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MASSEY UNIVERSITY
DEPARTMENT OF PSYCHOLOGY

TITLE

A STUDY OF THE EFFECT OF HYPNOTIC SUSCEPTIBILITY ON
SENIOR SECONDARY SCHOOL STUDENTS TAUGHT BY REGULAR
SUBJECT INSTRUCTION OR BY AN ACCELERATED LEARNING
METHOD.

A thesis presented in partial fulfilment of the requirements
for the degree of Master of Arts in Psychology at Massey
University.

FRANCIS COLIN COATES

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ABSTRACT

In this study a Sixth Form Certificate class in Human Relations was taught by accelerated learning methods through the whole academic year. All students in this class were matched closely with students not involved in the Human Relations area. Accelerated Learning approaches are based on the original work of a Russian Psychiatrist who called his early work Suggestopedia. Lozanov believed that the effective use of suggestion was the key to speeding the acquisition of knowledge and improving its retention. Relaxation skills are a prime feature of accelerated learning when students receive passive instruction while relaxing to baroque music. The study measured the students on both academic performance and measures, pre and post treatment, of anxiety and self-esteem. At the end of the year all students were assessed on level of susceptibility to hypnotic suggestion. A division was made into those regarded as high or low in susceptibility to suggestion, and the results of testing examined in the light of level of responsiveness to suggestion. In both the treatment and non-treatment classes students rated as high for suggestibility performed better than students rated low for responsiveness to suggestion, however the high-suggestible students in the Accelerated Learning class performed significantly better than all other subjects in the study. It was possible to conclude that the process of instruction via accelerated learning techniques significantly raises the academic performance and self esteem levels, while decreasing both trait and state anxiety levels. The implications of these results for teachers and for future research on the use of suggestion in the classroom is also discussed.

TABLE OF CONTENTS

	Page No.
CHAPTER ONE - INTRODUCTION.....	1
CHAPTER TWO - REVIEW OF THE LITERATURE.....	8
Traditional learning	12
Educational alternatives.....	13
The new brain.....	13
Learning style.....	15
Music.....	16
Implementing the new understandings.....	16
Suggestion in education.....	18
Suggestion and hypnosis.....	20
Barriers to suggestion within education.....	25
Other non-traditional approaches.....	26
Suggestopedia.....	27
Implementing Suggestopedia.....	28
Whole brain learning.....	30
Individual learning style.....	33
Accelerated learning.....	37
Studies of accelerated learning.....	37
The accelerated classroom.....	40
Statement of hypotheses.....	41
CHAPTER THREE- METHOD.....	42
Research design.....	42
Instruments.....	43
Subjects.....	46
Procedure.....	47

Testing.....	48
CHAPTER FOUR- RESULTS.....	50
CHAPTER FIVE- DISCUSSION.....	58
Anxiety.....	59
Self-esteem	60
English.....	60
Mathematics.....	61
General discussion.....	61
Suggestion.....	63
REFERENCES	65

LIST OF TABLES

Page No.

Table 1	Mean percentage anxiety levels for each experimental group.	50
Table 2	Mean percentage pre and post-treatment levels for each experimental group in self-esteem, English and mathematics.	55

LIST OF FIGURES

		Page No.
Figure 1	Combination of perceiving and processing dimensions.	35
Figure 2	Mean pre and post-treatment trait anxiety scores for the accelerated and matched sample groups.	51
Figure 3	Mean pre and post-treatment state anxiety scores for the accelerated and matched sample groups.	52
Figure 4	Mean pre and post-treatment self-esteem scores for the accelerated and matched sample groups.	53
Figure 5	Mean pre and post-treatment English scores for the accelerated and matched sample groups.	54
Figure 6	Mean pre and post-treatment mathematics scores for the accelerated and matched sample groups.	56

CHAPTER ONE

INTRODUCTION

The present study examines the question of academic gain obtained through regular experience of a relaxed state in which key words and phrases from lesson material were spoken and suggestion made regarding recall. The review of the literature outlines differences between suggestion, suggestibility and learning and examines recent research relating to how suggestion delivered in the relaxed state acts to affect learning.

For the purpose of this study two broad areas were considered in relation to suggestion. Firstly, a definition of suggestion that enables a differentiation to be made between suggestibility and the ability to utilise suggestion in the relaxed/trance state, with particular emphasis on the issues that led to this study. Secondly a review of the literature relating to the relaxed/meditative/trance state and the acceptance of suggestion while in that state. In this case emphasis was placed upon improvements in academic performance which related to individual levels of hypnotic susceptibility.

From the point of view of the onlooker, no aspect of hypnosis is more striking than the heightened suggestibility of a hypnotised subject. In fact this characteristic is so evident that hypnosis is often defined as a state of hyper-suggestibility (Bowers, 1976)

It is unfortunate that an over emphasis on heightened suggestibility has become so attached to hypnosis when in fact individuals vary widely in their susceptibility to accepting suggestion in the normal, waking state.

Precisely because responsiveness to suggestion is such an overt visible outcome of hypnosis, it is sometimes emphasised to the exclusion of another aspect of hypnosis less visible to the onlooker, the so called hypnotic

state of trance. Indeed, one possible consequence of identifying hypnosis with hyper-suggestibility involves eliminating the idea of trance altogether. (Bowers, 1976, p.85)

It is a common understanding in everyday life that people differ in their responsiveness to suggestion (Bowers, 1976; Hartman, 1980; Hartland, 1971; Olness and Gardner, 1988; Edelstein, 1981). Some people's choices made while shopping, show effects of waking suggestion via television, print or radio promotion. It is common to equate suggestibility with being gullible, persuadable or compliant.

We have become aware of the encroachment of subliminal advertising in the media and parents guard impressionable children from the suggestive dangers of certain types of television programmes. Suggestion is a potent force and has always been present in the academic environment. Suggestion has long been an educational aid and is frequently used, whether consciously or unconsciously, by educators. Everyone uses suggestion to some extent in everyday life.

Evidence is accumulating that hypnotic induction and hypnotic states are not at all unique. Everyone has experienced being entranced to the extent that factors other than the entrancing event seem to fade away. This is commonly found in reading, watching television, attending to a task and being creative. We seem to live a large part of our life in trance-like states. The ability to become entranced is not a mysterious event sought out by some but is a very natural, commonly occurring state which humans use effectively.

Bandler and Grinder (1982) the developers of Neuro Linguistic Programming (NLP) observed that quite frequently when working with clients that the clients (of their own accord) would go 'inwards' to access their own 'trance states' without any formal induction. Their understanding was that all clients possessed the resources they needed to bring about the changes they sought and that the self-entrancement

that occurred gave them access to those resources (Lankton, 1980).

NLP has led to greater understanding of how an individual uses his or her brain and how s/he processes sensory based information. Among the concepts developed was the understanding that learning to do something well, much better or more efficiently was most effectively achieved by modelling the skills already present in an excellent performer. NLP provided a technique for making explicit the precise actions necessary for achievement.

O'Connor and Seymour (1990) implied that it was a strange idea that finding out explicitly how you do something would interfere with your doing it and that somehow ignorance was necessary to excellence. Regarding education they stated:

Teaching involves gaining rapport and pacing and leading the student into the best strategies or ways of using the body and mind to make sense of the information. Many school subjects are anchored to boredom and unhappiness and so learning becomes difficult. Why is education often so painful and time-consuming ? Most of the content of a child's full-time education could be learned in less than half their time at school if the children were motivated and given good learning strategies.

Learning to learn is the most important skill of education and needs to be taught from the infant school onwards. The education system concentrates mostly on what is taught, the curriculum, and omits the learning process. This has two consequences. First, many students have difficulty picking up the information. Secondly, even if they do learn it, it has little meaning for them because it has been taken out of context. (p.181)

Without a learning strategy, students may become information parrots, forever dependent on others for information. They are information enabled but learning disabled.

Research into education and learning has emphasised an attempt to understand the process of learning in order to construct the most appropriate learning climate. Findings from brain specialisation and hemispheric functioning appear to have much to contribute to an understanding of the learning process. In recent years there has been an increasing interest in right brain function with a belief that most people are left brain dominant. (Benson, 1988; Sperry, 1973; Zdenak, 1983; O'Boyle, 1986; Gazzaniga, 1978.)

The notion of two largely lateralised modes of learning suggests that teaching by either lecturing or imitation affects primarily one or the other hemisphere. Bogen (1977) commented that learning of almost any idea was likely to be better if both methods were used. This means that teaching solely by imitation would be as open to the charge of one-sidedness as would a curriculum of solely lecture classes.

Learning is effective only in so far as it affects the working of the brain. There is concern that a school curriculum restricted to the three R's of reading, writing and arithmetic would affect only one hemisphere leaving half of an individual's high-level potential untutored. There must however, be concern that a greatly increased interest in right brain teaching could lead to a breaking up of educational process where every novel approach became acceptable. However, in the case of right-brain involvement in learning, there does seem to be good evidence to attempt to significantly enhance this through attention to the way we teach and instruct.

The main theme to emerge is that there appear to be modes of thinking, verbal and non-verbal, represented separately in the left and right hemispheres respectively, and that our educational system as well as science in general, tends to neglect the non-verbal form of intellect. What it comes down to is that modern society discriminates against the right hemisphere. The amount of formal training given to the right hemisphere in our public

schools has been almost negligible compared to that devoted to the specialities of the left hemisphere. (Sperry, 1973, p.18).

Learning style is directly linked to how the individual processes information and to the resulting pattern of that processing. (In NLP terms s/he would likely use a preferred sensory mode). In terms of hemispheric functioning, students who predominantly favour right hemisphere processing may belong to cultural groups which have a significant difficulty in the New Zealand schooling system. A National association of American school principals issued an article in 1983 which commented on learning styles and defined learning style as, " That consistent pattern of behaviour and performance by which an individual approaches educational experiences. It is the composite of characteristic cognitive, affective and physiological behaviours that serve as relatively stable indicators of how a learner learns, perceives, interacts with and responds to the learning environment." (Cited in, Keefe (1983), Learning Styles Newsletter, 4.)

All children do not learn the same way. They rely on different sensory modes to help them. Some depend heavily on their sense of sight, others on their sense of hearing and still others on their sense of touch. The mode they use influences their classroom behaviour and achievement. An individual's modality strength could best be described as the sensory channel through which information is processed most efficiently.

The concept of modality strength is not new. Maria Montessori (1936) practiced it to some extent. The difference between early approaches and contemporary practice resides in the fact that today's modality-based instruction can be applied in every classroom. In addition, there are now means of assessing modality strengths. There is no longer a need to rely on observation alone as Montessori did. Existing instruments include the Dunn's Learning Style Inventory

(Dunn, 1985), the Swassing-Barbe Modality Index (Swassing & Barbe, 1985) and Vitale's Modality and Dominance Screen (Vitale, 1982).

In 1983 Howard Gardner, Professor of Psychology at Harvard University, published 'Frames of Mind.' In it he argued that what we normally describe as 'intelligence' was an over simplification. He suggested that there were many types of intelligence, or possibly, many types of mental ability. Gardner put forward seven types of intelligence; Linguistic, Mathematical/Logical, Visual/Spatial, Musical/Auditory, Kinesthetic, inter-personal and, intra-personal.

The important point is that Western education values and teaches primarily to, the first two intelligences, that is, the Linguistic and the Mathematical/Logical. Other mental abilities are less understood, less valued and given much less attention in the teaching process. As a result, students whose learning styles are not ideally suited by a logical or linguistic approach may come to be considered as 'less intelligent' or labelled, 'learning disabled,' a label from which many young children never recover.

Over the years educators have explored the effects of many variables on the learning process. Some of the student variables are I.Q., maturity, self-confidence and socioeconomic background. Empathy and communication skills are considered to be two important variables for teachers.

The Bulgarian psychiatrist, Georgi Lozanov, worked extensively to enhance the learning process. He has presented impressive data to support his belief that positive expectancy and motivation are the main causes of academic success. He believed that one may teach in relatively unmapped ways to both increase motivation and create the positive, expectant atmosphere that results in significantly faster rates of learning. In Lozanov's methodology, the emphasis is on whole-brain learning with teaching strategies being directed towards both right and left

hemispheres

Lozanov called his procedural approach to learning, 'Suggestopedia.' This name while descriptive, was difficult for Western education. Consequently, those using his principles and developing the approach have renamed the method, 'Accelerated Learning.' The term Suggestopedia carried the implication that suggestion was at the core of the method. Implicit in Suggestopedia/Accelerated Learning is the awareness and understanding that students become whatever is asked of them. Lozanov emphasised the important role of suggestion and indicated that teachers needed to be aware of its explicit and implicit use.

Lozanov has assembled a technology of instruction based upon the idea that the proper use of the power of suggestion is in fact the underlying principle of effective communication and that through suggestion a teacher may exert maximum impact upon student attitudes towards classroom activity (motivation) and upon his/her beliefs about their own ability to learn (expectancy). (Prichard & Taylor, 1980, p.11).

The question that arises is, "How does one teach in order to engage all the largely unconscious aspects within students such as self-expectation, images of the self and internalised expectations of others, and begin to develop an expanded learning environment ? How too can one utilise understandings of the importance of individual learning style and multiple intelligences in the instructional arena ?

Lozanov's work and that of accelerated learning practitioners has provided a conceptual breakthrough, viewing interpersonal communication in terms of its suggestive impact. This study examines Suggestopedia and Accelerated Learning together with recent understandings in instruction and learning. It attempts to determine if the level of individual susceptibility to suggestion is a major factor in academic gain.

CHAPTER TWO

Literature Review

A school like any other major corporation, has its own unique culture.

It is surprising to realise that school learning is a relatively recent invention. The development of Western culture has a number of interwoven links, one of which comes from Athens, the arena of Plato and Socrates, and a learning that involved citizens in discussion of important issues in open air markets, at the baths, in the gymnasium or following a theatrical performance. Learning was intimately mixed up with the whole of life, work and leisure activity.

The development of formal schooling is a later concept. The Yogi schools involved professional memorisers of sacred texts and were one of the earliest forms of organised education. Such schools existed to train students in the task of learning and remembering an oral history and have been dated from the sixth century. The training received by these 'memorisers' involved concentration, meditation and contemplation.

Western education for the past two thousand years has been based on the faculties of logic and reason. Aristotle's massive categorisation of all known sciences, Aquinas's *Summa Theologica* with its division of man into reason and will, and Descartes' 'cogito ergo sum' all had their impact on learning as a rational process. Before Aquinas there was a period in which faith was stressed over reason but after the *Summa Theologica* this was not so much of a problem as faith and reason were shown to be compatible. The Renaissance again discovered the classical process of categorising knowledge and the very means by which empirical knowledge was attained. Education in the West was considered hard work and reason the tool of the mind to be used in becoming educated.

Education can be defined as the organised, systematic effort to foster

learning and to establish the conditions through which learning can occur.

(Gross, 1991, p.30).

In 1970, two developmental psychologists, Reese and Overton (1973) examined more than fifty learning theories advanced between 1885 and 1970 and divided these into two basic groups which they called Mechanistic learning theories and Organic learning theories.

Mechanistic learning theory assumes that the learner is reactive and responds to outside forces. Learning theories based on this model emphasise quantitatively measurable results such as test scores. They attempt to explain learned behaviours by showing how they are built out of simple, more primitive ones. These theories view learning as neurological stimulus and the process of conditioning.

Organic theories of learning suggest that learning involves far more than simply associating a given stimulus with a desired response. They point out that every learner becomes involved with the material being learned through active organisation which involves physiological processes such as how the brain handles sensory input, and the psychological processes related to motivation, needs and personal meaning. Learning theories based on this model focus on processes, organising principles and qualitative change. They accept that complex learned behaviours can emerge in an unpredictable manner such as in leaps of insight or intuition.

Mechanistic learning theory has had a strong hold on Western education and used findings from many sources with particular understandings coming from the concept of conditioning. Skinner (1971) built on the work of the Russian psychologist Ivan Pavlov and decided that behaviour was completely determined by its consequences. He believed that rewarded behaviour was more likely to be repeated and punished behaviour more likely to stop. He suggested that if an

environment could be fully controlled any learner's behaviour could be modified or conditioned by an appropriate pattern of rewards and punishments.

This process was very like the standard form of schooling. Correct answers on tests are rewarded while mistakes are punished with lower scores. Development as a learner is measured on how well the student can produce the desired behaviours on command. Learning could be considered as a relatively permanent change in behaviour involving the capacity to engage in new patterns of behaviour as the result of experience.

Learning theory began with the fundamental of classical conditioning and moved via the complex processes of operant conditioning into an understanding of what was involved in both social and cognitive learning. Theories about, and understanding of, conditioning processes assisted researchers to clearly express how we learn. Basic classical conditioning involves associating a new stimulus with an unconditioned stimulus that elicits reflex actions and other physiological responses. Learning in this way is slow and cumbersome and would not provide the flexibility required to acquire substantial knowledge.

Operant conditioning led Thorndike (1905) to postulate what he claimed to be two general laws of learning: The Law of Effect, which stated that, if a response to a stimulus was accompanied or followed by 'satisfaction' the association between the response and the stimulus would be strengthened. The second Law of Learning was that those stimulus-response (S-R) responses which were repeated would become stronger and thus more likely to repeat in the future.

Operant conditioning is vastly more flexible than classical conditioning. Skinner took Thorndike's work much further and was able to demonstrate that most responses originate from within the organism and are not automatic reflex actions. Skinner was also able to demonstrate that the strength of any learning that occurred

was dependent on the strength of the reinforcer. He defined reinforcement as the result of any action that increased the likelihood of its being repeated.

Such a description of learning was not without its critics. It was found that organisms do not always behave as conditioning theory would suggest. Humans in particular were apt to respond in an unpredictable manner and even do the reverse of what conditioning theory would predict. It became necessary to call into question the claim that all learning occurred through conditioning.

Social and cognitive learning theories begin with the learner and recognise that s/he is not a passive sponge, and that the learner is always actively involved in the process of learning. People do not just respond to stimuli. Social learning theorists like Bandura (1977) argued that cognitive processes played a major role in learning. People select, organise and interpret information and stimuli they encounter. It was the things people paid attention to and the way in which they interpreted stimuli that affected behaviour.

Cognitive learning theory recognises that all learning involves the acquisition of information as mental activity, thought, memories, symbols and the manipulation of that information by the mind. Instead of accepting the behaviourist perspective that the conditioned response occurs and shapes behaviour, cognitive learning theorists would recognise the conditioned response as merely a piece of information that the mind could consider in deciding what to do. In fact, they would claim that if a conditioned stimulus produced no new information, that no learning could take place. Cognitive learning theory emphasises that inner mental events like learning ability, motivation and memory are essential to learning in practical situations.

Traditional educational practice has assumed that learning takes place in a classroom where a teacher instructs students while they attend, rehearse, practice, repeat and copy.

Traditional learning emphasises:

Memorisation	Conformity
Content learning	Cultural uniformity
Departmentalised learning	Repetition
Linear and concrete intellectual development..	

Traditional Learning

Traditional learning views the teacher as the information provider and believes that students learn by observation and imitation, that they practice repetitively until understanding is achieved and they become proficient in the skills being taught. They learn via modelling, copying and imitation. Traditional learning approaches see virtue in classroom settings, teacher control, a quiet and orderly environment, an attentive student body and a set of standards against which achievement is measured..

As the world becomes an increasingly complex place in which to grow up and exist, the student faces a great increase in the knowledge s/he must acquire in order to survive in a technological world. The traditional approach to learning is too dogmatic, too inflexible and too limited to adapt to the demand for a good education.

Traditional learning has worked well to produce educated individuals who can utilise the analytic, rational, logical aspects of left brain thinking to both develop scientific understanding and to create from that understanding. Education however is not enjoying a good press. Critics claim that schools are turning out students with barely enough academic skills to get by in life, or not precise enough vocational skills for the market place. Employers complain that young staff are weak in reading and numeracy and even Colleges of Education are tutoring potential teachers in remedial English and mathematics.

What are seen as weaknesses in education have lead to the development of a

'return to basics' movement but it is far from being that simple. Schools still teach the "basics," they have never really ceased to do so. What has changed over the past thirty years has been educational philosophy and, arising from that, great differences in the delivery of education. The methodologies of instruction have changed and it is pertinent to suggest that some of the perceived inadequacy in the education product could be caused by such changes in educational practice.

Educational Alternatives

Traditional education is under siege. Over the past three decades it has been recognised that we are rapidly approaching an era of information overload and that while this has been created by our present forms of teaching and learning, the ability to handle information has decreased. At the same time new understandings about the brain coupled with research into learning, memory and teaching are leading to new teaching and learning approaches and methodologies.

Independent research and findings from a number of areas has contributed to the development of new learning methodologies. These findings come from research into:

- Individual learning styles
- Preferred sensory modes
- Brain structure and hemispheric specialisation
- The use of music, relaxation and suggestion in learning

The New Brain

A breakthrough in understanding of the brain occurred in the late 1960's and early 1970's when Professor Roger Sperry and his associates at the California Institute of Technology separated the two hemisphere of the brain and were able to conduct careful research on brain function where the two hemispheres operated independently.

Hippocrates had concluded from observation that the two sides of the brain must operate differently. Paul Broca and Carl Wernicke identified special functional areas within the brain. Sperry's work led to the recognition that there were specific differences in right and left hemispheric brain function.

Interest in this topic increased dramatically after the split-brain operations of the 1960's and led to an explosion of research seeking to categorise the differences and explore the implications for human learning and behaviour. Considerable attention was directed towards seeing whether the differences could be related to diverse phenomena such as learning disabilities, psychiatric illness and variation in cognitive style among cultures. (Springer & Deutsch, 1981).

Since Sperry's time the view has developed that each brain hemisphere has distinctive areas of strength.

<u>Left Hemisphere</u>	<u>Right Hemisphere</u>
Analytic	Holistic
Verbal	Pictorial
Sequential	Simultaneous
Temporal	Spatial
Linearity	Patterns
Song words	Rhythm

Sperry concluded that there appeared to be two modes of thinking, verbal and non-verbal, represented separately in the right and left hemispheres respectively and that our educational system, as well as science in general, tends to neglect and discriminate against the non-verbal aspect of right hemisphere function (Sperry, 1975).

Dominance in function implies that we not only have a dominant hand, foot or

eye but that we have preferred styles of thinking too, which suggests that some people might be better at one particular style of learning than another. Drs. Rita and Kenneth Dunn (1985) identified twenty four factors which they claimed impacted on student learning. Some factors were very important to one individual and other factors to another, but all factors affected learning. It appeared that everyone had a unique style of learning which consisted of a set of biologically and developmentally determined characteristics,

Learning Style

Every human being is born curious, and wanting to learn. They are driven to learn because they are human. Human beings survive because they understand and remember, the twin elements of learning. If someone appears 'lazy' it is probably because they have been turned off to learning. Such people can be turned on again once their learning style is discovered.

Like the uniqueness of the fingerprint the way people learn may also be one-of-a-kind. Learning research has found that the learner is affected by factors in the environment, other people, emotions, perception (how one takes in and processes information) and hemisphericity. We all learn difficult material most easily when several 'senses' are involved. But some people excel when material is presented visually (through seeing), others learn auditorily (through hearing). Some learners prefer learning through the tactile sense (touching) or kinesthetically (by movement). If a person is not strong in one sensory area s/he will often compensate by relying on a stronger area. This may explain why the same classroom experience can create such different responses from different learners.

Bandler and Grinder (1982) identified the fact that clients appeared to have a preferred sensory mode and tended to operate in this mode most of the time. They described these modes as, visual, auditory and kinesthetic. Eye accessing cues also

seemed to be associated with the sensory mode being accessed. Awareness of a clients' eye accessing cues gives a therapist understanding of the sensory mode most frequently used by that client thus enabling the therapist to enhance rapport by using the same mode in responding.

Information from all the senses is combined in the brain at a central area called the angular gyrus. This area is critical for the integration of sensory information. How each person utilises sensory material is an important factor in such integration. An individual may have excellent hearing in a physical sense but possess low auditory processing skills. Another may have 20/20 vision but not be a visual learner.

Music

Music appears to be processed primarily in the right brain hemisphere (Gordon, 1970, p.392). Lozanov (1971) reported a significant nine percent increase in subject's alpha brain waves during the playing of baroque music. He also noted significant slowing of pulse and blood pressure while listening to music, indicating a state of relaxed alertness. He reported that bodily rhythms tended to synchronise themselves to follow the beat of the music.

Music is the main audio route into the subconscious. We find we can access the further reaches of the subconscious better through art because art involves the emotions. Harmony of form and colour, music and rhythm, reach not only the heart but also the mind via a much shorter route than logical facts and arguments. (Kline, 1976, p.21).

Implementing the new understandings

Non-traditional learning theories utilise a different metaphor which sees the world as an interconnected, developing organism. The learner is regarded as an active creator of new patterns and meanings. Non-traditional learning theories focus

on processes and a full involvement in the task. Such 'organic' learning theories seek to address the problems and shortcomings of traditional learning by:

- Applying current understandings from a range of psychological therapies that deal with 'inner states.'
- Applying current understandings of brain function
- Create optimal environments for learning
- Involve the learner in his or her own learning.

Lozanov (1975) chose to call his teaching method "Suggestopedia" because he was convinced that the key to increased learning lay in the precise application of suggestion to the learning process. In both Europe and the United States great interest was aroused in this method, at first in the area of language teaching and then in the wider aspects of general school curriculum. Many claims of accelerated learning in language teaching were made. (Kurkov, 1977; Lozanov, 1975; Bushman, 1976; Borden & Schuster, 1976; Ramirez, 1982; Lemyze, 1978).

The Suggestopedia approach was adopted in the United States where it was renamed "Accelerated Learning" and has been evaluated in several field experiments in public schools.. The component elements have been evaluated in laboratory studies with secondary and university students. (Schuster & Prichard, 1978; Prichard, Schuster & Gensch, 1980; Edwards, 1980; Nelson, 1979; Petersen, 1977; Vannan, 1981; Dhority, 1984; Gasner-Roberts & Brislan, 1984; Schuster & Gritton, 1986; Schuster & Ginn, 1978).

Lozanov identified suggestion as the key factor in his Suggestopedia. Most research on suggestion has been based on hypnosis and has differentiated between suggestibility and suggestion. Hartland (1971), a practicing medical hypnotist, defined the terms as:

Suggestion is the process whereby an individual accepts a proposition put to

him by another, without having the slightest logical reason for doing so. In a different sense, the term is also used to describe an idea which is presented to the individual for his uncritical acceptance.

Suggestibility is the degree to which an individual will react to what is said to him without employing his critical faculties. (p.11).

Weitzenhoffer (1988) a major researcher in the area of hypnosis noted that suggestibility and suggestion implied that the individual response was not at a level of choice, there was always an element of influence.

For me, suggestibility is the capacity to produce responses to suggestion and the response must be non-voluntary. If the non-voluntary part is not there you do not have a suggestion. By definition, suggestibility is the capacity to respond to a suggestion, that is, to produce a non-voluntary response. My definition of suggestion is that there must be something non-voluntary I can establish as taking place or be satisfied it is non-voluntary. (p.35)

Lozanov, the accelerated learning theorists, and those theorists who have developed similar approaches to learning, have all emphasised the important role of suggestion. They have noted that suggestion is both explicit and implicit, formal and informal. They also caution that if suggestion were to be successfully used, barriers to its use would need to be recognised and overcome.

Suggestion in education

The historical development of suggestion as a powerful force is marked by different approaches which are either reputable and learned, or superstitious and misinformed. It appears that suggestion has been more or less intelligently used as far back as we have historical records.

In the culture of the 1970's and 1980's much attention was given to the power of suggestion. Positive thinking was, and is, advocated by hundreds of self-help

books and articles as well as by some professional therapy. There is a proliferation of subliminal audio tapes promising to help us stop smoking, sleep better or gain increased self confidence. People in our culture view themselves as autonomous, independent thinkers so the authoritarian directives of the past are being replaced with subtler, more indirect and equally effective ones. What will the advocates of suggestion do to schools ? What part has suggestion played in educational methodology in the past and what part can it play in the future ? Is suggestion a manipulative technique or a humanistic approach to learning ? Is it even ethical to use suggestion with unwary students ?

In fact, all good teaching involves the use of suggestion. Suggestopedia and accelerated learning teachers are now consistently using suggestion in specifically designed ways in order to create optimal learning. This is the century in which suggestion has been recognised for what it is. It can be safely assumed that any method of education since history began used some form of suggestion, good or bad.

The Yogi schools of sacred Indian literature were one of the earliest forms of organised education. Students in these schools dating back as far as one thousand years B.C. learned by heart the sacred texts which were passed on through centuries. The beginnings of this kind of education can be seen in early Hindu writings which contained elaborate descriptions of mental processes (Behanan, 1937,) The Buddhists developed a high degree of insight into psychological aspects of mind. Yoga was a method of mental enrichment for religious purposes. Powers are said to come from the threefold path of concentration, meditation and contemplation. Concentration is the ability to hold the mind to one object. Meditation is the thinking about that object. Contemplation is the exhaustion of thought when one continues thinking without thought or desire and attains intuition, insight or illumination. There is no conclusive experimental evidence either for or against the

notion that yoga improves intellectual functions such as memorisation (Behanan, 1937.) In 1967 Dr Georgi Lozanov watched a yogi adept perform computerlike memorisations. Lozanov, a yogi himself, explored the theoretical basis of this kind of learning and based an entirely new teaching methodology on it in the 1970's.

Education for the past two thousand years has been based on the faculties of logic and reason. Education in the West was considered hard work and reason was the tool of the mind to be used in becoming educated. Because of these trends suggestion was neglected, at least officially, in historical Western Pedagogy. Of course, it was always there implicitly, as it is in all human interaction but no real notice was given to it. It was not until the eighteenth century, in medicine, that suggestion accidentally found its place in Western history with the development of hypnosis.

Suggestion and Hypnosis

The originator of modern hypnotism was Anton Mesmer in France (Edelstein, 1981). In 1799 Mesmer's clinic in Paris gave treatments which he claimed worked to rebalance the flow of animal magnetism. He was repeatedly attacked as a charlatan by colleagues and eventually forced to leave Paris in disgrace. His colleagues who practiced the acceptable arts of bleeding and blistering, ignored his cures and rejected his technique because "It was only suggestion." Even though he did not use his talents in the field of education it is worth noting his historical contribution.

In 1784, one of his pupils discovered modern hypnotic somnambulism. The Marquis de Puysegur 'magnetised' a young shepherd boy who fell into a trance instead of the usual convulsions. When the boy woke he remembered nothing. This attracted great attention and led to other experiments, so by 1825, hallucinations, anesthesia and posthypnotic suggestion had been discovered.

In the 1840's James Braid invented the hypnotic technique of gazing at a bright object. He was the first to use the term "hypnotism." Braid rejected previous theories of animal magnetism and hit upon the idea that hypnosis was related to suggestibility.

In 1819 a Portuguese priest, the Abbe Jose de Faria, concluded that the phenomenon of animal magnetism was mainly due to the psychic impressionability of the person being magnetised and was not due to magnetic fluid or to the person doing the magnetising. He was the first to use direct suggestions in experiment and therapy and for his efforts was appointed Professor of Philosophy at the Academy of Marseilles. In 1815 the Abbe Faria had accidentally discovered another hypnotic technique, that of relaxation. He would sit his subjects around the room, relax them and repeat the word 'sleep.' Some would immediately fall into a trance (Hartland, 1971).

The father of modern hypnosis was Liebeault, a doctor in Nancy, France, in the last half of the nineteenth century. For twenty years he used hypnosis to treat the poor, refusing any payment. He used hypnosis for treating children's functional disorders, yet he also considered it a valuable tool for education. A later associate, Bernheim, used his respectable position in the Nancy Medical School to give credibility to the use of hypnosis. He hypothesised that suggestion was the key to hypnosis and perfected the hypnotic sleeping induction (Hartland, 1971, p.8).

The most famous student of Liebeault and Bernheim was Sigmund Freud. Freud was never a good hypnotist and later abandoned it in favour of free association and dream analysis. He decided that, instead of suggesting away any symptoms and disturbing thoughts, it was better to let the patient talk them out. However, Freud did note that, "Someday the pure gold of psychoanalysis will have to be alloyed with the copper of suggestion." (Freud, 1937).

The man who turned hypnosis into popularised suggestion was Emile Coue. Although also from Nancy, France, Coue was not a doctor or a psychologist but the owner of a local chemist shop. He absorbed a great working knowledge of hypnotic technique from the intellectual leaders of his city. He found that light hypnosis gave better results than deep hypnosis and gained good results with general suggestions without ever knowing the specific ailments which they cured. Coue recommended that children should receive a suggestion a day, just like milk and bread. His emphasis was on suggestion and the use of light trance.

An attempt to measure suggestibility was made in 1893 by E.W. Scripture (Hurlock, 1930) at the Yale laboratory by having subjects report on apparent temperature changes in a wire heated with an electric current. In 1896 tests were also carried out on the illusion of smell and the illusion of sight where children saw a toy camel apparently pulled by a string around its neck when it actually remained stationary. Out of 381 children, 291 reported the illusion and the researcher concluded that suggestibility was universal, high in degree and in the control of those who understood children (Hurlock, 1930)

In 1899 Boris Sidis (Sidis, 1910) published a remarkable book- *The Psychology of Suggestion: A Research Into the Subconscious Nature of Man and Society*. The theories of Sidis parallel research findings of the mid-twentieth century. The first part of the book divides suggestibility into two types: Normal and Abnormal. Normal suggestibility is cultural, the kind educators might use in their classrooms. Its primary law, according to Sidis, is that "Indirect suggestion is far more effective than direct suggestion." Abnormal suggestibility of which hypnosis was one form, had as its law the opposite: "The more direct we make our suggestion the greater the chance of its success." (Sidis, 1910, p.51 and p.79).

The second part of Sidis' book concerns itself with social suggestibility in

Western history over the last thousand years. He examined such topics as medieval mental epidemics, demonophobia, stampedes, financial crazes and crowd hysteria. Mass suggestibility was regarded as responsible for much of the social hysteria examined.

The definition Sidis gave for suggestion was:

By suggestion is meant the intrusion into the mind of an idea; met with more or less opposition by the person; accepted uncritically at last; and realised unreflectively, almost automatically. By suggestibility is meant that peculiar state of mind which favours suggestion. (Sidis, 1989 (1973 reprint) p.15).

Experimental research continued into the twentieth century. In 1911 Cohn and Dieffenbacher tested the suggestibility of children seven to twenty years old by asking questions about certain pictures. They found boys and girls to be almost equal in suggestibility (Hurlock, 1930, p.61).

In 1920 Charles Baudouin wrote a book, "Suggestion and Autosuggestion." Baudouin was a close follower of Coue and believed that suggestion was a vital part in the rearing of children. He considered that autosuggestion should be part of early childhood training since children were so highly suggestible in the waking state. Suggestion was not a violation of the child's individuality, he claimed, because it was a means of training his or her powers of autosuggestion. The present day interest in giving oneself inner suggestions, or affirmations, for change would seem to closely parallel this approach.

Part of Baudouin's extensive theory of suggestibility was the close relationship between emotion and spontaneous suggestion (Baudouin, 1920, p.79). He was one of the first to state the Law of Subconscious Teleology which states: "When the end has been suggested, the subconscious finds means for its expression." (Baudouin, 1920, p.117). This principle has been echoed in positive thinking texts to this day.

In 1921 Aveling and Hargreaves tested the variable of prestige in suggestion. Seven separate tests were administered to forty six boys and nineteen girls. The results indicated that there was wide variation in the level of individual suggestibility. (Aveling & Hargreaves, 1921).

As early as 1922-1923 experimental studies in suggestion were being conducted at Oxford. The subjects were boys in primary school and the researcher was G.H. Eastabrooks, a noted writer and authority on hypnosis. A complex battery of tests measured suggestibility, psychogalvanic reflex and intelligence. Eastabrooks found practically no intercorrelation among the tests and that none of them actually measured suggestibility. He did however, find that strong emotion had a great influence on suggestibility, thus agreeing with Baudouin's theory (Eastabrooks, 1957).

In the 1930's experimenters continued to measure suggestibility but the emphasis shifted to the practical consideration of how to use it in the classroom. The concept of hypermnesia (heightened memory) in learning academic subjects began to be investigated.

Hurlock (1930) found that some popular beliefs relating to suggestibility in children were not substantiated by her research. Children were not as suggestible as commonly thought. Differences between races were negligible, the differences in suggestibility depending primarily on the individual child (Hurlock, p.72).

One of the most comprehensive and valuable experiments on hypnotic learning appeared in an article by White, Fox and Harris (1940). In their survey of previous research the investigators found that hypnosis sometimes appeared to aid memory and sometimes had no effect. They raised the question as to whether the type of material to be memorised was the key variable ? Their experiment showed that hypnosis was no aid at all in recalling nonsense material but gave a fifty three

percent advantage in learning meaningful material like poetry. They pointed out that hypermnnesia can be produced by means other than hypnosis and noted that relaxation, twilight sleep and free association are as effective. Relaxation was the one thing that all the methods had in common.

Barriers to suggestion within education

The use of suggestion as a directed and consciously utilised technique is only in its infancy. Educators deliberately employing suggestion techniques believe that extended abilities exists within everyone. However, accelerated levels of learning are by no means simple to use effectively as several barriers exist that can act to limit or cancel the power of suggestion in the classroom.

In order to open the deep reserves of the mind certain unconscious barriers within the student must be recognised and dealt with. Thus, before suggestion can take full effect the student's own resistance must be overcome. Student resistance can arise from a variety of sources but seem commonly to centre on disbelief in their learning ability. If learning is to be enhanced and accelerated the barriers to easy acceptance of suggestion need to be attended to. In general, three barriers to the easy acceptance of suggestion are found and operate differently in respect to the nature of the individual's perceptual field. These barriers consist of:

A logical barrier, An intuitive barrier, An ethical barrier.

The logical barrier tends to reject any suggestions which do not seem to follow the accepted rules of logic. Thus, if a teacher of a class of slow-learners was to tell the class their work was magnificent and their reading was marvellous, some students would be likely to think, "If I'm so great, what am I doing in this class?" The result would be to reject the teacher's suggestion.

The intuitive barrier would act to reject any suggestions which appeared to threaten confidence and emotional security. If the student is to move beyond this

barrier s/he must feel relaxed, comfortable and happy during the learning activities.

The ethical barrier acts to reject all suggestions which seem to challenge a persons sense of right and wrong. While such issues are not likely to arise very often in the classroom it may create problems for students whose parents have instilled the Protestant Work Ethic ("Everybody knows that learning is supposed to be work.").

These barriers to the acceptance of suggestion exist to varying degrees in all of us. Effective use of suggestion in the classroom requires that the teacher learns to comply with and utilise the student's requirements. This implies that getting beyond the barriers to suggestion will involve making use of every aspect of the classroom atmosphere.

Other non-traditional approaches

Lozanov's Suggestopedia approach to learning is only one of a number of different learning methods that have come to attention in the past twenty years. These other approaches have many similarities and differences to the Suggestopedia/accelerated learning methods. Four of these methods are - Sophrology, Tomatis method, Suzuki approach and Machado's Emotopedia.

Sophrology was developed by a Columbian medical practitioner, Alfonso Caycedo. He found that yogic relaxation techniques could produce analgesia and/or heightened memory (hypermnnesia). He added Western techniques and produced a teaching method that utilised breathing, visualisation and concentration exercises for physical and mental relaxation. Additionally he developed a memory training system quite similar to Lozanov although developed independently. (Rose, 1986; Schuster & Gritton, 1986).

Alfred Tomatis was directly involved in working with difficulties in communication and treating dyslexia. He also taught foreign languages. He was

influenced by yoga and emphasised training the ear to hear and developing memory through listening and repetition. (Rose, 1986; Schuster & Gritton, 1986.).

Sinchi Suzuki in Japan developed his Talent Education Method mainly for teaching music but it has been extended to the teaching of subjects such as mathematics and English. This method emphasises training the ear and memory through listening and repetition. Indirect attention is paid to the lesson material while students are in a light state of sleep. (Suzuki, 1973).

Luis Machado (1985) in Rio de Janeiro developed a method of accelerated learning based largely on an integrated brain theory and integrated cognitive and emotional learning. Much use is made of positive, pleasant affective imagery which serves as motivation for goal setting.

All these methods stress voice intonation and rhythm in presenting material, usually through use of classical and baroque music. The theory behind each comes largely from Yoga. The teacher's authority, the confidence and passivity of the student, the pleasant environment, voice dynamics and rhythmic presentation all promote indirect attention to the didactic material and encourage unconscious absorption of the material.

Suggestopedia

The success of Suggestopedia and the other approaches noted seem to depend upon a number of factors, most critical of which is perhaps the presentation of material to the learner at two levels of consciousness: wide awake (beta) and light relaxation (alpha). In the Suggestopedia/accelerated learning approach, what appears essential for effective learning is the planned alternation between these two levels of consciousness.

Lozanov does not have much use for the term 'the unconscious' though he speaks a great deal about 'unconscious mental activity.' He prefers to use the term

'paraconscious' (more or less conscious). For Lozanov, the concept of "set" is a central issue in his theory of how suggestion works. He believes that the brain has an apparatus for foreseeing the results of actions that have not yet been carried out. He sees the educators role as being to create a particular 'set' or expectation for improved learning and retention. Suggestion, he believes, operates through this 'set' of paraconscious activity where the teacher's subliminal and overt messages shape and influence the future behaviour of the child in a direct, automatic, precise and economical operation.

Lozanovs' instructional technique is based on the evidence that the connections made in the brain through this mechanism (which he calls non-specific mental reactivity) are more durable than those made through conscious processing.

Lozanov has made indirect instructions (suggestion) central to his teaching system. In Suggestopedia consciousness is shifted away from the curriculum to focus on something peripheral. The curriculum then becomes peripheral and is dealt with by the reserve capacity of the brain.

In the early days of Suggestopedia, Lozanov believed that slowing down the students brain waves (e.g. by reading the material slowly in rhythm with the slow movements of a baroque concerto) was an essential part of the technique. Later he decided that this, like hypnotic trance, was unnecessary and merely a useful placebo. Students could engage in accelerated learning as long as they truly believed they could and this was where teacher suggestion was most directed to create an appropriate 'learning set.'

Implementing Suggestopedia

Research over the past twenty years into alternative learning and teaching has found that a major reason why students fail to learn is because they do not utilise their latent capacities. Conventional learning has assumed that learning should

involve determined concentration and frequent repetition. Implementing Suggestopedia/accelerated learning requires a different approach to learning and teaching which recognises that:

- Students need to be taught how to learn using current understandings about learning and brain function.
- Students need to realise that they are already superb learners once the traditional blocks to learning have been removed.
- Individual learning styles need to be addressed by teaching which involves auditory, visual and kinesthetic elements and recognises how styles affect learning.
- Students need to acquire skills that enhance and extend learning such as the use of relaxation, the playing of baroque music, use of 'mind-mapping' as a note taking skill and planned revision of material.

Already in New Zealand a number of schools and subject areas within schools are using accelerated learning approaches. These include a number of Northland colleges, mathematics teaching at a Bay of Islands college, many courses at the Northland Polytechnic, St George's School in Wanganui and Kirsten College in Auckland which uses this approach with its more than one thousand students.

Accelerated learning in the United States has been carefully tested and evaluated through research, classroom practice and integration of material from a number of other fields both within and outside education. Accelerated learning is now well received and used, utilising additional insights from Neuro Linguistic Programming (NLP). Growing awareness of and research into the variety of learning styles among students, is involved in what has been called 'Whole Brain Learning.'

Whole Brain Learning

The target of our educational system is an organ called the brain yet most educators have little knowledge of how the brain works. The right and left hemispheres of the cerebral cortex became better understood when the corpus collosum was severed. Dr Sperry's research on split-brain patients showed that the two hemispheres were not anatomically identical. The right hemisphere had proportionally more glial cells than the left hemisphere. The left hemisphere is usually larger in the occipital lobe. Current popular notions of right and left hemispheric function are very simplistic. Unless we have the corpus callosum severed we are always functioning with our whole brain. Yet, clearly there are differing amounts of hemispheric functioning in different educational tasks. The educational implications of the right and left hemispheres are extensive. The goal of a whole-brain curriculum stimulating as much brain processing as possible is praiseworthy.

One brain researcher (Levy, 1983) believed that the educational system was boring the brain to death. He pointed out that normal brains were built to be challenged and only operated at optimal level when the cognitive processing requirements were of sufficient complexity to activate both sides of the brain. In issues of sensory modalities (auditory, visual and kinesthetic) classrooms need to be rich in stimulation for both right and left hemisphere processing and teaching should be directed toward the student's strongest processing/learning style.

The visual-spatial processing of right hemisphere thinking has often been neglected in traditional education. Visual art is minimally required of all students yet represents half of the brain's processing. A study in the United States (Brain, Mind Bulletin, 1985) voiced concern that in two decades there had been a decline in the ability of students to visualise three dimensional objects. This is a real concern

since such spatial understanding is needed in surgeons, architects and engineers. There seems to be a good case for educating all students in visual-spatial processing.

The physical arts, whether squash, golf, dance or tennis can also be approached from either hemisphere. There is however, increasing evidence that less talk and more visualisation (the right hemisphere speciality) brings greater results. Today on bookshelves there is a proliferation of books and material aimed at greater utilisation of the right brain. Books such as the *Zen of Tennis*, the *Zen of Archery*, the *Zen of Skiing*, *The Inner Game of Golf* and, *Running Inside*, emphasise the gain from such integration.

Music has both right and left hemisphere components. Melody is processed by the right hemisphere; the musical tones and scales processed by the left. Improvisations are more right hemisphere while both lyrics and music analysis are left processing.

The right hemisphere processes non-verbal information; the left processes verbal. Verbal language includes body language. It also includes the use of visualisation/imagery in healing (Simonton, 1978; Pelletier, 1978; Shealey, 1976; Cousins, 1979; Siegel, 1986) and education. The use of positive imagery has proved an aid in controlling blood pressure, fighting cancer, easing pain and combating numerous stress related diseases. In educational imagery, good old fashioned imagination is used to help create pleasant feelings of comfort, for personal growth, test preparation, introduction of new material, enhancing study and learning, introduction of new material, rehearsing a talk and planning a presentation.

Marie Carbo (1986) who worked extensively with the Dunns on learning skills, uses the term "global" to refer to right hemisphere readers and "analytic" for left readers. She developed a list describing each of these learners. She analysed eight reading methods both for their modality approach (visual, auditory,

kinesthetic) and their global or analytic brain processing. She claimed that there were many ways to teach reading, the best method being what works for the reader. Because of different modality strengths and brain style there could not be one 'best' method. Her method for identifying what was 'best' for a student consisted of a self-report inventory which covered the Dunn's (1985) environmental factors (concerns of the limbic system), modality strengths (sensory system) and global/analytic (hemispheric) system. She concluded that global students and tactile/kinesthetic students had most difficulty in learning to read (Carbo, Dunn & Dunn, 1986)

Miller (1986) in a *Psychology Today* article made a case for right hemispheric identification with Freud's unconscious or "primary process thinking." The right hemisphere, without conscious words, manipulates and controls our lives in many ways.

The educational implications of teaching to both hemispheres raises the question of both curriculum content and teaching methodology. Levy (1983) commented that the educational implications were extensive. The goal of a whole-brain curriculum would be to stimulate as much brain processing as possible.

Lozanov (1978) claimed that the first major reason that students learned faster with Suggestopedia was the clear expectancy that students would learn according to what the teacher expected of them (suggestion). The second major reason for faster learning was that the learner's minds were operating in an integrated manner, left-right, cortical-subcortical. Recent neurological findings tend to support these claims. Linguistic symbols such as language are generally associated with increased cortical activity in the left hemisphere while listening to music and visualising a picture are associated with right hemisphere activity. Public schools in general tend to emphasise verbal or left brain activities in the classroom to the relative neglect of

activities to stimulate the right brain. Research on teaching in which more than one area of the brain is involved show that both learning rates and retention can increase dramatically (Claycomb, 1978).

O'Boyle (1986) felt that to rely on hemispheric laterality as a cure-all for educational woes could be a serious mistake. Teachers should acknowledge the vast potential but remain cautious in regard to specific classroom use. The important point would be that teachers should emphasise the interactive contributions of the right and left hemispheres to the mastery of any given skill. The utilising of various instructional designs or modes of presentation would seem to be the most effective style of teaching.

Individual Learning Style

Learning as a process requires that we look beyond the physical nature of the brain and consider the role of the mind. Organic learning theories stress that the learner is intimately involved in his or her own learning. It is not something that just "happens" to the learner. Learning style is directly related to how the individual processes information and the resulting pattern of that processing. In Neuro Linguistic Programming terms s/he will be likely to use a preferred sensory mode. In terms of hemispheric functioning, students who predominantly favour right hemispheric processing may belong to cultural groups which have significant difficulty in the New Zealand schooling system.

The concept of learning styles has had an extensive history extending back to the 1060's. Dr Rita Dunn (1985) has done much to awaken the education community to the individual differences between students. A professor of Education at St. Johns University in New York, Dr Dunn and her husband Dr Kenneth Dunn have researched widely and developed the Dunn Learning Style Model. The Model helps determine the factors that are involved in individual learning styles. The

Dunns identified twenty four factors which impact on student learning. These factors they grouped into five categories.

- Environmental • Psychological • Sociological
- Emotional • Physical

Jensen (1988) noted two basic premises relating to the learning process which lie at the core of most accelerated learning approaches and indicate an attempt to change a student's state towards a desire to learn coupled with a knowledge that they can and will learn. The two premises were:

- *All learning styles are equally valid.*

Jensen noted that a very common teacher difficulty was that they tended to teach the way they like to be taught. Unfortunately most students know very little about learning strategies and when they don't learn quickly begin to draw damaging conclusions about their ability to learn.

- *There are no unresourceful students, only unresourceful states*

Jensen noted a key principle is that all behaviour is state-related and that behavioural states such as boredom, tiredness, depression and doubt directly affect learning by severely limiting it.

Paralleling the work of the Dunns into individual learning styles, many researchers worked in the area and built on each others findings. This is most clearly discussed by Bernice McCarthy (1987) in the development of what she has called "The 4MAT" system which attempts to integrate right and left brain teaching techniques with individual learning styles. McCarthy notes that there are two major differences in the way we learn: The first is how we perceive. The second is how we process. She constructed a continuum for the perceiving and processing dimensions.

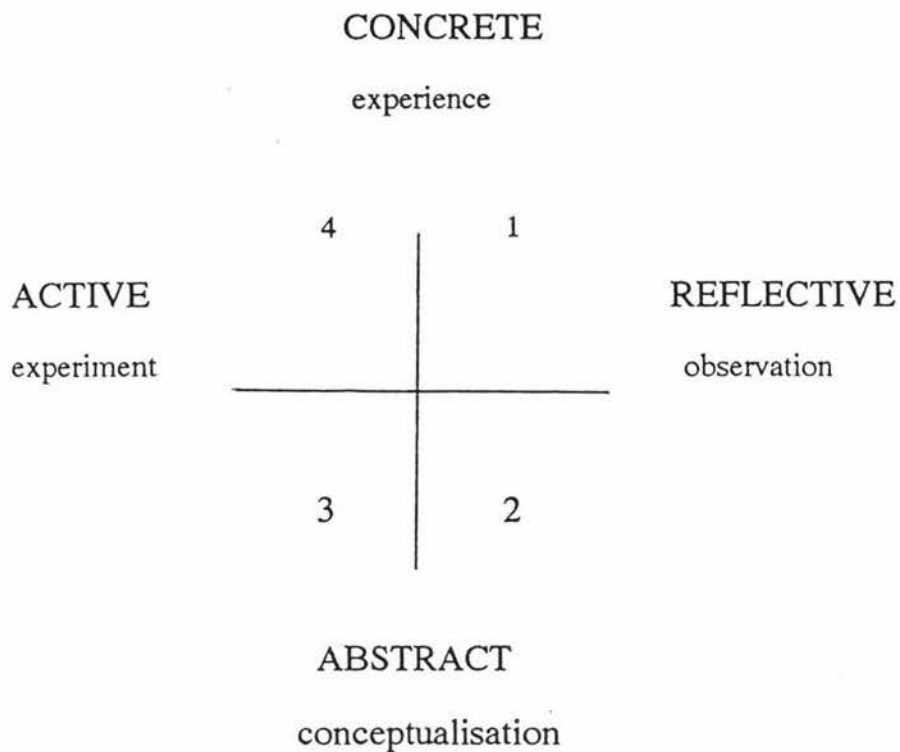


Figure 1: Combination of perceiving and processing dimensions
(Kolb, 1981)

Kolb (1981) described the dimensions above in terms of the individual learning styles they would suggest:

Dimension 1: These students experience or take in information concretely and process it reflectively . They are sensors/feelers and watchers.

Dimension 2: These students experience or take in (perceive) experience abstractly and process it reflectively. They are the thinkers and watchers.

Dimension 3: These students take in experience abstractly and process it actively. They are the thinkers and doers.

Dimension 4: These students take in and process concretely and process what they take in actively. They are sensors/feelers and doers.

(Kolb, 1974)

Thinking on learning style is not new. Jung (1976) defined four categories of Learner/feelers, Thinkers, Sensors and Intuitors. Lawrence (1981) based his ideas on the work of Isabel Meyers and described some sixteen different types of learner formed by the four dimensions of Jung's classification.

In his original writing Kolb (1974) noted that along with recognising four different learning styles it was important to understand that all teaching should proceed through an organised sequence of learning from experience, to reflection, to conceptualisation and to experimentation. Sequential teaching in this form would provide all learners with the opportunity to learn through their preferred learning style. McCarthy (1987) stated that all students whatever their learning styles, get a chance to shine twenty five percent of the time. The tragedy was, she commented, that only the group two's get the kind of teaching they need - the other three groups are expected to learn in the mode that suits the group two people. Her research suggests that about seventy percent of learners are not group two's.(p.41-52).

McCarthy and other writers urge a teaching approach that recognises individual learning styles and teaching that addresses each particular learning mode. It is here that accelerated learning as presently practiced has been able to provide the necessary understanding, tools and techniques. Writers who support integration of learning style awareness into new educational initiative include Gross (1991), Grinder (1989), Harrary & Weintraub (1991), Jensen (1988), Lozanov (1975),

Machado (1985), Novak & Gowin (1984), Rose (1986), Schuster & Gritton (1986), Dunn & Dunn (1985), Swassing & Barbe (1985).

Accelerated Learning

Accelerated learning incorporates findings from Suggestopedia and understandings from a wide range of sources. The aim was to take Lozanov's original work and design a very effective teaching and learning process. Material has been introduced from such diverse areas as hypnosis and trance states, relaxation and autogenic training, meditation, Neuro Linguistic Programming, learning styles research, brain wave patterns, music and rhythm, cross lateral activities, non-linear representation of information (mind mapping) and the intentional use of suggestion.

Accelerated learning claims that traditional teaching has long directed its attention to the left brain and to linear, logical thinking. It claims that unless the right brain is fully involved in learning man will continue to be limited in learning and potential. This concern with educational practice was echoed by Bloom (1987) in an article in *Psychology Today*. Bloom stated that the current educational system was structurally flawed and should be thoroughly rehabilitated. His main observation was that we needed to know how to teach more effectively. Traditional education not only undermined the self-esteem of students who did poorly, it "infected" students with emotional problems and was the inevitable result of a system of education which assumed that large numbers of students had to fail or just get by. His solution was to replace our antiquated education system with one that produced few failures. Accelerated learning would claim that it provides such an approach to education, one able to improve the learning capacity of any student, young or old, bright or slow, male or female.

Studies of Accelerated Learning

Studies of accelerated learning have investigated its use in the teaching of

foreign languages, non-language areas and learning research.

Language Studies

Various studies have been carried out into the teaching of foreign languages using accelerated learning methods. Russian, Spanish, Finnish, German and French have been taught by these techniques.

While most studies followed the intent and philosophy of accelerated learning only a few were carefully controlled and these studies showed clearly that a foreign language could be taught two to three times faster than by conventional methods. (Bushman, 1976; Ramirez, 1982; Prichard, Schuster & Pullen, 1980; Dhority, 1984; Lemyze, 1987).

Non-Language Studies

These studies were concerned with the application of accelerated learning principles to classroom learning. Schuster & Prichard (1978) utilised a quasi-experimental design with pre and post-test measures to evaluate teacher instruction with accelerated learning methods against a similar group being taught the same material traditionally. The study demonstrated considerable research support in terms of learning achievement via accelerated methods.

Applegate (1983) reported on a large scale government funded project administered to a school district (Paradise, California). There was a significant decrease in problem referrals from the experimental teachers as compared to the controls. At the end of the second year standardised tests showed that the students by accelerated learning methods had significantly higher grades in reading and mathematics than students in regular classes and that they had higher over-all gain scores. Other studies found similar results which suggest that the use of accelerated learning techniques in the classroom significantly raised performance as measured by standardised tests. (Prichard, Schuster & Gensch, 1980; Johnson, 1982; Beer, 1978;

Palmer, 1985; Nelson, 1979; Hales, 1983; Schuster & Ginn, 1978; Edwards, 1980; Gamble, Gamble, Parr & Caskey, 1982; Seki, 1978; Vannan, 1981).

Learning Research Studies

Numerous conventional studies have investigated accelerated procedures. Thompson (1973) reported on a three year project in Atlanta directed towards under achievement in inner-city schools. The programme concentrated on developing a positive learning environment in which success was expected and encouraged. Project students gained at least one month of reading and mathematics for each month of project participation in contrast to conventional schools where students showed a loss. Mayer (1979) reviewed studies on advance organisers and their possible influence on facilitating learning. The results clearly showed that advance organising improved learning and retention. Preview of what is coming is what Ausabel (1960) called an "advance organiser." McMurray (1977) developed an instructional design based on task analysis procedures and developed experimental lessons to accelerate subject matter. The experimental group performed significantly better than control groups on both immediate acquisition and on retention tests after two months.

Gaylean (1982) investigated the use of guided imagery in primary and secondary schools. She concluded that imagery activities are used mainly for cognitive gain, affective development and transpersonal awareness.

Stein, Hardy & Totten (1982) investigated the influence of music and imagery to accelerate information retention. Their research concluded that the baroque music used in the study was a contributing factor to increased immediate and delayed information retention. Render, Hull & Moon (1984) evaluated the effects of guided imagery and baroque music on university students test performances. The authors concluded that relaxation prior to testing and baroque music played during testing

had no effect on test performance.

Berendt & Schuster (1984) evaluated the ability of suggestion to speed up mental processes to determine if this would increase the number of vocabulary words learned consequently. The group receiving relaxation and suggested mental speeding produced a thirty three percent increase in speed of mental processes accompanied by a twenty five percent increase in the number of words recalled correctly following practice.

The Accelerated Classroom

Suggestion is identified as the key factor in accelerated learning. Lozanov was convinced that the key to increased learning and more effective recall lay in the precise application of suggestion to the instructional process. Three principles lie behind the use of suggestion in accelerated learning:

- Joy and the absence of tension in learning
- Unity of the conscious and the subconscious
- Suggestion is the link to the reserves of the mind

A basic factor on which accelerated learning depends is that students will learn according to what the teacher expects of them. The phenomenon that people perform according to what important people around them expect is well known as the “self-fulfilling prophecy” or the “Pygmalion effect” and has been well documented by Rosenthal (1968). Suggestion by the teacher is the key to enhanced learning expectancy.

The accelerated teaching environment is user friendly with plenty of unimpeded space. Lessons begin with bright music to engage attention. This is followed by a short relaxation period prior to learning. The teacher provides a sensory rich presentation involving games, stories, puzzles, imagery, rehearsal and a background of baroque music. At the end of the teaching period a further and more

extended relaxation period is conducted with baroque music still playing quietly as background but now, along with the music, the teacher quietly recites the key words and phrases from the lesson content as students attend passively. The following page gives an overview of the process.

STATEMENT OF HYPOTHESES

Firstly, that subjects rated as high in hypnotic susceptibility will perform significantly better on all measures than subjects rated low in hypnotic susceptibility.

Secondly, that the practice of accelerated learning will interact with level of hypnotic susceptibility to produce significant change in the direction of reduction of anxiety and increase in self-esteem

Thirdly, that subjects rated as high in hypnotic susceptibility will demonstrate the most academic gain in English and mathematics.

Fourthly, that matched subjects for the accelerate group who score highly for hypnotic susceptibility will perform better on all measures than those matched subjects rated low in susceptibility..

CHAPTER THREE

METHOD

The method chosen to test the stated hypotheses will be detailed under the following categories:

- Research design and analysis procedures
- Description of the dependent measures and pre and post-experimental testing.
- Subjects
- Procedures

1. Research Design and Analysis Procedures

A. Research Design

A quasi-experimental/multiple base line design has been used. All students in the school are assigned to classes by their expressed subject choices. No random distribution of subjects was possible. Each subject in the Accelerated Learning class was matched with a student in the same year level. Matching was carried out on four factors:

- Age within six months
- Sex
- Intelligence where standardised I.Q. test scores were available - in this case the ACER-D. was the test used. Matching (where possible) was within plus or minus 5 points.
- Grade scores for both English and mathematics from the 1991 School Certificate examinations where scores were within plus or minus 5 points.

There were two groups: The accelerated learning class of fourteen students and a matched group of fourteen students who formed a control group.

The independent variable consisted of a set of two levels of hypnotic

susceptibility: High susceptibility and Low susceptibility. Hypnotic susceptibility for the purposes of this experiment can be defined as the willingness and ability to respond to ideas and suggestions and to allow them to take effect without effort or interference.

The interaction effects of the independent variables were evaluated in terms of the pre to post test changes in the dependent measures. The dependent measures chosen were the State-Trait Anxiety Inventory (STAI) and the Coopersmith Self-Esteem Inventory (SEI). Details of these measures are presented later in this chapter.

Following from the hypotheses outlined, a multi baseline design was chosen to assess:

- The main effect of the accelerated learning condition on changes in State and Trait anxiety as well as in self-esteem.
- The measures of academic performance achieved by subjects rated as high or low in hypnotic susceptibility.

B. Analysis Procedures

In order to assess the effects of high suggestibility on academic performance a multiple baseline design was chosen to allow comparing each subject in the accelerated group with a matched subject.

Dependent Measures and Experimental assessments

The measurements used for assessment of subjects were, Post-experimental administration of the Harvard Group Scale of Hypnotic Susceptibility and pre/post experimental administration of the State-Trait Anxiety Inventory (STAI) and the Self-Esteem Inventory (SEI).

A. The Harvard Group Scale of Hypnotic Susceptibility (HGSHS)

The HGSHS-Form A was chosen for the post-experimental assessment of hypnotic susceptibility. A large amount of careful research into suggestion and

susceptibility was undertaken in the area of measuring individual susceptibility to hypnotic induction. It was considered that the individual levels of hypnotic susceptibility attained would reflect level of response to suggestion.

The HGSHS-Form A was considered desirable for the purposes of the present study since twenty eight subjects were involved to be tested for hypnotic susceptibility. Group administration with self-report scoring was effective for time saving. This is accomplished in the HGSHS-Form A which was adapted by Shor and Orne (1962) from the individually administered Stanford Hypnotic Susceptibility Scale-Form A, developed by Weitzenhoffer and Hilgard (1959).

This version claimed to maintain the characteristics of the Stanford Hypnotic Susceptibility Scale under group conditions. The self-report scoring is the only fundamental change however, the validity of this form of scoring is supported by studies showing that the scores obtained with group induction and self-scoring are congruent with those achieved with individual induction and objective scoring (Bentler & Hilgard, 1963). In reporting on the HGSHS-Form A, Zika (1981) noted that further evidence of the validity of the measure was indicated by the comparison of self-report scores simultaneously with scoring by raters on seven of the eleven items- yielding a correlation of $r = .82$.

B. The State-Trait Anxiety Inventory (STAI): A-State and A-Trait Scales and the Self-Esteem Inventory (SEI)

The STAI was chosen as the dependent measure on which changes in anxiety were assessed. This measure was considered particularly suitable for the present study for the reason that it is designed to measure two distinct anxiety concepts: state and trait anxiety. This distinction is important for the present study since comparison of the level of academic gain in the accelerated/matched subject groups as well as between the variable of high and low hypnotic susceptibility on reduction

in anxiety, may show differences in this effect in either State or Trait anxiety. State anxiety is conceptualised as a transitory emotional state "That is characterised by subjective, consciously perceived feelings of tension and apprehension and heightened autonomic nervous system activity. A-State may vary in intensity and fluctuate over time." (Spielberger et al., 1970, p.3)

On the other hand, Trait anxiety is conceptualised as a more stable aspect of the individual, reflecting anxiety proneness. "A tendency to respond to situations perceived as threatening with elevations in A-state intensity." (Spielberger et al., 1970, p.3). Concurrent validity of the measure has been tested through correlations with other anxiety measures. The STAI shows moderately high correlations with the IPAT Anxiety Scale (Cattell & Scheier, 1963) and the Taylor (1953) Manifest Anxiety Scale. (TMAS). ($r = .75$ and $r = .80$ respectively).

The validity of the instrument is underscored by the correlations obtained between the STAI and various scales of other personality tests. These indicated the sensitivity of the State and Trait scales to clients presenting with emotional problems as compared to educational problems.

C. The Coopersmith Self-Esteem Inventory SEI

The Coopersmith Self-Esteem Inventory was administered in both pre and post-experimental conditions. The decision was made by the researcher to administer the SEI as the dependent measure on which changes in self-esteem were assessed. The measure was considered particularly suitable for the present study as it was designed to measure evaluative attitudes toward the self in social, academic, family and personal areas

Self-esteem is a set of attitudes and beliefs that a person brings with him or herself when facing the world. It includes beliefs as to whether s/he can expect success or failure and how much effort should be put forth,

whether failure at a task will "hurt," and whether s/he will become more capable as a result of different experiences. (Coopersmith, 1981, p 1.)

It is claimed that a major effect of accelerated learning is that participants quickly gain success and begin to achieve at levels much higher than they felt capable of achieving and that this experience significantly raises individual levels of self-esteem.

Positive feelings about oneself appear to be one of the feeling states that increase involvement in successful performance. As such, building self-esteem is not a secondary, luxury option in the schools' programmes but is more of a basic component of programmes geared to motivate learning. (Coopersmith, 1981, p.1).

The School Form (Long Form) was used in this study. It consists of fifty items which measure self esteem and eight which constitute a lie scale. Self- Esteem is defined by Coopersmith (1981) as, "The evaluation a person makes and customarily maintains with regard to him or herself. Self-esteem expresses an attitude of approval or disapproval and indicates the extent to which a person believes him or herself capable, significant, successful and worthy. In short, a person's self-esteem is expressed by the attitudes s/he holds towards the self." (Coopersmith, 1981, p.5). Construct validity has been variously reported (Kokenes, 1974 & 1978; Kimball, 1972) confirming the construct validity proposed by Coopersmith. The concurrent validity of the measure has been tested through correlations with other achievement measures and the Lorge-Thorndike intelligence test. The SEI shows moderate coefficients at, $r = .33$ and $r = .30$ respectively.

SUBJECTS

The subjects for the study were obtained from the sixth form student body at a medium sized, co-educational, rural secondary school at the beginning of

the 1992 academic year. The experimental group consisted of fourteen subjects who had chosen to take a Sixth Form Certificate class in "Human Relations. The group comprised twelve female and two male subjects. The average age of the subjects in the experimental group was 16.3 years. This class was taught via an accelerated learning approach.

The matched sample group consisted of fourteen subjects matched to the experimental subject in terms of age, sex, I.Q. (where available) and academic performance in English and mathematics in the 1991 School Certificate examinations. The average age of subjects in the matched group was 16.4 years.

Procedure

All subjects in the experimental group were informed that the Human Relations class would be largely taught by an accelerated learning approach and that this was to partly ascertain its effectiveness as a teaching procedure. Subjects were told that if they wished to take the subject for the year that they would be asked to participate in an end of year test of suggestibility. They were also told that they would be required to complete a number of pre and post-tests relating to anxiety and self-esteem.

The subjects in the matched group were brought together and told that they had been selected to help with an experimental study relating to a new teaching method. All approached agreed to participate in pre and post treatment testing.

The experimental group were taught by an accelerated learning procedure as follows:

- Classes were taught on a six day cycle with five teaching hours per cycle.
- Periods one to four were taught with the addition of baroque music playing softly in the background. A short (two minute) relaxation

session began each period and summary notes made by students in what accelerated learning calls "mind mapping" (but which are called network notes, sprays and pattern notes by other writers).

- The fifth period of each six day cycle was different. Students came in with baroque music playing in the background. The period began with a ten minute relaxation/imagery exercise. Teaching/revision then proceeded until the final 12 minutes when students again relaxed and listened passively to the teacher quietly recite along with the music, key words, phrases from the work of that cycle.
- At the beginning of day one of the next teaching cycle a short test on material from the previous cycle was given.

Pre-testing

Both the experimental and the matched group were administered the STAI and the SEI inventories during week four of the first school term.

Post-testing

The STAI and SEI inventories were administered again in late September immediately prior to end-of-year senior examinations.

The HGSHS testing

In mid-October following the end of examinations each group was seen independently and given an explanation of the Harvard Group Scale of Hypnotic Susceptibility. Questions and concerns were answered and the nature of the hypnotic experience explained. A week later each group met again and was administered the HGSHS.

The HGSHS was administered in a quiet room with comfortable seating. All instructions were on pre-recorded tape. At the conclusion of testing subjects were asked to record their responses in the response book.

The HGSHS measures subjects as to the degree of susceptibility to hypnotic induction and is a measure of the extent to which the subject can accept suggestion. For the purposes of this study it was necessary to divide subjects into a high and low susceptible groups. The scale assigns a grade of susceptibility for test performance ranging from 10 for highly susceptible to 1 for low susceptibility. It was decided to set a division between 6 and 7 on the scale so that all subjects scoring between 7-10 were regarded as high susceptible and those scoring from 1-6 as low susceptible.

Two weeks after the end of the study period all subjects were again brought together, explanation of the study given and appreciation expressed.

CHAPTER FOUR

RESULTS

The present study examined the effect of accelerated learning techniques in the classroom with students rated either high or low in hypnotic susceptibility.

The results indicate that in the measures for anxiety that trait anxiety was relatively stable across time and that, although some decrease in trait anxiety was obtained by subjects in the accelerated learning class the decreases obtained were not significant. This would appear to suggest that trait anxiety is resistant to change and represents a strong personality factor.

State anxiety mean scores however showed significant differences, the most significant being found in the accelerated learning-low susceptibility group and in the matched sample-high susceptible group

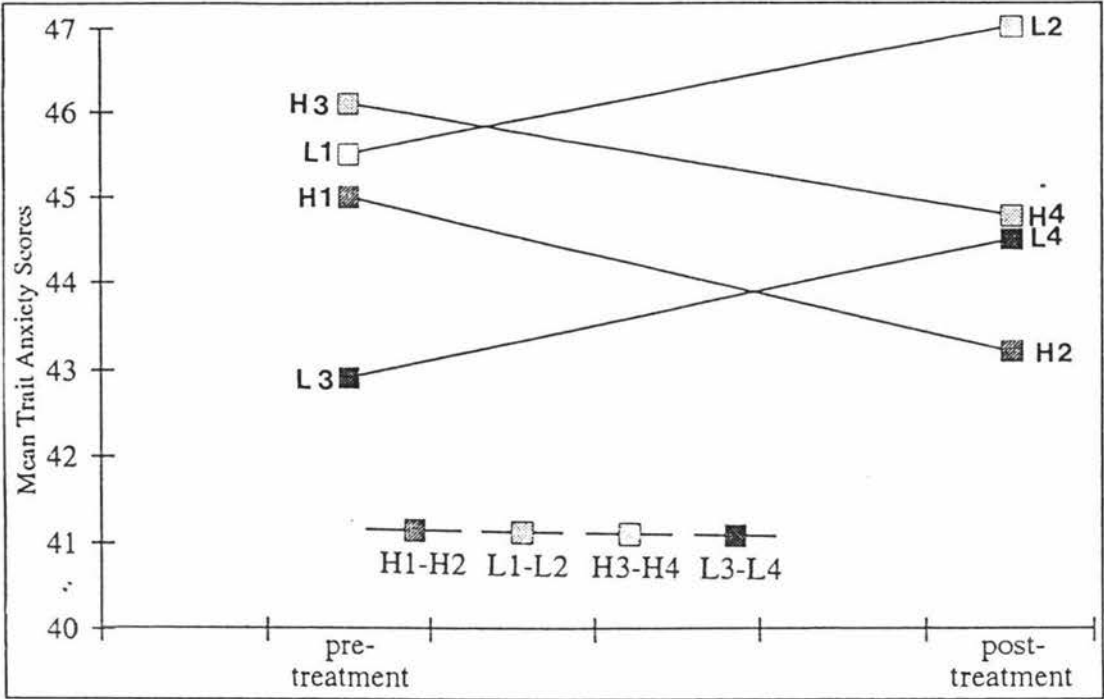
Table 1. Mean percentage anxiety levels for each experimental group.

GROUP	Trait Pre	Anxiety Post-test	State Pre	Anxiety Post-test	Code
High/accelerate	45	43.2	56.8	41.2	H1-H2
High/matched	45.5	47	54.7	48.83	H3-H4
Low/accelerate	46.1	44.78	55.66	46.6	L1-L2
Low/matched	42.88	44.5	50.25	49.38	L3-L4

The results indicate that there were no significant differences comparing the means for trait anxiety for high and low susceptibility subjects over the two testing occasions. The results for state anxiety were examined and significance found for

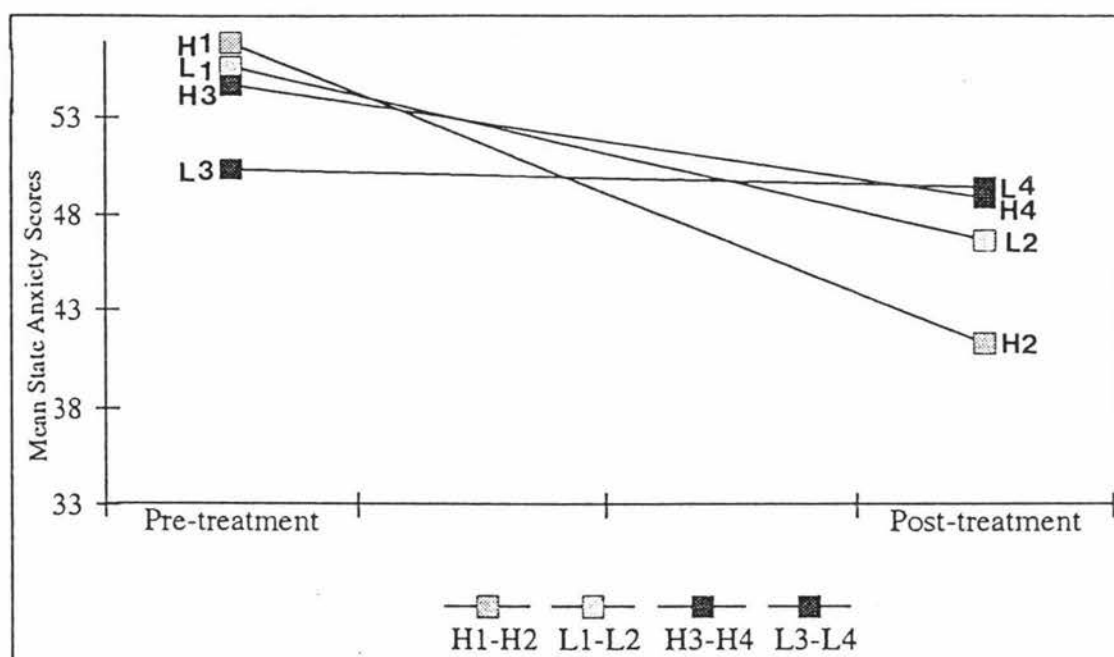
the low susceptible/accelerate group and high susceptible/matched group.

$L1-L2 \quad t(5)=4.53, p<.05$ $H3-H4 \quad t(8)=2.81, p<.05$



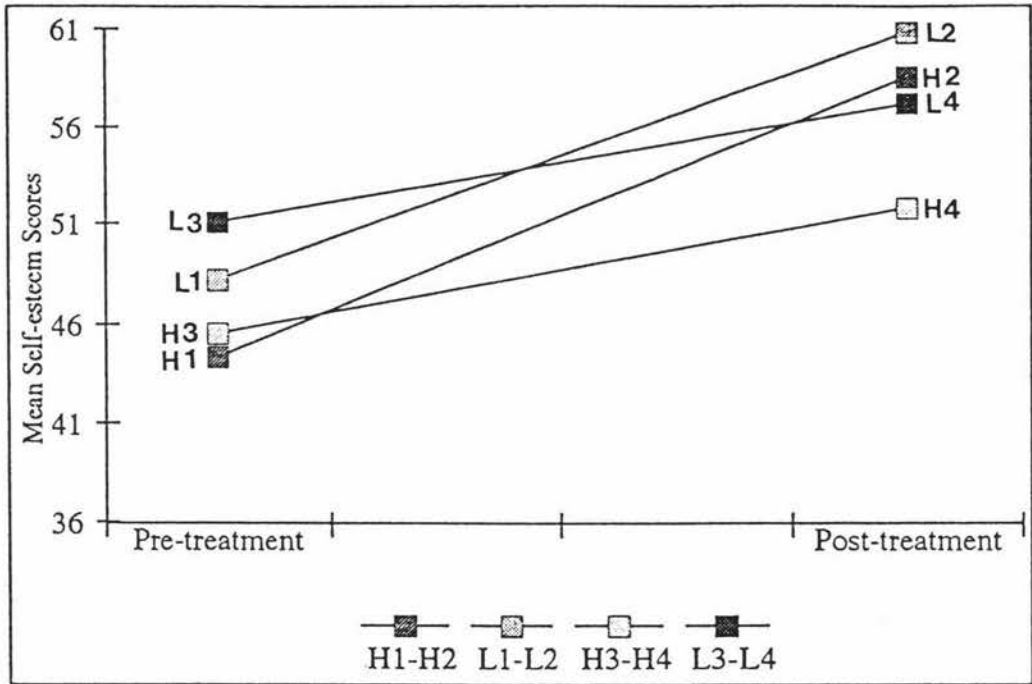
Key: H1-H2 High/Accelerate
L1-L2 Low/Accelerate
H3-H4 High/Matched
L3-L4 Low/Matched

Figure 2. Mean Pre and Post Treatment Trait Anxiety Scores for the Accelerate and matched groups.



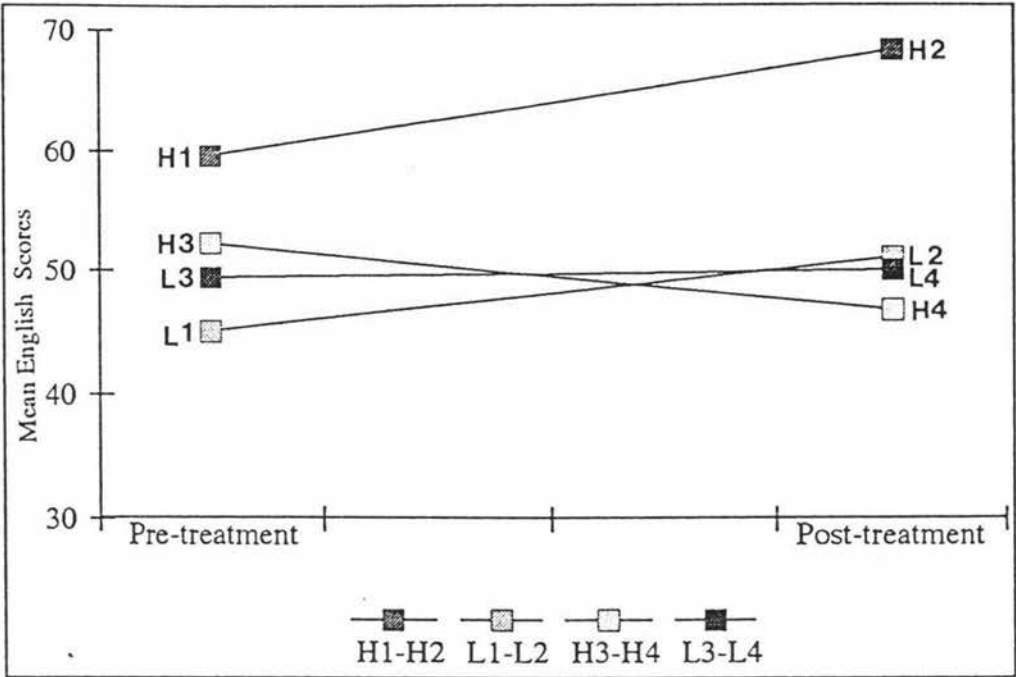
Key: H1-H2 High /Accelerate
L1-L2 Low/Accelerate
H3-H4 High/Matched
L3-L4 Low/Matched

Figure 3. Mean Pre and Post Treatment State Anxiety Scores for the Accelerate and Matched Groups.



Key: H1-H2 High/Accelerate
L1-L2 low/Accelerate
H3-H4 High/Matched
L3-L4 Low/Matched

Figure 4. Mean Pre and Post Treatment Self-Esteem Scores for the Accelerate and Matched Groups.



Key: H1-H2 High/Accelerate
L1-L2 Low/Accelerate
H3-H4 High/Matched
L3-L4 Low/Matched

Figure 5. Mean Pre and Post Treatment English Scores for the Accelerate and Matched Groups.

Table 2. Mean percentage pre and post treatment levels obtained by all groups in self-esteem, English and mathematics

GROUP	Self-esteem		English		Mathematics		Code
	Pre	Post-test	Pre	Post-test	Pre	Post-test	
High/accelerate	44.4	58.6	59.4	68.2	52.2	61	H1-H2
High/matched	45.5	51.83	52.3	46.83	52.3	44.6	H3-H4
Low/accelerate	48.2	60.89	45.1	51.1	43.3	48.5	L1-L2
Low/matched	51.25	57.25	49.5	50	46	44.13	L3-L4

In the area of self-esteem significant differences were found between all pre-post treatment measures.

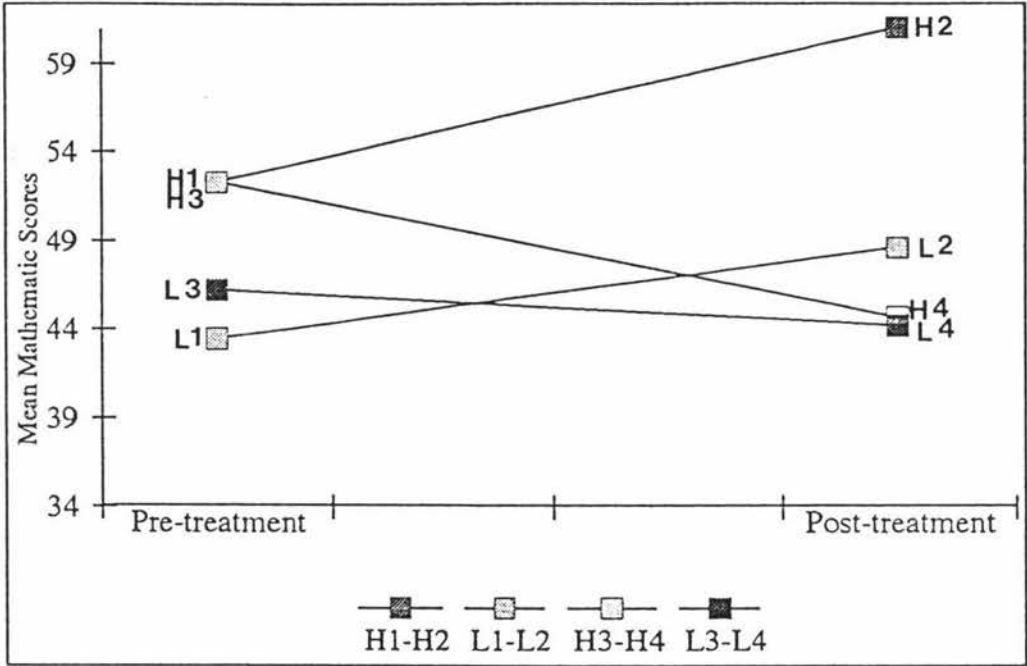
H1-H2 $t(4)=4.89, p<.01$ H3-H4 $t(5)=2.96, p<..05$
L1-L2 $t(8)=11.04, p<.001$ L3-L4 $t(7)=3.95, p<.01$

The outcome means were examined and a significant difference obtained between the post-treatment means for the high susceptible subjects.

H2-H4 $F(5,4)=10.04, p<.05$

English performance results indicate that both the high and low susceptible subjects in the accelerated learning class achieved significant academic gain as opposed to the two groups in the matched sample where minimal or no gain was achieved (Table 2.). H1-H2 $t(4)=3.52, p< .05$, L1-L2 $t(8)=4.54, p< .01$

There was significant difference obtained between the post-treatment means for both high susceptible groups. H2-H4 $t(4)=3.96, p< .05$.



Key: H1-H2 High/Accelerate
L1-L2 Low/Accelerate
H3-H4 High/Matched
L3-L4 Low/Matched

Figure 6. Mean Pre and Post Treatment Mathematic Scores for the Accelerate and Matched Groups.

On the dependent measure of mathematics the results indicate that both the high and low susceptible groups in the accelerate class obtained an increase in performance while both groups in the matched sample obtained a decrease in mean performance.

H1-H2 $t(4)=2.66, p<.05$, H3-H4 $t(5)=2.93, p<.05$

Possibly the failure to find significant effects through ANOVA may be due to the small sample size in the study. H1/H2= 5 subjects, H3/H4=8 subjects. L1/L2=6 subjects, L3/L4=9 subjects.

CHAPTER FIVE

DISCUSSION

The purpose of this study was to examine how susceptibility to suggestion interacted with teaching method in an accelerated learning classroom. A primary finding was that the techniques used in accelerated learning were effective and raised student performance.

Both the accelerated learning class and the matched sample group contained students rated either high or low in susceptibility to suggestion. On all measures those students rated as highly suggestible achieved ahead of those rated low in response to suggestion. The accelerated learning environment appeared to benefit the high suggestible subjects leading to gains in both English and mathematics

These results were expected as the literature reviewed above clearly indicated the impact of the suggestive elements of accelerated learning procedures. The students demonstrating the greatest overall gain in both the accelerated learning and the matched sample groups were those rated high in response to suggestion. The issue of suggestibility was a key variable. From the beginning of scientific examination and practice of hypnosis there has been clear awareness of the importance of suggestion. Coue (1915) believed that all successful suggestion was auto suggestion and that auto-suggestion was nothing but the action of the imagination (Neville, 1989, p.29).

In the accelerated learning class auto/self-suggestion has a place. As students become aware of their increased performance levels, learn relaxation skills, and attend passively to repetition of key words and phrases, they learn to coach themselves and accept increased responsibility for their own motivation. They are in fact, adding their own self-suggestions to those of the teacher. It seems that some

students in the matched sample group also used some self-talk and suggestion though in a haphazard and unplanned manner.

The fact that the highly suggestible students in the accelerated learning class outperformed the highly suggestible subjects in the matched sample group may have had its reason in the use of 'set.' Romen (1981) noted the clear phenomenon that successful suggestion is dependent on 'set.' He pointed out that the relationship between a stimulus affecting a human being and the behavioural response is never direct. It is always mediated by the person's psychological set- something that was not part of the learning environment for the matched sample subjects. What Romen discovered was that in a state of muscular relaxation and, more particularly in the specific state of self-suggested entrancement, a 'set' is more easily established or changed than in the normal waking state (Romen, 1981, p.118).

Anxiety

A major emphasis of the accelerated learning classes was reduction of anxiety together with demonstration of increasing competence in learning. It is accepted by accelerated learning that as far as the unconscious is concerned both the 'input mode' and the 'output mode' are facilitated by deep relaxation. Deep relaxation not only allows for more efficient processing and synthesising of information, as a state balanced between waking and sleeping, it shows some of the features of both and provides a way of opening up the unconscious to the conscious mind.

The most outstanding and consistent conclusion of extensive research on relaxation and meditative techniques concerns the effect of the relaxed state on anxiety. The reduction of anxiety seems to follow almost immediately after learning to relax effectively. There is evidence that not only does relaxation reduce present anxiety but it also reduces the susceptibility to become anxious in threatening situations. Lozanov anticipated that children who were taught to enter

and use the relaxed state easily would find an improvement in their ability to learn. (Benson, 1988, pp.167-168).

Trait anxiety reduced for the highly suggestible students in both the accelerated and matched sample groups but increased for both groups of low-suggestible subjects. No explanation is apparent for this. In state-anxiety, there was a substantial post treatment drop for the high suggestible subjects in the accelerated learning class which would seem attributable to a combination of the relaxation training given and the greater ability of these students to utilise suggestions of personal ease and calmness.

Self-esteem

All subjects in both the treatment and non-treatment groups gained significantly in level of self-esteem with the greatest gains being observed in the accelerated learning subjects. It is considered that three factors combined to bring about the gains found. For the accelerated learning class, continual encouragement for effort and recognition of achievement, coupled with regular feedback to students and the regular practice of relaxation were factors. Additionally it can be accepted that students who remain for the full sixth form year are there from personal choice relating to future occupational/training considerations and are thus reasonably motivated.

Another factor may be the structure of the sixth form year in that no end-of-year external examinations are looming. All classwork is assessed through ongoing assessments and feedback is regular as students work towards an internal assessment grade.

English

Both the high and low suggestible subjects in the accelerated learning class obtained significant mean percentage increase in English grades. In the non-

treatment group the high-suggestible subjects demonstrated a reduction in English grade and the low-suggestible subjects achieved only a minimal increase in grade. The difference is attributable to participation in the accelerated learning class where the techniques used and taught appear to have contributed to increased English performance. The techniques that seem to have contributed most were utilising knowledge of individual learning styles to study material effectively and the use of 'mind-mapping' note taking/essay planning techniques.

Mathematics

Results observed in the English grades were almost duplicated in the grades obtained for mathematics. Both high and low-suggestible subjects in the accelerated learning class gained in mean percentage grade over the academic year, the increase for the high-suggestible group being significant. In contrast all subjects in the non-treatment group showed a decrease in performance. Again, it appears that the difference in observed performance was participation in the accelerated learning programme.

General discussion

In all measures only the subjects in the training group made significant gain over the treatment period. Those subjects rated as highly susceptible to suggestion performed best both in the treatment group and the non-treatment group.

There were significant gains in self-esteem for all subjects both treatment and non-treatment but with the greatest gain applying to the subjects in the treatment group.

There was minimal and non-significant reduction obtained in trait anxiety but, as hypothesised participation in the accelerated learning programme lead to substantial reduction in state-anxiety.

Improvement in academic performance has been investigated by a number of

researchers with particular emphasis being placed on the issue of test anxiety. Test taking and impaired performance have a high positive relationship (Dendato & Diener, 1985; Culler & Holohan, 1980; Hollandsworth et al, 1979; Spielberger, 1966). Behaviour therapies have largely failed to improve academic performance and while cognitive therapies have been successful in reducing self-reported anxiety, they have been inconsistent in improving academic performance in test-anxious students (McCordick, Kaplan, Finn & Smith, 1979). The generally poor record of both behavioural and cognitive therapies in improving academic performance despite the fact that both reduce self-reported anxiety, calls into question the idea that test anxiety is a major cause of poor academic performance.

Of interest is that both behavioural and cognitive therapies act to reduce levels of self-reported, state-anxiety, without achieving significant academic gain. In this present study no direct approach was utilised to reduce anxiety or attempt to increase self-esteem. Relaxation training was utilised in all accelerated learning classes but was directed at enabling subjects to readily access the alpha state via suggestion and the use of baroque music. The alpha state was regarded as a desirable state in which subjects could give passive attention to the repetition of key words and phrases. It appears that continued exposure to and practice of relaxation techniques impacted on both state-anxiety and on self esteem sufficiently to be transferable to learning in other academic content areas.

A very interesting and consistent effect noted in research on Transcendental Meditation (TM) in the United States, is that not only does good relaxation reduce present anxiety but it also reduces the susceptibility to become anxious in threatening situations. It may be that high suggestible subjects in the accelerated learning class were able to effectively use relaxation as both a counter to anxiety about academic learning and to bring an effective calmness to that learning.

(Griffith, F. cited in White, 1985). Lozanov (1971) maintained that the main inhibition to our being able to master seemingly difficult subject matter was our unwillingness to believe that we can.

A constant theme of the accelerated classroom was the suggestion that the unconscious can work a great deal faster than the conscious mind and deal with more complex information much of it subliminal to awareness. It appears that this suggestion was most accepted by the high-suggestible subjects in the accelerated learning class enabling them to consistently display enhanced performance.

Good teachers know that learning calls on teaching that addresses both left and right brain function. A teaching which ignores the evidence that half of the students have a preference for right hemispheric modes of awareness and processing can be seen as unhelpful at best and oppressive at worst. The accelerated learning approach emphasised right hemisphere learning and integrated it into a balance with traditional left hemisphere processing. Again, while the research reported here does not claim that right hemispheric learning was the main factor in the superior results obtained by the members of the accelerated learning class, it does suggest that this factor, along with those discussed, was involved in the gains observed.

Suggestion.

Freud was not the discoverer or inventor of the unconscious. It was already an accepted and well established tradition as he began to formulate and develop his theoretical position. Psychoanalysis attempted to help the person to control unconscious forces but other theorists and schools of psychological thought became more interested in how the unconscious was able to be contacted and organised. In fact they found that the unconscious was very ready to accept and to act upon suggestions made to it. It was this willingness to accept suggestion that led Coue to state that all successful suggestion was auto-suggestion and that auto-suggestion was

nothing but the action of the imagination.

Autogenic relaxation training showed that it was possible, using the relaxed state, to make suggestion that would directly affect and influence autonomic physiological functions such as heart rate, blood pressure and skin temperature. If such control was possible it was likely that suggestion could be applied to learning and education.

It was Giorgi Lozanov (1971) who first began to systematically apply scientific understandings of suggestion to the educative process. He discovered that while establishing a climate in which suggestion of expanded achievement was a constant feature really effective accelerated learning required that the individual learner add their own personally directed suggestion to the learning. He found that utilising both forms of suggestion enabled the learner to free him or herself from conservative estimates of the amount that could be learned.

Research has clearly shown that individuals vary widely to their receptivity to the suggestions made in hypnotic induction, with a small number being very receptive, and most varying in receptivity from somewhat to minimal. It was hypothesised in this study that those students who rated as highly receptive to hypnotic induction would be those subjects most able to benefit from participation in an accelerated learning environment. It is clear from the results obtained that this has occurred within the accelerated learning group and to an observable difference within the matched sample group.

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