demonstrated cognitive behavior consistent with RLA Level III with brief periods of agitation, inconsistent visual intensity to on-task behavior, and occasional attention to environment cues during low stimulation activities. After his behavior stabilized and within the context of physical rehabilitation, gross motor object management drills/games focused on motor sequences and processes. The included the following: attention to task, enhanced remembering directions, and visual sequencing of score on

the chalkboard. Stages centered on the promotion of visual intensity to environmental cues and exploration of right upper extremity function to assist in executing bilateral coordination movements. It was during this of time that the patient alternated sitting in his wheelchair and standing for brief periods of time. Larry slowly started to become more intense at scanning the environment for relevant visual cues, but still was dependent on external support to expand his scope of vision. Still a dependent factor, intervention strategies included use of memory aids using visual modalities (chalkboard, manual gestures, etc.) to counteract the effects of poor memory storage/recall. In terms of interpersonal and social behavior, Larry demonstrated interaction responses consistent with parallel group level with emphasis on self-awareness concepts, recognition of others in the environment. It was during this period, during the end of the second month of therapy, that Larry was able to make consistent left/right judgments in relationship to self. Throughout this period, Larry did not demonstrate spontaneous conversation during social encounters and external cuing was necessary during problem solving situations. This was also evident during community re-integration activities.

During hydrotherapy, Larry was able to demonstrate a good horizontal position in the water with full face submersion and functional arm and leg movements. However, his arm strokes were inconsistent. At discharge, the initial short-term goals were achieved. Although improvement was noted, Larry was still inconsistent in motor sequencing 3 steps which incorporated inclusion of a visual modality (chalkboard) with gross motor task. Individual self-testing activities (i.e.) swimming are recommended until cognitive and perceptual motor deficits resolve. Ongoing therapy within the context of adapted physical education emphasizing gross motor drills and perceptual constancy would be useful. This should include naming, classifying, and manipulating objects through movement experiences and skill sequencing. This could take

the form of partner-related sports/games and skill progression drills.

The parents observed and were active participants in many of the therapy sessions. This discharge summary was mailed to them for further information and appropriate follow-up.

Larry's discharge summary definitely set a baseline for the preplanning and planning phases in accordance with Blosser and DePompei (DO121).

### Background Information

Larry, a 14 year old male admitted with TBI on 8/30/94 was seen for intensive rehabilitation of speech, language, and oral functional deficits. Larry was transferred to the Kluge Children's Rehabilitation Center on 9/21/94. Larry was to enter the 9<sup>th</sup> grade that fall, and was reported to be an average student. Larry sustained a right frontal scalp laceration, right frontal sino-orbital fracture, right subdural hematoma, right frontal contusion and right inferodederal frontal contusion.

### Summary of Recovery

Larry initially presented a level III, "localized responses to sensory stimulation" on the Rancho Los Amigo Scale of Cognitive Functioning. Baseline scoring on the Western Neurosensory Stimulation profile revealed a score of 13 points out of 113 possible points. Larry presented with NG tube. Baseline evaluation of oral functional skills did not reveal the presence of any abnormal oral motor responses or patterns. A pureed tray initiated on 9/24/94 and by 10/4/94, Larry was eating all foods by mouth. Larry made nice progress and by 10/6/94 had achieved a score of 113 out of 113 on the WNSSP, which was then discontinued. Formal language testing was initiated several times, with Larry unable to complete pretest items. By mid October, language testing was initiated.

Retesting was completed prior to discharge and the following are the test and retest scores:

Table 4.3

	Test	Retest
Peabody Picture Vocabulary	SSE: <50	SSE: <50
Test-R, form L and M	AE: 2-8	AE: 5-3
Expressive One Word Picture	SSE: <50	SSE: <50
Vocabulary Test – R	AE : 5-2	AE: 7-6
Minnesota Test for Differential	% accurate	% accurate
Diagnosis of Aphasia	73	93
Auditory Disturbances	75	92
Visual Motor and Writing Disturbances	79	93
Clinical Evaluation of Language Fundamentals	Receptive SSE : 50 Expressive SSE: 64 Total Test AE: 6-9	

The weak vocabulary scores seen above may be due to Larry’s significant visual perceptual deficits, (DO121). The Occupational Therapist stated that Larry’s visual perceptual skills fell below a 5 year level, and this would account for difficulty identifying black and white line drawings (NB, Larry had difficulty with Driver’s Education). Use of the Kluge Children’s Rehabilitative Center checklist for assessment of memory and orientation once Larry was able to answer questions, revealed orientation to general person information at 90% to 100% by 10/6/94. He demonstrated greater difficulty with orientation to place, circumstance and time with inconsistent responses, even at time of discharge. Larry had difficulty with using the environment to cue himself when answering questions. He appeared to have difficulty with mental flexibility, executive functioning and initiation of tasks. At the time Larry was demonstrating behaviors at Level VI “Confused-appropriate”. Characteristics of this level included: goal directed behavior with dependence on external input for direction, appropriate

responses to discomfort, ability to follow simple commands consistently, ability to carry out self care and ADLS (activities of daily living), incorrect responses due to memory deficits, and a decreased ability to process information with little to no anticipation or prediction of events.

### Recommendations

It was recommended that Larry continue to receive intensive speech/language and or cognitive retraining therapy. Emphasis should focus on the following areas:

1. Reading comprehension.
2. Following written and spoken directions.
3. Attention to detail and environmental cues.
4. Problem solving.
5. Executive functioning.
6. Use of facilitative techniques to improve memory and orientation.
7. Mental flexibility.

## APPENDIX T

### Occupational Therapy Discharge Summary

#### History and Precautions

Larry was a 14 year old young man who was an unrestrained backseat passenger in a motor vehicle accident on 8/30/94. The Glasgow coma scale score was 6 at the scene of the accident. CT scans indicated right frontal linear fracture, right frontal contusion and a right subdural hematoma. Larry also sustained a right scalp laceration, a laceration on the dorsum of his left hand, and a right clavicular fracture. (DO120). Larry was transferred from Children's National Medical Center to the Kluge Children Rehabilitative Center on 9/21/94 for rehabilitation. One or both parents accompanied Larry throughout his stay. Larry lives with his family in Manassas, Virginia.

#### Orientation/State/Behavior

Larry was at the Rancho Los Amigos Scale Level VI upon discharge (confused-appropriate). He currently demonstrates socially appropriate and spontaneous exchange of greetings. His range of affect has greatly increased during his rehabilitative stay, although it remains slightly blunted. Larry was oriented to person consistently and to place and time approximately 85%. Larry was inconsistent in determining the time from a standard clock. Larry exhibits short term memory deficits which interfere with skills such as finding his way around his environment. Safety was a concern due to Larry's memory deficits and distractibility.

The Gardner Test of Visual Perceptual Skills was administered on 11/2/94 with the following results:

Table 4.4

Category	Raw Scores	Perceptual Ages
Visual Discrimination	8	6y3m
Visual Memory	2	4y8m
Visual-Spatial Relationships	1	4y0m
Visual Form Constancy	3	4y1m
Visual Sequential Memory	0	4y0m
Visual Figure Ground	2	4y0m
Visual Closure	1	4y0m

Visual Motor Skills

Larry could write and print his name and simple sentences legibly. The Gardner Test of Visual-Motor Skills was administered on 10/21/94 and on 11/14/94. He initially achieved a raw score of 7 indicating a perceptual motor age of 4 years, 1 month. At discharge, Larry achieved a raw score of 25, indicating a 6 years 11 month level.

Tone/ROM/Strength

Upper extremity tone and range were WNLs bilaterally. Strength was within functional limits.

Upper Extremity Function/Fine Motor Skills

Larry was right hand dominant. He had limited in-hand manipulation skills. Translating objects from finger to palm and vice versa with stabilization remains difficult for Larry.

Adult Daily Living Skills

Larry was able to dress himself although he required cues to initiate the process. He was able to manipulate zipper, button, snaps, and laces. He was also able to carry out general hygiene with cuing.

### Summary/Recommendations

Larry was a very pleasant 14 year old young man who sustained a TBI on 9/30/94. He made significant progress during his rehabilitative stay, however deficits in visual-perception, short term memory, attention span, safety awareness, and upper extremity coordination remained concerning. Larry will continue to require supervision during Adult Daily Living Skills due to the above. Also, his visual perceptual deficits may significantly affect ability to read longer passages to follow diagrammatic instructions. Larry will benefit from further therapy on an outpatient basis to address the above areas of deficit. Larry has a very supportive and caring family who are aware of Larry's strengths and weaknesses.

### Plan

The family will set up local outpatient therapy. Larry returned to the TBI clinic in three months. This therapist saw him during his clinic visit to re-evaluate perceptual skills, upper extremity coordination and Adult Daily Living Skills, and to address any family concerns.