Mind State Management: the Software of the Mind

By Frank Young, Ph.D.

People who learn to control inner experience will be able to determine the quality of their lives, which is as close as any of us can come to being happy. (Csikszentmihalyi, 1990, p.2)

In his book, *Flow: The Psychology of Optimal Experience,* one of the foremost authors on the phenomena of peak experiences, Csikszentmihalyi, outlines the state of unity between subject and object, the observer and the observed, a total blend of process and outcome. This state of complete focus can also be described as the result of a learned skill or habit. Mind state management (MSM), the skill of matching activation state and mental focus to the task at hand, is now available to virtually anyone who is willing to learn it. Once the cherished domain of a few yogis and supreme meditators, this ability can now be learned through the recent advances in the new field of neurotechnology.

Describing the consciousness continuum

Mind State Management involves many specific skills and strategies for effecting positive changes to human consciousness. Consciousness, the subjective state of awareness of one's mind state, can be viewed as a continuum of brain activation levels from hyperactivation to virtual coma. While this description does not take into account the structure and function of the brain, it does provide a useful framework upon which to map the general states of arousal which are associated to processing certain types of information and performing certain kinds of tasks. It is an oversimplification to describe all parts of the brain as if they resonate uniformly to one vibration; the brain is far more complex than that. Nor is it accurate to describe left brain functions only as primarily linear and logical, and right brain functions only as intuitive, unconscious, and spatial. The metaphor of a continuum, though, allows us a convenient way to understand the fairly consistent patterns of brain functioning common to most people.

The brain operates like a computer which is not surprising since computers were designed to emulate brain functions in the first place. There are input devices (data from our senses), coding systems (categorizations and cognitive appraisals of our perceptions based on previous experiences) and a central processing unit. There is also a power source (motivation) that pre-selects certain information for processing and ignores data considered irrelevant. There are also output devices in which data is categorized (cross-referenced in both the conscious and unconscious long-term memory systems). If the encoding is sloppy or the data has relatively low importance to functioning, it tends to be lost (forgotten). It is eventually overwritten or erased by subsequent information (new experiences).

While most of the information is stored, it is almost virtually unretrievable unless properly tagged to a retrieval path. For example, with no external cueing, try to remember who you had lunch with three Tuesdays ago. For most people this is not an easy assignment, yet the memory is there.

Imagine the distress of taking an examination and temporarily blocking the correct answers due to the stress of having to produce on demand. Imagine the difficulty in trying to fall asleep when your sleep cycle has been disrupted by jet lag. Or trying to read a chapter of a textbook when you are tired. Each of these activities requires certain levels of brain state activation in order to be carried out effectively. The importance of this principle is far from insignificant. Disruptions to brain functioning can affect cognition, emotion, attitude and ultimately behavior. What is needed then is the ability to access the brain wave state that is optimal to the task at hand.

What are brainwaves? Essentially, our brain is a neurochemical information processor that gives off electrical signals as electrochemical circuits close and open a million each second. If this is so, why can't we detect these signals? Primarily because our skulls are too thick and the signals too weak for them to resonate outside our heads. With the exception of perhaps the most clairvoyant and telepathic among us, brain wave patterns are impossible to detect without the aid of a special amplifier called an electroencephalograph or EEG, which detects and records the changes in the voltage emanating from the brain. These electrical patterns tend to be similar in their general rhythm or rate of pulsation, and can be placed along the consciousness continuum.

The first pattern is described as **beta waves**, of short amplitude and very rapid pulsations of 30-14 cycles per second (Hertz or Hz). This pattern is optimal for intense mental activities such as calculations, linear logical analyses, and other highly structured functions.

The second pattern is described as **alpha waves**, characterized by a slightly larger amplitude of 13-9 Hz. This pattern typically occurs in daydreaming, relaxed awareness, guided or focused imagery and smoothly rhythmic athletic activity. There is often a euphoric, effortless feeling of "flow" as the doer is absorbed in activity, and subject and object are felt to be united.

The third pattern is described as **theta waves**, pulsations that are more ragged and irregular, in the 8-4 Hz range. While this range is rather small, a difference of 1 or 2 Hz in this zone is very noticeable, as it is proportionately much larger than it would be in the beta or alpha range. This pattern is associated with deep unconscious imagery, and thus creativity, as the person drops into a state of drowsiness and near-sleep.

The last main pattern is that of **delta waves**, pulsations that range between 3-1 Hz. In this range of profound relaxation, images and dreams have largely subsided, as the person slides into a state of slow wave restorative sleep. Meditators who remain aware during this state of near unconsciousness report tranquility and peace.

Obviously, being able to control a mind state (the subjective mental state that typically accompanies a brainwave pattern) would be helpful in optimizing human functioning in contexts that required specific kinds of concentration and relaxation. While there have always been brainwaves, only recently have we become aware of them and been able to effect their change. This accessibility with demonstrable, rapid results has great potential for the relief of suffering and the evolution of the social mind of our society.

Thus, in this next section the intent is not merely to present a history of neurotechnology (the field of mind-machine interface), for others have done a more thorough job of documenting that history (Hutchison, 1986, 1990, 1992; Budzynski, 1991). My intent is to put mind state management in a context that allows you to see the rich human tradition from which it springs, and the way these independent sources form interdependent streams of consciousness. You can get a sense of the expansive direction in which this energy can flow, not only in your own development, but in the development of all human consciousness.

Mind state management in an historical context

Meditation and Prayer. Throughout history, in virtually every culture and religion, there has been a tradition of some kind of meditation or chanting prayer. Prayer is typically used to focus and calm the mind, promote healing, or invoke the blessing of a deity. Usually the prayer takes about 15–20 minutes. It may involve the repetition of a simple phrase or series of actions and rhythmic sounds-jumping, swaying, dancing or chanting. The participant continues repeating the action or mantra long past the point of boredom, until a higher state or spiritual awareness occurs. If distracting thoughts occur, the participant is told not to resist them; let them pass through the mind and exit by themselves, allowing the mind to return to the mantra. These rituals have been successful in invoking a relaxation response, but only to dedicated devotees who practiced religiously. The required discipline often had to be maintained externally through social constraints against leaving the place of meditation or the

Nevertheless, over the centuries and across cultures, a general principle of the mind-body unity seems to operate:

- Stimulate the mind-body with rapid movement and loud sounds.
- Soothe and settle the mind-body with slower and quieter movement and sound.
- Transport the mind-body to altered states of consciousness through very slow pulsing of movement and sound.

The principles of mind state management are similar:

- Repeated rhythmic stimulation reduces the distraction imposed by the external world.
- Attention gradually and consistently turns to internal experiences.

If slower rhythms are better for inducing deeper states of consciousness, then it would seem that the ultimate meditation would be to cultivate total stillness and quietness-a slowing of all movement in a total focus of concentration. In fact, many forms of yogic meditation attempt to do just this. However, they flourish in cultures where patience, acceptance and the concept of "no-thing-ness" are taught from an early age. The effort required to focus the wandering and impatient mind is unbearably demanding and tedious to the undisciplined Western mind. Some would argue that this lack of patience and discipline is the very attitude that the practice of meditation is designed to over-come, the antidote to Western thinking. However, such an argument is actually a taunting tautology, describing a condition that prevents its own remedy. After we watch the dog chasing its own tail, we know he is merely playing with his dilemma. Not so with meditation. For whatever reason, most people in our Western culture will no t meditate in a consistent way long enough for thorough learning of the skills of MSM.

Hypnosis: The advent of formal hypnosis in the past two centuries provided a new and perhaps more readily acquired method of learning MSM. In hypnosis, a state of focus is generated by the use of language, with words, phrases, and ideas using the contradictions provided in the language itself. Words can twist and reflect upon themselves, leaving the listener confused and detached.

Hypnosis as a path to MSM was limited by two popular perceptions:

- Hypnotic suggestibility was thought to be an inherent, almost fixed, capacity rather than a learned skill which some people acquire more easily than others.
- Hypnosis was thought of as a weird state in which the hypnotist somehow took control of a subject with a weak or suggestible mind.

As a result of these misconceptions, hypnosis held a relatively narrow path for learning MSM skills. Nevertheless, a dedicated person can usually learn hypnosis and ultimately self-hypnosis with the help of an instructor, or from books and tapes. However, for this individual the results are often hit-or-miss. Practice is abandoned before the MSM skills are properly learned and integrated.

Mind alteration: North American consciousness explorers in the 70s and 80s began experimenting with the mind-altering properties of hallucinogenic drugs. These did indeed alter the user's state of consciousness, but in largely uncontrolled, and some times dangerous ways. What's more, many of these drugs were not only illegal, but toxic, which required the body to metabolize the substance before returning to a normal state of consciousness. What people really wanted was a quick, effective, natural process for mind-state alteration.

Meanwhile, some researchers were experimenting with sensory deprivation. In float tanks, one floated in large, dark, quiet tanks of water at body temperature. The buoyancy provided by a high level of Epsom salt allowed the user to float effortlessly. All sensory input -sight, sound, smell, taste, kinesthetic feeling was denied. This was effective in inducing relaxation, euphoria, accelerated learning, and various mind state phenomena

(Hutchison, 1984, *The Book of Floating*); however, the tanks were cumbersome and not very practical.

Ritual practices: The 1970s brought an increasing awareness of the value rituals practiced by other cultures might offer to our secular consumer-oriented society. Besides Eastern religions and philosophies, there was a growing appreciation for North American aboriginal people and the reverence they held for nature. This resonated with the dawn of the ecology movement. The idea of using natural rituals somehow seemed to make more sense. The idea of social and mind altering ceremonies-bathing in the warmth and flicker of firelight, chanting, drumming and dancing-invoked a curiosity and earned a place in the North American cultural mosaic.

Mind entrainment devices: Another significant trend arose from the neuroscience experimentation of W. Gray Walter and his colleagues in a series of studies on the effects of photic stimulation. They found that when exposed to strobe-like photic stimulation, the brain's electrical wave activity began to synchronize with and track the frequency of the stimulation pattern (Walter, 1957). Other pioneer researchers followed a similar tradition, noting the effects of the frequency-following response to photic stimulation, the so-called "driving" or entrainment effect. The addition of sound patterns to augment photic driving led to the proliferation of mind-entrainment devices, most of which were still expensive and cumbersome. By the early 1980s, however, advances in computerization, miniaturization, and microchip technology allowed for the mass manufacture of light and sound devices (research reviewed in Hutchison, 1986, 1990-92; Budzynski, 1991, and other sources). Not long after, researchers and neurotechnology engineers closed the gap in mind state management by developing portable, inexpensive machines, which I like to call Sound and Light Entrainment Devices or SLEDs. At last, those who wished to learn how to gain mastery over their mind states now had an appropriate technology:

- It would generate noticeable results almost from the outset of training (instant gratification and demonstration of effect).
- It was essentially passive in nature, requiring no active direction from the user.
- It was relatively inexpensive and portable.
- It was a safe, natural, and drug-free alternative.
- It could be used in private and be programmed to meet the user's needs.
- It could be adapted for use in social or group contexts.

SLEDs were being promoted as alpha-generating mind-machines, the ultimate replacement for therapists, counselors, and stress management consultants. They were destined to become a panacea for virtually all modern difficulties and ailments. People on both the West and East coasts began to flock to "Mental Fitness Centers" to tune in and drop out for a mental health break.

But the fad died as quickly as it flourished. What happened? Over excitement likely created unrealistic expectations. Consumers thought that all they had to do was turn on the devices and everything in their stressful lives would be resolved. This notion is as realistic as thinking you will become a great writer as soon as you purchase a typewriter. Another barrier was lack of portability. Mental fitness centers required the consumer to leave their home or work environment to gain access to the technology, instead of the technology coming to the consumer. Those who ran the centers, while technically adept and effective marketers, often did not have the psychological expertise to adapt the SLED technology to specific and complex needs of the user. Consumers had hardware, but without adequate guidance as to how to use it.

What was needed was the "software of the mind" to translate SLED potential into reality. A leading publication in the field of neurotechnology called for the need to develop a support system of training, instructional tools and programs - a guided hands-on approach to help the user go beyond a few novelty sessions (Hutchison, *Megabrain Report,* 1992). The real secret lay in enticing the participant to stay with the training long enough for a beneficial effect to be realized. What is often required is gentle encouragement, enthusiasm, and a set of focusing instructions that are easy to follow. Rather than having a few programs meant to meet everyone's needs, it made sense to develop customized programs for specialized purposes. And finally, since guided imagery used to meet those needs can be enhanced with SLEDs, then why not offer audiotapes? The listener could absorb the process of change in an effortless manner, allowing the ideas to be absorbed in receptive alpha and theta consciousness. The resources of a pool of professionals experienced with using and customizing the skills of mind state management was needed, experts who could design and program sessions and produce the audiotape to accompany the sessions.

In 1992, Theta Technologies began the process of developing a device that would offer all these advantages. The result was the *Mind'sEye*, with the collected knowledge of 17 specialists in the field of neurotechnology. Many of the session authors are experienced psychotherapists, neurolinguistic programmers, hypnotherapists, and researchers with direct experience using SLEDs in their clinical and research practice over the past five to ten years. They feature complex light and sound combinations, binaural beats, overlapping sounds, and other special audio-effects.

Applications: how to use the principles of mind state management

In this section I will first guide you through the types of applications found in the *Mind'sEye* — Relax, Explore, Learn, Change and Energize. I will discuss the health oriented applications first, and then branch out to the realms of exploration and consciousness expansion. Many people are first attracted to this technology for the instant relief it provides from stress. Once they address some of these essential needs of balance and wellness, they can have greater focus toward the higher objectives of consciousness exploration, the realm of inner space.

As they pertain to the *Mind'sEye* sessions, I would like to describe some of the experiences I have encountered in over four years of working with Sound and Light Entrainment Devices (SLEDs) in my practice of hypnotherapy, counseling, consulting, and sport psychology. I'll review the theory of how each type of session works and possible applications.

RELAX SESSIONS

Generally alpha programs to lower activation and provide relief from stress.

Stress management and high performance: SLEDs have perhaps received most credit for their ability to reduce stress and match the activation state to the task at hand. When executives are too high-strung to attempt any kind of meditation, too busy to learn self-hypnosis or yoga, and too exhausted to exercise, they place themselves at medical risk, susceptible to burnout. Overstressed executives may cause mismanagement and, as centers of corporate influence, contaminate the work environment with their dysfunctional thinking and demanding behavior. Related disturbances in marital and family relations can further compound this systemic breakdown. In such cases, it is often easier to alleviate the immediate symptom by passively responding to the predictable rhythms of a SLED.

Once engaged in this relief, they are more likely to examine the cognitive styles and communication patterns that underlie their condition. With therapeutic input they can use SLED-induced mind-states to reprogram attitudes to be more in harmony with team functioning. My sport psychology clients can learn to set realistic goals, manage their energy and effort, coordinate team energy with maximum efficiency and focus, and perform with flexibility and resistance to distraction or discouragement. In the past four years more than 80 executives and a similar number of athletes and coaches have been very satisfied with their enhanced ability to perform in stressful competitive environments using SLED-enhanced mind state management and imagery training.

Insomnia and other sleep disorders: In chronic stress situations or post traumatic stress disorders, a person's sleep patterns are often quite disturbed. This further compounds the stress so the person becomes even more vulnerable to confusion, attention lapses, anxiety, mood swings, and depression. In such cases, training with SLEDs has promoted awareness of the consciousness continuum and been used to induce lucid dreams and control nightmares. They have been very useful in promoting near sleep states in which goals of restful sleep and pleasant dreams can be incubated. Such theta and delta states are ideal for treating sleep onset insomnia. Audio tapes and CDs used in conjunction with SLEDs can extend the length and depth of the sleep. It is important that the therapist is sensitive to the causes of stress in the client's life, to help manage the gradient of expectation so that the client is not overwhelmed with performance anxiety in this attempt to sleep. Using this combination of SLEDs, tapes, and counseling, I have successfully treated over 30 such cases in the last four years.

The theory of how Relax sessions operate

While thousands of people have used SLEDs to control stress, it is possible to use these devices and not become relaxed. For one thing, we all differ in our baseline activation rates, i.e., how physiologically agitated or relaxed we are to begin with. One person might normally be more relaxed than another who started extremely "wired" and used a SLED to slow down and unwind. Some people, although they know a SLED session would be helpful, are too far-gone by the end of a stressful day to use a mind machine. In this case, and with virtually all relaxation situations, it is helpful to have the benefit of an audio recording induction. This can accelerate the rate of tension release and the learning of a deep relaxation response.

Typically, a relaxation session begins in the beta zone (30–14 Hz) to match the frazzled state of the user's mind at the point man and machine begin their interplay. Within varying periods of time, but usually within the first ten minutes, the pulsation rate has dropped into the alpha zone (13–9 Hz). An associated audiotape might play soft wave-like music, focus on relaxing muscles, or invoke imagery that recalls pleasant scenes. There are often perhaps affirmations for mastery of the relaxation response. If time or inclination permit, the session may stay longer in alpha to allow for further relaxation or go into the theta zone (8–4 Hz). Typically, the sessions are about 20 minutes long because users rarely have more time available in their lives to train in stress release. Some stress management programs return the user to a high alpha or low beta state (12–14 Hz) before finishing, to provide a period of readjustment to the active pace of the outside world. Sessions devoted to sleep induction tend to ramp progressively down to theta and even go as far as ending in the delta zone (3–1 Hz).

In addition to stress management, there are several other wellness applications that require activation control to move into the second main area of mind state management. In these applications, mostly in the Change sessions group, when the mind state is prepared with slower states of deep relaxation, the curtains of the unconscious can be drawn back so that old fears can be faced, old resentments and grief's processed, and new patterns for healing can be implanted as guides for further recovery and personal development.

EXPLORE SESSIONS

These are open-ended mind expansion and exploration sessions designed to access altered states of consciousness.

My clinical practice rarely extends into this realm. In my geographical area there appear to be few people who are willing to invest in consciousness training using neurotechnology. However, for those few that do, almost nothing is more fun and exciting than the pursuit of higher consciousness. This is a thrilling and wondrous world of images, metaphors, symbols, stories, spirituality, and oneness with the universe. There are narratives of a vast future and a resourceful past in spirits that transcend time, space, mortality, and the limits of boundaries. Conversations and shared experiences with fellow travelers on this journey make most of life pale by comparison. Some are my

friends and colleagues, some are my clients and trainees, but all are what make life truly worth contemplating and living to the fullest.

It is quite amazing to find that many people who are open to such exploration are quite restrictive in the vehicles they elect to use. Meditation, yes; dreaming, perhaps; but using technology, no! It is as if using a method that has a modicum of precision and predictability aborts the natural flow of the spiritual process. It is similar to the disdain of the cross-country touring skiers who watch a helicopter filled with downhill skiers being airlifted to the top of the same powder mountain.

To use a power assist is almost like cheating in the mind of the spiritual purist. Even in the field of neurotechnology there is a similar attempt to establish hierarchy among the EEG-brainwave biofeedbackers as being "more natural and less intrusive" than the photic drivers who are "imposing" their mind states on their brains.

The theory of how Explore sessions work

The vehicle for our exploration is the MindsEye. Like the pioneering space probe of the same name, this vehicle can take you beyond the gravitational pull of ordinary consciousness, past the planetary markers of conventional thought, and into the vast universe of inner space. Imagine sweeping aside the curtains of beta-analytic mind states, moving beyond the veils of alpha-directed daydreams, and gaining access to the unconscious through the portals of theta and delta consciousness. Unconsciously derived memories, images, messages, and feelings of transpersonal connectedness can act as icons for our mental and spiritual development, and perhaps even our evolution as a species. We are likely on the threshold of super consciousness, developing new and more ecologically-balanced paradigms of meaning and purpose.

If the words in the preceding paragraph seem too abstract or overly optimistic, please remember that it is one of the few areas in which, as a scientist, I allow myself to extrapolate beyond the data of the empirical world in which I am grounded. Nevertheless, this is an opportunity to share a mission statement of evolved consciousness as my ultimate dream for the future of neurotechnology, and one of the reasons I am so passionately involved in this field. From the comments of other explorers and designers in this field, it seems that we are indeed aligned in this mission.

LEARN SESSIONS

This group of sessions allows for super learning of detailed knowledge, general pattern learning, developing personal creativity, subliminal learning, enhancing imagery in learning, and lucid dreaming. The focus is not recovery of health or remediation of problem patterns. Instead, it is the attainment of mind state management skills that enhance functioning, especially in the field of learning and creativity.

Creativity and lucid dreaming: This is my favorite area of practice-working with individuals and groups to increase access to the rich storehouse of the unconscious through near sleep states and lucid dreaming. SLEDs assist in the recognition of subtle shifts in the consciousness continuum allowing the user to glide through the gradient

into theta reverie and its images. These images can become personal icons or symbols of the unconscious, communicating a message or creative solution to a problem that was incubated before the SLED session. I have developed a commercial tape and booklet to accompany a SLED session for creativity training, as well as another for lucidity training. Although I have done several workshops and presentations at international conferences, this part of my practice is not fully developed. Nevertheless, the field looks promising.

The theory of how Learn sessions work

Both Hutchison (1986, 1993) and Budzynski (1992), among others, have recounted empirical studies showing the beneficial effects of various mind entrainment devices and protocols in enhancing learning.

The mind needs to prepare for learning by being clear of distraction. SLEDS operate in a manner similar to sensory deprivation tanks by blocking out external stimulation. While tanks block by subtracting or lessening stimulation, SLEDS accomplish the same end by masking external sounds and vision with the repetitive stimulation that provides no meaningful information. Learning occurs best when the mind is open, receptive and curiously involved with the material, enriching it through associations and connections involving the whole brain. The mind also needs to be focused on the task at hand, understanding and learning the material being studied. It is noteworthy for those with Attention Deficit Disorder, there seems to be a paradoxical effect. More intense stimulation in the high alpha and beta zones appears to satisfy a natural stimulation deficit in these brainwaves, and thus allows for a greater ability to sustain focus and concentration on a task or topic.

There appear to be optimal mind states for different types of tasks. The optimal mind state for metaphorical, literary, analogical or spatial learning is likely the alpha state; for intensely logical or computational problems, the beta state. For learning material that is quite foreign to the person's previous experience, or material reflecting points of view that differ widely from the person's basic beliefs, the theta state is recommended.

Right after the learning session, the mind needs a period of several minutes to one hour to allow the previous learning to set or gel in long-term memory. This process requires protein synthesis in the brain. SLED-induced relaxation allows the central processing unit of our computing mind to be relieved of new input. Following this computer analogy, it stores data from its existing "random access memory", which is highly volatile, onto hard disk memory (protein cells) for long term memory and cross-referencing synthesis. Existing research indicates that if this phase is enhanced properly, the memory improves in volume, detail, richness, complexity, and breadth of application. It is even better a day later than on the day the material was studied. This is the well-known super learning effect for which light and sound devices became famous.

Beyond super learning, SLEDs promote learning by assisting in the breaking of rigid thinking and cognitive sets. Fluid mind state management enhances set-breaking and cognitive flexibility so important in the paradigm shifts that are the essential ingredient of creative thinking. Furthermore, SLEDs are highly effective instruments to assist in the

incubation of theta reverie states and dreams, the source of creative images. Even more exciting is their untapped potential for incubating the lucid dream.

CHANGE SESSIONS

These repatterning sessions help people make positive changes in their lives by overcoming obstacles posed by fear, anger, and limiting beliefs. Growth and transformation are possible, often with the use of guided imagery to access abilities and raise self-esteem.

Phobias, Anxiety and Panic Disorders: The prototypical use of mind state management for change is the situation in which a person, thwarted by their fear, needs to remain composed and effective. In over 20 cases in my practice in the last few years, an accelerated form of desensitization using light and sound devices has been effective in rapidly (one to six sessions) correcting monophobias and anxiety disorders (five to 15 sessions).

Anger control and conflict resolution: In this area mind state management offers many more skills than the control of activation levels. Nevertheless, there is a need to be able to turn down arousal and focus on key cognitive messages when anger is invoked. Often when anger is fully sparked, rational conduct and clear thinking "fly out the window," as the person is consumed with affect. If, however, you are able to access a message for an alternate behavior that you have previously linked to these states (anchoring), then you can regain control, exercising alternative behaviors that are assertive, but not destructive. It is also very effective to have a close friend or family member participate in the sessions to help resolve some of the systemic loops of reciprocal tension that contribute to anger disorders. In guided imagery, activation control is linked with desensitization of scenes in which the person is perceiving the frustration of a blocked need or a threatened loss of relationship, status, or identity. Whereas in the past I have treated such cases with systematic desensitization and cognitive behavior therapy, I can now accelerate the process by using SLEDs. I have observed that my clients have a reassuring sense of mastery over their emotions, and thus feel less vulnerable and defensive. This allows for greater self-acceptance and, therefore, better listening and assertive problem-solving skills to emerge in conflict situations.

Psychophysiological disorders: I have successfully treated disorders such as ulcers, skin conditions, migraine headaches, chronic pain, fibromyalgia, and several immune-deficient conditions with fairly holistic methods including extensive use of SLED-assisted imagery sessions. The results for headaches, bruxism, and temporal mandibular joint pain have been very encouraging and have been replicated by other clinicians and researchers in dental and chronic pain settings (Boersma, 1987). In my clinical practice, there was only one unsuccessful case: a client with phantom-limb pain. We agreed to stop trying after six sessions of minimal and inconsistent results (perhaps too soon, in retrospect). However, virtually all other clients noticed a definite feeling of well-being and endorphin-like suppression of pain and remission of symptoms. These glimpses of

well-being became more and more prominent in their lives until they were able to function with total absence of their disorder, or in the case of fibromyalgia, a substantial lessening of symptoms. This seems like a promising area for further investigation.

Substance abuse and eating disorders: In the past I would use hypnosis to assist clients in dealing with self-esteem issues-distorted body image, overcoming fear of fatness, reducing panic and anxiety states that lead to episodes of drinking, drug abuse, or bulimia. Now I typically continue with these practices and skills, but with the power assist of SLEDs. Results are more predictable and instantly gratifying. The issue of "hypnotizability" is effectively bypassed, as "guided imagery training" is fully effective in modifying distorted images and perceptions that were formerly quite resistant to standard cognitive therapy (a la Aaron Beck & Associates). SLEDs are especially effective in settling the loss of control and extreme irritability and unease that characterize the states that precede episodes of drug abuse. Incidentally, it is also likely that alcoholics have a natural deficit or underproduction of alpha waves when sober, with higher production of alpha after the ingestion of alcohol (Wise, 1992). The mellow feelings that accompany frequent usage of SLEDs extend throughout the days to get over "bad periods" in the client's life. I have successfully treated over 60 cases in this manner, and have presented such cases in professional conferences. Recently, I have also found such treatment to be startlingly successful with five cases of Premenstrual Syndrome (PMS), although the numbers are too small to make generalizations. However, using the Peniston Protocol (which involves 36–60 sessions of daily training to show results) there has been good research (Budzynski, 1992) to show that such mind state training was quite effective with an alcoholic population in terms of significant relapse prevention.

Self-Esteem, autonomy, confidence, and identity: Probably one of the best areas of application for SLED-assisted therapy is instilling confidence and overcoming social anxiety and self-consciousness in personal presentation. Desensitization of performance anxiety and phobias can proceed fairly rapidly with a specific technique I have developed that uses SLED training to promote deep relaxation prior to scene exposure. There are certainly more than 50 cases where this has been helpful. Of course, the development of identity and autonomy in young adults often involves redefining relationships with family and loved ones, which naturally leads into the next area of application.

Marital and Family Disturbances: Putting family members on the same brief SLED program before a family therapy session allows them to "get on the same wavelength". This seems to help in conflict resolution and the creation of harmony, but it is difficult to assess whether similar results would be obtained without the use of the device. In my recent work, at least five couples and ten parent-child dyads enhanced their ability to resolve their conflicts though the use of SLED training. In one couple and in one parent-child dyad the process was unhelpful, as one of the participants did not want to continue working with the machines. This problem required a shift back to more standard forms of family therapy.

The theory of how Change sessions operate

The first principle of how Change sessions work is desensitization, a simple behavior therapy. People typically overcome a negative affect by allowing it to exhaust itself, or by substituting it with more effective coping methods that deal with the negative situation more effectively. It involves distancing yourself in some way from the feared situation or object, and then changing one element of it (e.g., your proximity to it, the number of people involved, the setting, or the task), then deal with that element in a relaxed and confident way. For example, in a SLED-induced, relaxed alpha state you can visualize dealing with that element by itself, then do the same for other elements, until you can reassemble the elements so that the situation is no longer a problem. This process is first rehearsed in imagery, then practiced with coaching and support in real life until the problem situation is mastered.

SLEDs are useful in inducing the alpha states required for this work, and are probably assisted by the generation of endorphins which counteract physical pain and lessen emotional threat, fostering a sense of well-being and confidence.

Thus the second crucial element of the operation of mind states is learning how to dependably and confidently access this endorphin state within the stimulus situation that caused the original pain or fear. Being able to invoke a preferred mind state at will is crucial for overcoming compulsions and various forms of substance abuse in which a ritual-the ingestion of a substance-is used to squelch or suppress negative effect. Mind state management, with its access to mind states, provides the skills that allow the power of the ritual to be broken, the compulsion to be weakened and dissolved.

A third way in which Change sessions work is by changing deeply held personal beliefs and convictions, many of which are the sources of the problem. The strong emotions attached to these beliefs can also be a factor that maintains the structure of the problem. Often these structures are heavily protected by deep unconscious embedding, and the over-alert defenses of the rational, analytic mind.

Several years ago, I used cognitive therapy prior to using hypnosis. I would attempt to uncover beliefs and basic assumptions about the self, life in general, and hopes for the future, inviting my client to counter these assumptions with evidence from research or their own personal experiences and experiments. When this was successful, hypnosis could then be used to strengthen the new positive leanings as templates for the future. It was easy for my client to give full consent to a hypnotic process when it amplified new positive experiences. Hypnosis could be applied with full consent because I was not introducing or imposing ideas that were foreign to, or resisted by, my client.

On the other hand, it was difficult to continue to wrestle with client notions that were patently absurd. The client would agree that such dysfunctional thoughts or feelings were irrational (e.g., vomiting food after you eat will keep you thin, you must be thin to be respected and attractive, you must be attractive or life won't be worth living). However, on a deep emotional level these basic ideas seemed to be overwhelming and almost impossible to dislodge. I used a form of cognitive therapy technique that suggests

that such thoughts are merely precognitive, still based on primitive notions that need to be reappraised. Eventually, with some difficulty, the beliefs were able to be reworked.

An easier way to look at dysfunctional thoughts is to invoke the notion of state dependent learning. Such thoughts were likely implanted in an almost hypnotic induction, repeatedly and deeply, when the child or younger adult was pre-logical in development and likely transfixed by trauma or other strong emotional events (Ritterman, 1983). As such, these schema were deeply embedded and layered over with other events, imprinted like a tattoo. Skin can grow over it, but it will retain the original pattern of the underlying dye. To undo the pattern, you must get under your skin to drain out the contaminating pigments, and then let new skin heal and restore the natural pattern that preceded the staining. It makes complete sense then to access these thoughts and feelings in the mind state in which the template is embedded. In other words, have the client go into a deep theta mind state, then use the powers of imagery and metaphor, the language of the unconscious, to reprogram these notions. Of course, it is necessary to secure your client's permission and assistance to make these changes, but usually this is easy to obtain. Your client knows these ideas need changing: that is why they came to see you in the first place. They just want an effective ritual or process to take these compelling ideas away, and replace them with thoughts, ideas, and images that allow many more options for freedom and selection.

Often, reprogramming early dysfunctional learning involves going back to the original context of learning by means of an "affect bridge." The counselor will ask the client, "When was the earliest time you can remember feeling that way?" The client will time-regress to an earlier life stage and re-experience the original learning, but this time with the benefit of a fully functioning adult mind, capable of handling or understanding the original context of learning. Affirmations based on these new understandings are repeated and inserted in this same realm of consciousness, with anchors to invoke this new learning in the problem situations. The result of such an anchor is that, from now on, whenever the original thought, feeling or behavior pattern is re-awakened, the therapeutic reformulation pattern is also invoked, challenging and ultimately replacing its predecessor.

Hypnotherapy often works in this manner. The most graphic examples are cases of undoing post-traumatic stress disorders after catastrophes (hurricanes, earthquakes), or emotional or physical trauma (e.g. sexual abuse, ritual abuse, physical torture or threats). Old learning's are dusted off, reexamined, and reworked. Newer learning's that are more affirming, flexible, and self-empowering are substituted. Eventually, the new learning's become so helpful and workable that the old maladaptive patterns just wither away; they no longer fit in that person's new mind ecology.

With the advent of neurotechnology, the same process can operate even more efficiently and dependably. Basically, the therapist or consultant can use mind machines to assist the client in obtaining a theta mind state. In this state of "twilight consciousness", near-sleep states, the therapist or therapeutic program can insert in that mind state new

images and affirmations to replace the old ones (Budzynski, 1992). In many instances it is not even necessary to access the original learning's in order to replace them. Although psychoanalytic therapists might prefer to see the reworking of the original trauma as an essential element for recovery, more behaviorally oriented therapists often bypass that step altogether, with equally good, if not better, results. Thus, mere repetition and focusing of corrective images is often all that is required for complete recovery from a number of conditions involving emotional disturbance and physical symptoms.

Hypnosis and self-hypnosis (virtually the same process) tapes can now be accompanied by the power of light and sound mind state entrainment for far more consistent results. The reason for such optimism and enthusiasm for this combined process is that the consistency of a trance-like theta state can be delivered more consistently with SLEDs than it can by audiotape alone. (At least, this is a widely replicated clinical phenomenon, even if highly controlled empirical research is still scant in this new field). This means that when accompanied by the appropriate audio and visual stimulation patterns, the audiotaped music, rhythms, words and evoked images are more likely to have a deep reprogramming effect for more of the training sessions than the tapes alone would provide.

Imagery practice is the fourth element in the operation of Change sessions. Imagery is necessary for the creation and transformation of a person's self-image, and self statements are a vital part of a person's self-appraisal of identity and worth. It follows that both imagery and self-affirmation are powerful tools for the establishing and maintaining of enhanced self-esteem. Therefore, several of the tapes designed to go with the Voyager's Change sessions have as their major focus the promotion of self-esteem through imagery and affirmation.

ENERGIZE SESSIONS

These sessions include revitalizing, re-energizing, and sport psychology applications. They are designed to enhance performance and promote wellness. They promote healing and recovery from injury, the building of natural immunity systems, and the promotion of brain stimulation and growth.

Performance enhancement: An abundance of literature, notably in the field of sport psychology, attests to the fact that rehearsal in imagery dramatically affects future performance. In many sport psychology applications, SLEDs can be used to promote the control of activation level, a crucial skill in sport performance. Another application is imagery training in skill acquisition and in being able to perform in a highly competitive environment without being distracted. The athlete uses SLED-induced states of focus, then learns how to anchor these states with self-generated cues, rehearsing, then re-instating the ideal performance state in competition. In working with national teams, professional athletes, and Olympians, it has been gratifying to see the acceleration of positive results, especially in confidence building and focus. Of course, one can extrapolate easily from sport performance situations to sales, management, and other

areas of effective functioning. There have been effective results with over 75 athletes and executives in my practice.

The theory of how Energize sessions work

Both accurate skill acquisition in training and consistency of performance in competitive environments require access of the state of "flow". Beyond the joy of performance and mastery, in order to sustain optimal mental capacities, repetitive and frequent stimulation of the brain is necessary. Therefore, mental exercises and puzzles, especially those involving creativity and set-breaking, are valuable in honing these mind skills. These can operate even more optimally with the kinds of stimulation featured in SLEDs. Stimulation of the brain results in the regeneration in growth and complexity in brain tissue and functioning.

The best popular descriptions of how the research literature supports these notions of brain growth and functioning are covered in the review writings of Budzynski (1992), Hutchison (1985, 1992, 1993), and the hypnotist psychobiologist and visionary Ernest Rossi (1986). It is terribly exciting that there is evidence to suggest that the brain, through stimulation, can regenerate itself and its capabilities. Another interest of our gradually graying population is the energy and revitalization that is the result of mental and physical stimulation. Also, the higher beta pulsations that typify energizing programs may lend increased access to transpersonal consciousness, although at this point such notions are not substantiated by research. Another reason for interest in these applications is the pure fun of the variations in the light and sound patterns. As in the areas of lucid dreaming, entertainment can be fun and good for your health and your happiness.

Pathways of learning

A recommended path to begin your exploration would be to start with the sessions Mind State Management, (LEARN A-2) or Explore I (EXPLORE A-2). See and hear the stimulation patterns of beta, alpha, theta, and delta for yourself. Next go through the guide and figure out what you want to accomplish first with your MindsEye. Sample one or two of the programs and focus on the specific sessions that seem best for your particular needs. Use those programs and, if possible, their related tapes, in accordance with the author's instructions. After perhaps a week or two of diligent practice, maybe take a pleasant break and sample one of the sessions, and then return to your main training objective.

Dr. Thomas Budzynski suggests (and I agree) that, for the sake of continuity, you use the MindsEye on a daily basis for at least two consecutive months in order to reach your desired outcome. Like anything worthwhile in life, goals in mind state management need consistency of practice to be achieved and then enjoyed fully. However, your enthusiasm at that point should still be tempered with the experience of other people who may not have your level of openness and success with this new technology.

I'll close this essay with a few words about my practice over the last four years and some thoughts on SLED technology. My background in hypnosis, cognitive behavior therapy, and systemic and communication theory has extended to the new neurotechnologies. Particularly promising are the areas of brainwave biofeedback (fantastic, but expensive) and the more readily available SLEDs. I have left the security of traditional psychotherapy to pioneer in using various forms of neurotechnology, both personally and professionally. In virtually all cases SLEDs have increased the efficiency and effectiveness of therapy for a range of clinical problems.

However, SLEDs are not for everyone. Those who have a discomfort with technology, who do not like the concept of machines interacting with their minds, or have a fear of unorthodoxy, may still be unsuited to this technology until it becomes more of a mainstream phenomenon of the information age. People who have strong issues with control and independence may not wish to have anything "messing with their minds." Another pattern of reluctance may arise in people who are easily overwhelmed with stimulation or who distrust and are intimidated by electronic equipment; they may need delicate handling to convince them to go beyond their initial reservations about the technology. Instead, I usually respect their wishes and rely on other more traditional forms of therapy or consultation.

Sound and Light Entrainment Devices, such as those high quality instruments produced by Theta Technologies, are very useful, especially in stress-related disorders and enhanced contexts for new learnings and consciousness expansion. I am confident that, with experience and training, your results will replicate my findings for the betterment of our clients and our world.

Frank D. Young, Ph.D.

Dr. Frank Young is a chartered psychologist in private practice in Calgary, Alberta. He was formerly senior clinical psychologist at Holy Cross Hospital in Calgary, Alberta. He serves on the faculty of the Family Therapy Institute, HCH, and as an instructor in the Canadian Society of Clinical Hypnosis. He practices sport psychology for the National Coaching Certification Program and Team Canada Judo and Team Canada Luge. Dr. Young is also on the Editorial Advisor Board of the Journal of Strategic And Systemic Therapies. He is an Approved Supervisor for the American Association for Marriage and Family Therapy. He has published articles and presented numerous workshops on such topics as Ericksonian hypnosis and therapy, humorous approaches in strategic therapy, anorexia and bulimia, imagery training, lucid dreaming, creativity, and performance enhancement using imagery.

Dr. Young has used light and sound entrainment devices extensively in his practice over the past five years with consistently favorable results. He has also received training with Dr. Stephen LaBerge, and is a clinical consultant to the training programs of the Lucidity Institute in Stanford, California. He is currently developing programs and custom tapes for lucidity training and other applications of light and sound devices for Mindplace, Inc. and Theta Technologies, Inc. of Fall City, WA. He has also produced commercial tapes for stress management, creativity using mind state management, and the hypnotic induction of lucid dreaming.