RELAXATION IN SCHOOLS

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Abstract: Six hundred and six Years Two to Six primary students from six Melbourne schools were allocated to either treatment or control conditions. Pre and posttest assessments were taken in maths, reading, self esteem, stress level and locus of control. For 15 weeks the treatment subjects followed a taped program designed to enhance relaxation skill. Treatment students showed less stress and more improvement in reading than controls. Controls reported more improvements in self esteem and all students improved strongly in mathematics.

Can relaxation training prevent or reduce the stress reaction's adverse effects on learning and personality in primary school classrooms? For thousands of years writers have decried the increasing stress of their times and have longed for earlier days when they believed that the incidence of stressful events was so much less than "today." Whatever the truth of this perception, it is certain that with our modern communication and transport systems it is possible for us to access more information, and be in touch with more individuals, in the same day than ever before. Instead of making life easier, it is possible that with modern technology, mankind has made the ease of life more elusive than ever.

How are people different today? In primitive man the fight or flight reaction to stressful situations was highly adaptive. An involuntary reaction causes an increase in breathing rate, heart rate, blood pressure, blood flow and metabolism. To fight or flee today is not so adaptive and behaviour usually requires a behavioural adjustment instead. This is as true of school classrooms as of our homes, offices, shops, factories and sports venues. Students and teachers who experience stress reactions can be likened to rivers in full flood which are dammed up with nowhere to flow.

What do we do to relieve the pressure? The result is a range of various stress reactions and efforts to adapt to physical and mental reactions. In students we see truancy, academic, and behaviour problems in school and bodily complaints, drug abuse, anxiety and depression outside. Teachers experience analogous problems which result in the deterioration of social relationships, ability to work effectively and can

often result in excessive sick leave and workcare reliance (Applied Psychology Research Group, 1990).

What is the relaxation response? Benson (1975) outlines the characteristics of the naturally occurring "relaxation reponse" which appears to be in direct opposition to the "stress syndrome" (Selye, 1974). Both responses are triggered by separate parts of the hypothalamus area of the brain. While the stress syndrome is most often seen as leading to the risk of early death, disease and a lower quality of life generally, the relaxation response improves quality of life and many social and behavioural indicators of good health (Benson, 1984). The operant therapist who seeks an incompatible set of responses to those occurring under stress would design therapy which encourages the relaxation response (Wolpe, 1958). The family doctor would be happy to see a reduction in heart and respiration rates, oxygen consumption and blood pressure and an increase in alpha waves in the brain. These are all physiological elements of Hess's (1957) Nobel Prize winning tropotrophic (relaxation) response.

How can we use the relaxation reponse? The relaxation response as characterized by symptoms of a hypometabolic, or restful, state has been shown to be facilitated by several natural as well as by purposive techniques. The purposive methods (Benson, 1975) include progressive muscular relaxation, autogenic training, transcendental meditation, Zen and Yoga, progressive relaxation, hypnosis with suggested deep relaxation and the Sentic Cycles. We elicit responses similar to the relaxation response when experiencing love, grief or reverence (Clynes, 1970).

Teachers and other professionals who have trained students in the use of relaxation have reported a number of successful effects. Areas of positive change have been:

a. academic skills (Frey, 1980; Margolis, 1987, 1990; Margolis & Pica, 1990; Matthews & Quinn, 1987; Oldfield & Petosa, 1986; Omizo, Omizo & Suzuki, 1986, 1987; Pritchard & Taylor, 1981; Watson & Hall, 1977; Zenker & Frey, 1985; Zenker et al., 1986)

b. discipline and behaviour control (Margolis, 1987; Matthews, 1986; Oldfield, 1986)

c. thought control (Margolis, 1987; Unestahl, 1990)

d. anxiety, stress and depression reduction (Barker, 1987; Bryan & Eby, 1985; Girard, 1991; Margolis, 1990; Matthews, 1983; Poirier, 1991; Reynolds &

Coats, 1986)

e. social interaction (Poirier, 1991)

f. insomnia (Morrison & Storey, 1986)

g. self concept (Matthews, 1988; Oldfield, 1986; Poirier, 1991; Unestahl, 1990)

h. ease of instruction (Lundevold, 1986)

i. asthma control (Kohen, 1987).

The current study was designed to examine whether primary school children who used a method of relaxation based on progressive muscle relaxation would improve in the areas of reading, mathematics, self esteem, stress and locus of control. Most studies of the effects of relaxation training are based on opportunistic and fairly small samples. By using six schools and over six hundred students the results of this study would be more generalizable to primary school classrooms. The treatment takes ten to twenty minutes a day and is purported to relieve the restlessness and tension which stand between students and a richer, fuller and healthier life. In addition the results of the study will demonstrate whether relaxation can lower levels of stress, as well as improve self-esteem, confidence and performance in reading and mathematics.

METHOD

Subjects

Grades two to six from six northern suburban Melbourne primary schools (606 students) agreed to take part in the study. Five schools served as treatment schools (444 students) and one was randomly selected as the control (162 students). All schools were of mixed gender with 308 males and 295 females; an additional three students provided no gender data. Four treatment schools and the control school were State primary schools and one treatment school was a Catholic primary school.

Procedure

Dependent Variables

Prior to and following the 15 weeks of treatment and control conditions, students completed three yes/no style checklists: the Physical Stress Indicator Checklist (PSIC) Stress Scale, the Coopersmith Self Esteem Inventory (SEI), The Nowicki-Strickland Locus of Control Scale (LOC), a modified version of the Schleiger Mathematics Test (SMT) and teachers assessment of students' reading based on the Victorian Ministry of Education version of Reading Profiles (1990).

The PSIC, the SEI, the LOC and the SMT were completed in class as group activities. Teachers administered each test/scale according to a standard set of directions. The Reading Profiles were completed by teachers who rated students on their reading skill by using a 4-point scale with on nine groups/levels of reading behaviours.

Independent Variable

In two one hour workshops, teachers received tuition in the relaxation response and standard procedures to follow in conducting taped relaxation sessions in class. The tape used was the Setterlind-Unestahl program of progressive relaxation which consists of 2 tapes with seven levels of relaxation on each tape.

The "Basic Relaxation" tape begins with progressive muscular contraction-relaxation exercises throughout the body. Later exercises progress to mental relaxation, imagery, deepening techniques, personal relaxation triggers and personal program development. The second tape, "The Seven C's," includes seven segments of relaxation combined with suggestions for the development of confidence, calm, concentration, commitment, creativity, cheerfulness and control. Teachers played the first tape almost exclusively and stayed with the first segment for two weeks before using the second segment. Some classes used both tapes by the end of the experiment although only a few actually reached the end of the first tape.

Although all teachers agreed to conduct one relaxation session per day after the lunch break they subsequently reported engaging in between two and five of the 10 to 15 minute sessions per week. Changes were made to this schedule when the school timetable required it or when teachers found it advantageous to conduct the relaxation session at another time. The control classes spent 10 to 15 minutes of uninterupted sustained silent reading after the daily lunch break.

RESULTS AND DISCUSSION

Data were initially analyzed with two-tailed t tests. See Table 1 for a comparison of pretest and postest data. When total scales are taken into account, there have been significant increases in all variables except Locus of Control from the pretest to the posttest. Stress has increased, teachers have rated more reading behaviours as occurring,

Table 1 Comparison of means of combined pretest and posttest data on Stress, Reading, Mathematics, Self-Esteem and Locus of Control

MEASURE	PRETEST	POSTTEST	t VALUE	df	Prob(2)
Stress	24.04(3.1)	24.62(3.09)	-4.27	361	.000*
Reading	12.89(4.35)	15.33(4.89)	-11.53	180	.000*
Maths	13.92(8.58)	17.96(10.3)	-10.11	605	.000*
Self-Esteem					
General	16.62(4.43)	17.29(4.60)	-3.09	337	.002*
SocPeer	5.52(1.78)	5.43(2.03)	0.96	373	.338
Family	5.28(1.90)	5.38(2.13)	-1.04	380	.300
School	5.22(1.77)	5.20(1.87)	0.30	372	.767
Total	65.29(15.83)	66.88(18.16)	-2.11	305	.035*
Locus OC	22.66(4.20)	23.12(4.66)	-1.96	342	.051

* p < .05

Table 2 Comparison of means of experimental and control group data on Stress, Reading, Mathematics, Self Esteem and Locus of Control

MEASURE	EXPERIMENTAL	CONTROL	t VALUE	df	Prob(2)
Stress					
Pretest	23.88(3.11)	24.50(2.90)	-1.93	479	.054

Posttest	24.09(3.06)	25.48(2.95)	-4.34	436	.000*
Reading					
Pretest	12.74(4.35)	14.26(4.31)	-3.40	387	.001*
Posttest	15.26(5.20)	15.51(3.87)	-0.32	182	.752
Maths					
Pretest	13.87(8.40)	14.08(9.08)	-0.26	604	.787
Posttest	17.98(10.42)	17.91(10.00)	0.07	604	.943
Self-Esteem					
General					
Pretest	16.28(4.26)	16.88(4.49)	-1.29	436	.199
Posttest	16.79(4.64)	18.05(4.44)	-2.65	424	.008*
SocialPeer					
Pretest	5.32(1.74)	5.73(1.74)	-2.21	459	.027*
Posttest	5.29(2.02)	5.70(1.93)	-2.02	460	.041*
Family					
Pretest	5.31(1.87)	5.20(1.94)	0.57	464	.566
Posttest	5.34(2.13)	5.34(2.12)	-0.01	464	.994
School					
Pretest	5.13(1.78)	5.31(1.72)	-0.99	457	.324
Posttest	5.03(1.90)	5.46(1.70)	-2.30	463	.022*
Total					
Pretest	64.22(15.06)	66.23(16.09)	-1.15	406	.249
Posttest	64.65(18.30)	69.78(16.95)	-2.68	404	.008*
Locus Of Control					
Pretest	22.41(4.25)	22.65(3.95)	-0.56	461	.577
Posttest	22.75(4.66)	23.29(4.84)	-1.10	415	.272

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* p < .05.

students answered more maths items correctly, and students rate themselves more highly overall. There is even a trend in students acquiring a more internal locus of control.

When we combine the results of both Tables 1 and 2 we can see

the source of the changes more clearly. The Stress means on Table 1 show a very significant difference from pre- to posttest. Table 2 however, shows that although there is no statistically significant difference between pretest scores of the experimental and control groups, the experimental group continued to record significantly higher scores than the control on the posttest at better than the .001 level. The increase in reported stress is clearly attributable to the control group.

The significant increase in reading scores as shown in Table 1 appears to be mainly due to improvements in the experimental group. The differences in scores from pretest to posttest are about 2.5 for the experimental group and 1.25 for the control group. The increase shown by the experimental group is about one entire level of the nine level profile scale, a significant improvement, which appears to have all been made in less than half a year.

The difference between the groups may be due to the relaxation training of the experimental group or may even be due to the newness of the profiles as an assessment method. It is possible that the first time a teacher saw the profiles was for this study and they may not have been as sensitive to the types of behaviours described in the instrument at the pretest as they were by the time the posttest ratings were made. In the meantime discussion among staff and through inservice workshops may have increased sensitivity to the behaviours.

If the difference was due to the relaxation training it is possible that with relaxation and possibly greater use of all parts of the brain in academic work, recall may have become more efficient and anxiety may have been reduced while reading in public or for the teacher.

Data in both Tables 1 and 2 show increases in mathematics scores. There is a significant difference in SMT maths between groups and the large and highly significant increase in SMT mathematics items correctly answered by students was clearly attributable in equally proportions by both experimental and control group students.

The differences between experimental and control groups become more interesting after examining the self-esteem means and probability data. Although the experimental students' reports are consistent and even improve slightly over the study, their increases are insignificant in comparison with the control group's. The control group's increases in both general self-esteem and total self-esteem are significant at better than the .01 level. This is particularly curious in view of their

increase in levels of stress relative to the experimental group and their lower achievements in reading compared to the experimental group. Perhaps the answer lies in the data which show that they improved significantly over the period in both Social/peer self-esteem and School self-esteem. One is prompted to ask: "Did this school win the local football championship?" Whatever the reason it appears that the control group is consistently different to the experimental group and deserves further investigation for an explanation of these unusual results.

Although Locus of Control data suggest that although the althought he data of all students as a group showed a trend towards a more internal attribution of causation, the effect was quite weak. The weakness and the favorable trend may be explained by a combination of the dynamics of the youngness of the students who were all in primary school and unlikely to be given the responsibility which would usually lead to strong positive changes in locus of control. The fact a positive trend does exist may suggest a move toward giving students a sense of responsibility on the part of their parents, teachers and other role models. The every nature of relaxation training is that we bring bodily functions and reactions into our own control. The knowledge of their own power over their own reactions to stress is also a possible cause for the small trend in locus of control results.

REFERENCES

Applied Psychlogy Research Group, University of Melbourne (1989) Teacher Stress in Victoria: A survey of teachers' views - Summary and recommendations. Office of Schools Administration, Ministry of Education, Victoria.

Barker, B. (1987) Helping students cope with stress. Learning, 15, 5, 44-46.

Benson, H. (1975) The Relaxation Response. NY: William Morrow.

Benson, H. (1984) Beyond the Relaxation Response. NY: Times Books

Bryan, H. & Eby, W. (1975) The effects of relaxation for grade 12 students. The School Counselor, 32, 205-210.

Clynes, M. (1970) Toward a View of Man. In Clynes, M. & Millsum, J. (eds.) Biomedical Engineering Systems. New

York: McGraw Hill.

Coopersmith, S. (1991) Self-Esteem Inventories. Palo Alto, CA: Consulting Psychologists Press.

Dendato, K.M. & Diener, D. Effectiveness of cognitive/relaxation therapy and study skills training in reducing self-reported anxiety and improving the academic performance of test anxious students. Journal of Counseling Psychology, 33, 2, 131-135.

Frey, H. (1980) Improving the performance of readers through autogenic relaxation training. The Reading Teacher, 33, 928-932.

Girard, J.E. (1991) STARR (Student tutoring, tournament, attendance monitoring, retention goals): A student oriented curriculum with retention in mind. (ERIC Document Reproduction Service No 328 293)

Hess, W.R. (1957) The Functional Organization of the Diencephalon. NY: Grune and Stratton.

Kohen, D.P. (1987) A behavioral approach to managing childhood asthma. Children Today, 16, 2, 6-10.

Lundevold, D. (1986) The effects of behavioral relaxation and self instruction training: A case study. Rehabilitation Counseling Bulletin, 30, 2, 124-128.

Margolis, H. (1987) Self induced relaxation: a practical strategy to improve self-concepts, reduce anxiety and prevent behavioral problems. Clearning House, 60, 8, 355-358.

Margolis, H. (1990) Relaxation training: A promising approach for helping exceptional learners. International Journal of Disability Development and Education, 37, 3, 215-234.

Margolis, H. & Pica, L. (1990) The effects of audiotaped progressive muscle relaxation training on the reading performance of emotionally disturbed adolescents. Journal of Clinical Reading: Research and Programs, 3(2), 9-13.

Matthews, D.B. (1983) Relaxation training: Its usefulness in the middle school curriculum. Paper presented at the Annual Meeting of the National Middle Schools. (ERIC Document Reproduction Service No 236 150)

Matthews, D.B. (1986) Discipline: Can it be improved with relaxation training? Elementary School Guidance and Counseling, 20, 194-200.

Matthews, D.B. (1988) A study of the effect of a stress management program on affective and cognitive measures of middle school children. (ERIC Document Reproduction Service No 303 747).

Matthews, D.B. & Quinn, J.L. (1987) Relaxation training: A humanistic technique to increase achievement. Journal of Humanistic Education and Development, 25, 3, 112-121.

Morrison, J.R. & Storey, B. Adolescent insomnia. Clearning House, 60, 3, 110-114.

Nowicki, L. & Strickland, N. (1971) A Locus of Control Scale for Children.

Oldfield, D. (1986) The effects of the relaxation response on self concept and actong out behaviors. Elementary School Guidance and Counseling, 20, 255-260.

Oldfield, D. & Petosa, R. (1986) Increasing students 'on-task' behaviors through relaxation strategies. Elementary School Guidance and Counseling, 20, 180-186.

Omizo, M.M., Omizo, S.A. & Suzuki, L.A. (1986) The effects of biofeedback and relaxation training on memory tasks among hyperactive boys. Exceptional Child, 33, 1, 56-64.

Omizo, M.M., Omizo, S.A. & Suzuki, L.A. (1987) Intervention strategies. Academic Therapy, 22, 427-432.

Poirier, L. (1991) A multifaceted program to increase self-esteem, to lowere anxiety, and to improve social skills in 13 emotionally handicapped middle school boys. (ERIC Document Reproduction Service No ED 340 181).

Pritchard, A. & Taylor, J. (1981) A demonstration of the concept 'hyperlearning.' Journal of Learning Disabilities,14, 1-19.

Reynolds, W.M. & Coats, K.I. (1986) A comparison of cognitive behavioral therapy and relaxation training for the treatment of depression in adolescents. Journal of Consulting and Clinical Psychology, 54, 5, 653-660.

Selye, H. (1974) Stress Without Distress. Philadelphia: J.B. Lippincott.

Unestahl, L.-E. Mental Skills for Sport and Life. Paper presented at Annual Internation Conference for Self-Esteem. (ERIC Document Reproduction Service No ED 335 615).

Watson, D. & Hall, D.L. (1977) Self-control of hyperactivity. La Mesa CA: La Mesa-Spring Valley School District (ERIC Document Reproduction Service No ED 148 093)

Wolpe, J. (1958) Psychotherapy by reciprocal inhibition. Stanford, CA: Stanford University Press.

Zenker, E. & Frey, D.Z. (1985) Relaxation helps less capable students. Journal of Reading, 28, 342-344.

Zenker, E. & Frey, D.Z. (1986) Improving writing skills through relaxation training. Academic Therapy, 21, 4, 427-432.