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ABSTRACT

Intended for use by the classroom teacher, this guide presents teaching suggestions as well as suggested resources for teaching children with traumatic brain injuries (TBI). Emphasis is placed on working with the injured family and the importance of planning for transition and re-entry into the classroom through a continuum of settings. Teachers are encouraged to become informed about TBI because of their direct service role, the high incidence of TBI, and the recognition of TBI in public law. Common problems associated with TBI are identified and include: impaired memory, attentional deficits, visual field losses. confusion and hesitancy in word finding, and behavioral problems. Also discussed are identification of the TBI child, assessment (by a neuropsychologist and others), teaching methods which capitalize on the child's strengths, and the educational problem of deciding whether to retrain, remediate, or compensate. Descriptions are given of successful teaching strategies which may involve retraining or developing thinking processes, developing compensatory skills, coaching the thinking process, and applying behavioral principles and strategies. Three references and 13 suggested resources are included. Appendices provide information summaries, a glossary, and teaching models. (DB)

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# Traumatic Brain Injury:

# What the Teacher Needs to Know

by Betty Pieper, B.S. Ed.

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The concern for offering classroom teachers insight into traumatic brain injury (TBI) and some basic information came directly out of our research and our subsequent discussions with parents. Ironically, in the author's first year of teaching, she felt confounded at not being able to "teach" one of her students how to spell his own name - primarily because he did not seem to remember from hour to hour. She recognized that the label "borderline retarded" contained in his first grade records was an inadequate and probably incorrect assessment, but she had no idea what was "wrong," and, worse, did not know what to do about it. *The fact that the boy's father later described an accident in which the boy was hit by a truck became significant only years later.*

Now, in New York State, there are many people who are concerned, interested, and knowledgeable in how the child with TBI may be helped in educational settings, including the ordinary classroom. This paper has been promulgated to raise awareness and whet the appetite of teachers to take advantage of the resources available as well as to advocate for expanded resources. Most importantly, the paper is meant to offer encouragement and support by telling teachers that they can make a real and positive difference in the lives of these children and their families.
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## Introduction: The Injured Family

Trauma to the child is trauma to the family. One simply does not exist without the other. Does this translate to families as patients or clients with a given subset of typical characteristics? Does this imply that the disbelief, anger, and pain translate into "parental stages" to be learned by professionals so that, perhaps, behavior can be predicted, forgiven or discounted? Probably not. Every family is different just as every child who has experienced a traumatic injury is different.

One way that many families seem to be alike within the subset of those experiencing traumatic brain injury (TBI) is that they often express frustration and pain at "losing" the child they knew, not having a way to grieve that loss, and at the same time learning to accept a new child in his place. A large number of parents also talk about the "guilt" or anxiety of wondering if they are doing everything possible for their child to help him regain as much as possible.

Even children who have suffered "minor" or "mild" head injury may have sustained physical damage to their brains which will change their lives. This kind of damage to the brain is often overlooked because it is not marked by dramatic events such as unconsciousness, coma or admission to a hospital. Such brain damage may go completely unrecognized until changes in personality, fatigue, irritability, or attention, concentration and memory problems surface. Dr. Ronald Savage, whose work is listed in the resource section, is presently developing a checklist of "red flags" for teachers to use over a period of 8 weeks after a child experiences a concussion in order to screen potential problems. (Also see Teacher Alert in the Appendix for symptoms of some longer term difficulties which may arise.) Too often, parents and professionals alike fail to associate these difficulties with a previous injury, and a cycle of frustration and failure may begin in earnest.

## Working With the Family:

**Staying in touch:** When a child is hurt, families often tell us that they are appreciative of someone at the home school calling them to express interest and concern and for the receipt of handmade student cards, for example. Families report being hurt when there is no communication from the school and when the assumption seems to have been made that the child has somehow become so different that he will never return to the home school or perhaps even the home district.

On the other hand, principals, teachers and nurses may wonder if it is appropriate to call the parents or to send cards especially if the child is hovering between life and death or in coma. The only way to know is to ask, to talk to the mother or father, or to identify a person whose information will be current and whose judgement the parent(s) trust as a temporary liaison. A neutral approach ("thinking of you and wondering what we can do") shows concern and interest, and puts the ball in the family's court. One can say: "The children would like to do something, and someone suggested making cards."

Often, and perhaps, unbelievably, the parents will receive little, if any, education themselves on the nature of TBI; they may benefit from several types of support. Some will want to learn more about TBI, some will want only to learn the techniques to best manage the child's health and behavior and will choose to live each day at a time. Some parents will be looking for a support group for themselves or a parent-to-parent referral. Giving them the toll free number of the New York State Head Injury Association (1-800-228-8201) can be a step toward finding such information and support.

## Transitions:

Some children will go into rehabilitation, often far from home, and some will return home immediately after injury and medical stabilization. Communication with the family should be maintained throughout this period with active planning for a return to an educational setting. Some rehabilitation facilities have transitional classrooms which approximate typical classrooms, some have educational specialists who work with the local school district and even go into the classroom on a consultancy basis after the child re-enters school. Some public schools throughout the country feature transitional classrooms in which the child's functioning can be closely monitored and within which there is more individualization and structure than the ordinary classroom.

Unfortunately, the need for transition may go unrecognized in the majority of cases. For example, many children, after a period of unconsciousness, will return home directly from the hospital in a confused or agitated state without anyone ever acknowledging the seriousness of their injury, the potential impairments from the injury, the possible permanence of the injury or the meaning of subsequent impairments to the child and family. Parents and even physicians and other health care personnel may have little understanding of the sequelae of TBI and tend to misjudge when the child is ready to return to school if, indeed, the question arises at all.

When a traumatic brain injury has been documented, it is important that one person from the school district be in charge of the actual reentry planning for the child. This should include a review of medical records, communications with therapists, and a comprehensive, multidisciplinary assessment as well as observation and the input of the family. An Individualized Educational Plan (IEP) may be begun which will include the need for frequent reassessment, review and/or revision (probably every 2 months) since changes are typical of TBI.

It may not be possible for some children to "catch up" on all of the homework and unit goals which have been missed. The teacher, special educator, and psychologist may decide that a critical analysis of "missed material" is in order and some demands may be eliminated entirely to avoid overloading the child. Home tutoring may assist in transitioning and one to one instruction may be appropriate both before and after the child begins attending school.

Some specialists have suggested that guidelines may be developed to aid in judging when a child is ready to return to a classroom. Some prerequisites noted from specialists in the field are: attend to task for 10-15 minutes, tolerate 20-30 minutes of general classroom stimulation (movements, distractions, noises), function within a group of two or more students, follow simple directions, engage in some type of meaningful communication, and give evidence of learning potential (Cohen, 1985).[1] The need to demonstrate "meaningful communication" or "learning potential" are

subjective and have been the subject of various legal suits for educational rights. The author of this paper believes that the burden is not with a child to demonstrate either in order to qualify for education under public law at public expense and that court challenges to date have upheld this view.

Re-entry planning may use a continuum of settings, including residential educational facilities, self-contained, transitional classrooms, combination home tutoring or resource room and support services with a regular classroom environment. Obviously any combination of these may be used. For example, a child may attend school for a half day and have home tutoring 3 times a week in the late afternoon as a step toward a full day at school. The child may use individual instruction or work with small groups within a resource room for part of the time or intermittently while being based in a regular classroom. Adaptive equipment or techniques may be used in regular classrooms, such as a study carrel as a time-out opportunity as he learns to monitor his own needs and behaviors. It should also be noted that the combination of special assistants, peer helpers, modified curriculum, adapted materials and techniques, etc. may make it possible to have a successful mainstream experience without the need for prerequisites.

## Why the Typical Classroom Teacher Needs to Know about TBI

**The role of the classroom teacher:** The classroom teacher is in a critically important position regarding children and traumatic brain injury (TBI). First, he or she may be able to prevent traumatic brain injury in some students through education and the modeling and enforcement of safe practices in a variety of school sponsored activities. Second, the teacher may assist in the identification of undiagnosed cases of TBI. Third, the teacher may create interventions which work for children who have suffered TBI who are mainstreamed by using the strengths of the child in order to promote learning and using strategies to compensate for lost abilities and skills. The teacher can also help to dispel misconceptions about TBI in her other students and create more accepting attitudes toward the child. Last but not least, the teacher can give emotional support to the child and to the family.

**The incidence of TBI:** The most frequent causes of traumatic brain injury (TBI) are related to motor vehicle accidents, falls, sports, and abuse/assault. Approximately one million children are injured each year. According to an article in *The Journal of Head Trauma Rehabilitation,* March 1991, "More than one third of all pediatric cases and 41% of all pediatric mortalities involve head trauma."[2] There are no accurate statistics of the number of children who are living with problems caused by TBI. However, it is estimated that 165,000 children are injured seriously enough to require hospitalization each year. Among those who suffer "minor" or unreported injury, some children are left with impairments which significantly affect their academic performance and even their long term growth and development.

**Recognition in Public Law/Special Education Services:** The magnitude of the traumatic brain injury problem has recently been recognized in federal law (P.L. 94 -142) through the designation of TBI as a separate category for children with disabilities. Therefore, a child who has had a traumatic head injury who is having difficulties in school should be referred for specialized assessment. Based upon the outcomes of the assessment process, he may qualify for special

services. Such educationally related services are to be offered in the least restrictive setting (LRS) which is educationally appropriate, including mainstreaming within the regular classroom with special support services and/or equipment. A Committee on Special Education will be involved in the placement process and an Individualized Educational Plan (IEP) will be developed with input from the parents and classroom teacher.

## What Is Traumatic Brain Injury?

Traumatic brain injury usually refers to an insult to the brain which results in a temporary alteration of consciousness, but not does not necessarily result in a state of unconsciousness. The term Traumatic Brain Injury (TBI) is used both as an etiology (cause or origin of disease) and a diagnosis (identification and naming of a disease or syndrome.) TBI generally excludes conditions which are present at birth (congenital hydrocephalus, lack of oxygen) and those conditions which are progressive in nature (Alzheimers, multiple sclerosis, etc.)

## What Are Some of the Common Problems Associated with TBI?

The typical classroom teacher has an important understanding: that all children are different from one another and individually unique. Any list of "common sequelae" or advice on special interventions tends to lump all children with TBI together as a class. Nothing could be further from the truth. Not all injured children will have all characteristics. And, each will differ from the other as all children do. However, being aware of some of the characteristics of children with TBI as a group may assist the teacher in identifying children who are undiagnosed for assessment and in directly assisting those students known to have special needs as a result of TBI.

There seems to be a human penchant for recognizing or remembering the most dramatic and visible problems associated with TBI. For example, lay people think in terms of physical disabilities. The limp caused by injury to the brain and the subsequent **hemiparesis** (weakness on one side of the body) will almost always be noted and remembered.

Severely **impaired memory** may be devastating to new learning but relatively overlooked and unaddressed. In a recent study (Gouvier, et. al, 1988),[3] over 82% of those surveyed believed that people with memory loss could forget who they are and not recognize others but be normal in every other way. Nearly half (43%) of the respondents did not know that memory loss could interfere with learning new information and just over half (51%) did not know that injured people have more trouble remembering events from after the injury than events before. Parents may labor under these same misconceptions. As they begin to understand what brain injury really means they often express the frustration that "he walks and talks, so everyone thinks nothing is wrong, like maybe it's all imaginary."

Memory difficulties in children bring us as teachers face to face with how little we know about human learning. We are left to balance compensatory strategies and aids such as making maps and lists and giving timely verbal prompts or visual cues, with the need to challenge the child to increase capacity for retaining information. While we need to help the child avoid becoming reliant upon actions which reinforce dependency, we are probably more adept at compensatory strategies than cognitive retraining.

Attentional deficits are also quite common: **inability to focus attention, to concentrate and maintain vigilance for the task at hand.** In some kinds of injuries, the child may have trouble with a complex of abilities often referred to as **"executive functions."** These abilities relate to being able to initiate, plan and organize material and activities, and to follow through. A child who cannot sequence information correctly, for example, may not be able to carry out a relatively simple request such as "You can get your drink, but on the way, drop this folder off at the Principal's Office."

When symptoms are subtle or seemingly erratic, they are often discounted or explained away through some other cause. For example, the child may "see like a hawk" at times and be "blind" at others. A parent may report that "He can see when he wants to," inferring that the child is actively resisting or willful in his selections. In fact, **a part of the child's visual field may be lost**; special testing may be required to document the cause of visual neglect. Unless a teacher knows that this is a possibility, it may never be considered and the child will labor under a double handicap: the actual disability and ire of people who believe he is irascible. Likewise, a child who has suffered a brain injury often experiences mental fatigue sooner than his peers. If this is not understood, he may be thought of as "lazy" because he performs markedly better at some times than other times.

**Confusion, disorientation and hesitancy in finding the right words** may also masquerade as something else. Some parents have reported that they have suspected that their children were using drugs because no one had prepared them for the ways that brain injury might affect their child. Likewise, teachers might see what they perceive to be anxiety, frustration and depression and be tempted to blame a difficult home situation. In reality there may be a combination of physical damage and secondary reactions. If it is difficult for others to understand and accept the changes brain injury brings, how much more difficult must it be for the child to accept a "new me" who cannot do the things he or she expects of himself, let alone what others expect of him.

**Behavioral problems** get a lot of attention, but they are not necessarily part of TBI. In some cases, of course, there is physical damage to centers of the brain which control impulses and emotions. People who have suffered injuries to those centers may experience quick changes in feelings as if a surgeon was activating electrodes at various spots in their brains to demonstrate how the brain functions. When such emotions ebb and surge unexpectedly, the child must struggle to inhibit the behaviors which arise from those feelings. Such problems are neurological and stem directly from the actual, physical injury to the emotional control centers of the brain. Resulting behavior problems may be considered "primary" because they are directly caused by injury.

Indirectly caused or "secondary " social and emotional problems may occur as well. If any kind of brain damage results in significant deficits, the results are likely to cause unusual responses. For example, if deficits result in personal frustration, failure, teasing or social isolation, the child is likely to react by acting out, withdrawing or becoming depressed.

## How Does One Identify the Child with TBI?

Often the diagnosis is clear-cut. The child is hurt badly enough to be hospitalized and may experience a coma. It is likely that this child will experience at least some aftermath of the injury as described above. Other times the teacher will have a feeling that "something is wrong" and not be able to figure it out. Impairments and disorders generally relate to: poor memory, difficulty "getting going," difficulty focusing attention and staying with a task, disorientation for time and/or space ("getting lost" in the school, on the way to school, or even to the principal's office as well as "getting lost" on a page of text or on the schedule of events for the morning), difficulty sequencing or organizing, difficulties in finding the right word, mental or physical fatigue which is otherwise unexplained, poor impulse control ("talking out of turn," interrupting others, interjecting non-relevant or tangential material, etc.) and agitation.

Sometimes parents will mention what Dr. Tom Boll, a Birmingham neuropsychologist, calls "little things." Children may not be able to taste food or may say that food tastes burned or has a funny smell, they may experience changes in sleep patterns or may wet the bed during deep sleep. Appetite may change; the child eats very little or a lot more than usual. Children who have injuries to certain parts of the brain may always feel hot or cold and seem to have trouble adapting to changes in temperature. Since the human brain controls so much human activity, there are almost endless ways a head injury may affect a child. If the teacher notices any of the symptoms or signs noted in this paper - especially in combination - he should talk to the child, to the parents and other school personnel as well as reexamining school academic and health records for any indications of head trauma and should refer the child for appropriate assessment.

## What About Assessment?

The child who has been injured severely and has experienced coma, may be sent to an in-patient rehabilitation facility. In reality, however, few children obtain the specialized rehabilitation they need in order to transition back to daily life, including the demands of academic pressures and school expectations. If the child has received specialized TBI oriented rehabilitation, the chances are high that a comprehensive neuropsychological evaluation has been done. Ideally, members of an interdisciplinary team have contributed discipline-specific assessments and a comprehensive plan has been put together, which may be outdated by the child's progress but is nonetheless informative.

A comprehensive assessment should look to the child's pre-injury performance at home, at school and in the community. Products of the child's creation may be examined and a home visit should be made whenever possible. Parents should be involved in giving information and insights. In other words, all of the elements of good general assessment become crucial when brain injury is suspected or documented.

In the field of TBI, it is probably safe to say that most people consider the neuropsychologist the most appropriate specialist to evaluate the child. This specialist reviews medical records with an eye toward linking the area of injury/damage to the function of the brain and is familiar with the kinds of deficits one is likely to find with a specific kind and degree of injury. These deficits may be physical manifestations, visual disturbances, decreased abilities to attend, concentrate, initiate, plan and follow-through, and/or emotional lability (quick emotional changes or emotions that are not appropriate to the situation or are not in proportion to what has happened.)

A neuropsychologist and a psychologist have different training. One of the differences is that the psychologist tends to look at what has been learned already while the neuropsychologist may focus more upon the ability to learn and the specific strengths and deficits. The neuropsychologist's ability to understand the relationship of brain anatomy to physiology or function, including the role of neurotransmitters and other biochemical and bioelectrical factors, should present a decided advantage over traditional psychological assessment. Many psychologists also study neuropsychology and specialize in learning processes, however. The resulting report should identify the child's strengths as well as deficits and should give specific recommendations as to how to remediate, manage and compensate the problems which are evident or likely to arise based upon the findings.

Whenever possible, the psychologist who is doing follow-up assessments should have experience not only with TBI, but should understand that various processing and adaptive abilities and skills may not be adequately tested by traditional tests upon which the child may demonstrate "normal IQ." Sometimes retained learning skills of high order lead even knowledgeable professionals to assume that the related lower level skills are intact in children with TBI. Problems in generalizing, integrating and structuring information may not be apparent in a testing situation but may cause havoc in the classroom. It is a good idea for the school psychologist to spend some time observing the child in the real environment and to encourage the teacher in the "detective work" which allows insight into how a child receives and processes information and expresses himself.

Dramatic and sometimes subtle but important changes occur quickly after TBI and result in the need for more frequent evaluations and changes in IEPs for this population than for children with developmental disabilities for whom an annual time frame may be adequate. Even when there appears to be a "plateau" or leveling off, quantum leaps are possible at times which may occur months or years after injury.

## What's Right and How Can We Capitalize on Strengths?

While we need to be wary of the "looks O.K., must be O.K." syndrome, we also need to work from the student and family's strengths rather than their deficiencies. Children with TBI are different from other students with special needs in many ways. For example, they have a background of typical development with many retained capabilities and some formerly learned material and skills remain intact.

Many educators believe that the human mind has an inherent drive toward growth, development and the acquisition of certain developmental milestones at specific times of life. It has been theorized that approximately half of our lifetime development, including our preferences and patterns for acquiring learning, is developed before the age of 5. If this is anywhere near true, then children who have had the benefit of this period without being handicapped may be expected to have a significant advantage over those who struggle with an impairment from birth. Retained skills and a base of information can be tapped to facilitate new learning as well as to strengthen self-esteem.

Because the child has likely experienced a period of typical learning, his basic self-esteem and potential confidence may be well developed. This is a double edged sword because he may expect more of himself and be continually surprised and frustrated when his mind or body does not respond as before.

Nevertheless, the period of typical development and the internal *expectation* of continued growth is a strength upon which the teacher can build. The teacher can express this through comments such as, "I like your spirit. You are willing to try anything. You probably can do this, but we need to think about how to do it. The "how to" may involve task analysis, breaking the task into steps, sharing parts of the process with another student, creating some adaptations, etc. This is an opportunity to use the "skills of the trade" creatively which facilitates personal and professional growth as well as moving the child along. The burden, the challenge, and the pride of progress are shared.

## To Retrain, Remediate, Compensate: Is That the Question?

Experts often become embroiled in definitions and semantics as well as formidable conceptual discussions on the value of various approaches. Many of us as teachers take a more practical approach. We want to get to the root of troubles and create social and cognitive growth. Above all, we want to do no harm, and want to assist the student in attaining the most normalized life possible.

We seek input from the school psychologist, special educators, parents, former teachers, and independent specialists from rehabilitation settings when available. We may also look for in-service opportunities, read journal articles (see Appendix for resources), and avail ourselves of opportunities to ask specialists in TBI specific questions when possible. We rely a great deal upon our own detective work, creative adaptation of good teaching techniques and trial and error when necessary.

## What Are Some Strategies That Work?

The strategies that work with children who have sustained TBI are some of the same strategies that we as teachers have learned about in the past. The child with TBI also presents an opportunity for the teacher to become more aware and more adept at balancing skills in one to one teaching, the mutually beneficial use of peer tutors, and cooperative teaching approaches with the more traditional whole class methods. Assessment and planning will seek to use the child's strengths and to overcome, remediate or compensate for his deficits. A primary aim is to find or adapt games, workbooks, activities, aids and techniques to encourage the development, practice, and secured learning necessary for success in school and life.

The purpose of some strategies is to retrain or develop thinking processes. While a great deal of computer software is created to improve memory, visual/spatial skills, and thinking processes (logic, sequencing, etc.), it is a mistake to think that computers are the only way cognitive training or practice can take place. Indeed, many old fashioned children's games and most workbooks have been created for these same purposes. One currently popular technique is to make a short series of individualized process cards for a child. The first might have a stop sign, the second a light bulb with the word "think", and the third a question mark and the words "Do you know the answer?" Thus when the child faces a dilemma, he refers to his cards. If the child does not know the answer, he may move on to a simplified flow chart which helps him ask himself what he needs to know and who can assist.

Some strategies are primarily compensatory. For example, there are various devices to orient children to space and time in order to compensate for their difficulties. To assist a child in finding his way around the building, the teacher may construct or help the child construct graphic maps or sequential written directions if he processes better with language than visually or spatially. If the child tends to become disorientated for time and task, the teacher may find that putting the morning activities on the chalk board may be sufficient for his reference when he feels "lost." Or, she may create a special card with clocks. Each day the clock hands can be filled in and labeled with activities or symbols representing activities. By matching the pictorials with the classroom clock, the child will have a ready temporal resource to consult.

Other strategies and techniques which are usually considered compensatory are lists or audio tapes which aid in memory, journals, and many forms of prompts and cues. One currently popular technique for helping a child to gather, process, and remember pertinent information is a "sun diagram." A circle represents the sun and lines radiating out around the diameter represent rays. The topic is written (or symbolized) in the circle and information regarding "who, what, when, where, why and how" is placed on the lines. (See Appendix.)

A similar strategy to coach thinking process might be to create a flow chart. A flow chart is used to help children make decisions and give specific direction. Such a chart could be constructed to deal with one of the child's particular problems. It usually begins by having the child repeat and restate the problem and then asks a series of simple questions with yes or no answers. A green arrow can be placed after every "yes" answer to guide the child through a structured process to accomplish the goal.

Some strategies serve double duty; they may create learning through the practice of executive skills and also serve a compensatory function such as jogging the memory. For example, bookmarks can be made of various colors which signal immediate attention, intermediate time due date, and longer term/weekend work. These bookmarks may have pages and dates written on them as well and may correspond to a homework log which is created every Monday, for example, and has assignments written in matching colors for the week. This latter type of strategy may serve both as compensation for memory deficits and also as a learning strategy in that it helps develop or retrain a sense of time.

Behavioral principles and strategies should be reviewed for ordinary teaching as well as for dealing with "acting out" or high visibility behaviors. For example, immediate feedback and intermittent reinforcement are powerful behavior tools as are visual cuing and verbal prompting. Negative attention is reinforcing and the teacher needs to monitor himself or herself so that undesirable behaviors are not unwittingly reinforced.

For example, sometimes a child with poor impulse control will interrupt. The teacher may reprimand the child, but then give him the floor for his comments anyway. This may reinforce the behavior even if it is done infrequently. Other times a teacher may agree to assist the child in remembering to raise his hand before speaking by raising her own hand when she sees him begin to interrupt. This may be helpful if she can catch the child before he actually speaks and if he will then raise his hand and wait his turn. The child must know, too, that such visual cueing will be faded out as he masters his impulses. Otherwise, the teacher is being trained, not the child.

Videotaping can be helpful in having a child see himself and in helping him to understand his behavior and the need to self-monitor. Such tapes can also be useful to assist teachers or the IEP team, including parents, in uncovering the personal learning style of the child, the modalities in which he seems most comfortable and his needs. Audiotapes can be helpful to the teacher's personal insight and classroom management as well and are less intrusive and more practical. They can be popped into a tape deck on the ride to or from school. Such techniques give the teacher objective feedback to identify patterns of behavior and analyze intentional and unintentional reinforcers and otherwise better understand classroom interactions.

## Summary:

Traumatic brain injury (TBI) has recently been named as a category of disability to receive special educational services. Unfortunately, many children who have experienced TBI have not been diagnosed in medical settings nor have they received appropriate rehabilitation. In school, they are often not identified at all or may be misclassified and inappropriately grouped with children who are mentally retarded, learning disabled or emotionally disturbed.

A growing body of information is being created regarding the most frequent kinds of impairments, the assessments which seem most helpful and the teaching strategies which seem most useful for assisting these children. While it is important to learn more regarding the commonalities of these children with TBI as a group, it is more important to learn to individualize instruction for each child to help him/her learn successfully.

We have appended a resource list which may assist the teacher in understanding TBI and individualizing instruction for his or her student. The New York State Education Department has recently collaborated with the University of Buffalo in training regional personnel from Special Educational Training and Resource Centers (SETRC) and from the Office of Education of Children with Handicapping Conditions (OECHC) who are now available to carry out specialized information/referral and training for others throughout the New York system.

The family, too, is an important part of the planning team and can provide information as to how the child functions at home and in social settings. This is especially helpful since children with TBI may have trouble generalizing and transferring classroom learning to other situations. The family needs support and should play an important role in planning for their child's educational future. The New York State Head Injury Association can assist schools and families in finding resources to help children who have suffered a traumatic brain injury.

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Education rights and due process manuals. Call or write the state level department of education if your local schools district does not have such a manual available.

# TEACHER ALERT, I

# Head Injury? Difficulty at School?
## The Two May Be Related!

**Children who have sustained even "mild" head injury, often experience learning or behavioral changes which may last for various lengths of time.** Further, there is not a great deal of research on mild head injury as experienced by children. In general, it is assumed that the kinds of problems which are well documented for adults will be similar for children. In the past, some experts had expressed opinions that children may be somewhat more likely to "recover" more completely or that symptoms may resolve more quickly. Others have postulated that a better outcome may be expected when the level of knowledge and skills is well developed. There is no definitive answer. There seems to be general agreement, however, **that teachers can be invaluable in identifying and supporting children who have difficulties relating to traumatic injury to the brain.**

**Some Complaints Teachers Might Hear:**

* dizziness
* headache
* feeling tired
* can't see right
* can't remember

**Some Behaviors Teachers Might Notice:**

* attention deficiency/failure to sustain concentration and or/activity
* poor short-term memory (literally not able to "remember from one minute or day to the next")
* more time is needed to process information and respond to questions
* tiredness, especially after tasks which involve concentration and continuous attention
* excuses to avoid such tasks or activities
* anxiety (may show up as fast, agitated speech, ie.)
* emotional swings and disinhibition (may include giggling, laughing, crying inappropriately and/or talking out of turn, etc.)
* an undesirable change in peer relationships (subtle behavioral changes may be noticed first by other students; isolation or teasing often follow.)
* a changed attitude or performance from pre-injury levels

**New York State Head Injury Association**
**855 Central Avenue**
**Albany, NY 12206**
**(800) 228-8201**

# TEACHER ALERT, II

# "Mild" Brain Injury and Common Terminology

The idea for inclusion of the following information came from Ron Savage, Ed.D. who helped to develop material for parents at Children's Hospital in Washington, D.C. The original information pertained to "mild" brain injury only and was meant to be copied by parents and shared with teachers. Some of the definitions have been slightly adapted and a few additional terms have been added.

"Every child who has had a head injury needs special assistance as he or she returns to school. Most of these children **(those who have suffered "mild" brain injury)** will return to their normal activities and routines within four to six weeks. Teachers can help the recovery process by providing time, patience, extra assistance, and quiet situations in which the child can learn and work. Open communication with the child and parents is essential as the child returns to school and to a normal routine." (Emphasis in parens is added.)

**TERMS**

**Relating to areas of the brain which may be physically damaged:**

**Frontal Lobes:** The area in the front of the brain which is involved in "executive functions" such as planning, sequencing, prioritizing, and initiating activities, monitoring one's own behaviors and controlling those behaviors.

**Occipital Lobe and Visual Tracts:** A portion of the brain at the back of the head believed to be heavily involved in vision, depth perception and an understanding of what is seen.

**Temporal Lobes:** Areas on either side near the ears which are apparently involved in the registering and retrieval of information, memory, non verbal events, understanding speech, hearing music.

**Parietal Lobes:** Areas which process visual and spatial information and which are thought to be involved in spatial orientation.

**Cerebellum:** A portion of the brain which is involved in the coordination of movement of the body.

**Brainstem:** A portion of the brain connecting the larger brain to the spinal column which is involved in the regulation of consciousness/alertness, swallowing, body temperature, breathing and heart rate. Signals from the brain and from the body also pass through the brainstem.

**Limbic System:** A system involved in emotional functioning.

Functional abilities are not neatly confined to any given physical areas. Complex networks and tracts of neurons interconnect and structures of the brain help to integrate both hemispheres of the brain as well as areas of the brain and the rest of the body. Therefore, injuries may cause functional problems which seem surprising even to experts who are still learning about brain/body behaviors.

**Relating to the mechanism and result of injury:**

**Amnesia:** Difficulty remembering new information after the injury (antegrade or post-traumatic), or loss of memory for events *immediately* before the injury (retrograde).

**Coma:** Usually defined as a state of unconsciousness that lasts for more than a few minutes or hours from which the child cannot be "awakened" by touch, voice, or pain. Some experts in the field do not like the term coma because it is stigmatizing and poorly defined; they prefer to refer to low levels of consciousness using descriptive language specific to functioning.

**Concussion:** Condition resulting from a blow to the head in which the brain is "shaken" inside of the skull, but there is no obvious bruise or bleeding noticed on xray.

**Contusion:** A condition resulting from a blow to the head in which an actual bruise of the brain is evident.

**Coup-Contrecoup:** A condition which results from a blow to the head which bounces the brain to the opposite side of the skull from the initial impact, causing injury to 2 areas of the brain (one at the site of the blow and one at the opposite side of the skull).

**Relating to conditions which may follow injury:**

**Anomia:** Loss of ability to recall the specific names or words for objects, people, or actions.

**Aphasia:** Inability to understand what is said (receptive), or inability to express thoughts into words (expressive).

**Ataxia:** Inability to coordinate muscle movements, resulting in irregular or "jerky" muscle movements, in the arms and legs. Often noticed in walking or running.

**Dysarthria:** Speech which is obviously difficult or disrupted from physical muscle weakness, etc.

**Edema:** Swelling or a collection of fluid in the brain or other parts of the body. Since the skull does not expand, edema results in pressure or squeezing of the brain within the skull.

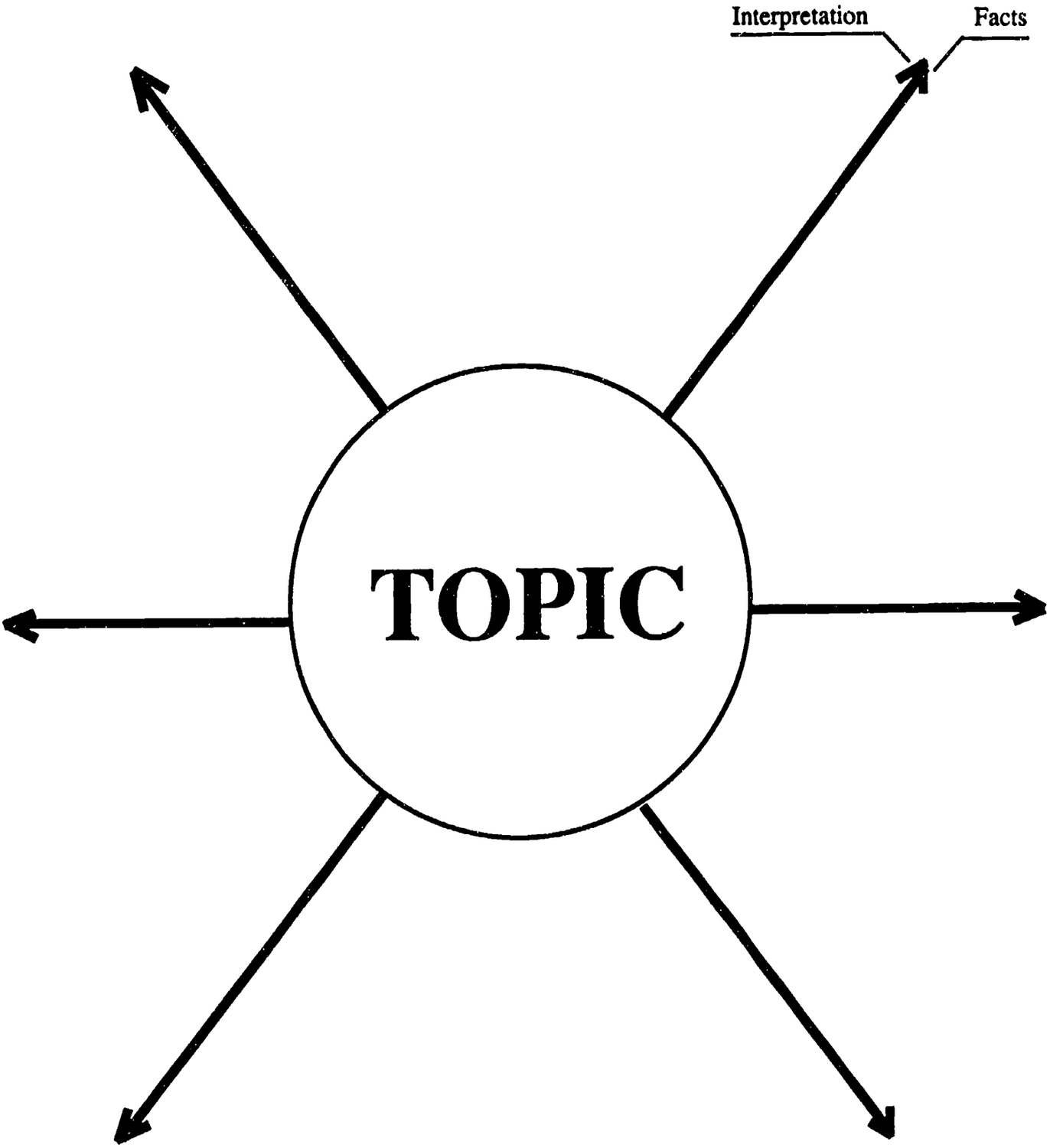
**Hematoma:** A collection of blood in a specific area. The pressure this exerts may cause serious symptoms, permanent damage, or even death depending upon its location and size.

**Relating to common diagnostic evaluations:**

**CT or CAT Scan (Computerized Axial Tomography):** A radiographic scan similar to a series of "xrays" taken through different layers of the brain to detect injury. Gives far more information about the condition of "soft tissue" such as the brain as opposed to typical xrays which give good information on the condition of bony structures.

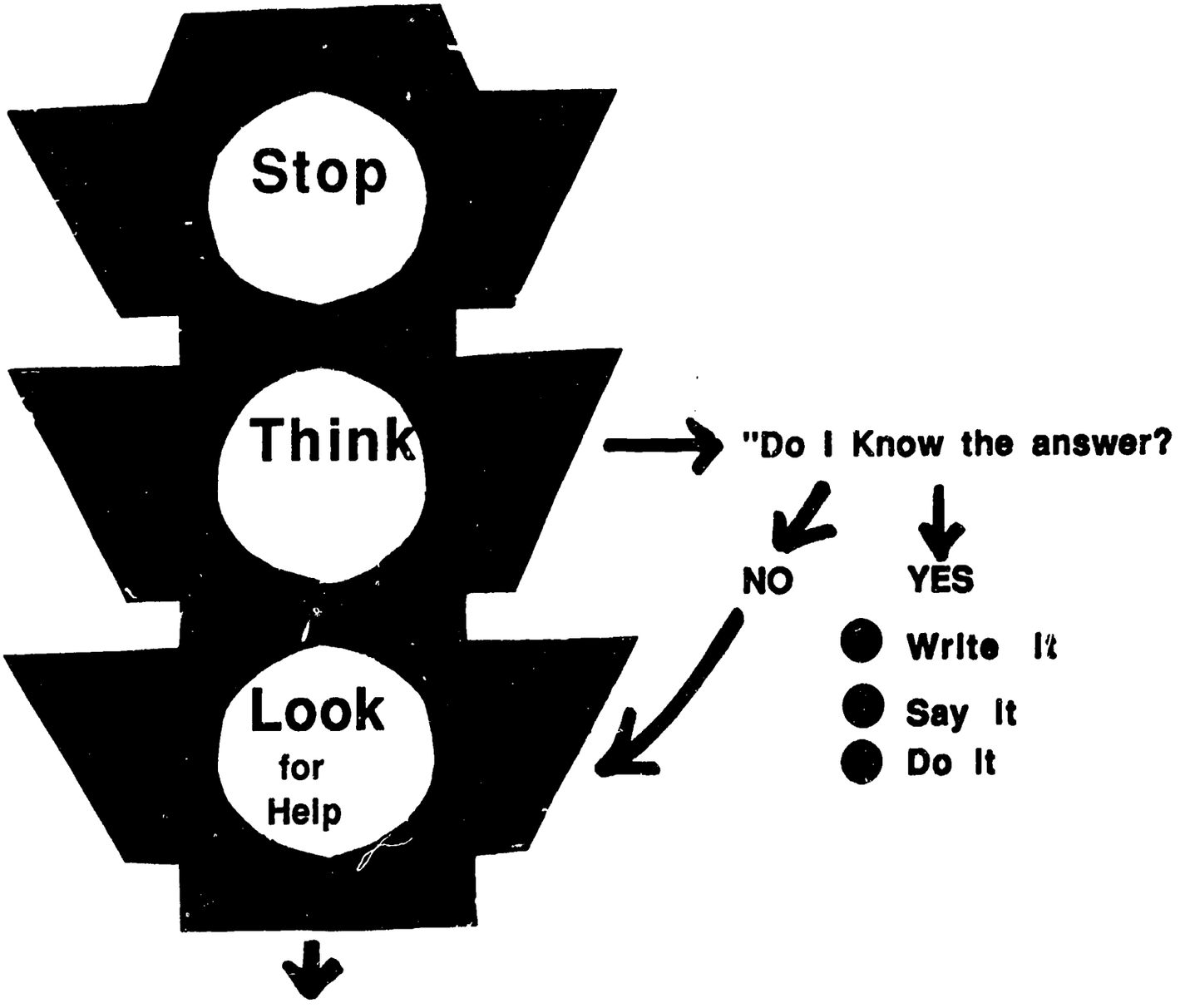
**MRI (Magnetic Resonance Imaging):** A procedure which uses magnetic fields to create a picture of the brain's soft tissue and to identify specific injuries within the brain.

# SIMPLE 'SUN" DIAGRAM




A more complex model incorporates "facts" and "interpretations" as offshoots of each category.

# Organize Your Thoughts




- Supplies or Equipment (note pad, pencil, scissors, etc.)
- Resources (dictionary, map, book, list, etc.)
- Person