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The Effects of Sedative Music, Muscle Relaxation, and Success Imagery on Self-Report of Anxiety, Self-Concept, and Depression Among Elementary School Children

A stress-management program entitled Ready...Set...R.E.L.A.X. (Release, Expand, Learn, Appreciate, X-pand) used a combination of sedative music, muscle relaxation, and success imagery for the purpose of reducing the harmful effects of anxiety among elementary age children and subsequently increasing their performance on the Metropolitan Achievement Test (MAT).

The experimental (E) group subjects were 123 1st through 6th grade students enrolled in a Catholic school. The control (C) group subjects were 120 1st through 6th grade students enrolled in a second Catholic school in the same city. The two groups represented the entire enrollment of their schools and were matched in socioeconomic levels, ability levels, and age.

Pre- and post-testing was completed at grades one through three using the Revised Children's Manifest Anxiety Scale (RCMAS), Depression Inventory for Children and Adults, and the MAT. Children in grades four through six completed the RCMAS, the Piers-Harris Self-Concept Inventory, and the MAT.

The Ready...Set...R.E.L.A.X. program consisted of the following components: a. an educational inservice program held separately for the parents of the subjects, teaching staff and students; b. the principal reading the original relaxation and success imagery scripts over the intercom with follow-up discussion led by the classroom teacher; c. relaxing music and a quiet reading time on days scripts were not read. The first year program did not include follow-up discussion nor any scripts dealing with preparation for taking the MAT. Both the first year and the second year were included in the analysis of data.

Within- and between-group comparisons of anxiety, depression, and self-concept suggested that children in grades 1-5 benefited most from the program. In particular, grade one and two subjects showed a significant treatment effect in all measured categories. Results of the MAT indicated significant gains for both the E group and the C group from year one to two. However, the E group scores were significantly higher than the C group in every instance except at the sixth-grade level. Finally results of between-year comparison showed that self-report of anxiety, depression, and self-concept remained generally stable between post-testing the first year to pre-testing the second year.

The Ready, Set, R.E.L.A.X. program was intended to help elementary-age children reduce harmful levels of anxiety. The current project provides an economical and easily implemented procedure that can be used with small or large groups of students.

INDEX WORDS: Anxiety, Children, Music, Imagery, Self-Concept, Stress-Management, Relaxation, Depression

Chapter 3

Method

Subjects

The experimental subjects in the pilot year of the current study were 123 first through sixth grade students enrolled in a Catholic school in a small Midwestern rural community of 20,000, primarily of middle to lower-middle income status. All subjects were white, had female teachers, and represented the portion of the enrollment of the school that remained stable over two years.

The control group subjects were 120 students enrolled in another Catholic grade school in the same community. All subjects were white, had female teachers, and represented the entire enrollment of the school that remained stable over two years. Children in both schools were similar in chronological age, intelligence, as measured by the cognitive index of the Metropolitan Achievement Test (Prescott, G., Irving, B., Hogan, T., & Farr, R., 1986) and socioeconomic level, as assessed by the Hollingshead Two Factor Index of Social Position (1958). The subjects during the second year of the study remained the same with the exception of an additional set of first grade students and graduation of sixth grade students.

Materials

There were six main types of materials used:

1. Pre- and post-testing was completed using various self-report inventories. Children in Grades 1-3 were administered the Revised Children's Manifest Anxiety Scale and the Depression Inventory for Children and Adults, while children in Grades 4-6 were administered the Revised Children's Manifest Anxiety Scale and the Piers-Harris Children's Self Concept Scale.

The Piers-Harris Children's Self Concept Scale entitled, "The Way I Feel About Myself," is a self-report instrument designed to measure self-concept in elementary through high school age students. It requires approximately a third-grade reading ability. The scale has been judged to have good internal consistency (.87-.90) and adequate temporal

stability (.72-.77). Validity was established through comparison with other self-report, self-concept instruments. Content validity was established by defining the universe to be measured as the areas which children reported qualities they liked or disliked about themselves (Jersild, 1952).

The Revised Children's Manifest Anxiety Scale, subtitled "What I Think and Feel," is a 37-item, self-report instrument designed to assess the level and nature of anxiety in children and adolescents from 6 to 19 years old. Reliability estimates using the KR20 formula ranged from .83 to .85 in the norm group indicating acceptable internal consistency between individual items and the Total Anxiety Score.

The Depression Inventory for Children (Battle, 1987) is a self-report instrument comprised of 25 items selected from a pool of 80 items previously identified on the basis of their ability to measure characteristics or symptoms of depression. In research, the scales have proven to be valid, reliable measures that correlate strongly with effective states such as self esteem and have demonstrated that they are sensitive to change (Battle, 1987). Reliability estimates ranging from .77 to .80 were obtained using seven hundred sixty-four boys and girls in the norm group.

2. A series of original success imagery and progressive muscle-relaxation scripts written by this author and Mr. Jeff Allen, principal of the test school. (See Appendix A.)

3. An introductory letter to introduce the program to parents. (See Appendix B.)

4. In-service programs for staff, parents, and students. (See Appendices C, D, E.)

5. Music selections, including Baroque classics as well as sedative music. (See Appendix F.) The music selected was based on the research already cited in Chapter Two.

6. A questionnaire to obtain feedback from participants (teachers and students) in the R.S.R. program. (See Appendices G & I.)

Procedure

To obtain permission to implement the program an overview of the program was presented to the school board of each of the targeted schools for their formal endorsement. After school-board approval, a

letter explaining the program was sent to each parent. (See Appendix B.) An in-service program was then held with the faculty of the experimental school to explain data-gathering procedures and to provide an introduction to the D.R.E.A.M. program and materials. (See Appendix C.) This was followed by pre-testing during the second week of school using the Revised Children's Manifest Anxiety Scale (RCMAS), the Depression Inventory for Children, and the Piers Harris Children's Self-Concept Scale. Students in grades one through three were given the RCMAS and the Depression Inventory. Teachers at these levels were asked to read the items to their students and define unfamiliar words. Students in grades four through six were asked to complete the RCMAS and the Self-Concept Scale. Teachers in these grades monitored the testing and answered questions or defined words as needed. The same instruments were administered and the same instructions were used with all students grades one through six in the control-group school.

Next a workshop was presented to the experimental school students in order to give factual information about stress and lead them in discussion about its psychological and physiological effects. (See Appendix D.) The R.S.R. program was explained to the students by the principal and the group was led through a relaxation/imagery experience by the author.

The R.S.R. program was implemented during the fourth week of school and ran through April of the following spring. During the first month, first through third graders listened to R.S.R. scripts on Monday, Wednesday and Friday from 12:45 p.m. to 1:00 p.m., while fourth through sixth graders listened on Tuesday, Wednesday and Thursday at the same time. The scripts were read over the intercom by the school principal. The R.S.R. session was introduced by the principal stating over the intercom, "Boys and girls it is time for Ready, Set, RELAX", which was followed by two minutes of the music selection. The classroom teachers turned off the classroom lights and instructed their students to clear their desks, place their feet flat on the floor, place their hands on their thighs, bow their heads slightly forward and close their eyes. At the end of the two minutes, the principal began reading the script while the music continued in the background. The principal was trained by this author in appropriate pacing when reading scripts. At

the end of the script each teacher led the class in a brief discussion using the questions at the end of the script. (The teachers had written copies of all scripts and follow-up questions.) All grades listened to sedative music and had a quiet reading time on the days R.S.R. was not presented. In the second year of the study, the test preparation scripts were read each day for one week preceding administration of the Metropolitan Achievement Tests. Initially scripts were read three times a week (M, W, F) in an effort to help students achieve proficiency in obtaining a relaxation response. After October 19th, R.S.R. scripts were read only twice a week so as to present only original scripts over the course of the entire academic year.

A workshop on stress and the R.S.R. program was presented to all interested parents at the test school during the first week in October in both years. (See Appendix E.)

An outline of the actual schedule is listed in Appendix A. Other than the pre- and post-testing, nothing out of the normal routine occurred at the control school.

The procedure during the pilot year differed in several ways. First, all grade levels listened to the same scripts on the same days. This was changed because of the feedback from fifth and sixth grade students indicating that some scripts were more appropriate for the younger grades. Second, there was no follow-up discussion, which became one of the more valuable opportunities to integrate the R.S.R. messages during the second year. Third, no test preparation scripts were available. The hope during the second year was to increase students' overall performance on the Metropolitan Achievement Tests by using relaxation and success imagery prior to the students completing the testing.

The following null hypotheses were postulated:

1. No significant differences will occur for experimental subjects' self-reports of anxiety and depression (grades 1-3) or anxiety and self-concept (grades 4-6) when compared to students in the control school.

2. No within-group significant differences will occur in experimental subjects' self-reports of anxiety and depression (grades 1-3) and anxiety and self-concept (grades 4-6).

3. No significant differences will occur in self-report of anxiety, depression or self-concept on post-test results from the pilot year to pre-test results in the second year in the experimental and control groups.
4. The addition of scripts directly related to testing during the second year will not significantly increase achievement test results in the experimental group.

Chapter 4

RESULTS

Matching Characteristics and Comparisons

The experimental group and control group were matched in age, socioeconomic status, and intelligence. Mean scores and the standard deviations for each grade level are shown in Table 1. Intelligence was matched using the cognitive index of the Metropolitan Achievement Test (MAT). The t test for significance between means indicated no significance at all levels of comparison.

Table 1

Mean (M) and Standard Deviation (SD) of Age (in months), Socioeconomic Status (SES), and Ability (IQ) of Experimental (E) and Control (C) Groups

Grade	Group	N	M			SD		
			Age	SES	IQ	Age	SES	IQ
1	E	23	80	3.3	106	4.92	.92	12.80
1	C	21	82	3.3	105	4.48	1.01	14.33
2	E	20	91	3.4	108	3.32	.95	10.78
2	C	20	95	3.1	114	5.22	1.12	10.30
3	E	20	105	3.5	108	3.27	.83	14.54
3	C	18	103	3.2	106	4.52	.88	13.20
4	E	17	115	3.2	107	4.24	.90	11.55
4	C	22	116	2.8	112	4.17	1.29	11.20
5	E	22	127	3.0	107	3.38	1.11	12.98
5	C	20	127	2.9	109	3.23	1.91	13.62
6	E	21	140	2.9	108	4.29	1.09	11.42
6	C	22	140	3.0	103	3.96	1.19	10.40
1	E	24	72	2.6		5.56	1.20	
1	C	18	75	3.2		4.95	.96	

- Grade one, year two.
- Scale ranges from 1-5 with 3 indicating middle class status.
- IQ score unavailable as these students were not administered MAT.

The analysis of data included between-group comparisons of pre- and post-test results, within-group comparisons of pre- and post-test results and between-year comparisons of post-test results in the first year to pre-test results in the second year.

The above comparisons were made for both the total sample, scored for each grade level, and for a merged sample of eight grade levels (from 1st grade, first year to fifth grade, second year). Only anxiety and achievement scores were evaluated on the merged sample, as these were the only tests given to all grade levels. During the first year of the study, students enrolled in fifth grade, who were subsequently enrolled in sixth grade the second year of the study, were not included in the merge because of overall statistical comparisons indicating no significance. In all cases of comparison, the t test for significance between means was used. The comparisons made included test scores on anxiety, depression, self-concept and achievement.

Within-Group Comparisons

The within-group changes between pre- and post-testing were considered to be more important than between-group differences, because they showed more directly the influence of the dependent variable of the R.S.R. program. These results are presented in Tables 2 and 3. The within-group comparisons were derived by comparing the pre-test mean score on anxiety, depression, self-concept and achievement with the same group's post-test score. The 28 comparisons were 1st, 2nd and 3rd grade anxiety and depression for both years; 4th, 5th and 6th grade anxiety and self-concept for both years; and achievement for 2nd, 3rd, 4th and 5th grade. Achievement was measured by using the group-test results from the Metropolitan Achievement Tests.

Of the 28 possible comparisons the Experimental group showed a positively-directed (decreased score in anxiety or depression and an increased score in self-concept or achievement) significant change 20 times. (See Tables 2 and 4.) The Control group showed a positively-directed significant change in ten instances and a change in the negative direction in one case. (See Tables 3 and 4.) This occurred at the 6th grade, second year.

Table 2

Within-Group Comparison of Anxiety (A), Depression (D),
and Self-Concept (SC) for Years One and Two for Experimental Group

Grade	Year	Test	M		t
			Pre	Post	
merged	1	A	50.69	41.76	7.87****
merged	2	A	40.74	38.19	2.15*
1	1	A	47.48	37.39	6.27****
1	1	D	52.09	44.96	5.12****
2	2	A	36.26	32.65	2.73*
2	2	D	42.78	40.09	2.93**
2	1	A	45.50	39.15	2.53*
2	1	D	49.60	43.15	3.29***
3	2	A	42.65	38.70	1.23
3	2	D	50.10	44.80	2.59*
3	1	A	54.65	44.40	3.78**
3	1	D	53.85	45.80	5.00****
4	2	A	43.65	44.65	-.35
4	2	SC	59.90	61.60	-1.13
4	1	A	56.47	47.65	3.86***
4	1	SC	50.47	57.59	-2.27*
5	2	A	41.12	37.47	2.45*
5	2	SC	63.00	64.89	-2.52*
5	1	A	55.59	47.77	2.82**
5	1	SC	54.00	56.36	-.84
6	2	A	43.91	42.14	.47
6	2	SC	58.27	63.32	-1.20
6	1	A	52.10	48.24	1.21
6	1	SC	61.10	62.91	-.64
1	2	A	45.67	38.08	4.90****
1	2	D	51.42	45.33	4.25****

* $p < .05$. ** $p < .01$. *** $p < .005$. **** $p < .001$.

Table 3

Within-Group Comparison of Anxiety (A), Depression (D), and Self-Concept (SC) for Years One and Two for Control Group

Grade	Year	Test	M		t
			Pre	Post	
merged	1	A	52.82	46.11	4.91***
merged	2	A	46.57	44.70	1.21
1	1	A	54.90	42.57	4.97****
1	1	D	52.00	48.86	1.76
2	2	A	44.71	44.38	.25
2	2	D	45.76	49.67	-1.45
2	1	A	54.40	52.80	.60
2	1	D	57.00	50.85	3.87***
3	1	A	52.75	46.00	2.01
3	2	D	50.60	49.10	.55
3	1	A	46.00	39.11	2.54*
3	1	D	50.89	46.56	3.85***
4	2	A	45.50	43.89	.49
4	2	SC	57.56	55.50	.74
4	1	A	54.96	49.14	2.17*
4	1	SC	52.27	51.86	.15
5	2	A	43.59	44.50	-.25
5	2	SC	59.23	56.50	1.29
5	1	A	48.10	47.90	.13
5	1	SC	53.40	53.05	.48
6	2	A	42.35	45.25	-1.76
6	2	SC	58.25	53.80	3.23***a
6	1	A	51.55	46.36	3.05**
6	1	SC	52.73	50.77	1.19
1	2	A	42.83	43.22	-.14
1	2	D	51.39	49.00	.91

a. SC score decreased* $p < .05$. ** $p < .01$. *** $p < .005$. **** $p < .001$.

Table 4

Comparison of Within-Group Differences of the Experimental (E) and Control (C) Group
Between 1st Year Achievement Test Scores (AT) and 2nd Year Scores

Grade	Group	M		t
		Yr. 1	Yr. 2	
merged	E	587.32	618.91	-15.31**
	C	584.05	595.12	-2.21*
2nd to 3rd	E	573.70	618.25	-8.05**
	C	561.30	587.30	-7.49**
3rd to 4th	E	602.60	629.20	-4.53**
	C	601.06	614.78	-5.49**
4th to 5th	E	589.82	658.88	-18.76**
	C	621.68	633.18	-2.39*
5th to 6th	E	603.96	660.32	-16.09**
	C	594.80	652.95	-13.18**

* $p < .02$. ** $p < .001$.

Within-group comparison of the merged population showed a significant change for the Experimental Group in a positive direction in anxiety in year one (\underline{M} pre-test = 50.69, \underline{M} post-test = 41.76), $t(79) = 7.87$, $p < .001$ and year two (\underline{M} pre-test = 40.74, \underline{M} post-test = 38.19), $t(79) = 2.15$, $p = .033$. The Control group showed a significant change in anxiety only during the first year (\underline{M} pre-test = 52.82, \underline{M} post-test = 46.11), $t(80) = 4.91$, $p < .001$. This result supported a hypothesis that the intervention may have a cumulative effect with more-significant gains seen in year two. Further evidence for such a thesis was the fact that the Control group did not show any significant changes in within-group comparisons on anxiety, depression, or self-concept during the second year (See Table 3.) while the Experimental group showed five significant changes out of a possible ten conditions. (See Table 2.) In addition, although both the Experimental and Control groups scored significantly better in achievement the second year, the fact remained that the Experimental group subjects significantly outperformed the Control group in achievement in four out of five cases. (See Table 5.)

Within-group comparisons of anxiety, depression, and self-concept suggested that children in grades one through five benefited most from the program. In particular, grade one and two youngsters showed a significant treatment effect in all measured categories, leading to the rejection of the second null hypotheses (no within-group significant differences will occur in experimental subjects' self-reports of anxiety and depression) for these two grade levels.

Between-Group Comparisons

This analysis consisted of comparing pre- and post-testing results on anxiety, depression, and self-concept. (See Tables 6 and 7.) Combining all grade levels and both years a total of 24 comparisons were made. No statistically significant differences were noted in 19 of the possible 24 pre-tests. The five statistically significant differences are noted in Table 6. They occurred at the following levels: grade two, year two anxiety and depression; grade two, year one anxiety and depression; and grade six, year one self-concept. Theoretically, because the samples were matched, no significant differences (NS) should have occurred at pre-testing. Variables such as teacher personality and class composition undoubtedly had some impact on this outcome.

Table 5

Between-Group Comparison of the Experimental (E) and Control (C) Groups on Achievement Test Results for Both Years

Grade	Year	M		t
		E Group	C Group	
merged	1	587.32	584.05	.56
merged	2	618.91	595.15	3.76***
2	2	581.00	545.95	4.41***
2	1	573.70	561.30	1.11
3	2	618.25	587.30	3.63**
3	1	602.60	601.05	.17
4	2	629.20	614.79	2.00*
4	1	589.82	621.68	-4.79***a
5	2	658.88	633.18	2.90**
5	1	603.96	594.80	1.47
6	2	660.32	652.95	1.04
6	1	645.57	635.86	1.57

a. C group score higher than E group

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 6

Between-Group Comparison of the Experimental (E) and Control (C) Groups on Anxiety (A), Depression (D), and Self-Concept (SC) for Pre-Tests in Each Year

Grade	Year	Test	M		t
			E Group	C Group	
merged	1	A	50.68	52.82	-1.11
merged	2	A	40.74	46.57	-2.80
1	1	A	47.48	54.90	-1.80
1	1	D	52.09	52.00	.04
2	2	A	36.26	44.71	-2.01*
2	2	D	42.78	45.76	-1.21
2	1	A	45.50	54.40	-2.95**
2	1	D	49.60	57.00	-2.40*
3	2	A	42.65	52.75	-2.57*
3	2	D	50.10	50.60	-1.73
3	1	A	54.65	47.00	2.12*
3	1	D	53.85	50.89	1.02
4	2	A	43.65	45.50	-.46
4	2	SC	59.90	57.56	.51
4	1	A	56.47	54.95	.45
4	1	SC	50.47	52.27	-.39
5	2	A	41.12	43.59	-.59
5	2	SC	63.00	59.23	.82
5	1	A	55.59	48.10	2.36
5	1	SC	54.00	53.40	.12
6	2	A	43.91	42.35	.37
6	2	SC	58.27	58.25	.004
6	1	A	52.10	51.55	.22
6	1	SC	61.10	52.73	1.79
1	2	A	45.67	42.83	.92
1	2	D	51.42	51.39	.01

*p < .05. **p < .01. ***p < .005. ****p < .001.

Table 7

Between-Group Comparison of the Experimental (E) and Control (C) Groups on Anxiety (A), Depression (D), and Self-Concept (SC) for Post-Tests in Both Years

Grade	Year	Test	M		t
			E Group	C Group	
merged	1	A	41.76	46.11	-1.94*
merged	2	A	38.19	44.70	-2.86***
1	1	A	37.39	42.57	-1.54
1	1	D	44.96	48.86	-1.79
2	2	A	32.65	44.38	-3.05**
2	2	D	40.09	49.67	-3.23***
2	1	A	39.15	52.80	-3.29***
2	1	D	43.15	50.85	-2.81**
3	2	A	38.70	46.00	-1.46
3	2	D	44.80	49.10	-1.36
3	1	A	44.40	39.11	.97
3	1	D	45.80	46.56	-.30
4	2	A	44.65	43.89	.15
4	2	SC	61.60	55.50	1.11
4	1	A	47.65	49.14	-.35
4	1	SC	57.59	51.86	1.18
5	2	A	37.47	44.50	-1.61
5	2	SC	64.88	56.50	1.85
5	1	A	47.77	47.90	-.03
5	1	SC	56.36	53.05	.60
6	2	A	42.14	45.25	-.90
6	2	SC	63.32	53.80	2.42
6	1	A	48.24	46.36	.51
6	1	SC	62.91	50.77	2.45*
1	2	A	38.08	43.22	-1.40
1	2	D	45.33	49.00	-1.50

* $p < .05$. ** $p < .01$. *** $p < .005$. **** $p < .001$.

In the 23 cases of NS at pre-testing, five showed a significant difference (S) at post-testing. These differences were in a direction favorable to the experimental group and are indicated in Table 6. It is interesting to note that in post-testing of anxiety, depression, and self-concept, the Experimental group "outscored" the Control group by showing greater positive gains (decrease in depression and anxiety and increase in self concept) in 21 out of 24 possible conditions. (See Table 7.)

Anxiety and achievement test results were the only conditions compared in the merged samples. The Experimental group's self-report of anxiety decreased significantly at post-testing in both year one (M. Experimental group = 47.76, M. Control group = 46.11; $t(159) = -1.94$, $p < .05$) and year two (M. Experimental group = 38.19, M. Control group = 44.70; $t(159) = -2.86$, $p < .005$), and significantly increased in performance on the achievement test measure in year one (M. Experimental group = 564.76, M. Control group = 441.01; $t(159) = 4.12$, $p < .001$) and year two (M. Experimental group = 618.91, M. Control group = 595.15; $t(159) = 3.76$, $p < .001$). (See Table 7.) Although the Experimental group's performance on achievement testing between the first and second year was significantly increased in every case, so was the control group's performance. (See Table 4.)

Of the ten possible between-group comparisons on the achievement test the Experimental group showed a significantly higher score in four instances as opposed to only one for the Control group. (See Table 5.) Two of these comparisons, as already reported, were at 3rd grade, year two and 4th grade, year two. The other two occurred at 2nd grade, year two (M. Experimental group = 581.00, M. Control group = 545.95; $t(42) = 4.41$, $p < .001$) and 5th grade, year two (M. Experimental group = 658.88, M. Control group = 633.18; $t(37) = 2.90$, $p = .006$). The performance of this 5th grade, year two group takes on even more significance as the Control group had significantly outperformed them in the 1st year (M. Experimental group = 589.82, M. Control group = 621.68; $t(37) = -4.79$, $p < .001$). It is interesting to note that the Experimental group scored higher (although not significantly) than the Control group on the remaining six NS conditions.

In summary, analysis of between-group, post-testing data on anxiety, depression, and self-concept revealed mixed results. Results for the merged sample and grade two in both the first and second year led to rejection of the first null hypothesis, since significant differences did occur for experimental subjects' self-reports of anxiety and depression or anxiety and self-concept when compared to control subjects. However, the evidence did not warrant such a rejection for the remaining grade levels.

Results for achievement test performance indicated significant gains for both the Experimental group and Control group from year one to two. (See Table 4.) However in year two, the Experimental group's scores were significantly higher than the Control group in every instance, except at 6th grade. (See Table 5.) This led to the rejection of null hypothesis number 4. The addition of scripts directly related to testing during the second year did significantly increase achievement test results in the experimental group for grades two through five.

Between-Year Comparison

Post-test results from the first year were compared to pretest results in the second year. (See Table 8.) This comparison was made to determine if scores remained stable over summer vacation.

Post-test report of anxiety remained stable with NS difference indicated at any grade level during the pre-testing during the second year. Report of self-concept between the 4th and 5th grade and 5th and 6th grade also was stable with the exception of a significantly higher score by the Control 5th grade sample (\underline{M} . 1st year = 51.86, \underline{M} . 2nd year = 59.23; $t(21) = -2.57$, $p = .02$). Report of depression was also stable with the exception of a significantly higher level of depression reported in the second year by the Experimental 3rd grade sample (\underline{M} . 1st year = 51.86, \underline{M} . 2nd year = 50.10; $t(19) = -2.57$, $p = .018$).

Overall, between-year comparisons, showed that self report of anxiety, depression, and self-concept remained generally stable over the summer supporting null hypothesis number 3 that no significant difference occurred in self-report of anxiety, depression or self-concept on post-test results from the pilot year to pre-test results in the second year.

Table 8

Comparison of Anxiety (A), Depression (D) and Self-Concept (SC) Pre-TestScores 1st Year to Post-Test Scores 2nd Year

Grade	Test	t E Group	t C Group
1 & 2	A	.47	-.416
	D	1.30	1.06
2 & 3	A	.89	.013
	D	-2.57*	.11
3 & 4	A	-.07	-1.52
4 & 5	A	1.56	1.44
	SC	-1.40	-2.57*

*p < .02.

Student Participation

Table 9 shows the percentage of students who reported themselves as actively participating in the D.R.E.A.M. program. When both years were combined, 93 percent of the students in grades one through four compared to 56 percent of the students in grades five and six, reported actively participating in the program. Students in grades one through four also reported using D.R.E.A.M. techniques outside the classroom

more often than students in grades five and six. Combining both years, 25 percent of the students reported such use. In total, 85 percent of the students the first year indicated a desire for continuation of the R.S.R. program while 89 percent of the students the second year indicated this same desire.

These results were based on students' self-report on a survey conducted at the end of each year by the classroom teacher. Appendix H contains the cumulative data for each grade level for both years. The survey results were also used to modify scripts and generate ideas for new scripts for use during the second year.

Table 9

Percentage of Students Actively Participating in Formal D.R.E.A.M. Activities in School and On Their Own and Percentage Desiring Continuation of the Program the Following Year

Grade	Year	Percentage		
		In School	Out of School	Desiring Continuation
1	1	100	30	65
2	1	92	30	90
3	1	81	45	90
4	1	76	15	85
5	1	41	14	82
6	1	90	19	90
1	2	96	42	83
2	2	87	35	83
3	2	85	25	90
4	2	80	5	80
5	2	71	9	91
6	2	36	9	91

Chapter 5

Discussion

Based on the results of this study, several general conclusions can be drawn. First, children in grades one through five appeared to derive more benefit from the Ready, Set, R.E.L.A.X. (RSR) program than did the sixth grade students. Second, within-group comparisons suggest a "cumulative" effect of the program, with more significant changes occurring at post-testing during the second year. Third, achievement test results increased as reported levels of anxiety decreased. Fourth, the stability of post-test results from the first year, when compared to pre-test results from the second year, support the usefulness of the chosen self-report inventories and suggest children's self perceptions in grades one through six were relatively stable over a four-month period.

Grade-Level Differences

There was no significant change in self-reported anxiety among 6th grade students in either year of the study. This appears to support Kelton and Belar's (1983) research. They found that when compared to older elementary students, younger students have a more active imagination which may allow them to derive greater benefit from imagery scripts. They suggest that age-appropriate instructions and imagery are essential for a relaxation script to be successful. This suggestion was also made by Rozensky and Pasternak (1985), who used the "Star Wars" idea of "The Force" as a training aid in relaxation with children. The 6th grade students did not engage in the RSR program as actively as their younger counterparts according to feedback from the staff as well as their own self-report. The most active group with regard to enthusiasm for the program and numbers participating were the 1st and 2nd graders. These two grades also showed significant within- group changes in decreases in self-reported anxiety and depression. Feedback from fifth and sixth graders during the first year of the program suggested that RSR scripts might have been "babyish". An attempt was made to correct this during the second year; however, no significant changes occurred in

6th grader's perception of the program. It is possible that they continued to view the scripts as inappropriate because of their experience during their 5th grade year. Evidence to support this was the fact that second-year 5th graders showed significant within-group differences in decreased anxiety and increased self-concept, while the 5th graders from the first year had a significant change only in anxiety. A child's stage of cognitive development may also influence his/her ability and willingness to engage in mental imagery. Piaget's work (1971) suggests that children in the approximate age range of 7-11 are more likely to engage in active fantasy than children ages 11 and older. This, coupled with the growing social awareness and pressure to "fit in", as well as the aforementioned possible prejudicial feelings carried over from the first year, help explain the current findings.

Within- and Between-Group Comparisons

The within-group comparison of pre-test results on anxiety and depression at grade levels one through three, and anxiety and self-concept at grade levels four through six, provided solid evidence that the RSR program made a significant difference. The results in the second year of testing seemed particularly important because of the dramatic difference between the experimental and control groups. Of the ten sub score comparisons, excluding achievement test results, five were statistically significant in favor of the treatment group. There were no differences in any of the comparisons for the control group. These results suggest that the effects of the intervention may be cumulative. The literature supports the idea of a relatively long program as opposed to the introduction of relaxation training in a short time frame (Day & Sadek, 1982; Russell, Miler, & June, 1975). If one accepts the premise that imagery helps reduce depression, builds positive attitudes and reduces anxiety (Garmen, 1985), then it seems likely that practice over a long period of time will contribute to a cumulative, positive effect.

The within-group comparisons of reported anxiety, depression and self-concept during the first year were more inconsistent. Although the treatment group showed nine statistically significant changes, the non-treatment group showed eight statistically significant changes. Teaching conditions, teachers, and curriculum in the control school were the same both years. Some other unknown intervening variable appeared to be

operating. The change from year one to year two was so dramatic, it is not likely that it was merely a chance occurrence.

The within-group comparisons of the merged sample revealed similar findings. Both the Experimental and Control groups showed a statistically significant decrease in self-reported anxiety and depression during the first year, while only the Experimental group continued to show such a difference in the second year.

The between-group comparisons of reported anxiety, depression, and self-concept were not as dramatic as the within-group comparisons. Although the Experimental group scored lower than the Control group in anxiety and depression on twenty-two of the twenty-four post-test conditions, only six of these twenty-two were statistically significant. However, the merged Experimental group achieved a significantly lower score in anxiety in both year one ($p < .05$) and year two ($p < .005$) when compared to the merged Control group. This reinforces evidence of the benefit of the RSR program for children in grades one through five.

Achievement Test Results

A number of studies have shown an inverse relationship between anxiety and achievement (Gifford & Marston, 1966; Standford, Dember, & Standford, 1963; Kahn, 1969; Hawkes & Furst, 1971). This premise was further supported in the current study. Unfortunately, the pre-testing on achievement occurred nearly one and one-half months after the start of the RSR program so a clearly established baseline prior to intervention was not available. When examining the results of the merged groups, it was found that the Experimental group significantly out-performed the Control group at post-testing. This would suggest that the RSR program may have been an influencing factor.

When examining grades two through six (grade one was not tested), the Experimental group showed a significant improvement over the Control group in four out of ten comparisons. Supporting the observations made earlier, no significant difference was noted at the 6th grade level in either year. This was also true of the first year, fifth grade who were mentioned previously as not having had any significant change in anxiety or depression. Overall these results support the finding that lowering anxiety has a tendency to increase achievement scores.

Within-group comparisons of achievement testing between year one and two showed a significant gain in performance at every grade level. This was also true of the Control group, which suggests the existence of an uncontrolled intervening variable. Both schools had been using the Iowa Tests of Basic Skills in the year prior to this study. They both moved to the Metropolitan Achievement Tests in the first year of this study. The increase in performance during the second year may have been influenced by both the teachers' and the students' familiarity with the tests. In particular, it is quite commonplace to either consciously or unconsciously teach to the test once one becomes familiar with its content.

Between-Year Comparisons

Results were obtained by comparing the post-test results on anxiety, depression and self-concept in year one to the pre-test results on those same measures in year two. Only two changes were significant. Of these, the reported higher level of depression in the second year by the Experimental 3rd grade sample appears to be explainable. Analysis of the individual cases in that sample indicated a dramatic increase in reported depression by three of the students. Upon interviewing the classroom teacher, it was discovered that two of the three students' parents were in the process of divorcing at the time of testing. If those two students scores had been more typical of the other students reports, then a significant difference might not have occurred.

Some earlier writers have questioned whether young children have a stable view of themselves with regard to self-report measures (Fince & Rogers, 1984). They believe attitudes toward the self, which later become fairly well generalized, are at first more a function of the immediate situation and so cannot be measured in any consistent fashion. While this may be true for pre-school children (Piers, 1964), it seems clear from these results that, at least in a four-month span of time, self-perceptions of the children in this study remained relatively stable. The fact that these results remained stable also supported the results of the current study by suggesting that the changes which occurred in these self-perceptions during the course of the school year were influenced by the independent variable.

Student Participation

The high percentage of students in grades one through four, compared to students in grades five and six, who actively participated in at least one formal RSR activity each week coincides with the finding that students in grades one through four derived more benefit from the program. It was postulated that active participation was directly related to a student's ability to lower anxiety and depression.

The fact that 25 percent of students indicated using RSR techniques on their own suggests a transfer of training to anxiety provoking situations outside the classroom.

Methodological Issues

The current study has several possible methodological difficulties. The first was that no placebo control was used. Cobb and Evans (1981) stressed the importance of adequate controls, especially placebo controls. They found most studies in the area of stress management with children lacking in appropriate controls. Including a placebo control would certainly strengthen the current conclusions. However, this was not possible because of the length of the study and the understandable reluctance of the control school to commit fifteen minutes a day to a placebo activity.

A second weakness of this study was the confounding of treatments, which made it difficult to discern the relative contributions of relaxation, music and imagery. This author did not have the time or resources, nor was the experimental school able to provide the opportunity, to test each variable's effectiveness in isolation. There are also numerous other uncontrolled teacher and student variables such as attitude, belief in possible benefits, ability to visualize, and commitment to the program. Richter (1984) and others (Lusiellie, Marholin, Steinman, & Steinman, 1979) stated that it is not reasonable to assume that subjects are following the relaxation program as intended, or that they acquire the ability to relax simply by attending relaxation-training sessions.

This points out a third weakness, which is the measurement of each student's acquisition of and ability to use the relaxation technique. Horan (1980) suggested that data should be collected that indicates the extent to which subjects have mastered both the skill and the ability to apply the skill in appropriate situations. It was obvious from the onset of

this study that such a procedure was not possible because of time and personnel limitations. However, future researchers, by using a smaller sample, could redesign this study to address this concern.

Summary and Conclusions

The RSR program was intended to help elementary-age children reduce harmful levels of anxiety. Within- and between-group comparisons of anxiety, depression and self-concept suggested that children in grades 1-5 benefited most from the program. In particular, grade one and two subjects showed a significant treatment effect in all measured categories. Results of the Metropolitan Achievement Tests indicated significant gains for both the Experimental and Control group from year one to two. However, the Experimental group scores were significantly higher than the Control group in every instance, except at the sixth grade level. Finally results of between-year comparisons showed that self-report of anxiety, depression and self-concept remained generally stable between post-testing the first year to pre-testing the second.

The current project provides an economical and easily implemented procedure that can be used with various-sized groups of students. The intent was to provide a program that would be used school-wide on an annual basis. As of this writing, original scripts continue to be written in order to provide minimal duplication during a child's years in elementary school.

The RSR program was designed to be more than the mere exposure of children to taped relaxation scripts. Such procedures without the context of purposeful, guided instruction have been shown to be ineffective (Guyer & Guyer, 1984; Mead, 1976; Wright, 1978). Instruction providing students with a clear, age-appropriate theoretical basis, and emphasizing transfer of learning seems to be helpful (Hiebert & Eby, 1985; Padamer, 1977; Richardson, Beall & Jessup, 1982; Zaichkowsky & Zaichkowsky, 1984). The RSR program made special effort to provide such instruction through the "inservice" training of staff, parents, and children. Additionally, positive self-talk was encouraged and solidified through discussion with the classroom teacher after each RSR session. Every teacher in the experimental school was enthusiastic and supportive of the program. (See Appendix 9.) The teachers

encouraged their children to take an active part in the RSR program. The positive effects of adult praise and reinforcement on the children's willingness to participate has been reported in the literature (Loffredo, Omizo, & Hammett, 1984; Lupin, Braud, Braud, & Derer, 1976; Zaichkowsky & Zaichkowsky, 1984). In one study (Day & Sadek, 1982), a clear training outcome was evident, but eroded after the cessation of in-class practice, indicating the importance of structuring some long-term, follow-up practice.

Clinicians are frequently placed in a situation of "putting out fires" rather than preventing them. This study was an attempt to prevent future fires by equipping young children, through a school-wide program, to manage feelings of anxiety. Further longitudinal research is needed to determine if the RSR program has beneficial effects once a student leaves elementary school. Additionally, it is hoped this effort will encourage others to use the RSR program to verify the obtained results. "Mental health" is an important commodity, which necessitates that all those in the helping professions expend more energy in well-grounded prevention programs.