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ABSTRACT

This issue of a journal on suggestive learning-teaching-therapy counseling within the procedural confines of Suggestology or Suggestopedia includes the following articles: "Suggestopedia in an American High School Setting" (Carl W. Pullen), a description of the use of Suggestopedia in a German class; "Optimizing the Presentation of Classroom Information" (Giselher Guttman), a report of research on effective information presentation; "Supplementary Report on the Austrian Experiment with Suggestopedia in Elementary Schools" (Franz Beer), reporting on work carried out in Australian elementary schools between 1974 and 1979; "Teaching Reading with Stories vs. Cognitive Hierarchy" (Renee Fuller), an essay in support of the notion that the story is the basic form of intellectual cohesion, and suggesting instructional applications for stories; and "Experimentation with the Lozanov Method in Teaching Word Retention to Children with Learning Disabilities" (Wally Nelson), a summary of a study with 6-to-8-year-olds. (MSE)

THE JOURNAL OF SUGGESTIVE-ACCELERATIVE LEARNING AND TEACHING

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THE JOURNAL OF SUGGESTIVE-ACCELERATIVE LEARNING AND TEACHING

Guidelines for Contributors

The Editor welcomes submission of manuscripts on an interdisciplinary nature relevant to all aspects of suggestive learning-teaching-therapy counseling within the theoretical and procedural confines of Suggestology and/or Suggestopedia. The JOURNAL OF SUGGESTIVE ACCELERATIVE LEARNING AND TEACHING will publish a wide variety of articles - including critical reviews, theoretical analyses, speculative papers, case studies, quasi-experimental studies, as well as reports of empirical research (basic or applied) of major significance. The basic focus is Suggestopedia theory , research and application.

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Suggestopedia in an American High School Setting

Carl W. Pullen
Indianola High School

Abstract

This author's 1979 *actfl* conference paper explains, in great detail, the use of Suggestopedia in a high school German class. The author also outlines some of the basic concepts of Suggestopedia.

A final question after a discussion of SALT (Suggestive-Accelerative Learning and Teaching) is always, "Is it a method of instruction or a philosophy?" The answer to that question is the start of this discussion, and then the answer will be explained.

Suggestopedia is a method of instruction based on the belief that all students can learn much more rapidly than they or their teachers imagine.

It is a method of instruction based on the belief that learning is relaxing, easy, and joyous.

It is a method of instruction based on the belief that all students are creative, whole persons; that the cognitive and affective domains of the personality are so interwoven that one domain cannot be affected without the other also being changed.

It is a method of instruction based on the belief that our classes are not filled with relaxed, joyous, creative students who have got it all together, because the school milieu tends to discourage that positive image of learning and learners.

It is a method of instruction based on the belief that if a different image of learning is suggested to students, they can react so that their own inner resources are tapped and they all can become great learners.

Benjamin Bloom, (1976), the American educator and educational theorist, bases the discussions in his book, *Human Characteristics and School Learning* , on the same beliefs. He states in the preface, "Most students become very similar with regard to learning ability, rate of learning and motivation for further learning - when provided with favorable learning conditions."

Suggestopedia is based on the theories and practices of Dr. Georgi Lozanov director of the Suggestology Research Center in Sophia, Bulgaria. While it is true that the key concepts of suggestopedia have been discovered, purported and supported by so many other writers and educators that his ideas are hardly revolutionary, Dr. Lozanov has used these concepts to develop a model of instruction that is at least refreshing, if not revolutionary, for teachers in American classrooms.

Before the adapted model of instruction used in the Indianola High School German classes is explained, it will be helpful to present the basic

concepts upon which the model is based. The first of these is the concept of Suggestion-Desuggestion. This means that, in order for suggestions about learning and self-concept to have any effect on student performance, barriers that the students have built up against the tapping of their inner resources must be desuggested. These barriers are outlined by Dr. Lozanov as the critical-logical barriers (no suggestion will be effective that does not make sense to the student); the intuitive-emotional barriers (a suggestion must create a feeling of security and confidence in the student to be effective); and the ethical barriers (a suggestion may not be contrary to the students' ethical principles, if they are to act upon it). This means then, that in order for the students to enjoy learning, to be free from tensions, and to find learning easy, a teacher must devise a learning model in which he can lead the student along to accomplishment. And all of this must happen under standards of high regard for what is right.

A second concept of suggestopedia is described by Dr. Lozanov with the words translated as Authority-Infantilization. That is a poor choice of words because they smack of cultism and dictatorial classrooms. But Dr. Lozanov does not want a classroom-cult or a dictator-teacher at all. The relationship between teacher and student that he desires is one suggested by Earl Stevick in his book, *Memory, Meaning and Method*. He uses the transactional analysis concepts of nurturing parent and natural child to describe the relationship that will be most productive in the classroom. The students would perceive the teacher as one who 1) knows what is expected of the student, 2) knows how the student can achieve those expectations, and 3) is ready to help or to get out of the way of the student's attempts to learn. In such a situation the creativity, intuition and joy of the natural child are freed.

A third key concept of suggestopedia is Double-planeness. This means that teachers' and peers' suggestions to students are rarely simple and straightforward, but instead, they are complex and devious. While a teacher may vocalize one suggestion about a student's abilities, his actions of looking out the window, checking his wristwatch or smiling knowingly to the really bright student in the class may tell that student something else. The teacher using suggestopedia concerns himself with getting all the communications with the students to coincide, and he uses all planes of communication to suggest to students that their inner resources can make them successful human beings in the learning situation.

Dr. Lozanov has told us that the suggestopedic instruction must be global. By this he means that the whole personality of the student must be awakened by the instruction. The class period, the materials, the teacher and the other students cannot touch only the intellect, the aural-/oral senses, the joy or the sorrow, or the high thoughts and the petty interests of the student, but all of them. Stevick reiterates this concept also, when he explains that students remember better if they process the foreign language at a greater depth of personality and memory. Global learning is holistic learning. It means that the rational and the intuitive

natures of the students are both aroused; the cognitive and the affective domains of the personality are touched.

Intonation and rhythm must be carefully noted and controlled by the teacher to arouse the students' inner resources. This means that the presentation of the material cannot be haphazard, monotone, nor poorly paced. Each element of the lesson and each part of the presentation can be most effectively presented by some special intonation or rhythm. The teacher who finds the correct means will awaken the inner capacities for learning.

Dr. Lozanov realized, when he presented these concepts of suggestopedia, that a harried teacher in the public education system is going to be hard pressed to remember all of these concepts and to apply them at precisely the correct moment. Therefore, he developed a model of instruction that incorporates these concepts, but does not seem too far-fetched; one that is applicable with a minimum amount of physical adjustment of the school setting, and insures that the inner resources of the students are tapped. But he also admits that this model of his is not the final word on the suggestopedic session. He also believes that, as a model is used, it probably loses its suggestopedic value for the learners. And since we are probably going to be devising our own models of instruction, he gives us criteria by which to judge whether or not our own modifications are indeed suggestopedic. By stating these criteria, teachers can check their own teaching models and their own students' learning against them, for it may be that many great suggestopedic teachers are already at work in our schools.

Dr. Lozanov maintains that 1) the inner resources of the students must be tapped; 2) the sessions are relaxing and joyous; 3) the students become less aggressive and more cooperative in learning situations; and 4) the sessions are therapeutic.

When I started using suggestopedia in my classes in the fall of 1976, I had read the SALT Manual and was using what I hoped was a facsimile of the model that Schuster, Gritton and Bordon had outlined therein. Their model of instruction followed the model outlined by Lozanov, except that his model was based on a two to three hour session. Since the public schools only allow an hour or a forty-five minute class period, I decided to use a three-day cycle to accomplish the goals of the three hour session. And since our school does give grades, I have used a fourth day each week for testing. A fifth day is often taken up by games, skits, singing, dancing, evaluation of the program or general discussion. I generally have music playing all four days of the cycle.

On Monday, the students receive the material for the week. In the first year class, this consists of fifteen basic sentences arranged in sets of three. These sentences contain all the vocabulary for the unit and they are written so that students can easily visualize the circumstances that give rise to the interchanges of the three sentence dialogues. The dialogues are translated on the second page of the unit. This translation does not follow the patterns of English, but rather the patterns of German. The third page in each unit consists of ten to fifteen sentences.

taken from the basic dialogues, with words circled that can be replaced by other lexical or grammatical items by the students. The materials never tell the students what the substitutions are supposed to be. Instead, the students must invent correct substitutions themselves. The fourth page presents the vocabulary list. It usually consists of twenty to forty words. Three to five pages of conversations follow this list. Half of these conversations review previous chapters' concepts, sentences and vocabulary, the other half pertain to the new items of the present unit. The last page of each unit has several sentences for students to write that point out some manipulation of the language, and a list of Things-to-Do. These Things-to-Do are perhaps the most important of the elements incorporated into the materials, because they are explanations of ways that students may stand up and use the language items immediately with their classmates.

After the students get their materials and put them into their notebooks, they participate in some physical exercises. These stretching and breathing exercises help the students to release some of the physical knots of tensions that have developed during the day. During this time, I remind the students about how well they have learned in the past weeks, and about what they have been learning. I suggest that the procedures we will be using have worked in the past and will work again with the new materials.

I then ask them to sit down and close their eyes and drift along with the music for a few moments. I lead them through some visual images designed to fill their minds with bright colors and remembrances of pleasant past experiences. I also suggest that learning is easy and fulfilling and that they will learn best if their minds are free from interrupting thoughts and anxieties. I follow these suggestions with images that the material for the week should call up for the students. This session of mind-calming ends as I ask the students to keep the acquired feeling of peace and confidence while I read through the sentences for them. They are to open their eyes then and look at the English translations.

After the first reading of the sentences, they are to look at the German sentences while I read them again. During this reading, I remind them what images could be in their minds when they hear the sentences. I read through the sentences a third time and the students read/repeat the sentences after me and ask any questions about the sentences they might have. I often tell them what differences between the Americans and the Germans the sentences point out.

We then explore the vocabulary list together. They tell me how they might be able to remember some of the words and I suggest ways I have been able to remember some words or how other students have remembered them in the past.

By now, about fifteen minutes remain in Monday's class period. The students close their books and their eyes and they settle back to listen to a concert. I ask them to listen to the music and let whatever pictures come into their heads that they want. If the pictures are about the materials, that is fine, but whatever pictures they see are alright. While

they listen to the music, I read the material to them; I modulate the pitch, tone and volume of my voice, so that it fits the musical background provided by the concert.

About two minutes before the end of the class period, I am finished with the material and I end the session by telling them that the words are now firmly implanted in their minds so that they can't fall out. As we work with the sentences for the next couple of days, they won't need to learn the words and sentences, but instead, they will use some old easy phrases. Since they have had this relaxing class period, they will be better able to cope with the rest of their classes. I tell them all learning can be as easy as it is in German. I advise them to breathe deeply a few times and to believe that with each breath they are taking in strength and confidence to meet the challenges of the rest of the day.

The second and third day of the cycle are spent on activities tried in any German class, except that the students already know the words and enjoy practicing their knowledge.

On the fourth day, the students review all the material for the week and then take a test. The test requires them to remember the English equivalents of all the sentences and vocabulary words, to tell what one of the conversations says, and to remember what was said during the week about Germans and Germany.

After using some modified suggestopedic session, the teacher must judge his own model by the criteria set up by Dr. Lozanov. In the area defined by each criteria, I believe, my students have made significant progress.

First, Dr. Lozanov believes that the inner resources of the student must be tapped. This means that students must find themselves learning at a faster rate than they believed possible, find they are better able to communicate with each other in their foreign language, and find they are more creative in their reactions to learning situations.

Of course, students must manifest signs of this tapping of inner resources in order for teachers to validate the claims of suggestopedia. Most of the claims for the speed-up of learning are based on tests of whether or not the students can parrot back a list of words that have been taught to them. While this may be very important in the learning of a foreign language, I think teachers are going to be much more impressed with the results of a new model of instruction, if the students can use the knowledge they have gained to do better on the normal tests of language achievement. (Of course, one must realize that those tests may be exactly what is wrong with the old models of instruction. If they are the culmination of a lot of slow, improper learning, then they will not be valid as the culmination of suggestopedic teaching and learning.)

I have used the California Common Concepts of Foreign Language Test with my students for several years, and so I felt that if students did better on this test after the suggestopedic classes, then it would be proved that they learned at a faster rate. At the end of the 1977 school year, the students performed no worse on the test than their counterparts had in past years. I was not convinced. But at the end of the 1978

school year, the second year I used the suggestopedic model, the mean score on that test jumped six points (on an eighty point test) and the standard deviation had also shrunk.

My second year students have always taken the Modern Language Association Cooperative Test in German - Form LA. Last year was the first year that the second year class had used a suggestopedic model and I did not have the materials fully developed. I was pleasantly surprised when the class did no worse than the previous years' students. They even did better in some areas. But, this year, I believe they will do much better in May and experience a significant increase in test scores again.

On the unit tests, designed for the students by the teacher, and following the principle of checking to see if the students have memorized the material, eighty to ninety percent of the students consistently get ninety to one hundred percent of the questions right. Students feel very good about their abilities when they perform that well on tests.

But test results alone will not tell whether the inner resources of the students have been tapped. Tests will not show the spontaneity and creativity with which the students interact with one another, but some of the activities that students have carried out with one another will.

After a unit on sports in second year, we had a volleyball game and used no English as we yelled cheers and friendly insults to one another. After a unit containing a rhymed story by Wilhelm Busch, these same second year students constructed a rendition of his story in rhymed iambic tetrameter. First year students made a video-tape of themselves performing scenes from the fairy tale, *Little Red Riding Hood* . First year students also exchanged ersatz travellers checks for ersatz money and bought clothing, tourist trinkets and necessities from one another. Third year students memorized, produced and performed an operetta of Rumpelstilzchen in ten class periods. These same students used water colors (for the first time since third grade) and produced commendable pictures based on the story of *Der Fischer und seine Frau*. Second year students produce newspapers, write letters home to Mother and write invitations to one another. The list of activities goes on and on. These activities are done during class time. Students don't complain about their lack of ability. They help one another produce their diverse finished products. I feel that their spontaneity has been awakened again and that their creativity has been tapped.

Dr. Lozanov's criteria for suggestopedic sessions also demand that the sessions be relaxing and joyous. There is no way that I have to test this, but I know that I have had classes that appeared to be bubbling, or even flashing, with excitement. But I knew that this frenetic activity was anything but relaxing, and that rather than being a manifestation of joy, it was probably masking anxieties that the students harbored about abilities. Now my students enter learning situations, confident that they will be able to learn what they will be expected to know, and that the situation will expand their personalities. That confidence is the basis, I believe, for joy.

Students find it difficult to not be aggressive in the situations of

high school learning, unless they have been the targets of aggression for so long that they have decided to be apathetic. And teachers, too, expect their students to compete with one another, so that winners will win good grades and losers won't learn. What a change it is for the students to be in a class where they are asked to support their comrades, give everyone a chance to learn and to show what has been learned. It is often several weeks into the course before students really decide to share instead of hoarding their knowledge; they share of themselves instead of protecting themselves against the encroachment of others' personalities; before they convince themselves that school is cool instead of a place to vent hostilities. f protect themselves against the encroachment of others' personalities; before they convince themselves that schoo! is cool, instead of a place to vent hostilities. But these things have happened in the suggestopedic classes.

Dr. Lozanov's criteria have been met. But one factor he did not mention, which ought to be used in judging the sessions, is that the teacher becomes a teacher again. It has been thrilling to prepare for each day, knowing the students are going to want to learn what the teacher has to offer and that they will, given time, eagerly accomplish any task.

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La Suggestopédie dans un lycée américain
Dans ce mémoire présenté au congrès de l'ACTFUL en 1979, l'auteur explique de manière très détaillée l'utilisation de la Suggestopédie dans un cours d'allemand au niveau secondaire. L'auteur trace aussi les grandes lignes des principes de base de la méthode.

Suggestopädie in einer amerikanischen höheren Schule
Der Gebrauch von Suggestopädie in einer Deutschklasse an einer höheren Schule wird in diesem Vortrag, der bei der 1979 SALT Tagung gehalten wurde, ausführlich erklärt. Der Verfasser skizziert auch einige der Grundbegriffe von Suggestopädie.

Sugestopedia en una clase de una escuela superior estadounidense. - Este reporte del autor a la conferencia ACTFL 1979 explica en gran detalle el uso de Sugestopedia en una clase de aleman en una escuela superior. El autor también delinea unos conceptos básicos de Sugestopedia.

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Optimizing the Presentation of Classroom Information

Giselher Guttman
Boltzmann Institute for Learning Research, Vienna

Abstract

In this 1979 SALT conference speech, the author reviewed the research work at the Institute in optimizing how information is presented for best learning. The original work was done with subjects learning one at a time in the lab with electroencephalogram (EEG) brain wave and brain DC voltage studies of cortical arousal or activation. While an optimum schedule of alternating and repeating both activating and didactic information was found in the lab, the associated electronic equipment was not suitable for large scale use in public school classrooms. Accordingly, research proceeded successfully to substitute imagery, gymnastic exercises and music to control activation level of students in the classroom appropriately. Four repetitions of this cycle have been found best in classroom learning: 3-5 minutes of decreasing activation followed by 5-7 minutes of teaching (didactic) information.

On the very moment when information is perceived and the person ready to handle information is my area of research. I have been busy in the study of learning for many years and we have seen that it seems to be important in looking at this information presentation phase to see what is going on just before presenting the information, and on the other side looking for the next step after having presented the information.

The information unit, to be presented and learned in an optimum manner, has to be prefaced by an information unit a few minutes before the new material, with a consolidation unit coming just afterwards. The important thing is shifting information from short term memory to the long term memory. This consolidation phase takes a lot of time, as sophisticated experimentation has shown an effect up to 4-5 days after learning. The main research we were interested in was what psychology calls "activation level". Every person is, more or less, awake all of his life. His level of consciousness, readiness to respond, shifts from being awake to falling asleep. This activation level, or arousal level, shows slight mutations; we are sometimes a little more active and awake, and sometimes a little less activated. Research in these slight activation level changes can only be done if you have a very good indicator for activation level. You know there are always things like muscle tension or psychogalvanic skin resistance changes. We have tried electroencephalogram brain wave analysis where the conventional method shows changes in activation level during a normal everyday life situation in changes of frequency or amplitude of brain waves. Now consider a person listening to an interesting paper, seeing a short total blackout slide, and getting awake again. The higher that activation level, the faster and smaller the brain waves drop in frequency or amplitude. What we first tried ten years ago, and it yet works very well, is to use a special purpose

computer with fast analysis which enables us to see not only big changes of activation level, but also very slight changes of activation. These studies have shown us surprising results, and maybe that's one of our models which differs a little bit from the conventional suggestopedic method. To say it in one sentence: For most problems of information processing, it is best to have the person beforehand in a relaxed state and change to a higher activation level during the few moments that you present information.

May I give you an example? For illustration, we used a learning experiment with two pairs of subjects and registered the brain waves on line during all the experiment. In such a situation, of course, each person would show slight changes of activation level, sometimes the activation level goes a little higher and then drops again. Our machine triggered the stimulus and the syllable to be learned when the arousal level dropped a little bit. So we can have a teaching machine which is controlled by the brain waves of the person learning our material.

What I would like to show you now is frequency of the brain wave, and their average amplitude over the period just before presenting the first stimulus vs. the second slide; you can see differences are very slight. One person is not just going to sleep while the other is awake. They are both highly activated, but one is a little bit more activated than the other. Now the stimulus comes and they both have to learn the word. You see that at the moment of presenting the stimulus, both are activated at the same level; the stimulus wakes the less activated person, but one second later they differ again. To tell it once again, it's only a very small and microscopic difference of activation level between the two people. The subject presented with the nonsense syllables during the less activated state is much worse in learning than the other subject, by more than four times, for the material presented. During presentation of information and learning new material, it is obviously necessary to activate a person to get him out of his less activated state.

Now a much better way of studying such microscopic changes of activation level has been shown to be cortical evoked potentials, the sensory process correlated with a certain specific psychic process. For instance, if you have a person in a dark room without any stimulus and without any noise and you make a short click, it is possible to analyze the resulting brain waves and correlate them with perceiving the click. Thus, we can now check, for instance, hearing ability without verbal communication. It's not necessary to give quiet tones to a person and ask if the person can hear the tone or not. Now we can test a person's hearing without verbal communication. We just look at the brain waves evoked by the click stimulus, and see if a response exists physically. If the person cannot hear the stimulus, no potential is evoked. When the stimulus reaches the limit, a person says, "Yes, I am just hearing it." and a small evoked potential develops in the brain. The amplitude of the evoked potential is highly correlated with the perceived intensity of the stimulus.

We have tried this method also in other fields of perception, for

instance, optical evoked potentials. With different letters which become smaller and smaller, at the very moment the person is not able to read, you see the change in the evoked potential.

The sensory evoked potential, as far as we have seen, is really a correlate of subjective experience, and not the stimulus in the brain; it's how we perceive the stimulus, it's what conscious experience tells us. Changes of sensory evoked potential occur when activation level is shifting, and it's obviously one of the best indicators of changing activation level. For instance, if the same stimulus will be given repeatedly every time, like a clock going tic-toc, the person soon cannot hear the tone. Inhibition sets in and the big potential orignally evoked will get smaller and smaller. maller. If we set one stimulus out of the time order, a little bit earlier or later than expected, the potential is evoked full strength again. The slightest changes of activation level which influence our perception can be seen in the sensory evoked potential. A very strong connection exists between activation level and performance in every field, whether it be a simple motor task or problem solving on a very high cognitive level. Low activation level means low performance; higher activation level means better and better performance, but then the inverted U-shaped function comes into play. Performance drops again from too much activation; this means worse performance. The problem is to find, for a certain task, the optimal range of activation level. Before presentation of information to be learned, we should bring the person to this part of the activation curve.

Well, how can this be done? For some years now, we have not used the frequency of the brain waves, but we use the next step which is activation itself, the DC level of some certain cortical regions. It's hard to get such recordings because you need special electrodes. It takes some time before you can be sure what you see is really a cortically perceived potential and not an artifact from the amplifier. We learned the technique, and now it is possible to obtain a very good indication of the low level DC potentials of any brain area you wish to observe. If you want biofeedback, this DC level is the fastest way to give a person information of how activated he is at some moment and also to give him an indication to change activation level in one or the opposite direction.

Most of the work done by us has been in the field of psychology of sports. We have a lot of problems with lots of mountains, skiing and ski jumping, and there are some specific problems of activating our sportsmen. There it is possible to give a person a tool for changing these activation levels in a very short training period, using these very sophisticated methods. For instance, we use a tone which is correlated with the perceived potential, and as the potential activation gets higher, the higher the tone becomes. We just tell our subjects, "Try to keep the tone deep or high." After twelve repetitions, you see learning starts, and after thirty repetitions, the perceived potential has shifted 100 microvolts. The next time, we change the instruction to make the tone deeper again. You must consider that the poor person does not know what to do, but can do it anyway after some few seconds; the cortical potential has changed

again about 80 or 90 microvolts.

This is not a cognitive process. It could be the person starts to have some exciting imagery or something else. Is it a conscious act, is it an attitude, or is it some real brain mechanism? In our animal experimentation, our subjects have these electrodes for five and six months, implanted without irritating the nervous tissue. As with humans, it's a basic physiological process; DC potentials can be conditioned by instrumental conditioning and you have a very direct way to influence the activation level experimentally.

We did some DC biofeedback with a few persons in the classroom, but that's not the way to do classroom work. So we looked for a different method. Well, you must not laugh--Lozanov has done a lot of work in the classroom, but it takes too much time and too much equipment. So we were looking for a method which gave nearly the same result and is practical in the classroom. The best way to manage it is to get the right change of muscular tension and relaxation. We developed a model of classroom instruction. The children first became activated, as desired, with a proven method of muscular tension. The most important point is the change between tension production for three or four minutes, to the deactivating phase in the preparatory period. For deactivating, we now use music. The children are trained to imagine a situation, and after a few seconds, music starts. After one or two minutes, we have the level of deactivation we need and, at this moment, the learning information unit begins. Another type of music starts for what may be mathematics or spelling. The child knows that it is coming on and, in a few seconds, is in a higher level of activation. The children are, for a few moments, on the same common level of attention and activation. Then, the second unit starts and imagery is used. We have learned that it is very important to start, stop, and break, and then repeat.

Our work in the classroom tells us that consolidation of new information takes hours and even days. Transfer to long term memory changes the structure of brain tissue in the cortical region; the total tissue shows a thickening of about 1/10th. Increasing brain weight by about 10% means our brain is not a stable switchboard; our brain is more similar to a muscle which can grow after training. These growing processes, as we know from biology, need a lot of time. It's very important in the first phase of consolidation to have no other operating influence. The best thing would be to sleep. That's impossible in the classroom, so we use some information very dissimilar to the first information. Let's say after mathematics we make some music, or have some reading. The important thing is to find the right schedule for timing.

We all know very well the work of Ebbinghaus, who showed the curve of forgetting which differs, of course, depending on the material one learns. If new material is presented, let's say after a half-hour, 50% is forgotten and, after one hour, you only remember 25%.

What can be done against this forgetting? Well, the only thing is repetition and you should select the scheduled points in such a way that you will return this curve of forgetting back to the original level of

learning. Thus, after five to ten minutes, we start the first repetition and again reach the 100% level. Of course, some of the information again will vanish, but the function will show a lesser decrease and the next information will bring learning back again to the 100% level. The time schedule, of course, will depend upon what you are training, how long the frame was, how much information was given in it, and so on. The model can be used in any field or work; you will have only to see how much time has to be spent for the new information unit and what is the optimal timing for breaks and repetitions. For our classroom work, we have worked out one standard unit which can be used for any information we present in elementary school. The best timing for breaks and repetition was a schedule of four repetitions.

Instead of looking only at the informational unit, we start with the preparation unit to find the optimal level of activation. Assume that the optimal level is found, then the informational unit starts like programmed teaching, a few minutes for one frame of information, then the consolidation phase, a short break, repetition, another break, second repetition, another very long break, third repetition, another very long break (maybe the next day in some cases), and finally the last repetition. This seems to produce the best learning effects. The model can be used in almost any field we have tried. It makes no difference at all for the model if you use it in the elementary school, in management training, or in a school for getting a driver's license. You must find just the right information unit, not too small, not too big, and you must find the right timing for your breaks and repetitions.

Now maybe you will tell me I am at the wrong conference, that what I am talking about is not suggestopedia. I might agree, but on the other hand, we have found many similar results in suggestopedia. I started from a very different point of view as a biologist; I am interested in brain waves and brain wave shifts. Most of our results are like yours. Some things may differ a little bit, but that's not a pity. Lozanov has such a lot of wonderful ideas that it's a living system. Everything alive should change and develop. Therefore, I am very glad that you invited me to speak at this wonderful conference, and that I have had the opportunity to present and discuss our results with pleasure. Thank you very much for listening.

Questions

Q: What's this talk about a DC level? What do these letters stand for?
G: Oh, I'm sorry about all this Chinese research. DC means direct current, the opposite of alternating current. If we look at the brain of a person being more or less activated, there are changes of the cortical average DC potential. When the attention shifts toward a stimulus, where you instruct your person, "Now look, something will go on," you can see the change in DC potential on the brain. Changes in DC potential are highly correlated with the conventional EEG brain wave changes;

being less activated means big, slow waves and becoming more activated means coming up with small and high frequencies. So far, we think the cortical DC level is a very good indicator for activation in a certain cortical region and we find this good also for slight changes in activation levels.

Q: Have you been using these techniques of repetitions and timing in adult language learning classes?
G: It started in management training, but the real work I am speaking about has been done in elementary school with children from 6-10 years old.

Q: The preparation of the activation information could be done without DC brain monitoring?
G: Well, as far as I have seen, it cannot be done without any help of some kind. In the psychology of sports, if you ask a person, "What is your activation--how do you feel?". one will answer, "I'm highly activated, I feel anxious and nervous." If you look at some physiological indicators, maybe you will find he's very right. It's the optimal range that's important. Another one will say, "Oh, I would like to become more activated." You will see that maybe he is this way. That means we have obviously no sense, as human beings, for how activated we are. The first thing we need is information on what's going on and that's the first thing the person needs to know. These classroom gymnastics do not produce information, but they produce a standard level of activation; most pupils are on the same level. Perhaps a better way of changing the activation level is biofeedback. Then you will have individuals' shaping their activation level, but for probably five or ten it didn't work at all. It makes a lot of trouble for the teacher and students, and more classroom changes than in a laboratory. That's what we do not like. This sort of gymnastic exercise produces something like a standard activation level and you know very well what this level is.

Q: I was wondering if you have a list of procedures that you follow in class?
G: Well, I have such a list and we can send it to you. I did not tell you anything about these exercises and gymnastics worked up by the teachers. It takes about two to four minutes with a well-balanced design, which produces the very level of activation we need.

Q: I think I missed your definition of activation; does that mean stimulation of the brain or physical activity?
G: Well, I just took the term as Duffy used it in psychology. Nobody tells us whether he means the cognitive level, the behavior level, or the physi-

ological level, but I think that is very good because activation in this sense is exactly everything] If you look at activation on the cognitive level, you will probably be awake, showing high concentration, focusing attention toward some certain thing, and on the behavioral level, high muscle tension, and on the physiological level, you will see that almost every function which is able to change will change. The temperature of the body, the biographic activity, the activity of the smooth muscles, the stomach, blood pressure, heart rate and brain waves and, last of all, DC level. So, I think activation in this broad sense is just being more or less awake, ready to react, ready to respond to this big dangerous stimulus reaching us and arousing all our energy.

Q: Can it be cognitive or physical?
G: Yes, and I think there are different points of view on this, but it's about the same thing; arousal level, level of activation.

Q: It would seem hard to measure that, because you can be very active cognitively and very inactive behaviorally at the same time.
G: No, that is not what I have seen. We find a wonderful correlation between all of these levels, but you can have a more or less generalized activation and that's the problem. We see this also in the DC level. There are certain combinations which show that one hemisphere will become completely dominant, that means generalized activation. In other conditions, a very small part of the brain will become activated. Therefore, it is possible we will find these activation changes on the cognitive level attached to a stimulus on the psychological level, as well as finding the DC potential in the region prepared for the stimulus.

Q: How does music affect activation level?
G: Well, I think these things maybe are dependent upon your experience. Not everything could be transformed from Bulgaria to Austria. We have no research with this rhythmic stimulation or stimulation by their own heart beat. We did not find any differences between certain patterns of music. I would like to say music is in our model only as a stimulus to produce less activation or more activation, or as a differential stimulus starting the next information unit. I think it is dangerous to expect more than these basic inferences, and we use music only as one of many tools for exerting influence on the activation level of our subjects. We have tried lots of music pieces and found out the pieces which are good for activating and deactivating. I think this work has to be done in every country with different music. I also think this work has to be done every couple of years because things are changing

Q: Do you have specific lengths of time that you take the children on a guided visualization? Are there any specific types?

G: Imagery showed up as a very good technique. Our information unit must not be longer than five to seven minutes.

Q: Oh, the information unit must be five to seven minutes?
G: Yes.

Q: Even the longest information unit?
G: Yes, even the longest information unit.

Q: Do you use guided imagery in the information unit?
G: We use guided imagery also in the information unit of a different type.

Q: Is it somehow connected with the information?
G: Very much so.

Q: Did you view the guided imagery as a first exposure to new information or as a repetition to it?
G: Mainly for the first exposure, but also for the first and second repetition, but most important to us, as you say, in presenting new information.

La meilleure façon de présenter l'information dans une salle de classe
Dans ce mémoire présenté au congrès de SALT en 1979, l'auteur a passé en revue les recherches de l'Institut sur la présentation d'information pour le meilleur apprentissage. Le premier travail a été réalisé avec des individus dans un laboratoire sous enregistrement électroencephalographique des ondes cérébrales et des études DC de l'activité corticale ou de l'activation. Alors que l'on a découvert en laboratoire un rhythme pour l'alternance et la répétition de l'information active et didactique, l'équipement électronique s'est révélé impossible à utiliser dans les salles de classes publiques. Ensuite, on a poursuivi convenablement et avec succès les recherches sur la substitution des images, les exercices de gymnastique et la musique, afin de contrôler le niveau d'activation des élèves. Il a été préférable de répéter ce cycle quatre fois: 3 à 5 minutes d'activation diminuée suivi de 5 à 7 minutes d'enseignement didactique.

Optimale Gestaltung von Information im Klassenzimmer
In diesem Vortrag für die 1979 SALT Tagung gibt der Verfasser einen Überblick über die Forschung am Institut in Bezug darauf, wie die Darlegung von Information für das beste Lernen optimal gestaltet werden kann. Die ursprüngliche Forschung wurde mit Versuchspersonen ausgeführt, die zu einem im Labor mit Hirnwellenbild (EEG) und Hirngleichstromvoltauntersuchung der rindigen Erweckung oder Aktivation lernten. Obwohl ein optimaler Plan des Wechsels und der Wiederholung von aktivierender und didaktischer Information im Labor gefunden wurde, war die damit verbundene Apparatur zu einem weit verbreiteten Gebrauch im Klassenzimmer nicht geeignet. DemgemäB hat man in der Forschung

mit Erfolg bildliche Darstellung, Gymnastik, und Musik ersetzt, um die Aktivationsstufe der Studenten richtig zu kontrollieren. Eine viermalige Wiederholung dieses Zyklus hat sich für das Lernen im Klassenzimmer als das Beste erwiesen: nach 3-5 Minuten der abnehmenden Aktivation 5-7 Minuten der didaktischer Information.

El optimizar de la presentación de información en la aula. - En este dicho de la 1979 SALT Conferencia el autor revió la investigación al institute en el optimizar como la información se presente para el aprender mejor. La obra original se hizo con sujetos apriendo solosen el lab con estudios de ondas del seso (EEG) y DC voltajes del seso sobre el excito cortical e activación. Mientras que una cédula óptima del alternar y repetir información didáctica y del activar se descubrió en el lab, el equipo electrónico no fue proprio por el uso en gran escala en la aula pública. Por eso la investigación procedió con éxito substituir la imaginería, ejercicios gimnásticos y música para gobernar el nivel de activación de estudiantes en la aula propriamente. Cuatro repeticiones de este ciclo se han hallado el mejor en el aprender en la aula - 3-5 minutos de activación que se disminue con unos 5-7 minutos siguientes de información didáctica.

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Supplementary Report on the Austrian Experiment with Suggestopedia in Elementary Schools

Franz Beer
Boltzmann Institute for Learning Research, Vienna

Abstract

Progress in using suggestopedia experimentally in elementary school instruction in Austria is presented. Work from 1974-1979 is summarized, showing some academic acceleration. Associated problems are discussed along with plans for future expansion by the author in this, his 1979 SALT conference paper.

In the Spring, 1978, issue of the SALT *Journal* appeared the first information on an experiment with suggestopedia in elementary school instruction in Austria. This experiment began in 1973 at the Ludwig Boltzmann Institute fur Lernforschung (Ludwig Boltzmann Institute for Learning Research) under the direction of Dr. Franz Beer, with the close co-operation of Dr. Georgi Lozanov. Dr. Beer also gave this well-received presentation on the experiment at the 1979 SALT convention.

The experiment is continuing, and, in order to inform our readership fully, we present the following information condensed from a report by Dr. Beer and received in 1979. Overlap has been avoided, and the reader is referred to the article already printed for background informatio (Beer, 1978).

Additional Information on the Experiment

A summary of the experimental classes that have been conducted shows: 1974-75 - one first grade class in Vienna; 1975-76 - one second grade class in Vienna; 1976-77 - one third grade class in Vienna; 1978-79 - two first grade classes, a second grade, and a fourth grade class in Vienna and two first grade classes in schools in Linz, Austria.

While an accelerated reading performance was initially reported, Dr. Beer stresses the fact that this was not just an act of mechanical reading, but rather that the majority of the children were reading with genuine understanding. However, at the end of the first year, children in the control class taught with conventional methods had attained this reading level as well.

In spite of a weekly reduction of two hours in mathematics instruction in the fourth grade, there was, during the four years of the experiment, a cognitive and performance acceleration of one year. Thus, the material to be taught in five years could be completed in four. The two hours gained by the reduction in the time scheduled for mathematics

were used in the first semester for work in music, and in the second semester the time for instruction in English was increased from one to three hours.

There was no increased performance in oral or written language; however, no special suggestopedic program was introduced for this area.

There were difficulties in developing and acquiring the materials for instruction. For the second to fourth grades, there were no materials available in German although, according to Dr. Lozanov, such material was available in Bulgarian. There was, however, no means available for translation. Upon the urgent request of Professor Lustig, a participating teacher, a Bulgarian mathematics book for the second grade was obtained in May of 1978. Dr. Beer notes that it has not yet been possible to develop, in co-operation with Dr. Lozanov, a curriculum employing suggestopedia for all subjects at the elementary school level.

Opinions of Evaluators

The principal of the elementary school where the suggestopedic instruction in Vienna was conducted, Karl A. Dostal, reported upon the experiment in a letter of May 31, 1978, addressed to the Austrian Office of Education and Art. He notes the increased attainment in mathematics, but raises the question of whether this is to be attributed to the methodology or the fact that more material was presented. He also notes that there was no difference at the end of the fourth grade in language arts (German) skills, although the experimental group did register a modest increase in knowledge of grammar and the understanding of texts. His remarks were based upon personal observation. Doubt about the general application of the experiment is expressed because it is greatly dependent upon the personality of the teacher and is very costly.

Professor Inge Lustig, having worked with the experiment for two years, commented that there were difficulties with the limited direction given by Dr. Lozanov She is also critical of a lack of scientific comparisons and controls. After restating the outcomes of the experiment, Professor Lustig indicates that the amount of material learned nonetheless supports the effectiveness of the method. One must consider the amount of material to be presented along with the very important question of using the time gained. Her recommendation is that it be used for foreign language instruction. Whether the experiment is generally applicable, she does not know, but she strongly recommends reconsideration of the mathematical curriculum design based upon objective scientific observations rather than pedagogical assumptions. Moreover, she strongly urges that the basic principles of suggestopedia be included in teacher training and in-service training. These principles may give the teacher a new self-understanding which would be important for the psychological health of the teacher and the instruction as well. For these reasons, Professor Lustig believes the experiment was worthwhile.

Dr. Ingeborg Messerer adds in her evaluation that there was no no-

ticeable decrease in performance when a five-day school week was introduced. All children who began the experimental first grade class completed the school year. (In Austria, children not considered ready for first grade are released for the school year, and this is generally about eight percent of the children.)

Future Plans

Since 1975, support has been requested on the part of Austria for the following proposals: 1) language courses in the elementary and secondary schools and 2) language courses for those majoring in English and seeking certification for high school teaching. In spite of urging from the Austrian side, the language instruction for elementary and high school students has been postponed and was not able to be conducted in the school year 1978-79. There is no Bulgarian plan for the language courses at the post-secondary level. The foreknowledge is too great in this instance.

Language Courses for Adults

Professor Lozanov has conducted language courses on a private basis for the Central Savings Bank and members of the Vienna State Opera. For the members of the First Austrian Savings Bank and the Central Savings Bank of Vienna, two four-week courses and one fourteen-day complete Italian course were held. The first portion completely fulfilled the expectations of the participants and the organizers. However, because the first part had been postponed from February, 1977, to May, 1977, the second portion did not take place until fall, 1977. At that time, a number of the participants were still on vacation. In addition, there was a conflict between one participant and Dr. Lozanov. Explanations about the method, requested by the participants, were given only reluctantly. Due to professional obligations and decreased motivation, only three persons participated in a third portion.

Modified Experimental Plan

The continuing experiment will concentrate upon establishing an empirical base for a more psychotherapeutic view. The goal is to optimize, in the teaching and learning process, the most recent developments in perception, learning, motivation, and social psychology. The goal can only be attained through the application of the basic principles by well-trained teachers and with continuing scientific control of the experiment. The guidelines may be divided and summarized as follows:

1. Consideration of all known biological laws of formal learning, such as thinking and learning blocks, and the relationship between activation and performance,

2. early recognition and consideration of individual learning styles,
3. optimal presentation of all content material,
4. optimalization of mnemonic strategies, and
5. self-activation of the children through inclusion of such aspects as parental involvement and control of social interaction.

(Editor's note: We look forward to continued information on this extensive experimental effort.)

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Beer, F. Suggestopedia in elementary school. *Journal of SALT*, 1978, *3* (1), 21-37.

Un compte rendu supplémentaire sur l'expérience autrichienne de Suggestopédie dans les écoles élémentaires
Dans ce mémoire présenté au congrès de SALT en 1979, l'auteur montre le progrès accompli en utilisant la Suggestopédie de façon expérimentale dans les écoles élémentaires en Autriche. Il présente un résumé du travail accompli de 1974 à 1979 qui fait preuve de l'amélioration de la situation scolaire. Il aborde des problèmes connexes et ses projets de développement futur.

Ergänzung über das österreichische Experiment mit Suggestopädie an den Grundschulen
Der Fortgang mit dem experimentellen Gebrauch von Suggestopädie in dem Grundschulenunterricht in Österreich wird dargelegt. Die Arbeit von 1974 bis 1979 wird zusammengefaßt, und etwas akademische Beschleunigung zeigt sich. Die damit verbundenen Probleme samt Plänen für eine zukünftige Erweiterung werden in diesem Vortrag, der bei der 1979 SALT Tagung gehalten wurde, von dem Verfasser diskutiert.

Reportaje suplementario de la investigación de Austria con Sugestopedia en la escuela primera. - El progreso en el uso de Sugestopedia experimentalmente en la instrucción en la escuela primera en Austria se presente. La obra de 1974-1979 se resume con alguna acceleración académica. Problemas asociados se discuten por el autor con los planos para la expansión futura en esto, su papel de la Conferencia de SALT en 1979.

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Teaching Reading with Stories vs. Cognitive Hierarchy

Renee Fuller, Ph.D.

Abstract

Suggestopedia emphasizes the use of interesting stories as vehicles for teaching classroom material such as reading or arithmetic. Independent support for this notion comes from the work of the author in teaching reading via stories in the Ball-Stick-Bird method

A few years ago at this meeting as part of a symposium on the Ball-Stick-Bird reading method, several of us presented data on the unexpected success of the method in teaching severely retarded students to read with comprehension. Unexpected as these results were, what was even more surprising was that they were achieved with a system intended for the superior - not the retarded. Although Ball-Stick-Bird simplifies the mechanics of reading in a number of different ways; for example, by showing how each letter of the alphabet can be made with three basic forms - a circle (ball), a line (stick), and an angle (bird), it emphasizes the abstract process of comprehension. Word building begins with the presentation of the second letter, and the stories start after the fourth letter. To deal with the vagaries of English spelling, the student is taught "code approximation". He is told that the letters of the alphabet represent a sloppy code. The only way he can be sure of the exact sound of a particular letter is to see if it makes a word that is sensible in the sentence or the paragraph. "Code approximation", in 20th century jargon, requires intellectual feedback (Fuller, 1975, 1974).

The method had been designed for superior children who, however, have poor auditory and visual memories, along with a superior capacity for abstraction. The method was therefore considered beyond the intellectual capacity of the retarded. Only by chance was it tried on a retarded population.

It all began when we tested the alphabet innovation on a group of severely retarded subjects who had been exposed to a multitude of reading systems but who, in spite of every type of intervention, had not learned even the alphabet. Not unexpectedly, we found that teaching the alphabet by showing how it can be composed with the three basic forms did indeed produce more learning than usual procedures. This is where I expected the experiments to end.

But the psychologists who had done the alphabet experiments, being young and inexperienced, wanted to try the complete method, including "code approximation", on a severely retarded population. For a whole year, they lobbied before I agreed - restricting their experimentation to three patients. Much to my surprise, but not to that of the inexperienced

psychologists, the three retarded subjects, and the many subsequent ones, learned to read with comprehension and changed cognitively. The success of subjects with Stanford-Binet IQs as low as 20 has been repeated again and again. These data raise profound questions, not only about the validity of IQ tests, but of the intellectual hierarchy implied by their sub-tests. The results of the original experiment have been reported in detail elsewhere (Fuller, 1977, 1975).

Early in the experimentation, it became apparent that "code approximation", rather than being excessively difficult for severely retarded subjects, was the main reason for their success. The contextual material, the stories, functioned to anchor the "bits" of information, and seemed to help in their intellectual cohesion. The stories had not only motivational value, in that they were high-interest material, but they made it easier for the subjects to understand what they had to learn and why. Reading came to resemble a game for which they were being given the rules in the process of playing. This allowed considerable implicit, rather than explicit, learning.

The subjects, however, were very explicit in their understanding of the stories. They told us, in detail, what they had read. Testing further demonstrated the importance of in-context material. Tests in which words were embedded in a sentence had significantly higher scores than tests where the same words were presented in word lists. This was especially pronounced for the very low IQ subjects. Once a retarded subject had learned to read stories with comprehension, he was also able to follow written directions. Given those results, it is curious to note that the importance of in-context material is all but ignored by the IQ tests. There are some interesting historical reasons for this oversight.

When IQ tests were first developed at the beginning of the century, their intent was to predict school success. To do this, Binet and Simon (1905) took task segments which were descriptive of the skills needed for school success. Because the techniques of turn-of-the-century education emphasized rote and segmental learning, the IQ sub-tests sampled this type of skill. Now more than half a century later, the tests continue to do so with relatively little change (Terman, Merrill, 1960; Wechsler, 1944). The most usual test items are disconnected segments such as digit span, memory for sentences, vocabulary definitions, isolated information, etc. Characteristic of these tasks is that they are out-of-context. The child, in order to perform them successfully, is not asked how things relate to one another, to make a story out of them. Some psychologists, for example, Kagan (1963) have discussed the implication of these skills for individual cognitive style.

Although IQ tests have been credited with successfully predicting school performance, this success or failure has not always correlated with later academic performance. There are outstanding exceptions such as Darwin, Einstein, Alexander, Patton, Churchill, and a host of others who performed poorly in school, but whose intellectual achievements later in life were outstanding. Perhaps the reason these geniuses had difficulties in school was because they were called on to perform

segmental tasks that are out-of-context; tasks that are similar to the items on IQ tests. Although these geniuses differ one from the other, they have in common an ability to make sense out of the world, to make a story out of what is going on. Einstein's laws of physics and relativity tried to tell us the story of the universe. Churchill made the history of the Second World War his story.

When IQ tests were first developed, they sampled current educational techniques. Since turn-of-the-century education rarely used in-context material, the tests tapped the segmentalized skills and knowledge needed for school success. With Spearman's (1927) claim that the tests measure "g", or general intelligence, the test items, by implication, became descriptive of the construct "intelligence". The growing importance of IQ tests in mass education has popularized "IQ" and reified it, (Anastasi, 1935; Tryon, 1979). The tests have thereby perpetuated turn-of-the-century teaching techniques. Schools frequently try to teach the skills that students need to do well on IQ tests. This means they teach the segmental skills and knowledge that appear on the tests. They do not use the story method which taught our severely retarded subjects to read and which might even have made Darwin and Einstein into school successes. By continuing segmental teaching, modern education has frequently made the IQ scores self-fulfilling prophecies. Because the same skills are required in school as on the tests, the two correlate highly with one another. However, as our results have demonstrated, when you change educational techniques, the correlation between test and school performance can break down.

Although ignored by IQ tests, story comprehension appears surprisingly early in child development. By the time a child is two, he begins to follow a story. Is his budding capacity to understand a story the development of intellectual cohesion? Is this new imposition of structure on his environment the reason why he has a sudden spurt in vocabulary? Before story comprehension takes place in a child, his vocabulary consists of four or five isolated words. Then, almost overnight, his vocabulary explodes and he starts to make sentences, even if they are only two-word sentences. He now tries to communicate with words, to impose a structure on reality. The structure he tries to impose takes the story form.

Even among the retarded, there rarely is someone who cannot follow a story. There were two such students in our study. They were our two failures. Ned and Gordy were not able to follow a story, they remembered little about their own lives. Although they did not have the lowest IQs, verbal communication in the sense of telling us what had happened was all but impossible for them. And yet, Ned performed surprisingly well on the Stanford-Binet. His IQ of 63, one of the highest in the study, was achieved because he had been able to master some segmental facts and skills. But he was not able to function with these facts and skills. There is, of course, another type of patient, the schizophrenic, who frequently has the same inability to follow a story. And like Ned and Gordy, their IQ scores are also not descriptive of their level of

functioning.

Although Ned and Gordy were not schizophrenic, their interaction with people and environment was on a much lower level than patients with lower IQs. The two had something else in common. Both had almost continual petit mal seizures. Perhaps the repeated electrical discharges prevented the neurological traces from being set down which would have made it possible for them to impose the story form on reality.

Advertisers have long known the effectiveness of the story, even for toddlers. But rarely have psychologists or educators shown such awareness. Had I had such awareness, I would not have been surprised when "code approximation" was effective at lower levels of development. Serendipity showed that story comprehension, which most of us would label at least for the "normal", was indeed a basic form of cognition.

The cognitive hierarchy assumed by education, IQ tests, and the construct intelligence, has its roots in the history of our science. The Cartesian conceptualization of learning, later modernized by the Mills, and more recently by S-R psychology (Boring, 1952), sees intellectual functioning as built by pieces of segmental learning which, in themselves, are without meaning, and have no cohesion. In spite of the work of David Katz (1948) and later Jean Piaget (1970), and now by many in this country, some of whom are on this panel (Elkind, 1971, 1969; Hilliard, 1975; Hunt, 1961), IQ tests and education operate as though cognition requires that small segments, "bits" of information, must first be learned before their totality can be understood. Laboriously mastered segments are expected gradually to make a whole which may be reading a story, or anything else. A corollary to this is the assumption that "bits" of out-of-context material are easier to learn, are earlier in child development, than the later capacity to see things and to comprehend them in context.

One of our first subjects, Hal, demonstrated the importance of context to cognition. Hal's diagnosis was central cortical blindness which manifested itself in graphic aphasia. In other words, he had difficulty perceiving the "bits" of information required for reading. When you showed him two letters side by side and asked him if they were the same or different, he frequently was not able to answer correctly. As a result, his memory for letters was abysmal.

We took Hal on in our original study to see if his capacity to follow a story would bridge the cognitive gap involved in his inability to recognize the letters. Much to our surprise and delight, Hal did learn to read with comprehension. But even after he was reading fluently, when we showed him the letters of the alphabet separately, he frequently was not able to name them correctly.

Hal's case shows that the original conclusion of Gelb and Goldstein (1920) for traumatic cortical injury should not have been so restrictive. Their patients also were able to recognize the whole even though unable to recognize the parts. But the presumption was that this capacity to perceive the whole involved retention, not learning.

Hal's success is fascinating because, in his case, the injury occurred at birth rather than later in life. He demonstrates that there are occasions when it is possible for a person to learn a totality even though he has great difficulties in recognizing the parts (the "bits") that make up the totality. The human brain evidently is more remarkable as an adaptive and learning instrument than we had assumed.

For decades, Carl Lashley (1963) searched for the most basic unit of memory and learning, the engram. But he never found it. Was he looking for something too small? Have the IQ tests and education frequently done the same thing - tested for or taught a segment that was too small? Rather than "bits" of information being our intellectual engram, is perhaps the story the engram of our species? Is that the reason why our subjects were successful even when they had such low IQs? Is it because we inadvertently used techniques that involve the engram for our species? If so, it would explain why the IQ tests so flagrantly failed in predicting and describing the success of our retarded subjects.

Story cohesion, as the fundamental unit of cognition, could explain some disparate phenomena. For example, people tend to make a story out of their emotional states. When tired or irritated, we find a reason (a story) to justify the feelings. Under physiological conditions that produce anxiety, fear or rage, we seem to be able to find the appropriate cause - the appropriate story - to match the emotional state. We make sense out of our emotions, we create rationality for our physiological states, by placing them in the context of a story.

The need to make our life coherent, to make a story out of it, is probably so basic that we are unaware of its importance. Science has found it relatively easy to analyze the distant star or the distant molecule, but the understanding of ourselves is more elusive. To do so, we have to use ourselves as the analytical instrument. This, as Kant pointed out over a hundred years ago, is fraught with difficulty, and may be the reason why the importance of story cohesion to the intellectual process has not been obvious.

What we are so proud of, our logic, probably has its etiology in story cohesion. The first childish understandings of causality may well have their roots in the story. When we try to understand types of causality that do not easily translate themselves into a story, we have considerable intellectual difficulty. One can speculate how different our logic would be if the story were not the basis of our intellectual cohesion.

The importance of story cohesion in the evolution of our species can partly be gauged by the extent that the listening and telling of stories is linked into the pleasure centers of our brain. For anyone who doubts the linkage, remember the transfixed hours spent in front of the tube as you watch story after story unfold. Every modern prison system knows the symptoms of stimulus deprivation that occur when the major television system goes on the blink. Is the need to hear stories not only basic but necessary to our nervous system?

Is there a human culture anywhere that does not tell and listen to stories? To my knowledge, none has been discovered. For those of us who

have worked in defectology, it has always been puzzling that blindness does not produce the cognitive deficits of deafness. Is this because, without the story to develop cognition, such development is crippled? From a comparative view, I also wonder whether the chimpanzees, with whom we are beginning to communicate in sign language, will also eagerly listen to stories.

Is there intelligent life some place in our galaxy that does not tell stories? What would these creatures for whom the story is not the basic form of intellectual cohesion be like? What would they talk about? Would they seem like schizophrenics to us? Or would they appear like computers? And would we have as much difficulty in communicating with them as we do with our own sick or with our machines?

Summary

The data with the Ball-Stick-Bird method make it appear that story cohesion, as the basic form of intellectual cohesion, is earlier in development and cognition than we had thought possible on the basis of IQ tests. Because these tests have determined what we think is intelligence, their importance has frozen educational techniques into the pattern of turn-of-the-century education, which the tests had been designed to sample. This has happened in spite of the early innovations of Montessori (1930) and later Piaget (1970), and so many since. Not only have we reified IQ tests, frequently making a high score synonymous to success in life, the tests have determined what we consider easy or difficult, early or late in child development. The content of the tests, in spite of contrary data, has dramatically influenced our perception of how children think and solve problems.

Note

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L'enseignement de la lecture par des histoires opposée à la hiérarchie cognitive
La Suggestopédie met l'accent sur l'utilisation d'histoires intéressantes comme moyen d'enseigner des matières telles que la lecture ou les mathématiques. Un soutien indépendant de cette notion vient du travail de cet auteur qui enseigne la lecture par des histoires avec la méthode appelée "ball-stick-bird."

Die Lehre des Lesens durch Geschichten gegenüber einer kognitiven Hierarchie
Die Suggestopädie betont den Gebrauch von interessanten Geschichten als Mittel, Stoffe wie Lesen oder Mathematik zu lehren. Unabhängige Beweise für diese Begriffe kommen von der Arbeit des Autors mit der Lehre des Lesens durch Geschichten in der Ball-Stick-Bird Methode.

El entrenamiento del leer con cuentos vs. jerarquía cognoscitiva. - La Sugestopedia da énfasis al uso de cuentos interesantes como vehículos para el entrenamiento de materia en la aula así como la lectura o la aritmética. El sostén independiente por esta idea viene del trabajo de la autora en el entrenamiento del leer por cuentos en el método de pelota-palo-pájaro.

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Experimentation with the Lozanov Method in Teaching Word Retention to Children with Learning Disabilities

Wally Nelson

Abstract

This study tested the effectiveness of the Lozanov approach in the teaching of word retention to children 6-8 years of age with learning problems Three children referred to the Special Education Diagnostic Clinic at Kansas University Medical Center were randomly assigned to the Lozanov experimental treatment and another similar two students assigned to the control treatment. All students had initial baseline criterion scores of zero. All experimental students had daily quiz and end of learning test scores of 75% or more, but the control students taught traditionally had some daily quiz scores, but no end of learning test scores, meeting this criterion. In addition, the average acquisition and retention test scores of the experimental group were significantly ($p < .05$) higher than those of the control group. Thus, it was concluded that the Lozanov approach with learning disabled students was a better approach than the traditional one. The influence of other variables was noted and commented upon.

INTRODUCTION

Ongoing research in neuroscience and the resulting new direction of educational psychology seem to call for the exploration of new approaches concerning the relation between modes of consciousness and learning. Of specific concern is the effect of these directions to the field of learning disabilities.

When children experience difficulties or failure in the learning process, it is a matter of concern to educators and parents. The effects of continuing failure on the human being, especially when it is recognized by the person himself, has been well documented in psychiatry, psychology, and educational psychology. The failure in learning disabilities is well known (Kass, 1969). When a child is not achieving as expected, the resulting frustration is not only felt by the child, but the parents and other adults responsible for his welfare. Special educators of the learning disabled are continually exploring new methodologies that will alleviate the frustration and anxieties of failure in the learning disabled child and facilitate his learning abilities and self-concept.

In research in the field of learning disabilities, it is unusual to find any investigations that do not mention emotional difficulty as an associated finding in children who have learning problems. Hammill and Bartel (1971) felt that associated emotional difficulties in the learning disabilities population was a "given" fact. While emotional difficulties in association with learning disabilities is not a point of disagreement, there is disagreement evident when treatment approaches differ and when cause versus effect is discussed. One point of view contends that the child does not read because of an emotional difficulty and the other

that the emotional difficulty was the secondary result of the primary learning disability. While the cause and effect issue has yet to be resolved, the majority of studies seems to support the concept that emotional problems in most cases of learning disabilities are secondary, rather than primary, in nature. Quadfasel and Goodglass (1968) noted that in our culture, it is almost inevitable for a child to develop an emotional disturbance as a result of a severe reading handicap and its effect on his performance, and the reaction of his environment to him. These emotional reactions are, by non-prejudiced observers, considered a secondary reaction and not a primary cause.

Although the majority contend that emotional problems are a secondary effect , there are certain traits found to be shared by many of these children. One of these traits is anxiety. Klasen (1972) pointed out that dyslexia did not exist as an isolated problem. It is always accompanied by associated or secondary complications. They concluded from their observations that psychological difficulties increased in direct proportion to the duration of unrecognized and untreated learning problems and that psychologically-caused dyslexia is extremely rare. In their observations, a trait that was noted in the majority of children was anxiety.

The deleterious effects of anxiety have long been recognized by psychiatrists, psychologists and educators. Connolly (1971) stated that anxiety is a characteristic found in the learning disabled population with great frequency. Bender (1956) indicated that anxiety is defined as a primary response of an organism frustrated by its own incapacities and by the inadequate efforts made to meet its needs. Holt (1964) pointed put that some observers feel there is a large amount of fear associated with the school experience, such as fear of failure, of ridicule from teachers and competition from peers. The learning disabled youngster encounters these same anxieties to an even greater extent because of his inability to achieve.

Connolly (1971) contended that since anxiety is one of the most uncomfortable of all human conditions, it becomes a source of avoidance behavior and the cause of the adoption of various defense mechanisms. Thus, a learning disability frequently is followed by the establishment of defenses that serve, in effect, to help the child account for his failures. Kretch (1962) noted a tendency for cognitive change to occur when an individual encountered interference. While this change can either be adaptive or maladaptive, frequently the effects of frustration and anxiety result in cognitive modifications that diverge from reality. This leads to ideas and behaviors that do not aid the child in coping with his situation. Thus, when faced with an obstacle such as a learning disability, a child may alter his beliefs and feelings about his goals and himself. Such defenses established early may remain long after their original use has outlived itself. Connolly (1971) noted the defensive measures that helped to produce cognitive change may become functionally autonomous and continue to exist independently of their original purpose. Allport (1961) defined this concept of functional autonomy as referring to any acquired system of motivation in which the tensions involved are

not of the same kind as the antecedent tensions from which the acquired system developed. An example is the child with a learning problem that continues to view himself as slow and inferior years after his disorder has been overcome. The self-perception becomes autonomous and continues to exist and sustain itself despite the fact that its original cause, the learning disability, is no longer an important factor.

Attitude change is frequently required when working with the learning disabled population (Connolly, 1971). After experiences of failure and frustration, a child often has established very intense negative feelings toward school and the learning task in general. Before effective remediation can begin with this type of child, it may be necessary for his attitudes to become altered and his mental set more conducive to learning.

While no one denies the importance of the learning disabled child's personality development and adjustment, too often no one really does anything about it. Schools and teachers often feel incapable of dealing with such problems and children are referred elsewhere for their emotional problems. McCarthy (1971) noted that the focus of remediation has passed from the social worker to the pediatrician to the psychiatrist to the psychologist to the neurologist to the endocrinologist and then back to the teachers. She stated, "One has to come to grips with the possibility that we are going around in circles rather than making progress, (p. 15)". McCarthy expressed hope that in the foreseeable future neuropsychologists such as Karl Pribram would be able to tell us something meaningful about the chemistry of learning in human children.

A look at continuing developments in neuroscience is showing us new directions for education. Sperry (1975) noted that new concepts of consciousness and the working of the human brain have emerged since 1961 when the first opportunity presented itself to study a human split brain. The subsequent research that has emerged has demonstrated that the right and left hemispheres are specialized for different functions. Sperry stated:

> The left and right hemisphere have been found to have their own specialized forms of intellect. The left being highly verbal and mathematical, performing with analytic, symbolic, computer-like, sequential logic. The right, being spatial, mute, performing with asynthetic spatio-perceptual and mechanical kind of information processing that cannot yet be simulated by computers (p 31)

The left hemisphere tends to analyze the whole into its parts, while the right sees the whole. Ornstein (1973) in his efforts to mesh science and intuition, expressed views that concur with those of Sperry. It is his view that in most individuals, the left hemisphere controls analytical processes associated with language, logic, mathematics, science and reason. The right, controlling more intuitive processes, relates to fantasy, music, art, space orientation and spirituality. In essence, the left hemisphere thinks sequentially, the right, simultaneously.

Most modern theories of brain function relate specific physical and

mental activities to certain places in the brain. John (1976) pointed out that the localization theory does not explain why people with severe brain damage sometimes recover lost functions completely. He notes that one of the best known skeptics of the localization theory was Karl Lashley. Lashley, even in the early 1930's, proposed that many different regions of the brain carry out the same function. Lashley proved that memory is distributed throughout the brain and that learning involved a field of activity. John proposed a theory that reconciled the two theories, that many brain functions are distributed throughout most regions, but some regions contribute more than others to any given function. For example, the motor system has the biggest role in movement and the visual system in seeing, but many other parts of the brain play a role in these functions.

John (1976) indicated that assumptions have been made that when we learn something, new connections are made between nerve cells in different parts of the brain. Our memory, such theories hold, lies in these connections. Remembering means the connected cells have been activated. He found, through his electrophysiological research, indications that memories do not consist of new connections between cells. He says,

> It is not the location of the cells that matters, but rather the rhythm at which they fire. When we learn something, small groups of cells in many parts of the brain learn a new rhythm of firing corresponding to the learning. The memory of what is learned is not to be found in a specific brain region, but rather in its unique cell-firing rhythm. (p. 52)

The brain does not work like a printed circuit; it is like a symphony orchestra.

Pribram (1971), a neuroscientist who worked with Lashley, has accumulated evidence that the brain's 'deep structure' is essentially holographic, analogous to the lensless photographic process for which Dennis Gabor received a Nobel prize in 1971. He proposes that the hologram is a powerful model for brain process. The frequency domain is important in neural processes according to the holographic theory of brain function. Stimuli are perceived by the senses via complex mathematical transforms, an interpretation of interference patterns, much as a hologram is reconstructed by its light source. Pribram theorizes that it explains phenomena not otherwise explicable, such as distribution of memory throughout the brain. Pribram contends that theories based on the brain's capability to analyze frequencies seem more powerful than specificity theories (those that say the brain abstracts specific features from the environment). The frequency analyzing approaches help to account for evidence that various perceptual systems can cross-interpret data normally associated with other senses. Synesthesia, "hearing" colors or "seeing" sounds, would come under this category. Sperry (1975) believed one of the most important things to evolve from brain research was a changed idea of the conscious mind and its relation to brain mechanism. The new reformulation involves a break with long established materialistic and behavioristic thinking that has dominated neuroscience for

many decades. Instead of considering consciousness as an "epiphenomenon", or impotent by-product, the present interpretation would include the conscious mind as an integral part of the brain process itself and an essential constituent of the action. It thus becomes a causal determinant in brain function. He stated:

> After more than 50 years of strict behaviorist avoidance of such terms as "mental imagery" and visual, verbal, auditory "images", in the past few years, these terms have come into wide usage as explanatory constructs in the literature on cognition, perception, and other higher functions (p. 33).

Ornstein (1972) noted that in the field of education, behaviorism stimulated productive research in the realms of learning and the modification of behavior. But processes that did not fit into the behavioristic model limited the scope of inquiry and psychologists ignored or even denied existence of phenomena that did not fit the scheme. "Consciousness" itself was, for years, ignored or denied and behaviorism was viewed as a "total extent of knowledge" rather than "a useful tool". Sperry (1975) stated that the shift in neuroscience and psychology toward a model for the interaction of mind and matter restored some dignity and other humanistic attributes which had been deprived by the behavioristic approach.

Sperry (1975) said the implications for education emerging from these new concepts of the human brain indicated that our educational system and society generally discriminated against one half of the brain. He stated, "In our present system, the attention given to the minor hemisphere of the brain is minimal compared with the training lavished on the left or major hemisphere." Ornstein (1973), as a result of his research, suggested a need for revision of the way children in the Western world are educated. He points out that education today almost exclusively involves a transmission of knowledge through words, either written or spoken; this feeds the left hemisphere. The right hemisphere, though not the home of the speech center in the vast majority of people, still is dominant when practical intelligence is called for. Yet the right hemisphere is generally ignored in current educational systems.

Neuroscience and psychology seem to be calling for new directions in education, causing us to ask questions concerning the extent to which our one-sided approaches are interfering with learning, calling us to look at more humanistic and global approaches that might greater affect learning. Could a more 'holistic' approach produce better learning or eliminate some learning problems?

An approach that has been gaining attention in the Western world was developed by Dr. Georgi Lozanov of Bulgaria. The approach appears to reduce anxiety and enhance learning. It has been referred to as Suggestology, Suggestopedia or the Lozanov Method. Suggestology is the scientific study of the psychology of suggestion and suggestopedia is the application of suggestion techniques to learning. Relaxation, imagery, positive suggestion and music are used in the approach. Theoretically, suggestion is used to remove barriers and information then bypasses

emotional blockage to go directly into the long-term memory of the brain. Consequently, learning is faster, more enjoyable and results in higher retention. The approach is based on the theory that subconsciously we receive signals from many sources that are subjective, not rational or conscious. These subconsciously received suggestions affect our attitudes and thereby affect our behavior. From his psychotherapy work, Lozanov realized there were important communication factors that could be applied to the teaching process. The approach uses these factors on both the conscious and unconscious levels, which he refers to as double-planeness. On one level, we communicate logically and consciously (equating to left brain functions) while on another level, we communicate subconsciously and emotionally (equating to right brain functions). The approach focuses on the whole person and the recognition that there is a conscious and unconscious level in every communication and relational situation. Lozanov contends the approach can be used with all age groups and all subjects.

Because of the possible implications of the approach for the field of learning disabilities, an experimental class was taught using elements of the Lozanov method to teach word retention to children with learning problems.

The research question of the study was: For six to eight-year-old learning disabled children, is there a difference in the effectiveness of the Lozanov approach versus the traditional approach in facilitating retention of unknown words?

Definition of Terms

Suggestology : The scientific study of the psychology of suggestion, the objective of which is to study the world of psychic reactions which pass unnoticed on the conscious level.

Suggestopedia : The application of suggestion techniques to learning. This approach has organized the unconscious suggestive factors in the learning process as a global approach to the pupil and which creates a learning environment that will activate the reserve capacity of the brain.

Anti-suggestive barriers : Psychological barriers in the individual that prevent the reception of suggestion. According to Lozanov, the three principle barriers are: (a) critical-logical: rejects suggestion that it judges rationally unacceptable based on personalized norms the individual has developed, (b) intuitive-emotional: rejects suggestion that fails to create a feeling of confidence or security in the individual, and (c) ethical-moral: rejects suggestion that is not in harmony with the ethical sense of the personality.

Non-specific mental reactivity : A psychological mechanism of the unconscious that perceives the nonverbal, subliminal aspects of communication.

Pseudopassivity : State of apparent external calmness and relaxation with internal unconscious activity taking place.

REVIEW OF LITERATURE

The purpose of this section is to look at Suggestopedia in depth and to present the research related to this approach and supportive, related information. This review will cover the following areas: (a) definition, (b) historical background, (c) theoretical background, (d) the suggestopedic cycle, and (e) related studies.

Definition

According to Lozanov (1971, 1975) the suggestopedic system of instruction is a desuggestive-suggestive system. It frees the capabilities of the individual which are inhibited by the socially conditioned suggestive norm and, at the same time, it presents new material, in a positive and stimulating suggestive environment. Suggestopedia, as a system of instruction, is not aimed solely at improving man's memory, but also at stimulating intellectual activity, raising emotional tone, and having a favorable effect on the whole personality. He stated that the object of Suggestology, the science of suggestion, was to study the boundless world of psychic reactions which pass unnoticed on the conscious level of the individual.

Lozanov (1975) proposed that suggestion was important in every ordinary communicative process. It is particularly intensified and well organized in the various arts, and plays a part in teaching, though most often it is left unorganized and unutilized by the teacher. The suggestopedic teaching system has more or less organized the unconscious suggestive factors in the learning process as a global approach to the pupil, an approach that will create a learning environment that will activate the reserve capacity of the brain.

Schuster, Bordon, and Gritton (1976) defined Suggestopedia as a method that utilized aspects of human suggestion and unusual styles of presentation to accelerate learning. According to Racle (1974), it is a vehicle by which students are conditioned to react to positive suggestions in a learning situation, so as to open the human potential and by-pass negative influences of learning and efficiency.

Historical Background

The purpose of this section is to give an overview of the development of the suggestopedic system in Europe and North America. A secondary purpose was to chronologically summarize the significant activities of Dr Lozanov's numerous and varied research and the development of research and activities in the West that have been generated by interest in Dr. Lozanov's work. Specific details and results of the research overviewed in this section will be given in a later section on Related Studies.

Dr. Georgi Lozanov, physician and psychotherapist, is director of

the Institutes of Suggestology and Parapsychology in Sofia and Petrich and is the father of parapsychology in Bulgaria. He is a celebrated doctor and famous not only in Bulgaria, but also throughout the Communist bloc countries for his discoveries dealing with the supernormal powers of the mind.

After becoming interested in parapsychology and yoga at an early age, he studied psychology and psychiatry at the University of Sofia and received his Ph.D. from Kharkov University in the Soviet Union. His thesis dealt with practical applications of suggestion in fields of medicine and education.

Dr. Lozanov first published an article on suggestive hypermnesia in 1955. The first collective experiments were conducted during 1964 at the post-graduate Medical Institute in Sofia and later at the Research Institute of Pedagogy at the Ministry of Education in Sofia.

In 1965, the Ministry of Education and the Ministry of Public Health and Social Welfare issued a decree to set up a research group at the Institute of Pedagogy to study the problems of training by the suggestopedic method. The objective of this group was to organize and carry out suggestopedic experiments with experimental and control groups. This experimental work was supervised by a special committee. The results obtained were reported by the research group to the Institute of Pedagogy which examined the report submitted at an enlarged session of its Research Council and discussed the impressions of all participants in the experiments. A report from this session was delivered to the Ministry of Education and to the Minister of Public Health and Social Welfare. As a result, a Section of Suggestopaedy was set up at the Institute of Pedagogy. This Section continued the experimental work begun by the research group on Suggestopaedy.

Because of expanded activities and research that extended beyond the competency of the Pedagogical Institute, it became necessary to set up an independent Research Center which was later transformed into a Research Institute of Suggestology. The Institute teaches regular classes and studies physiological and psychological processes that are responsible for mind and memory expansion. The Institute at Sofia has a staff of 30 scientists of varying specialties including physiologists, engineers, doctors, physicists, education specialists , and psychologists. In addition to a lab for the study of parapsychology at the Institute, there is a second lab for the study of physiology of subsensory stimulation and a third one to investigate the psychology of suggestion.

The first educational application of suggestology in Bulgaria was the teaching of foreign language. English, French, German, Italian and Russian were taught to adults followed by application to mathematics, history, literature, physics, chemistry and biology from 1967 to 1972. Starting in the 1970-71 school year, the suggestopedic method was used to teach a tenth grade class all the subjects in its curriculum. In 1972, the program was adapted for elementary school subjects. Lozanov reports it is now used in selected schools from nursery school through the university level in Bulgaria.

Interest in Lozanov's work brought educators from India, Germany, and Russia to Bulgaria to observe and learn about the method. Reports indicate that these countries established their own Institutes of Suggestopedia. The Moscow Foreign Languages Pedagogical Institute's success with the m ethod made headlines in Pravda in July, 1969 (Schroeder & Ostrander, 1970).

A researcn Centre of Mnemology was founded in the German Democratic Republic in 1968, which was designed to implement the Bulgarian suggestopedic method. The suggestopedic experiments conducted in Germany confirmed those results obtained by the Research Institute of Suggestology in Sofia as did successful suggestopedic experiments conducted in Moscow and Kharkov in Russia in 1969 (Racle, 1977).

In the West, UNESCO and the Ford Foundation expressed interest in the technique. By invitation, Dr. Lozanov lectured at New York State College at Albany in 1969. After Lozanov's research was reported by Shelia Ostrander and Lynn Schroeder in 1970, suggestology was explored by other North Americans. The Canadian government sent two representatives to an international symposium in Varna, Bulgaria, in 1971. In 1972, Canada acquired the rights to the Lozanov system as part of a cultural exchange agreement between the governments of Canada and Bulgaria. In 1972, the Public Service Commission of Canada sent a team of teachers to be trained at Sofia. They returned to begin the method in Canada and later, as a program of the Canadian government in 1973 and 1974. Reports indicate that the teaching of language, English and French, has been the primary application of Suggestopedia in Canada to date.

The first North American educator to make contact with Dr. Lozanov was Dr. W. J. Bancroft in 1971. Dr. Bancroft, associate professor of French, Scarborough College, University of Toronto, spent four weeks at the Institute of Suggestology in Sofia. She has since made several extended visits to Lozanov centers in the USSR, Hungary and Bulgaria. Dr. Bancroft has published several articles on her observations of the Lozanov technique, as she saw it practiced in Bulgaria. Her information provides key background data of the elements of the Lozanov system and her publications represent the fundamental body of knowledge on Suggestology available in English.

In the United States, experimentation with the Lozanov Method has been developing since 1971 (Caskey, 1977). Much of the work has been applied to language studies since the original suggestopedic methodology was designed for this application. Language studies at the university level have included Russian, Spanish and Bulgarian. On the high school level, there have been applications in Latin, Spanish and German.

In 1971, Schuster, Bordon, and Gritton of Iowa State University began research of independent and dependent variables in order to determine the relative interaction of suggestive-accelerative components and their application to a public school setting. Research has been conducted with Spanish, statistics, and rare English words on the univer-

sity level, and math and science on the junior high level.

Carol Lockhart of the Southwest Educational Development Laboratory was sponsored to attend Bulgaria in 1971 by the office of the Governor of the state of Texas and was in the same group with Dr. Jane Bancroft. Due to the lack of funding for the laboratory, no research was conducted, but because of her enthusiasm about its possible applications, Ms. Lockhart contacted several individuals and universities (Caskey, 1977).

Elizabeth Philipov, in 1973, experimented with the Lozanov Method in teaching Bulgarian at the University of California. Because of her support, the first International Congress on Suggestopedia was held in Los Angeles in 1975. Elizabeth Robinette, after experimenting with the Lozanov approach in 1974 in teaching first-year college Spanish students at Texas Tech University, has continued this approach in the counseling field. Because of the interest generated at Texas Tech, several sections of first-year Spanish courses are offered each year, using elements of Suggestopedia.

Caskey (1977) notes that while most of the experimentation has been with languages, a number of researchers have investigated other applications. Allyn Prichard, after a trip to Bulgaria in 1974, worked with Jean Taylor to implement the Lozanov approach at an elementary school level. He and Taylor initiated a remedial reading program in a suburban Atlanta school. Owen Caskey, at Texas Tech, has experimented with practical applications of suggestive-accelerative techniques such as remedial reading for adults, business accounting, and English grammar. Dean Held, after doing research on the Lozanov Method, has developed practical applications at the University of Wisconsin for reading methods and has been working with its application to the field of learning disabilities.

In 1975, a society was formed to bring together the researchers and practitioners in the field. The society was formed under the name of Suggestive-Accelerative Learning and Teaching (SALT). The purpose of the society is to provide data and information to educators, counselors, psychologists and other professionals on the experimental work they and others are conducting on the Lozanov Method. The society publishes a journal, *The Journal of Suggestive-Accelerative Learning and Teaching* , that covers current research and technical information. A manual was developed for experimenters and teachers by three members of this society, Schuster, Bordon, and Gritton of Iowa, and is the only such manual available to date in the Western world.

Caskey (1977) states that the society has had two very practical results. The first has been the development of a communications network among those who teach, research and practice in areas related to suggestive-accelerative techniques. Another result has been the sponsorship of two international conferences held in the springs of 1976 and 1977. Another emerging influence has been the development of a teacher training program at Iowa State University and the related research projects which are being conducted in the public schools in Iowa. Caskey

indicates that this research will provide fundamental and valuable contributions to the understanding of how suggestive-accelerative techniques may be used on a large scale in the American system.

Chronological Summary of Suggestological Research and Activities

1952-53: Studies of hypnotic age regression.

1955: Publication concerning suggestive hypermnesia. Study of heartbeats under hypnosis. Publication of research into hypnotic age regression.

1957: Treatment of a case of diabetes by suggestion.

1958: Treatment of a case of acute ulcer by suggestion.

1959: Treatment of various cases, such as skin diseases, by suggestion. Studies of the desynchronization of eye movements and age regression under hypnosis. Publication of research into hypnotic age regression. Publication of text on "suggestion".

1960: Treatment of negativistic barriers by inverse suggestion.

1963: Publication on hypermnesia. Whispering and other psychotherapeutical methods (satisfaction through suggestion, decreased rate of respiration).

1964: Experiments in suggestive hypermnesia. Publication on suggestive hypermnesia. Studies of eye movement. Studies of telepathic phenomena.

1965: Experiment in integral psychotherapy. Experiment in suggestopedic teaching organized by the Ministries of Health Education at the Sofia Pedagogical Institute. Psychogenic anesthesia. Experiment in hypnopaedia.

1966: Report of the Research Council on the experiments performed at the Pedagogical Institute. Creation of a suggestopedic section at the Pedagogical Institute. Experiment in memorizing 1,000 French words in a single session. Publication of article by Lozanov on suggestopedia and hypermnesia. Studies of eye movement. Opening of Suggestopedia Research Centre of the Ministry of Education (October 6). Suggestopedic language courses. First education application in foreign languages; English, French, Italian, and Russian taught to adults.

1967: The Research Council of the Centre is approved by the Ministry of Education. Experiment in memorization assiciated with subsensory stimuli. Experiment in memorization (using prestige).

1968: Lozanov explains to Congress of Psychotherapy in Vienna his concept of a therapeutic mechanism common to all methods. Founding of Mnemology Centre at Karl Marx University in Leipzig.

1969: Suggestopedic course in mathematics at the Sofia Institute. First experiment in suggestopedic courses in Moscow. UNESCO and Ford Foundation express interest. Lozanov is invited to lecture at New York State College in Albany. Moscow Pedagogical Institute reports success with Method.

1970: Suggestopedic teaching experiment in Kharkov. Second ex-

periment in Moscow. Experimental class using suggestopedic approach for tenth grade students for the school year. Schroeder and Ostrander bring attention to Lozanov's work in their book, *Psychic Discoveries Behind the Iron Curtain* .

1971: Lozanov submits his scientific thesis, *Suggestology* , to the Kharkov Medical Institute, and it is accepted. The Centre for Research in Suggestology becomes an Institute. Publication of *Suggestology* by Lozanov. First International Symposium on Suggestology at Varna. Canadian government sends representatives to International Symposium in Varna. United States experimentation begins by Schuster, Bordon, and Gritton at Iowa State University and in the Iowa public school system. Jane Bancroft of Canada and Carol Lockhart of Texas visit Bulgaria.

1972: Suggestopedic program adapted for elementary school subjects. Canadian government sends team of teachers to be trained at Sofia.

Theoretical Background

Some theoretical considerations are important in the process of applying the science of suggestion to the teaching field. Lozanov's book, *Suggestology* , is a summary of twenty years of experimental research into the problems of suggestion. The two main trends of his work are: (a) the extensive study of suggestive phenomena, and (b) the application of these phenomena to the field of education.

Important in the suggestopedic approach are the (a) three anti-suggestive barriers that prevent learning and the need for the removal of these barriers through de-suggestion. (b) the role of unconscious mental activity and the utilization of six basic suggestive elements which, when recognized and utilized, enhance the learning process, and (c) the methodology techniques implemented to produce this enhanced learning.

Anti-Suggestive Barriers

Lozanov (1975) theorizes that the individual protects himself with psychological barriers just as the organism protects itself with physiological barriers. He refers to these psychological barriers as anti-suggestive barriers and proposes they block our reception to suggestion. The suggestopedic process is designed to de-suggest the restrictive barriers and create a positive suggestive atmosphere where learning is easy and pleasant. According to Lozanov, there are three principal barriers to the reception of suggestions: (a) critical-logical, which rejects suggestions it judges rationally unacceptable, (b) intuitive-emotional, which rejects anything likely to produce a feeling of lack of confidence or insecurity and (c) ethical-moral, which rejects everything not in harmony with the ethical sense of the personality. In relation to the educational process,

this barrier deals with the feeling that learning is unpleasant and hard work.

Therefore, according to Lozanov (1971), the most essential problem in practical suggestology is the type of methodological approach to be used to surmount the three anti-suggestive barriers. The psychological mechanisms of overcoming and coordinating the anti-suggestive barriers are embedded in what he refers to as the non-specific mental activity.

Role of Unconscious Mental Activity

Lozanov (1971) states that an enormous body of information enters the central nervous system in the form of subliminal signals more or less outside the scope of the conscious mind. Experiments in hypnosis have proven the existence of these subliminal and unconscious perceptions, according to his thesis. Non-specific mental reactivity is an important element of the unconscious since it perceives the hidden sense in human speech; it is the intuitional insight that had a guiding role in primitive man. While it has further developed in the adult today, it has become more hidden and less perceptible. Lozanov states that this non-specific mental reactivity creates the favorable ground on which suggestion thrives and is the way of surmounting the anti-suggestive barriers. He considers six mechanisms important in utilizing non-specific mental reactivity in the suggestive learning atmosphere. The elements are: (a) authority, (b) infantilization, (c) double planeness, (d) intonation, (e) rhythm, and (f) pseudopassivity.

Authority

Lozanov (1971) considers practically every suggestive method to rely on authority. Authority provides the easy surmounting of anti-suggestive barriers since it is one of the factors in non-specific mental reactivity. The suggestive factor increases the receptivity of the receiver, but in most cases is unconscious. He implies that the anti-suggestive barriers are more easily overcome if the student is unaware, at the conscious level, of the actual techniques being used. According to his thesis, Lozanov's experiments have shown that, in the classroom, authority plays an important role in memorization. Foreign language words and phrases have been memorized with a considerably high percentage with only this one suggestive factor. Lozanov maintains that this does not signify abandoning the other suggestive factors since a high quality of authority is not easily achieved or maintained.

Schuster, Bordon, and Gritton (1976) cite that the authoritativeness and prestige of the instructor to insure that what he says will be taken as suggestion and will be acted upon by students d will be acted upon by students. Also, it is an important factor in reaching the second technique

of infantilization.

Infantilization

Infantilization in the Lozanov Method is not related to the Freudian concept of the subconscious or the Freudian idea of bringing out the patient's childhood experiences (Bancroft, 1976). Rather, it is a selective mental set-up (Lozanov, 1971) of confidence, peace and spontaneity. If the student is in a childlike state (not childish), he is more open to learning suggestion. Consequently, learning is accelerated and memory is improved. The intellectual abilities of the adult are not decreased or eliminated with infantilization, but certain characteristics of the child, such as spontaneity and ability to memorize, are brought out.

Lozanov (1971) notes that it is well known that a child can memorize much greater information than an adult. With the advance of age, this memorization ability suffers with the growth of the powers of reason and the social ideas regarding the limitations of human memory. Infantilization allows adults to learn in a child-like way under natural conditions, using unconscious factors.

Double Planeness

Double planeness refers to communication on two levels: the verbal and nonverbal level. On the nonverbal level, the whole environment of the spoken word is involved in nonverbal signs, gestures, intonations and motions.

The Soviet psychology of the 1960's considers the physical and social environment to affect both the conscious and unconscious mind (Bancroft, 1976). In line with this theory, suggestology does not consider the individual separate from the environment to which he belongs. Subliminal or unnoticed stimuli have a great influence on a student's ability to learn.

Lozanov (1971) states that an enormous stream of diverse stimuli are emitted from the personality and, quite often, these unconscious signals have great informative implications for the receiver. Implications in tone of voice, rate, speech and also in the psychical environment can play an important role in suggesting the desired results. This "second plane" is a source of our intuitive impressions which influence our relations to persons and situations in a way that is initially incomprehensible to the conscious mind.

Lozanov (1971) suggests that these two planes must be harmonized in the learning setting to utilize the reserve capacities of the unconscious mental activity, but that the second nonverbal level is often ignored completely or underestimated. Thus, Prichard (1977) points out that teacher training in the United States on the implications of this important area is non-existent

Intonation

Intonation is the fourth primary mechanism that Lozanov considers important. The tone of voice or intonation conveys the real, underlying message of speech. Words can have a suggestive effect that engage the unconscious mental activity. Intonation is important in the suggestopedia context because of its effects on memorization (Bancroft, 1976).

The Institute uses three different intonation, or voice, levels in presenting new material to be memorized: (a) a normal, natural voice, (b) a loud, authoritative voice, and (c) a soft, whispered tone. Experimentation was conducted on the rhythmical intonational presentation of the material. First, what Lozanov calls "horizontal intonational swing" was used with each word or phrase and repeated three times, each time with a different intonation. Next, "vertical intonational swing" was used with each word or phrase presented only once, but each in a different voice level. Lozanov (1971) reported that the memorization results were the same and, due to the time economy, he has continued with the "vertical" approach.

In addition to increased memorization, intonational presentation was found to be more pleasant and to eliminate boredom. Schuster, Bordon and Gritton (1976) note that the dynamic variation of intonation helped attract and keep the students' attention.

Rhythm

A continuous, rhythmic presentation can engage the non-specific mental activity and result in an easy overcoming of anti-suggestive barriers. Also, the correct rhythmically intonational presentation insures increased and extended memorization.

Although Lozanov provides no methodology for 'correct' presentation of materials, he considers rhythm a basic biological principle affecting physiological and psychological processes. Lozanov contends that the rhythm in various art forms, such as music and dance, have a deeply penetrating suggestive effect. The rationale for the use of the intonational swing and rhythm is that a substantial, suggestive influence is reached through their use (Philipov, 1975).

Pseudopassivity

This refers to the concept that suggestion is best realized when the recipient is in a deeply relaxed state. According to Lozanov (1971), the more relaxed an individual is, the more open he is to suggestions of various kinds.

A part of the language class of the Lozanov method is referred to as the "concert session" or "passive session", where the language material is read against a background of classical music. Lozanov (1971) notes

that the students appear relaxed and calm, as if attending a concert, and they are directed not to pay active attention to the presentation. While the students appear relaxed and calm externally, there is considerable internal activity taking place. "Therefore," he says, "in suggestopedic training, it is a matter of apparent passiveness or a pseudopassiveness (p. 303)".

This state of concert pseudopassiveness, according to Lozanov, is meant not only to take place during the "concert" or "passive" session, but maintained during the entire learning experience. Bancroft (1976) cites that this internal activity is unconscious, but more conducive to hypermnesia than conscious voluntary attention. Philipov (1975) points out that pseudopassivity is a state of psychological relaxation and is an activity of inner attitude, rather than a behavioral one.

Methodology Techniques

To assist the instructor in the implementation of the important basic elements, several techniques are currently being used. Since much of the methodological techniques of Lozanov's work is still unavailable, reports of educators who have visited the Institute and the experimental work of interested researchers have elucidated many of the specifics of these techniques. The following techniques will be discussed: new identification, music, imagery, relaxation, and early pleasant learning restimulation.

New Identification

To help overcome inhibitions, new students are provided a new foreign name and biography in the Lozanov language class (Bancroft, 1976). According to Lozanov (1971), this technique is valuable to permit mistakes by the student. Often, students feel uncomfortable in learning a foreign language and this technique, through role playing, allows the student to forget his personal worries and live imaginatively with his new identification during the course.

Music

Lozanov (1971) contends that music enhances the learning atmosphere. It does not alone provide for easier memorization, but rather the rhythmic presentation of material increases the volume of learning.

Some kinds of music have been related to a relaxed and passive state, which frees the individual from anxiety and worry. Baroque instrumental music of the eighteenth century is thought to be especially suited to place the individual in a state of relaxation and meditation (Caskey, 1976).

Lozanov (1971) contends music helps create an emotional state that makes it possible to eliminate the action of the anti-suggestive barriers that block the reception of the message. He further maintains that one of the reasons for the concert sessions is that the material obtained in this part of the cycle is memorized for a longer period of time. Caskey (1976) states that the role of music is to support the learning process by acting as a medium to activate the subconscious. Direct flow of information to the unconscious regions results in easy and fast assimilation of the material when a musical background is used with a person in a relaxed, tranquil state.

Imagery

Samuels (1975) cites that visualization has been used as the basis for several systems for increasing memory. The whole process of remembering is tied up with images.

In the case of reading disability, the problem is sometimes one of difficulty in recall, particularly in cases where anxiety is strong and emotional blocking is severe. But, often, the main problem is not one of poor memory, but rather of failure to develop a mental image of the word which can be recalled at a later time. If there is no initial registration of the word, there will be nothing to remember (Harris & Sipay, 1975).

Johnson and Myklebust (1971) state that imagery, as a process, has been neglected in psychology and education and go on to say that in learning disabilities, it is not easy to evolve a comprehensive frame of reference without including imagery. This concept allows us to distinguish between the process of perception and memory. Perception is an ongoing sensation while imagery pertains to sensations and information already perceived and received. Imagery is considered as one process of memory. The lack of imagery ability, therefore, hinders the memory process.

Often, memory images involve one or more of the senses in addition to the visual component, although the visual part of a memory is generally the central aspect (Samuels, 1975). Schuster, Bordon, and Gritton (1976) suggest that it is important to instruct students to experience the material in all modalities as fully as possible, not only visually and auditorily.

Relaxation

Philipov (1975) states that the means of suggestion applied in their interconnected influence induce experiential states which have one common and predominantly important element, "relaxation".

Bancroft (1976) notes that Lozanov's investigations into hypermnesia originated from his knowledge of yoga. From his study of yogis in Bulgaria and India, Lozanov found hypermnesia linked to certain techniques of relaxation and concentration and conceived an edu-

cational system applicable to the classroom that could include their use (Bancroft, 1977). One of the reports in Lozanov's thesis describing the work at the Institute states: "The aim of which is to accelerate the teaching of a given subject through suggestion, under favorable conditions of physical and mental relaxation (auto-relaxation derived from yoga methods) (p. 427)."

Lozanov (1971) contends that mental relaxation is of greater importance than physical relaxation for the successful outcome of the teaching process. If the incompatibility of anxiety and relaxation is accepted as a theoretical premise, one must conclude that relaxation is of benefit. The fact that there is evidence that it is possible to achieve muscle relaxation without reducing tension and anxiety supports the major importance of the mental relaxation process.

Connolly (1971) states that anxiety is a characteristic frequently found in the learning disabled population. Because it produces great discomfort, it becomes a source of avoidance behavior and various defense mechanisms are adopted. To avoid the unpleasant condition, Connolly contends that a considerable amount of the child's psychic energies may be channeled in these avoidance behaviors. Rabinovitch (1959) also notes that a child whose anxiety level is high may be so preoccupied in the classroom that his attention, concentration and memory prevent achievement.

In a study with disabled readers, Held (1976) found mind calming, imagery techniques and positive suggestion effective in overcoming avoidance techniques. Likewise, Prichard and Taylor (1976) found Lozanov-type procedures, progressive relaxation, deep breathing and visualization techniques effective with remedial reading students.

Physical Relaxation

Schuster, Bordon and Gritton (1976) cite that the emphasis here is on muscle tensing and immediate relaxing, rather than strenuous exercise.

Research by Chaney and Andreasen (1972) show that when students were taught physical relaxation to control muscular tension, they performed significantly better on a random numbers recall test than students without relaxation training. This was found particularly important with anxious, tense or hyperactive children.

Pereboom (1977) reports that periods of relaxation therapy, including adapted yoga exercises, were more helpful than periods of tutoring and group counseling in improving behavior of children with learning disabilities.

Mental Relaxation

Some research indicates that mental relaxation is the desired result

of all relaxation techniques, and that the degree of anxiety of the subject is an indicating factor as to which type of relaxation is first employed.

Brown (1977) considers relaxation as an awareness process. The goal of relaxation procedure is not simple relaxation, but voluntary control of the tension-relaxation dimension of muscles and the inexpressible, but subjectively known, awareness that gives one the ability for control. Brown notes that it is anatomically and physiologically true that the muscles themselves can do very little. It is the complicated and still obscure operations of higher mental activities that coordinate and direct every muscle movement we make, consciously and subconsciously. She proposes that biofeedback technology has elucidated the potency of higher mental control.

In regard to specific brain rhythm, the most precise expression of the behavioral state of relaxed wakefulness is identified with the alpha activity (Brown, 1977). It implies that the brain state is receptive and is not actively engaged in any specific mental or emotional activity. With anxiety, there may be a minimum or, occasionally, no alpha present in the electroencephalogram (EEG). Several biofeedback studies support this view.

Budzynski and Stoyva (1970) report using alpha brain wave biofeedback to teach relaxation to extremely anxious people. Using tension as a cue while employing EEG feedback, they found the results very promising. Kamiya (1969) finds muscular relaxation unnecessary for alpha brain waves to flow, but he did find that muscular relaxation often follows the alpha brain wave experience. Green (1970) also noted that highly anxious subjects have great difficulty producing alpha brain waves. He found that, with time, the uptight non-alpha person usually can learn to increase alpha brain waves and learn to relax.

In a study not employing biofeedback techniques, Mohr (1977) reported that persons who had relatively high stress levels had more success with progressive relaxation procedures than a mental imagery approach. Mohr noted that this research may indicate a way to distinguish individual differences which could be used to predict success with the progressive relaxation procedure.

According to Lozanov (1975), the many theories on the psychophysiology of memory alone are indicative of no final knowledge; only impressions have been arrived at. Psychologically, hypermnesia is connected with the subconscious areas of the personality which, in turn, are connected with some electrophysiological changes. Changes in the EEG have been noted. "The EEG's became more rhythmical, regular and calm (p. 295)". Lozanov attributes the change of waves not only to the process of instruction, but also to the calm atmosphere

Scientific experiments conducted at the Institute before, during and after the class sessions have indicated that the EEG records of students show an increase in alpha activity, especially during the concert session. Lozanov (1975) contends that the high level of memorization stems from the suggestive factors included in their process of instruction that many people are unaware of. While the EEG is calm in the courses, he does not

consider the alpha state solely responsible for hypermnesia. Brown (1977) states that all learning takes place via subconscious mechanisms, which is a fact we rarely acknowledge.

Early Pleasant Learning Restimulation

Lozanov (1975) states that the suggestive factors incorporated in the teaching process are responsible for hypermnesia. Early pleasant learning restimulation (EPLR) is a technique that utilizes indirect suggestion by having students remember their memory skills in an earlier pleasant learning experience. Schuster, Bordon and Gritton (1976) maintain that, by reconstructing an earlier pleasant learning experience, it brings into the present the sensations, feelings and abilities of a former pleasant learning situation. Of course, it is important that the student has had at least one fun learning experience previously. Once such memories are stimulated or recalled, the students are instructed to retain these feelings and learn the new material with the same sensorial feelings. The purpose of this technique is to develop a positive attitude and positive feeling toward learning by using indirect suggestive means.

The Suggestopedic Cycle

While many of the previously discussed elements and techniques of Suggestopedia are recognized by various disciplines in this country, their emphasis has often been ignored. The uniqueness and reported success of the Lozanov method is the integration of all these components into a holistic, functional system.

While Lozanov has made some modifications in the application of Suggestopedia in recent years, Caskey (1976) finds that the basic approach which he developed in the mid-1960's has remained the same for work conducted at the Institute at Sofia. Although, currently, the length of classes varies depending on subject matter or age level, the original three to four hour class period is recommended for language and other academic areas, when used with students high school age or above.

The three to four hour class is comprised of three distinct parts called the suggestopedic cycle, consisting of a review phase, a presentation phase, and a reinforcement phase, which is divided into two parts.

Review Phase

This part involves a review of the previously learned material. While this is usually done through conversation between teacher and student or student and student, it may also involve short sketches or plays in which the language material is used in new situations. Bancroft (1976) explains that members of the Institute are opposed to rigid ,

structural exercises and mechanistic repetition which are considered dehumanizing. The emotion is more important than the exercises themselves.

Schuster, Bordon and Gritton (1976) consider it important that a student is properly prepared in the first part of the session and use physical relaxation, mind calming and early pleasant learning exercises, as discussed earlier. This helps the student to be in a relaxed state and open to the positive suggestions given by the teacher.

Presentation Phase

The initial presentation of new material is made in a rather traditional way for most academic subject areas. In language, new material is presented in the form of dialogues or presentation of new words, parts of speech, grammar, or translations. Aside from grammar and translations, these would be conducted entirely in the foreign language. In other academic areas, it would consist of the presentation of new material appropriate to the subject matter area being presented.

Reinforcement Phase

The final part of the suggestopedic cycle is the reinforcement phase, which includes at least a one-hour session called a seance (used in the traditional French sense). The seance is divided into two parts: the active part and the passive, or "concert", portion. In the first part, dialogues are presented with varying intonation and often a coordination of sound and printed word or image. During the passive presentation, the dialogues are presented by the instructor over a background of calm, pleasant, slow-moving music.

Bancroft (1976) notes that, while elements such as role-playing would be of interest to the North American language teacher, the truly original part of the Lozanov method is contained in the seance. One of the consequences of intensive courses is fatigue and tension. Consequently, to relieve the tired feeling at the end of the class and to aid memorization, Lozanov and his colleagues created this one-hour session which is based on two forms of concentration, outer and inner. The active part of the session using active or outward concentration precedes the relaxation or passive, which emphasizes inward concentration.

Throughout this phase of the cycle, students recline in their chairs, breathe deeply and are in a relaxed state. Relaxation exercises are not done as part of the daily class, since students are expected to be able to relax immediately and automatically as a result of training before actual classes begin (Caskey, 1976).

Practice and Testing

Schuster, Bordon and Gritton (1976) point out that, in language classes, students practice on alternate days the material presented

during the previous day's cycle. Thus, every other day, a three to four hour period of time would be spent practicing what had been presented in the previous day's lesson of three to four hours. It is noted that the practice can take several forms, such as conversing about a topic just covered, presenting plays, ungraded check-quizzes and infrequent exams for grading purposes.

North American Adaptations

Caskey (1976) contends that, except in the teaching of foreign language to adults, it is unlikely that the conditions and time factors necessary for the classic approach in Suggestopedia will be feasible. Due to successful experiments with shorter class periods and more flexibility in the sequencing of material, the suggestopedic approach has been given more promise than was originally thought possible. Class periods as short as one-half hour have been successful. Particulary with elementary school children and with hyperactive children or anxious adults, a preliminary mind calming period has been used successfully at the first part of the cycle.

Caskey has also found that it is unnecessary to carry out every phase of the seance session, particularly those involving repeating new information in rhythm with the music. Using a musical background and varying voice intonation has been found effective when not timed with the music. In addition, physical facilities do not seem to be of great importance as long as they are reasonably comfortable and there are no external noises which detract from the effectiveness of the approach.

Related Studies

This section will look at some of the studies which have been conducted to date with the suggestopedic approach. These studies cover (a) the experimental work conducted with languages to evaluate the Lozanov method in comparison with conventional teaching methods, (b) some of the research which has investigated the dependent variables of this approach, (c) research that has investigated the effect of suggestopedic training on cerebral bioelectrical activity, and (d) experimental work conducted on the elementary level in Bulgaria and research that has been conducted at the junior high and elementary levels in the United States.

Schuster (1972) reported that an experimental section of Spanish, using the Lozanov approach, learned as well as students in two regular Spanish sections in one-third of the usual time. Bordon (1976) reported a seven-to-one acceleration of learning with two Spanish classes using the Lozanov method. Smirnova (1975) reported that students at the State Pedagogical Institute in Moscow who were taught English, French and German, using the Lozanov method, learned three times the amount of

vocabulary with 90% retention, as compared with control groups. Racle (1975) also reported language classes in French far exceeded previous classes taught with traditional methods. Philipov (1975) reported success with the method over traditional methods in teaching Bulgarian. Kline (1976) experimented with Lozanov techniques in a private school setting with high school age students. By the end of a five week period of studying Latin for three hours a day, Kline reported gains by the students greater than would have been achieved by conventional methods. In general, the results of these studies support the claims of Lozanov that it is possible to teach foreign languages at least three times faster than with traditional methods.

Lozanov (1977) cites that continual experimentation is taking place at the Institute at Sofia in order to determine the important variables of the method along with the physiological effects. However, little of this information has been available, particularly in English. Because of the lack of information regarding the implications of the individual elements of the Lozanov method when used in various combinations or in isolation, it is necessary to turn to the research available in the United States. Due to the work of the SALT society, a small, but growing number of studies are helping to elucidate some of the important factors in this research.

In two pilot studies, Bordon and Schuster (1976) reported that the positive effects of relaxation and suggestion in the learning of Spanish were encouraging enough to warrant further experimentation. As a result, experimentation was extended to teaching Spanish at the University as part of a regular section of beginning Spanish.

Another study by Bordon and Schuster (1976) investigated suggestion, rhythmic breathing and music. Results indicated that suggestion showed a 60% improvement over the no-suggestion condition. The synchronized breathing treatment showed a 47% improvement over the non-synchronized breathing condition and the orchestrated music condition showed a 25% improvement over the non-orchestrated presentation. The best condition, however, was the combined treatments of synchronized breathing and orchestrated music, which resulted in 78% better immediate learning than the non-synchronized and non-orchestrated presentation condition. In testing for long-range retention six weeks later, the main effect of the three independent variables was again significant (.01 level). The best results were obtained when all the variables were used in treatment and resulted in 172% better retention than when all three variables were absent.

Schuster (1975) investigated the effects of the alpha state, indirect suggestion and word association techniques on the learning of rare English words. While effective results were found with indirect suggestion and word association, the best alpha condition was when no suggestion and no association instructions were given. However, the experimenter reported that this finding was consistent with Lozanov's finding that students produced 10-15% more alpha in the passive presentation phase (without instructions to make images) than in the active phase with imagery instructions.

In Lozanov's (1971) investigations of the effect of suggestopedic training on cerebral bioelectrical activity, several factors emerged. First, the pattern usually seen for intensive mental work was absent during their sessions among the course members, while the usual pattern shows an increase of beta waves and reduction of alpha waves. Their experiments registered changes that were typical of mental work of low intensity, despite the presentation of enormous amounts of information. A second characteristic was noted at the time of the active session in a decrease of beta and theta waves and an increase in alpha. Thirdly, the concert state was characterized by the further increase of alpha and decrease of beta with theta remaining with little change.

Balevsky (1975), another experimenter in Bulgaria, investigated the brain wave changes in the process of memorization under ordinary and suggestive conditions. The data obtained indicated that efficient memorization is possible at a relatively low level of brain activity, which verifies Lozanov's experimentation.

While little information is available on the application of the Lozanov approach at an elementary school level, Lozanov (1975) states that Suggestopedia for children should be different from Suggestopedia for adults, since children have not become psychologically limited by negative and suggestive factors.

Lozanov (1975) reported on results of experimental work carried out in the 1972-73 and 1973-74 academic years at experimental and control primary schools in Sofia. While methodology is not specified, due to the favorable trends in the teaching of reading in these schools, his approach has now been extended to approximately 17 schools in Bulgaria.

After a visit to the Institute in Sofia and observation of the Lozanov experimental primary school #122 in Sofia, Cecelia Pollack (1976), who runs a school for children with learning problems in New York, reported her impressions. Pollack noted that while the Ministry of Education did not want to reach premature conclusions, a great deal of attention and support was being given to the experiment and, since the results of this school's four year experiment has been so encouraging, they were expanding its replication to include several additional schools.

American research on the elementary and junior high level has been limited, but growing numbers of researchers are adding experimental information.

At the junior high level, Gritton and Bordon (1976) experimented with the Lozanov approach to develop an Americanized approach that would be adaptable to a public classroom situation. The study was carried out at a junior high school in Iowa, with two additional schools as controls. The experimental students showed significantly higher posttest scores and th e experimenters felt the method appeared to have considerable potential for improved learning.

Schuster and Vincent (1980) experimented with the method in teaching mathematics and reading to learning disabled ninth graders. Researchers reported significant improvement from pretest to posttest

in both Key Math and Woodcock Reading tests. The experimenters noted that in view of the generally poor achievement in a conventional classroom, this year-end result in the use of the Suggestive-Accelerative Learning and Teaching (SALT) method was very encouraging for the learning disabled population.

Held (1976) experimented with two components of the Lozanov approach with fifth and sixth grade students. Held found, with Early Pleasant Learning Recall (EPLR) and mind calming techniques, that results were more significant in delayed recall than in immediate recall.

Prichard and Taylor (1976) used the Lozanov approach with remedial reading students at an elementary school in Georgia. Students judged two years below their reading expectancy, according to Spache oral and silent reading scores, were exposed to a 14-week program of the Lozanov method. Pretest and posttest scores were compared to the subject's ability to master the relaxation techniques. The experimenters reported large gains were achieved by students who mastered the relaxation techniques and lesser gains by those who did not. Since 30% of the children were rated "poor" in relaxation response, the authors noted that some elementary school children may not be "ready" to learn to relax deeply. It was concluded that the overall gains were significant enough to lead to optimistic prospects of adapting Lozanov-type methodology to the American public school setting.

Bancroft (1976) states that, faced with the lack of scientific data on one hand and peculiar (non-Western) terminology on the other, the North American researcher is likely to have a negative reaction to the Lozanov thesis and, therefore, to Suggestopedia. However, because of the positive reaction of Eastern Europe and the Westerners who have visited the Institute and observed the results gained, Bancroft suggests the "correct" approach to Suggestology is to determine the underlying ideas, translate these into Western terms and reconstruct the statistical evidence in accordance with the more rigorous and less ideologically oriented methods used in Western science.

Caskey (1976) also notes that while research results are sparse and some not available in English translations, there is ample evidence that the method is highly effective in a wide variety of learning and therapeutic settings. The greatest value, perhaps, will come from the modifications and applications of the method as they are now being experimented with in this country.

The limited experimental research work with learning disabled children, and the encouraging results of the limited research that has been conducted to date, suggests a need for additional research with this population. Why research work with this population has not been done in Bulgaria is not known. In discussions with Dr. Lozanov and Krassimira Pashmakova (English specialist from the Research Institute in Sofia) at the last conference in 1977, the impression was that there is no reason why this approach could not be used with these children. However, limited time and ever increasing experimental research has prevented it thus far.

METHODS AND PROCEDURES

The purpose of this study was to test the effectiveness of the Lozanov approach in the teaching of word retention to children, six to eight years of age, who have learning problems. Information in this section will cover the methods and procedures used in this experimental investigation. The research question of the study was: For six to eight-year-old learning disabled children, is there a difference in the effectiveness of the Lozanov approach versus the traditional approach in facilitating retention of unknown words?

Subjects

The population of this study consisted of children between the ages of six and eight years who had been referred to the Special Education Diagnostic Clinic at Kansas University Medical Center. The children referred were those who had not succeeded within their home school environment, and after alternative placement was considered within their immediate school district, they were referred to the Special Education Clinic. Referral reasons included reading and math deficits, behavioral deficits, and attention to task problems.

Random assignment of the students into two groups determined a treatment and a non-treatment group. Eight children were in the Learning Problems Classroom at the onset of the study. One child had to be eliminated because of clinic scheduling problems. The remaining seven children were assigned to a treatment or non-treatment group by the use of a table of random numbers. Four students were assigned to the treatment approach and three to the non-treatment approach. In the non-treatment group, one of these students, due to personal family problems, was unable to attend any of the experimental treatment sessions. The remaining six students, therefore, constituted the population for the study.

Instrument and Administration

Flash cards were used to facilitate the presentation of the criterion material. The criterion material consisted of vocabulary selected from the Dolch Basic Vocabulary Lists, which is used as a measure in the clinic. The Dolch Sight Vocabulary is a compilation of high frequency words found in samples of reading material from pre-primer to the sixth grade level. Harris (1975) indicated that practice on high frequency words was more relevant to remedial work than developmental teaching.

A Behavior Analysis design was employed in this study. Three

pretest evaluations by the clinic teacher established the baseline measurement and determined the criterion material that was selected for presentation. This evaluation procedure provided for the elimination of all words identified by the students and substantiated the assumption that the students had no knowledge of the words used in this study prior to their presentation. Five new words from the criterion list were presented in each of the four treatment sessions for a total of twenty words. These words constituted the criterion test measure in the study. Measurement was taken during the experimental phase, at the end of the experimental phase, and a week after the conclusion of the experimental phase to evaluate immediate and long range retention.

Due to the smaller number of students receiving the traditional approach, the length of their sessions was adjusted. This allowed for the equal balance of time for exposure to the criterion material for both the treatment and traditional groups. The criterion measurement of 75% determined significance for the end of treatment (B), delayed (A), and daily acquisition evaluation. Students achieving percentages of 75% or above were considered to have attained measurements of significance in the study.

Setting

The Learning Problems Classroom is situated within the University of Kansas Medical Center complex located in Kansas City, Kansas. It is designed to provide a small student-teacher ratio and to systematically observe responses to different methods and materials. When a method is identified to which the child responds, the clinic teacher provides a prescription program. Upon the child's return to his own class, similar lesson plans continue to be implemented. Evaluation procedures occur every twenty days and after completing an evaluation the student is returned to his home classroom or retained at the Learning Problems Classroom.

The daily program consists of class sessions from 9:00 a.m. to 2:00 p.m. Monday through Thursday, with the child returning to his original classroom on Friday. Materials similar to the home classroom are used, as well as a supplement of material available within the Learning Problems Classroom. The use of books, worksheets and other materials from the classroom helps facilitate the transition on Fridays to the regular classroom as well as the child's return. In addition to the special classroom teacher, a multidisciplinary team consisting of special educators, child psychiatrists, clinical psychologists, audiologists and speech pathologists is also available within the medical complex. This provides for a multidisciplined program featuring the skills and expertise of many professions.

Procedure

The goal of this investigation was to examine the use of the Lozanov

approach in teaching word retention to children who have learning problems. Discussion will cover objectives emphasized in this study. the suggestopedic cycle used, the specific procedure used in implementing the suggestopedic cycle for the treatment group, and the procedures followed in the presentation of material for the contrast students.

Two objectives of the Lozanov approach were emphasized in this study. These consisted of: (a) attempting to create a relaxed, non-defensive atmosphere in which both external and internal distractions to learning were minimized, and (b) presenting lesson matter in both attentive and non-attentive states. The rationale was that the creating of relaxed atmosphere reduced the anxiety blocks often occurring in the learning situation, particularly with children who have learning problems. It was also reasoned that the presentation of material on different awareness levels would contribute to greater learning and retention.

The suggestopedic cycle, described in detail earlier and developed by Lozanov to accomplish these objectives, is referred to as the classical cycle. It was developed specifically for language training for adults and university age students. Dr. Lozanov, to date, has not specified how this cycle has been adapted for various subjects and age groups, although experimental work has been conducted in elementary level schools and with various subject matter in Bulgaria. The information that is available on the adaptation of the cycle for various subject matter and age groups has been provided by the experimental work of researchers in this country. The procedure adopted for this study drew from the experimental works of Held (1976), Prichard and Taylor (1976), and Schuster, Bordon and Gritton (1976).

This study used the suggestopedic cycle described by Schuster, Bordon and Gritton, which consisted of: (a) preliminary preparations, (b) presentation of material, and (c) practice of material. In the presentation phase, the teacher attempts to create a positive, relaxed learning atmosphere. Students are prepared by using various physical relaxing and mental mind calming exercises. The presentation phase consists of two parts, active and passive. The active part consists of review of previously presented material and presentation of new material with active participation of the students. In the passive stage, the new material is presented with a background of specifically selected music. In this second passive stage, students are directed to a relaxed, passive state as if they were attending a music concert. The practice phase can take the form of plays, games, reading of the material, or testing of the presented material.

Due to the clinic classroom schedule, only two days a week were available for the treatment procedure; therefore, the suggestopedic cycle adopted for this study consisted of four 40-minute treatment sessions, held on alternating days, over a period of two weeks. This study employed the previously described suggestopedic cycle sequence in the following manner for the treatment group.

Treatment Group Sequence

Held (1976) reported that the use of mind calming, imagery techniques and positive suggestion during the preparation period seemed effective in breaking down inhibitions, fears, and avoidance techniques exhibited by many disabled readers. Because of the high anxiety level that is often found in children with learning disabilities, this study employed two preparation pre-treatment sessions to acquaint the student with the physical relaxation and mind calming techniques. The physical relaxation technique involved suggestions for progressive relaxation by body parts. The mind calming technique employed visual imagery by the use of a "white cloud" exercise.

After these two pre-treatment preparation sessions, only the first five-minute portion of the 40-minute session was used for the preparation phase. Positive suggestions for general academic excellence were given during this phase.

The active presentation of the new material was implemented for a time period of ten minutes. Words were presented visually on flash cards and each was pronounced orally, spelled, and used in a sentence. Each student was given a card with the word at the time of presentation. Prichard and Taylor (1976) found the combination of contextual and kinesthetic methods helpful in the presentation of new vocabulary to remedial reading students. In order to employ the kinesthetic method, the words were spelled and the student traced the letters of the words with his fingers. Except on the third presentation, this procedure was followed as each word was presented three times. On the third presentation, instead of tracing the letters on the flashcard, the student was instructed to close his eyes and write it on his "mental magic blackboard". The use of the "mental magic blackboard" was used to encourage the visual imagery abilities often found lacking in the case of reading disabilities. Harris and Sipay (1975) note the problem of recall of words in disabled readers. They felt that it was not the problem of poor memory, but failure to develop a mental image of the word which could be recalled at a later time.

After the first session, a short review of the previously presented material was employed in this presentation phase. This took the form of the students finding the word in the written sentence as it was pronounced. The sentences with the presented word were on a chart board on a small easel. After this short review, the cycle sequence was followed as described.

The passive session followed immediately for ten minutes. During this phase, the students lay on the floor, closed their eyes and were instructed to relax and listen to the music. To induce the relaxed state of the preparation phase, it was suggested that the students feel as if they were floating on their "white cloud" and had the warm, relaxed bodily feeling they experienced during that exercise. If they listened to the words, it was suggested that they visualize the words on their "magic

blackboard". In the passive phase, only an auditory stimulus was used. The words were repeated three times, spelled, and used in a sentence. Following the Lozanov pattern, intonation was employed in this presentation. Declarative, normal and soft tones were used alternatively. Lozanov (1975) refers to this passive part as the pseudo-concert session and indicates that it facilitates increased memory and retention. Caskey (1976) cited several music selections that had been successfully used for the passive session. The study employed one of these suggested selections from the works of the composer Grieg. Positive suggestion concerning remembering the new words and general academic excellence was given at the end of this phase.

A practice session followed the passive session. The study employed games as a practice exercise, using the cards that were used in the presentation phase. A variety of games were used during this period to eliminate boredom and stimulate interest. The practice phase completed the suggestopedic cycle implemented in the study. This cycle was repeated, as described, for four treatment sessions.

To evaluate immediate and long range retention, evaluation was obtained during the experimental phase, at the end of the experimental phase, and a week following the end of the experimental phase. The students were tested using the flashcards that were used during the learning sessions. The clinic teacher implemented the final testing procedure and included this testing with other evaluations she was currently conducting.

Contrast Sequence

Similar to the treatment group, the comparison students were given three pretest evaluations, eliminating known words to determine the criterion material and establishing a baseline measurement. During treatment, none of the mind calming or imagery techniques were used. As the passive session was not employed, no music was used. Traditional techniques were employed. Words were presented visually on flash cards. Each word was pronounced orally, spelled and used in a sentence and each was presented three times in the previously described manner. The tactile method of tracing the words was employed, but not the use of the "mental magic blackboard". As in the treatment group, games were used to allow for practice and repetition of the words in a fun activity. Evaluation was obtained during the experimental phase, at the end of the experimental phase and a week following the last teaching session to check for retention.

Statistical Analysis

A Behavior Analysis (ABA) design was employed in the study. Herson and Barlow (1976) list two problems in the use of this design.

First, the paradigm ends on the A or baseline phase, thereby denying the subject full benefits of experimental treatment, and secondly, the problem of multiple treatment interference and sequential confounding. In this study, it is also recognized that repeated extended measurement was limited due to the clinic schedule.

While the objective of this experiment was to test the effectiveness of certain elements of the Lozanov approach, more than one variable had to be manipulated across the experimental phase. A composite treatment approach needed to be examined for its implementation ability as an approach that could be used with children who have learning problems. Herson and Barlow (1976) also note that while this procedure cannot allow for conclusions as the contribution of each treatment component, it can imply such interaction and provide the background for further experimentation. Also, they point out that before considering large group approaches, it is best to develop a superior procedure and determine conditions under which it is effective or ineffective.

The Behavior Analysis (ABA) design helps elucidate problems found in group designs, such as averaging, generality of findings and inter-subject variability. Bergin and Strupp (1972) argue that one of the major problems in group designs is generalizing from the average response of a heterogeneous group to a particular individual. In research among heterogeneous subjects, one is searching for answers to the question, "What specific treatment is effective with a specific type of sub ject under what circumstances?" Lazarus and Davidson (1971) indicate that the ABA design allows for analysis of effects of variables, thus permitting scientifically valid conclusions and providing for data that can be used as a departure for subsequent investigations.

RESULTS AND DISCUSSION

The purpose of this study was to test the effectiveness of the Lozanov approach in teaching word retention to children, six to eight years of age, who have learning problems. The specific objectives of the study were to investigate the effects of the following independent variables on word retention: (a) the treatment combination of mind calming, (b) imagery and non-attentive learning versus the traditional approach in relation to sex, (c) reading level, (d) age, and (e) relaxation response. The criteria or dependent variables were the number of words correctly remembered from a list of twenty words as tested immediately after learning, at the end of the four session experimental phase, and eight days after the conclusion of the experimental phase for delayed retention. A dependent measure was obtained for each of the four experimental sessions, at the end of the experimental phase and eight days following the experimental phase, for a total of six criterion measures.

The research question for the study was: For six to eight-year-old

learning disabled children, is there a difference between the effectiveness of the Lozanov approach versus the traditional approach in facilitating retention of unknown words? A Behavior Analysis (ABA) design was used as a research tool to evaluate the results. The presentation format for data is as follows: the important variables of sex, reading level, age, and relaxation response of the treatment subjects and sex, reading level and age of students in the contrast group are presented in Table 1. The characteristics and results are presented for each student individually, followed by averages (ave.) and standard deviations (S.D.) per group. Due to random assignment to groups, the groups appeared at least roughly comparable on the above variables. Subjects in the experimental group were older than the control subjects, but not significantly so ($p > .05$). The relaxation response evaluation was determined on the following criterion: E= excellent (eyes closed, no body movement), G= good (eyes closed, minimal body movement), and P= poor (eyes open or closed, frequent body movement). The students ranged from six to eight years of age, included upper and lower reading levels (U= upper and L= lower) and both sexes. An averaged good response relaxation was attained by three of the students in the treatment group.

Table 1 - Background data on subjects (N = 5) by treatment group

Subject No.	Sex	Age	Reading Ability	Relaxation Response
Experimental Group				
1	M	8	Lower	Good
2	M	8	Lower	Good
3	F	7	Upper	Good
Ave.		7.67		
S.D.		0.47		
Control Group				
4	F	7	Upper	
5	F	6	Upper	
Ave.		6.50		
S.D.		0.50		
t		2.05		

Although the experimental treatment was expected to increase word retention, its nature is considered exploratory and speculative. Therefore, a Behavior Analysis (ABA) design was employed to determine conditions under which it is effective or ineffective and which independent variables contributed to its effectiveness or ineffectiveness. This design was employed to help overcome the problem often present in group design approaches attempting to generalize from the average response of a heterogeneous group to a particular individual. Because children with learning problems represent such a heterogeneous population, employment of this design was used to elucidate the question, "What sp ecific treatment is effective with a specific subject under what circumstances?"

The study called for three pretest evaluations by the clinic teacher to establish the baseline measurement (A) and determine the criterion material that was selected for presentation. This evaluation procedure provided for the elimination of all words identified by the students and substantiated the assumption that the students had no knowledge of the words used in the study prior to their presentation. In each treatment phase, five words from the criterion list of twenty were presented and tested at the end of each session. At the end of the four treatment sessions, a cumulative measurement (B) was taken of the words which constituted the criterion material. Eight days following the last experimental session. a delayed measure (A) was again conducted by the clinic teacher.

Treatment Student Results

Information concerning the students in the treatment group is presented individually in Table 2 as follows: pretest baseline information on the criterion, daily learning results and final test criterion results. Following the tabled individual results, the average and standard deviation for each group are given according to the ABA format, concluding with Student's t -test for mean differences between the groups.

Clinical background data on the individual subjects are given next. Student 1 in the treatment group was a male subject, eight years of age, in the lower reading level with a good relaxation response. This student had been referred to the clinic because of reading and math deficits and a disruptive behavior pattern. Reports indicated an early stuttering problem that had been corrected. Previous testing results indicated a fluctuating profile on auditory and visual memory tests and poor visual motor skills. Student 2 in the treatment group was a male student, eight years of age, in the lower reading level, with a good relaxation response. This student had been referred to the clinic because of a severe reading problem. Reports indicated that this student believed he could not read upon admission to the Learning Problems Classroom. A history of psychological and physiological problems associated with the school experi-

Table 2 - Baseline, daily quiz and final test scores for subjects by treatment group

Subject Number	Baseline	Daily Quiz 1	2	3	4	Final Test Acq.	Ret.
Experimental Group							
1	0	100	80	100	100	90	85
2	0	100	80	80	80	85	85
3	0	80	80	100	80	80	80
Ave.	0	93	80	93	87	85	83
S.D.	0	9	0	9	9	4	2
Control Group							
4	0	80	80	60	100	[illegible]	[illegible]
5	0	60	60	100	[illegible]	60	[illegible]
Ave.	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
S.D.	0	[illegible]	[illegible]	[illegible]	[illegible]		

[illegible]

[illegible]

ence and the use of avoidance techniques during the school experience was noted. Right to left vision was reported, abnormal and emotional outbursts and frustration were also noted. Student 3 in the treatment group was a female student, seven years of age, in the upper reading level with a good relaxation response. This student had been referred to the clinic for expressive language problems. Evaluation revealed severe expressive language problems, a fluctuating profile of receptive language and auditory discrimination problems. Reports indicated that auditory memory did not appear to be a problem, but further evaluation was requested. Hearing sensitivity evaluations revealed pure tone

threshholds within normal limits bilaterally, which correlated well with speech reception threshholds. Reports also indicated a problem of distractibility, and graphically, reversals were noted. Initially, an additional subject in the treatment group was a female student, seven years of age, in the lower reading level with a poor relaxation response. This student was referred to the clinic for reading and math deficits. Reports revealed poor visual perception skills resulting in frequent reversals when writing numbers and letter. Poor self-confidence and difficulty in fine motor skills were noted. This student was not present during two of the four treatment sessions, and her data were excluded; with only two of four experimental sessions, she was neither fish nor fowl.

Contrast Student Results

Information concerning the students given the traditional approach is also presented individually in Table 2 as before. Student 4 who received the traditional treatment was female, seven years of age, and in the upper reading level. This student had been referred for reading and math deficits, problems in visual and auditory discrimination, articulation problems, short-term memory deficits, reversals, poor perceptual motor development, and high distractibility. Testing revealed visual acuity as normal, and pure tone and speech discrimination within normal limits bilaterally. Student 5 receiving the traditional treatment was female, six years old, in the upper reading level. This student had been referred for academic difficulties as well as fine and gross motor deficits. Reports revealed significant delays in fine and gross motor skills, poor directionality, visual memory, form discrimination and sensory integration problems. Auditory perception was reported as satisfactory. This student was not present for the delayed retention measurement (see Table 2). The retention scores for the other students remained the same as their acquisition scores or dropped slightly. Mindful of the experimental hypothesis, her retention score was conservatively estimated as having stayed the same as her acquisition score.

Summary of Results

The research question explored in this study was: For six to eight-year-old learning disabled children, is there a difference between the effectiveness of the Lozanov approach versus the traditional approach in facilitating learning and retention of unknown words?

Improved scores (75% or more improvement) on daily, end of learning and delayed evaluations were attained by all but one of the students given the Lozanov treatment approach. The one student who did not achieve practical significance in any of the evaluations was present for only two of the four treatment sessions and was unable to achieve a good relaxation response. While the students given the traditional

treatment were able to achieve two to three score improvements on the daily evaluations, end of learning and delayed measurement significance were not achieved (75% or more improvement).

Examination of trends for the other relevant variables revealed that the older students, eight years of age, attained the best end of treatment and delayed retention measurements. The males in this study had the greatest gains for the end of treatment and delayed evaluations. The students with good relaxation responses achieved the best in-course, end of treatment and delayed evaluations.

Two statistical tests were used to supplement the 75% improvement criterion of practical significance for the ABA data. (See the bottom line in Table 2.) The experimental students had both a significantly higher average end of learning (acquisition) criterion test score than the controls in the contrast group, and a higher delayed measurement (retention) criterion test score.

SUMMARY AND RECOMMENDATIONS

Summary of the Study

The purpose of the current study was to test the effectiveness of the Lozanov approach in teaching word retention to children, six to eight years of age, who have learning problems. Objectives of the study were to investigate the effects of the following variables: (a) the treatment combination of mind calming, imagery and non-attentive learning, (b) sex, (c) reading level, (d) age, and (e) relaxation response in relation to a traditional approach. The research question for the study was: For six to eight-year-old learning disabled children, is there a difference between the effectiveness of the Lozanov approach versus the traditional approach in facilitating retention of unknown words?

The population of the study consisted of children between the ages of six and eight who were in the Learning Problems Classroom at the Kansas University Medical Center. The students were assigned to a treatment or non-treatment approach by the use of a table of random numbers.

The dependent variable consisted of twenty words from the Dolch Vocabulary Word Lists, which were selected in three pretest evaluations by the clinic teacher. Five of these words were taught in each of four sessions in the treatment and traditional approaches.

Two objectives of the Lozanov approach were emphasized in this study: (a) attempting to create a relaxed learning atmosphere in which external and internal distractions to learning are minimized, and (b) presenting lesson material in both attentive and non-attentive states, thereby reaching different awareness levels that reportedly contribute to greater learning and retention.

The students instructed using the Lozanov approach were given two

pre-treatment sessions to acquaint them with the relaxation and mind calming techniques. Forty-minute treatment sessions for these students consisted of a preparation phase, a two-part presentation phase and a practice phase. The preparation phase employed a short relaxation and mind calming exercise. In the active part of the presentation phase, the new words were presented on flashcards, and imagery and kinesthetic techniques were employed. In the passive session, the words were again presented with intonation as the students relaxed to a specifically selected musical background. The practice sessions consisted of the use of the words in the format of a variety of games.

The traditional approach consisted of a presentation and a practice phase. The students assigned to this approach were not given any relaxation or mind calming exercises. In the presentation phase, the material was presented as for the treatment group, but imagery techniques were not used. Since a passive session was not used, no music was employed. As in the treatment groups, games were used to allow for practice and repetition of the words in a fun activity.

Evaluation of the criterion material for both approaches was conducted during the experimental phase, at the end of the experimental phase, and a week following the last teaching session to check immediate and delayed retention. A total of six criterion measurements were taken and evaluated.

A Behavior Analysis (ABA) design was used as a research tool to evaluate the results. Three pretest evaluations by the clinic teacher established the baseline (A) measurement and determined the criterion material that was presented. The criterion measurement of 75% determined significance for the end of treatment (B), delayed (A) and daily acquisition evaluation. The results of the research finding were summarized and discussed.

Limitations

Limitations of this study revolved around *in situ* circumstances at the Medical Center, some of which required adjustment. These limitations involved the number of students available for the study and the failure of some of these to receive full treatment and measurement. The limitations were also influenced by the requirement of having alternating, rather than consecutive, days for the treatment sessions, lack of extended delayed retention measurement and lack of more extended experimentation to check the results of the approach over time. In addition, with the use of the Behavior Analysis (ABA) design, the study ended on the A or baseline phase, but the initial learning in this experimental procedure will not disappear with return to baseline.

Conclusions

The results of the study indicate that for students who can attain a

good relaxation response, the Lozanov approach was more effective for achieving significant in-course, cumulative and delayed measurement evaluations than the controls. While the contrast students achieved two or three significant practical in-course measurements, this was not reflected in their end of treatment or delayed retention evaluations. The experimental students also had significantly ($p < .05$) higher average acquisition and retention scores than did the controls.

An examination of the other independent variables in relation to the population of this study reveals that males, who were the oldest students (eight years old), attained the best end of treatment and delayed retention measurements. Students with the lowest reading levels, who were exposed to all four treatment sessions, achieved better end of treatment and delayed evaluations with the Lozanov approach. The students with good relaxation responses achieved the best in-course, end of treatment and delayed evaluations.

Educational Significance and Implications

Although the current study is not without limitations, it does represent encouraging indications that the Lozanov approach can be implemented with young children who have learning disabilities. While most of the individual elements of the approach are known to Western disciplines, many have either been ignored or not applied to the field of education. The uniqueness of the approach is that Lozanov brought them together in a unified, holistic functional methodology that can be implemented in the educational field.

Several aspects of the approach have important implications for education in general, and for the field of learning disabilities in particular. Some of these include the importance of relaxation in the learning process, the suggestive influence of the arts and the recognition of the importance of the role of unconscious mental processes.

In the field of learning disabilities, the negative effects of anxiety is widely recognized. If anxiety is viewed as an emotional state that blocks learning, then more relaxed states of learning would be of benefit. An important emphasis of the Lozanov approach aims at accelerating learning through various means of suggestion under favorable conditions of physical and mental relaxation. While relaxation has an extensive history in medicine, psychology and psychiatry, its application has been limited in education. Although a student's state of mind is seen as an important variable in how well he performs, how to achieve an appropriate state of mind is seldom taught. Most of the research in the use of relaxation techniques with children who have learning problems has been directed primarily toward behavioral improvement. The important emphasis of its use in the suggestopedic approach is directed toward accelerated learning and its psychophysiological benefits.

A second implication is the suggestive influence of the use of the arts, music in particular, that is employed in the approach. While

Lozanov does not contend that music alone provides for greater memorization, its use to enhance the learning atmosphere and provide for the rhythmic presentation of material is important for accelerated learning. The selection of music appears important because of its physiological effects that are reflected in brain waves. Hans Berger, developer of the electroencephalograph, discovered during his research that music can greatly affect brain waves. It is theorized, therefore, that music can be used to affect states of consciousness by acting at a physiological level. Other researchers, building on Berger's work, found that by using specifically selected music, one could alter mood and behavior. The behavioral state of relaxed wakefulness is usually identified with the alpha activity (although theta and delta are also associated with deep relaxation levels) and implies that the brain state is receptive and not engaged in any specific mental or emotional activity. Research reports indicate that a minimum of alpha, or none at all, is often present with anxiety. Experiments conducted at the Institute in Bulgaria reported an increase in alpha activity, especially during the concert session. It was also observed that pulse rates slowed down and that blood pressure decreased during this part of the session. Therefore, because of its physiological and psychological effects, music appears important in the learning process by acting as a medium to activate the unconscious.

One of the most important implications of the approach is its recognition of the role of unconscious mental processes. While recognition of the importance of unconscious mental processes is slowly emerging in the educational field, neuroscience and psychology are demonstrating that behavior is influenced by internal states and verifying the important influence of mind and body interaction. In learning disabilities, educators are confronted with the problem of how to deal with poor self-concepts. Often negative emotional states, such as anxiety, cause the child to adopt defense mechanisms that result in altering beliefs and feelings which often continue long after the disorder is overcome. When a child's disability is not recognized and helped early, the belief system or self-concept that has been established by the student has become so entrenched that it has to be dealt with before remediation can effectively be initiated.

Lozanov theorizes that belief systems are formed from suggestive factors received on unconscious levels from the environment and within the communication process. Negative self-concepts prevent us from reaching the greater capabilities that are within all of us. Through the use of suggestion which utilizes these unconscious mental processes, barriers that prevent us from accepting positive suggestion are overcome and new attitudes, awareness and abilities are allowed to emerge.

Recognition of these unconscious processes has a significant importance for education. It calls for new methodologies and approaches that deal with the phenomena of consciousness. It calls for seeking answers in new dimensions and exploring the relation between learning and different modes of consciousness. The Lozanov approach brings attention

to, and provides a methodology base that allows for, explorations of these new dimensions. While this methodology is in its infancy in this country, documentation is slowly emerging. Because of the limited research reported to date in the experimentation of the approach with young children who have learning disabilities, this study provides research in ascertaining how this methodology can be implemented with this population.

Recommendations for Further Research

1. Studies with better designs are recommended to investigate which specific elements are most effective with this population.
2. Further research is needed to determine the effect of the approach over time.
3. Research is needed to determine the most effective way to implement the approach with this population.
4. Research is needed to determine if there are limits to the effectiveness of the approach.
5. Several replications with small numbers of children or one using a larger number of subjects is needed to verify the generality of the results obtained in the current study.

Note

This work is a revision of a thesis at the University of Kansas in partial fulfillment of the requirements for the degree of Master of Science in Education, October, 1978.

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Une expérimentation de la méthode de Lozanov dans l'enseignement de la capacité à retenir le vocabulaire chez les enfants présentant des difficultés d'apprentissage

Dans cette étude est testée l'efficacité de l'approche de Lozanov dans l'enseignement du vocabulaire aux enfants âgés de 6 à 8 ans ayant des problèmes d'apprentissage. Trois enfants adressés à la clinique de diagnostic des incapacités d'apprentissage au Centre Médical de l'Université du Kansas ont été soumis au hasard au traitement expérimental de Lozanov et deux autres enfants ont été soumis au traitement de contrôle. Tous les enfants avaient zéro comme critère de base initial. Tous les élèves du groupe expérimental testés quotidiennement et à la fin de leur période d'apprentissage ont été classés dans les 75% ou plus, alors que les élèves du groupe de contrôle, enseignés d'une manière traditionnelle avec quelques tests quotidiens et pas de tests finals, n'ont pas atteint ce critère. De plus, l'acquisition moyenne et les scores sur les tests de rétention du groupe expérimental ont été notablement plus élevés que ceux du groupe de contrôle. On en a donc conclu que l'approche de Lozanov était meilleure que l'approche traditionnelle avec des élèves présentant des difficultés d'apprentissage. On a noté et commenté l'influence d'autres variables.

Experimentieren mit der Lozanov Methode im Lehren von Wortretention an Kindern mit Lernhindernissen.

Diese Untersuchung prüfte die Wirksamkeit der Lozanov Methode im Lehren von Wortretention an Kindern zwischen sechs und acht Jahren mit Lernhindernissen. Drei Kinder, die an die Spezielle Ausstellung Diagnostische Klinik an der Medizinschule der Kansas Universität überwiesen wurden, wurden zufällig der experimentellen Lozanov Behandlung und zwei ähnliche Schüler der Kontrollbehandlung zugewiesen. Alle experimentellen Schüler hatten eine tägliche Punktzahl in Quiz und Schlußexamen von 75% oder mehr, doch die Kontrollschüler, die traditionell gelehrt wurden, hatten keine tägliche Quizpunktzahl aber keine Schlußprüfungszahl, die dieses Kriterium treffen. Außerdem waren die durchschnittliche Erwertungs- und Retentionsexamenpunktzahl bedeutend größer als diejenigen der Kontrollgruppe. Daraus folgte der Schluß, daß die Lozanov Methode mit lernbehinderten Schülern besser war als die traditionelle. Der Einfluß der anderen Variabeln wurde notiert und kommentiert.

Experimentación con el método de Lozanov en el entrenamiento de habilidad de retención de palabras a niños con inhabilidades de aprender. - Este estudio probó la eficacia del acceso de Lozanov en el entrenamiento de retención de palabras a niños de 6-8 años de edad con problemas del aprender. Tres niños referidos a la clínica diagnóstica de educación especial del centro médico de la Universidad de Kansas se asignaron al azar al tratamiento experimental de Lozanov y dos otros estudiantes semejantes se asignaron al tratamiento de control. Todos los estudiantes tuvieron cuentas initiales de criterios de cero. Todos los estudiantes experimentales ganaron cuentas de 75% o mas en los examenes cotidianc. y las pruebas finales, pero los estudiantes de control enseñados tradicionalmente ganaron unas cuentas cotidianas, pero no cuentas finales, que hallaron este criterio. Además, las cuentas médias de adquisición y retención del grupo experimental se elevaron significantemente ($p < .05$) mas que las del grupo de control. Así se concluyó que el acceso de Lozanov con estudiantes de inhabilidades del aprender fue un acceso mejor que el tradicional. La influencia de otros variables se notaron y anotaron.

Erratum

This is the time to give credit where credit is due. The original version of the SALT Teacher's Checklist (JSALT 4(1)) was developed by Charles E. Gritton. No name was on the original checklist. After several tryouts and revisions also without names attached I decided that the checklist was worthy of publication - and forgot the originator. So I am pleased to offer this correction and list Charles E. Gritton as co-author.. Don Schuster.

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