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ABSTRACT

Three schools in the same district were compared on the basis of achievement and attitude tests given in the third grade in 1974, and again in the third and fifth grades in 1976. Only descriptive statistics were used, since samples were known not to be random. The three schools were identified as a model of individualized instruction, a school with a similar population of youngsters using more conventional instruction, and a school whose children have higher socioeconomic status (SES) and intelligence. The Comprehensive Tests of Basic Skills showed that the school with higher SES children had higher scores on all six tests of Reading, Language, Mathematics, Reference Skills, Science, and Social Studies; but the school that emphasized individualized instruction showed a greater gain from third to fifth grade in reference skills and independent study skills. The findings also support the view that children in an individualized program had better attitudes towards school and school subjects, as measured by a semantic differential attitude scale and The Faces Test. (CTM)

NETWORK EVALUATION REPORT

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MS. GAIL BROOME
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1977

EVALUATION REPORT

A THREE YEAR STUDY OF

CHILDREN'S ACHIEVEMENT AND ATTITUDE

Cooperative Program Involving:
Millersville State College
The Pennsylvania Department of Education
and
Selected Pennsylvania School Districts

Division of Education
Office of Evaluation and Research
Millersville State College
Millersville, Pennsylvania

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September 1977

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TABLE OF CONTENTS

INTRODUCTION

In the late 1960's and early 1970's open space education was being advocated as the approach to be utilized in the instruction of elementary school youngsters. In the early to mid 1970's, research was conducted comparing achievement of children in an open space setting with youngsters in a more traditional environment. By and large, these studies (Burnham, 1971; Sackett, 1971; McCallum, 1972; Read, 1973) found little difference between the two types of programs. In fact, Sackett (1971) concluded that if the child's whole personality is taken into account, the open space arrangement was not a significant factor.

Studies which found significant differences in favor of the open space setting basically showed such differences to occur in the amount of activity in the classroom, greater independence from the teacher, and a greater willingness to take risks. (Anifant, 1972; Lueders-Salmon, 1972; Meyers, 1971). In addition, the personality factors of self-esteem, attitudes towards school, and sensitivity to others were also cited as having a demonstrated difference in favor of the open space classroom. (Beals, 1972; Beckley, 1973; LaForge 1972).

In 1970 Millersville State College, through the efforts of the Educational Development Center, embarked on a campus-based Summer Happening which had an Open Education theme. After a successful five year effort, from 1970 to 1974, the summer program was shifted in emphasis away from the college into a network venture involving fourteen school districts throughout the state of Pennsylvania. As a result of their work with the earlier programs,

the emphasis of the Educational Development Center Network system veered from the concept of Open Education toward a broader concept of Individualized Instruction. Evaluation of these programs dealt only with the affective impact upon the teachers and the usage of individualizing techniques in their regular classroom during the school year. (Anttonen and Jernegan, 1976). The results of this analysis showed overall positive impact in changing the methods of instruction of classroom teachers.

However, with the current growing concern for educational accountability, it is apparent that an attempt must be made to examine the effects of the Summer Happening and Network programs upon the actual performances of children in the regular school year. The basic variables of achievement, attitudes towards self, and attitudes toward school seem most appropriate to be included in such an analysis.

The current report will present cross-sectional, longitudinal, cognitive, and affective data gathered over a three year period on children from a specific school district whose teachers were trained through the Summer Happening and Network programs of the Millersville Educational Development Center. The schools involved in the analysis are housed in buildings which were built and established in the 40's and 50's, in line with the traditional self-contained classroom concept. Furthermore, the emphasis of the district's curriculum for the past five years has been upon individualizing instruction without changing the physical structure of their buildings.

PROCEDURE

SAMPLE:

The school district involved in the present analysis is located in a rural area in Western Pennsylvania, outside an industrial city with a population of approximately 60,000. The income level of the families in the district varies widely with middle to upper middle class families forming one segment, and rural poverty families forming the other end of the income spectrum. The district itself has been educationally involved in trying to bring about individualized programs for the past several years, and has achieved varying degrees of such individualization in the district schools. The present analysis will center on three of these schools, one of which the school district feels represents a model of individualized instruction. The other two include a school which has similar population youngsters to the model school, but has not progressed totally in the area of individualized instruction, and a school representing high I.Q. children from middle to upper middle class income parents.

TESTING PROCEDURE:

In the spring of 1974, children who were in the third grade in the school district under analysis were given the Comprehensive Test of Basic Skills. This standardized instrument yielded scores on the factors of Reading, Language, Mathematics, and a Total of the three areas; Reference, Science, and Social Studies. In the spring of 1976 a similar test was again given to all students in both the third and fifth grades in the school district. The majority of the fifth grade students had been tested as third

graders in the spring of 1974.

In addition to the achievement testing, youngsters in the school district were also given a third grade attitudinal measure (Faces Questionnaire, Anttonen, 1974). This attitudinal instrument yielded scores on three factors: School Climate, Independent Study, and School Work, along with a combined total score across the three factors. For a sample of the instrument itself and a description of the scoring of the instrument, see Appendix A. Student attitudes in the fifth grade were measured by a Semantic Differential designed by Anttonen, 1974. This Semantic Differential technique tapped feelings of students about Reading, Me, Social Studies, School, Arithmetic, and Science. For a copy of this attitude instrument and scoring procedure, see Appendix B.

ANALYSIS OF DATA:

Since the samples from the three schools are not either truly random or comparable, the data analysis will be presented in descriptive terms only, without statistical tests of inference. The data will be divided into three major sections: (1) Cross-sectional analysis of the standardized achievement data, (2) longitudinal analysis of the achievement data, and (3) a final section dealing with the two attitude measures. In all comparisons the three schools outlined above will be used so that a model individualized instruction school will be compared with a similar student population school, and a school with a higher intelligence, more affluent student population.

The statistics presented will include means and standard deviations for both the achievement and attitude measures. In addition, mean and

standard deviations will also be calculated for the gains which have been made for those youngsters who were tested on the achievement measure in the springs of 1974 and 1976. The achievement means will use as their unit of analysis grade equivalents obtained from the raw scores on the various subject tests and the attitude measures will use as their unit of analysis the simple raw scores obtained for the various factors on the two instruments. In order to simplify the presentation of the results, the model individualized instruction school will be designated in the report simply as the Model School, the similar student population school will be labeled the Parallel School, and the higher intelligence, affluent student population will be referred to as the Atypical School.

TABLE I

GRADE 3 GRADE EQUIVALENT MEANS AND STANDARD DEVIATIONS
(FOR 1976 COMPREHENSIVE TEST OF BASIC SKILLS)
FOR THREE COMPARATIVE SCHOOLS

Subtest	Model School (N=25) Mean	Std. Dev.	Parallel School (N=32) Mean	Std. Dev.	Atypical School (N=50) Mean	Std. Dev.
Reading	4.27	1.91	4.08	1.99	5.24	2.04
Language	4.84	2.28	4.33	2.38	5.21	2.14
Mathematics	4.06	1.41	3.59	1.34	4.44	1.32
Total	4.23	1.68	3.81	1.75	4.79	1.61
Reference	4.96	2.49	4.13	2.03	5.56	2.23
Science	4.37	1.99	4.39	2.25	5.78	2.21
Social Studies	4.50	1.93	4.01	2.11	5.63	2.48

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Total	4.23	1.68	3.81	1.75	4.79	1.61
Reference	4.96	2.49	4.13	2.03	5.56	2.23
Science	4.37	1.99	4.39	2.25	5.78	2.21
Social Studies	4.50	1.93	4.01	2.11	5.63	2.48

the highest mean grade equivalent occurred in the Model school.

In the comparison of the Model school with the Parallel school, 6 out of 7 of the achievement subtests had higher mean grade equivalents in the Model school. A further examination of Table II reveals that the greatest difference (1.11) occurred in the area of Reference. Differences of .35 to .50 mean grade equivalents favoring the Model school occurred in the subtests of Social Studies, Science, and Language. The other three areas, Reading, Total, and Mathematics, were within .25 or less mean grade equivalent units for the two schools.

In addition to the actual grade equivalent scores, the Comprehensive Test of Basic Skills also provided for Grade 3 only, a predicted grade equivalent achievement score based on an intelligence measure, for each of the subtests. By taking the difference between actual and anticipated achievement, a discrepancy score was obtained with a positive score indicating achievement above prediction, and a negative score indicating achievement below prediction.

Table III presents the means and standard deviations for these discrepancy scores on 1976 third grade data for the three comparative schools. As Table III shows, the Atypical school had the highest mean discrepancy scores for the subtests of Reading, Science, and Social Studies. The Model school had the highest mean discrepancy scores for the subtests of Language, Reference, and Total. In the area of Mathematics, negative mean discrepancy scores were obtained for all three schools.

In comparing the Model school with the Parallel school, it is interesting to note that higher mean discrepancy scores, favoring the Model

TABLE II

GRADE 5 GRADE EQUIVALENT MEANS AND STANDARD DEVIATIONS
(FOR 1976 COMPREHENSIVE TEST OF BASIC SKILLS)
FOR THREE COMPARATIVE SCHOOLS

Subtest	Model School (N=57)		Parallel School (N=64)		Atypical School (N=58)	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Reading	6.23	2.22	6.00	2.01	6.62	2.69
Language	6.37	2.59	6.01	2.24	6.40	2.51
Mathematics	6.44	1.71	6.46	2.36	6.61	2.12
Total	6.27	1.89	6.06	1.91	6.42	2.23
Reference	8.18	2.82	7.06	2.81	6.82	2.96
Science	6.95	2.71	6.57	2.39	6.99	3.04
Social Studies	6.60	2.64	6.11	2.58	6.70	3.23

TABLE III

GRADE 3 DISCREPANCY SCORE MEANS AND STANDARD DEVIATIONS
(FOR 1976 COMPREHENSIVE TEST OF BASIC SKILLS)
FOR THREE COMPARATIVE SCHOOLS

Subtest	Model School (N=20)		Parallel School (N=28)		Atypical School (N=47)	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Reading	.25	.99	.18	.88	.41	1.24
Language	.75	1.66	.11	1.05	-.05	1.42
Mathematics	-.09	.86	-.35	.81	-.09	.89
Total	.23	.76	-.13	.86	.06	.99
Reference	1.17	1.91	.07	1.12	.95	1.64
Science	.29	1.00	.31	1.36	.90	1.45
Social Studies	.60	1.13	.01	1.15	.86	1.55

school, occurred in 6 out of the 7 subtests, with the biggest differences occurring for the subtests of Reference (1.00), Language (.64), and Social Studies (.59).

In addition to the data obtained in 1976 for Grade 3 youngsters, similar discrepancy scores were available for a sample of students who were in the third grade in each of the three schools in the spring of 1974. Table IV gives the means and standard deviations for each school for the 1974 discrepancy data.

In order to present either the gain or loss for the mean discrepancy from 1974 to 1976 for each of the schools, a figure was prepared showing the difference between the mean grade equivalent discrepancy scores for the two year period. (See Tables III, IV, and Figure 1). Gains were represented by bar graphs above the zero point in the figure, and losses were represented by bar graphs below the zero point in the figure. As Tables III, IV, and Figure 1 show, the largest gains in discrepancy scores occurred in the Model school for the areas of Language (.18 to .75), Reference (.65 to 1.17), and Social Studies (.08 to .60). The next largest gain occurred for the Atypical school in the area of Social Studies (.39 to .86). All other gains or losses for the three comparative schools were .35 or less.

Thus, the results of the cross-sectional achievement data basically shows that the Atypical school has higher overall achievement in terms of mean grade equivalent scores on the Comprehensive Test of Basic Skills for both Grade 3 and Grade 5. However, the comparison between the Model school and the Parallel school show consistently higher achievement scores for the Model school. Furthermore, when the factor of I.Q. is taken into account,

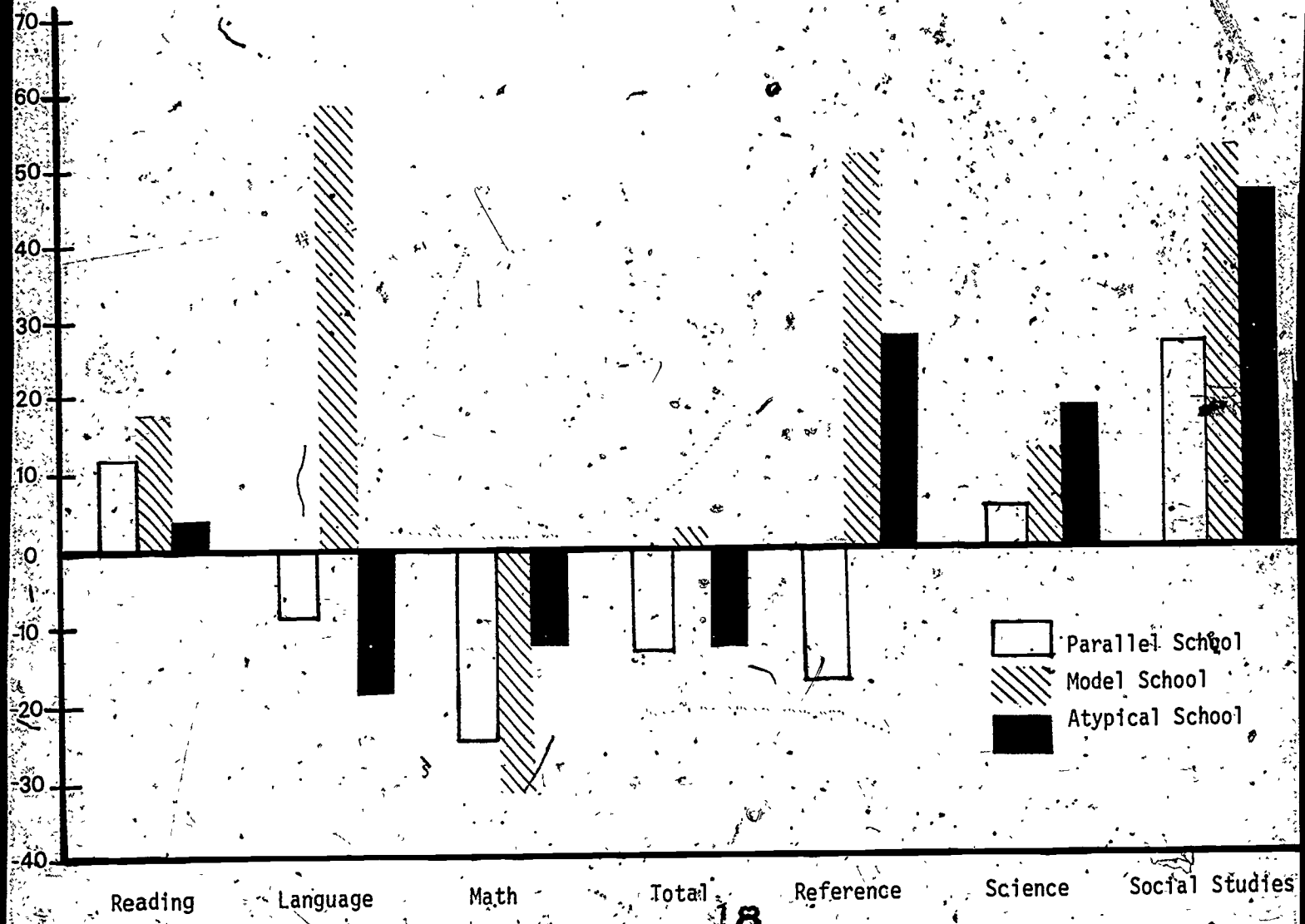
TABLE IV

GRADE 3 DISCREPANCY SCORE MEANS AND STANDARD DEVIATIONS
(FOR 1974 COMPREHENSIVE TEST OF BASIC SKILLS)
FOR THREE COMPARATIVE SCHOOLS

Subtest	Model School (N=24)		Parallel School (N=21)		Atypical School (N=29)	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Reading	.08	1.00	.06	.59	.37	1.06
Language	.18	1.15	.19	.96	.13	1.43
Mathematics	.23	.85	-.10	.62	.04	.87
Total	.20	.80	.01	.51	.19	.87
Reference	.65	1.43	.24	1.20	.68	1.51
Science	.16	1.11	.26	1.05	.72	1.73
Social Studies	.08	1.33	-.25	.67	.39	1.44

FIGURE 1

DIFFERENCES IN DISCREPANCY SCORES FOR 1974 AND 1976 ACHIEVEMENT SUBTESTS FOR THREE COMPARATIVE SCHOOLS



the Model school shows the greatest gain for 5 out of the 7 achievement subtests in the period from 1974 to 1976. In addition, the areas which consistently stand out in favor of the Model school are Reference, Social Studies, and Language. This is not surprising, since the goal of individualizing instruction is to have youngsters seek knowledge and information independently. Also, the emphasis of the individualized program in the Model school has been predominantly in the curriculum areas of Language, Arts, and Social Studies.

In the next section, data based on the longitudinal analysis of the Comprehensive Test of Basic Skills will be presented.

LONGITUDINAL ACHIEVEMENT DATA

As outlined in the section on Procedures, a sample of youngsters in each of the three comparative schools had been tested both in the spring of 1974 and 1976 with the Comprehensive Test of Basic Skills. Table V presents the grade equivalent means and standard deviations for both Grade 3 and Grade 5 longitudinal data on each of the seven subtests. In addition, the table also gives the mean and standard deviation for the gain scores calculated from the differences between the grade equivalent scores for these two testing times. The table also presents the mean and standard deviation for the intelligence test given when the youngsters were in Grade 3 in 1974.

As can be seen from Table V, the largest mean grade equivalent gain for the areas of Reading, Mathematics, Total, and Social Studi-s occurred in the Atypical school. However, for the area of Reference, the greatest mean gain (3.29) was in the Model school. For the areas of Language and Science, the differences between the three schools were all within approximately .30 mean grade equivalent units.

In comparing the Model school with the Parallel school, five out of the seven subtests (Reading, Total, Reference, Science, and Social Studies) had higher mean grade equivalent scores in the Model school. The biggest mean difference occurred in the areas of Reference (.94) and Reading (.53). For the other three subtests, Mathematics, Science, and Social Studies, differences of .30 or less mean grade equivalents were found between the two schools. The two subtests which favored the Parallel school were

TABLE V

GRADE 3 AND 5 GRADE EQUIVALENT AND I.Q. MEANS AND STANDARD DEVIATIONS FOR 1974-1976 COMPREHENSIVE TEST OF BASIC SKILLS FOR THREE COMPARATIVE SCHOOLS

	Model School (N=24)		Parallel School (N=20)		Atypical School (N=28)	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
I.Q. 3rd Grade	101.08	13.51	97.75	11.96	114.43	15.08
Reading						
3rd Grade	3.86	1.76	3.60	1.28	5.49	1.89
5th Grade	6.22	1.98	5.43	1.94	8.19	2.70
Gain	2.35	1.25	1.82	1.01	2.70	1.57
Language						
3rd Grade	4.14	2.02	3.85	1.63	5.89	2.50
5th Grade	5.96	2.40	5.85	2.50	7.94	3.00
Gain	1.82	1.30	2.10	1.63	2.04	1.62
Mathematics						
3rd Grade	4.37	1.47	3.80	1.15	4.84	1.27
5th Grade	6.39	1.71	6.07	2.39	7.50	2.20
Gain	2.01	.98	2.27	1.82	2.66	1.41
Total						
3rd Grade	4.08	1.57	3.68	1.18	5.28	1.75
5th Grade	6.15	1.78	5.68	1.98	7.80	2.51
Gain	2.06	.85	2.01	1.20	2.53	1.21
Reference						
3rd Grade	4.52	1.99	3.78	1.92	5.72	2.40
5th Grade	7.80	2.74	6.12	2.65	8.64	2.93
Gain	3.29	2.07	2.35	2.36	2.85	1.95
Science						
3rd Grade	4.17	1.84	3.94	1.89	6.05	2.12
5th Grade	6.74	2.51	6.12	2.22	8.63	2.94
Gain	2.58	1.94	2.29	1.50	2.58	1.63
Social Studies						
3rd Grade	3.80	1.75	3.30	1.32	5.48	2.84
5th Grade	6.42	2.60	5.75	2.81	8.44	3.15
Gain	2.62	1.80	2.46	1.90	3.03	2.14

Language and Mathematics, although differences of .30 or less mean grade equivalent units occurred in both cases.

Thus, the results of the longitudinal achievement data analysis shows that the Atypical school brings about greater overall achievement gains on the majority of subtests of the Comprehensive Test of Basic Skills. However, it is interesting to note that in an area of individualization; Reference, the greatest gain was made in the Model school. This result is consistent with the goal of the program, which seeks to have youngsters gain information and knowledge in a self-seeking manner.

In the next section, data based on the children's attitudes for the comparison of the three schools will be presented.

ATTITUDE DATA

As outlined in the section on Procedures, attitudinal data was gathered for youngsters who were in Grades 3 and 5 for the three comparative schools in the spring of 1976. Children who were in Grade 3 were given the Faces Test. (See Appendix A). This test yielded scores on three factors: School Climate, Independent Study, and School Work. In addition, a total score was obtained by adding across all the items which were included in this scale. Table VI presents the means and standard deviations for the three comparative schools. As can be seen from Table VI, children in the Model school had a higher mean attitude score for the subtests of Independent Study, School Work, and also for the Total. For the factor of School Climate, the Parallel school had the highest mean attitude.

For youngsters in Grade 5, a semantic differential instrument was utilized. (See Appendix B). This technique tapped six affective dimensions: Reading, Me, Social Studies, School, Mathematics, and Science. Table VII presents the means and standard deviations for the three comparative schools for these six concepts. As Table VII shows, higher mean attitude scores were obtained for the Model school in 5 out of the 6 dimensions: Reading, Me, Social Studies, School, and Mathematics. For the concept of Science, the highest mean occurred in the Atypical school.

If one views the combined results of the third and fifth grades, it is interesting to note that for eight of the ten measures a higher mean attitude score was found in the Model school. This result is consistent with one of the objectives of an individualized program, namely that

youngsters who are given more choice and freedom in seeking knowledge independently should have "better" attitudes toward school and school work when compared to youngsters who are involved in more "traditional" based programs.

In the next section of the report, a summary and conclusion will be presented.

TABLE VI

GRADE 3 MEANS AND STANDARD DEVIATIONS FOR 1976 FACES ATTITUDE TEST FOR THREE COMPARATIVE SCHOOLS

Attitude Variable	Model School (N=20) Mean	Std. Dev.	Parallel School (N=28) Mean	Std. Dev.	Atypical School (N=47) Mean	Std. Dev.
School Climate	19.90	2.61	20.50	2.94	19.32	2.05
Independent Study	15.10	2.15	14.14	2.94	14.51	1.98
School Work	11.60	3.15	10.79	3.32	9.60	2.78
Total	46.60	6.39	45.43	6.91	43.19	4.74

TABLE VII

GRADE 5 MEANS AND STANDARD DEVIATIONS
FOR 1976 SEMANTIC DIFFERENTIAL ATTITUDE TEST
FOR THREE COMPARATIVE SCHOOLS

Subtest	Model School (N=57)		Parallel School (N=54)		Atypical School (N=58)	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Reading	22.39	2.73	22.19	2.78	22.09	2.90
Me	22.25	2.97	22.17	3.02	21.64	3.17
Social Studies	22.47	2.63	21.92	3.01	21.24	4.15
School	22.82	3.15	21.58	2.80	21.36	3.68
Mathematics	23.93	3.24	22.05	3.37	22.50	4.19
Science	22.65	3.35	22.27	2.89	23.33	3.45

CONCLUSION

The results of the comparison of the three schools involved in the present analysis presents some interesting findings. Obviously, the findings support the view that intelligence is still closely related to the achievement of youngsters. This is revealed in the consistently higher mean grade equivalent scores for the school with a student population which can be characterized as upper intelligence, and coming from homes which are in the middle to upper socio-economic level.

However, the study also shows that youngsters who have been exposed to an individualized curriculum can achieve greater growth and perform at a higher level in certain specific areas of skill development. Specifically, such youngsters achieved and gained in the skill area of Reference which tapped their ability to work independently. In addition, the verbal areas of Language and Social Studies also showed a high level of achievement. For the areas of Mathematics, Reading, and Science, youngsters who were exposed to such an individualized approach did not tend to do less well than youngsters who were exposed to a more "traditionally" based curriculum.

The study also tended to support the view that children in an individualized program have better attitudes toward school and its subjects. Again, this is not surprising, since one of the major goals of an individualized instruction is to make learning more enjoyable and hence bring about better school and school related affect.

Obviously, the school district involved in the present analysis has made a commitment to the whole area of individualizing instruction. All

the schools in the district, in addition to the Model school, are presently seeking to develop this method. The school district itself is not interested in making claims that its approach is bringing about great gains in achievement, and establishing entirely new modes of instruction. Rather, they feel that they are attempting instructional methods which seem to bring about better results in some areas, and the present report tends to support their claim.

Hopefully, other school districts will want to examine the techniques and tactics which have brought about the success achieved by the particular school system involved in this report.

APPENDIX A

FACES INVENTORY

Age _____ Name _____

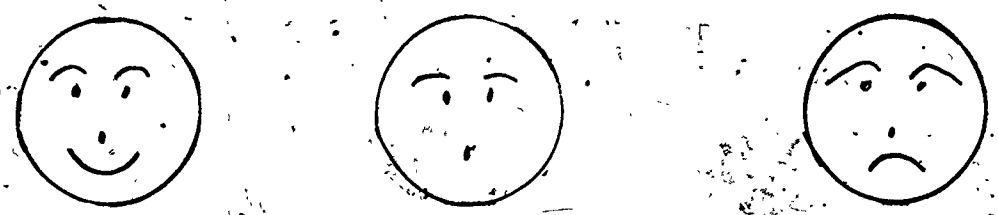
Grade _____ School _____

Date _____

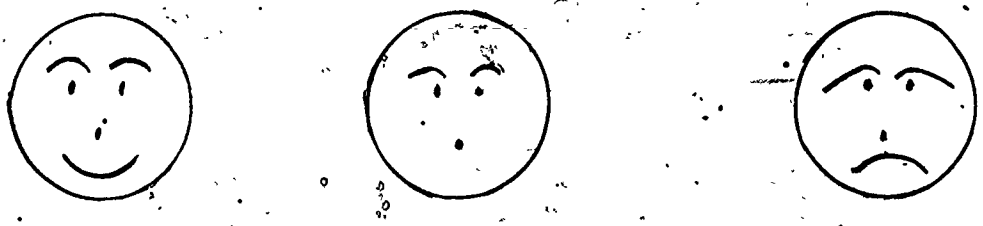
DIRECTIONS: Boys and girls, we are interested in how you feel about school and some of the things you do in school. Read each sentence below and on the following pages. Put an "X" on the face that shows how you feel. Please check only one face for each sentence and make sure you answer each sentence.

EXAMPLE:

This is how I feel when I go to the doctor.

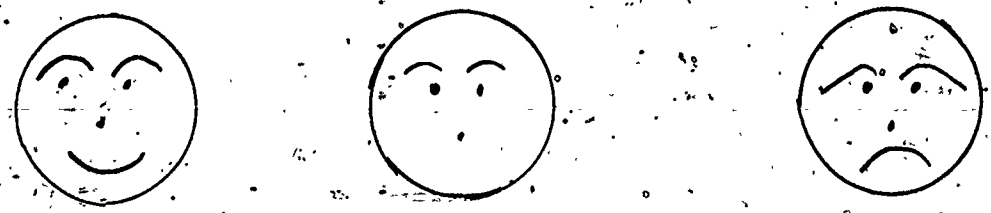


1. This is how I feel when I come to school.



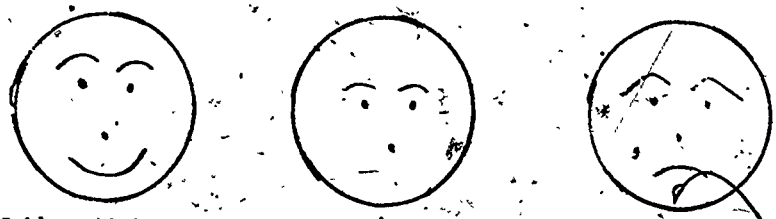
2. I feel like this when the teacher tells me to do something all by myself without any help.

3. This is how I would feel if I could go to school for the rest of my life.

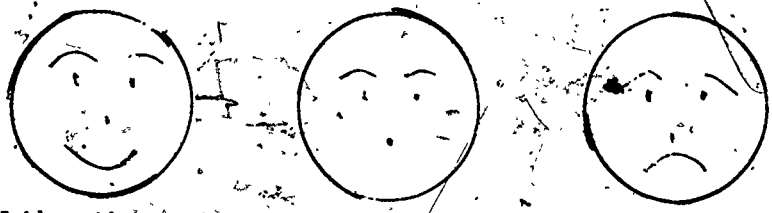


4. I feel like this when someone does not follow the rules. -

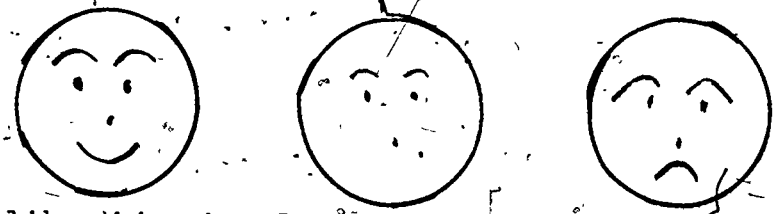
5. I feel like this when I work alone.



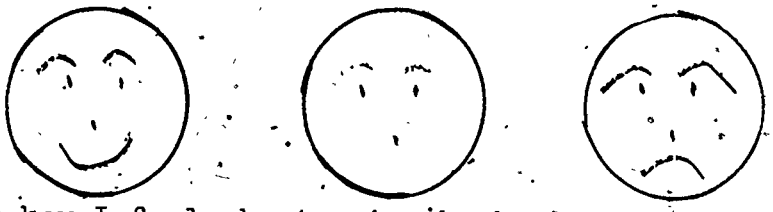
6. I feel like this when I have a lot of school work to do.



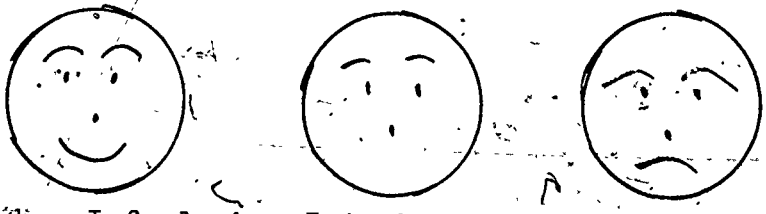
7. I feel like this about going to summer school.



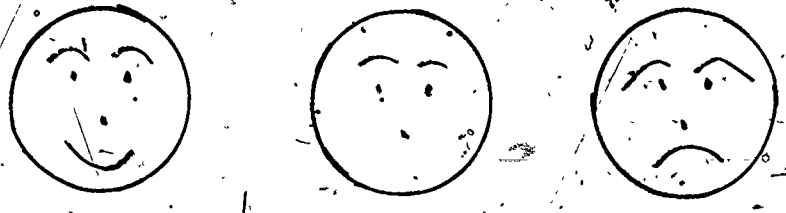
8. I feel like this when I work on a project by myself.



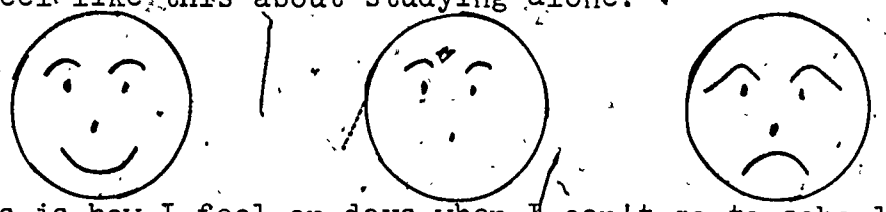
9. This is how I feel about going back to school after a vacation.



10. This is how I feel when I talk to my teachers.

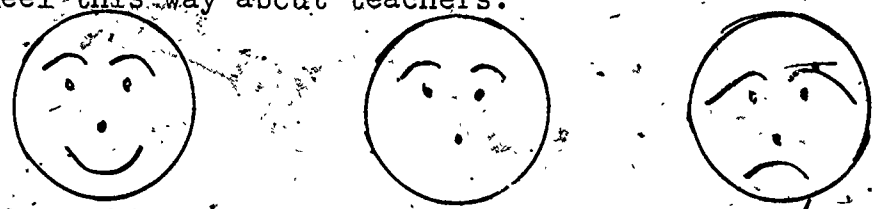


11. I feel like this about studying alone.

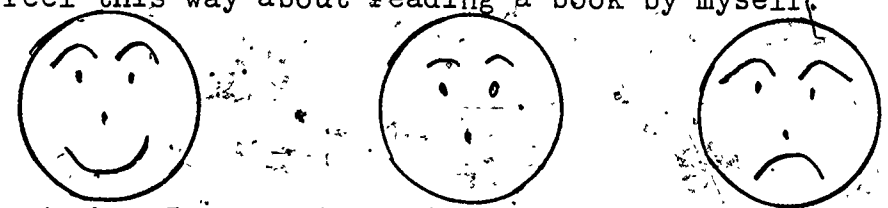


12. This is how I feel on days when I can't go to school.

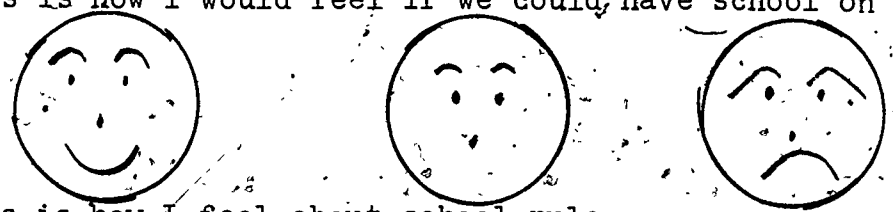
13. I feel this way about teachers.



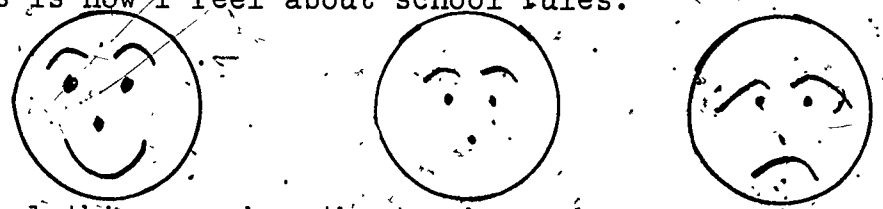
14. I feel this way about reading a book by myself.



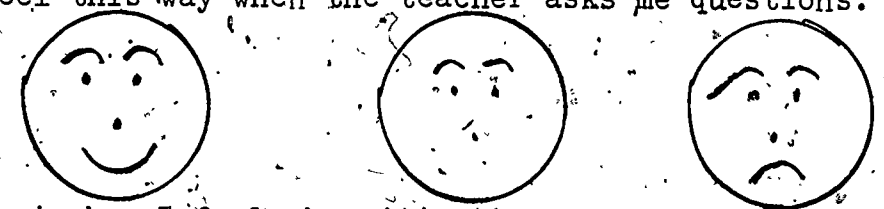
15. This is how I would feel if we could have school on Saturday, too.



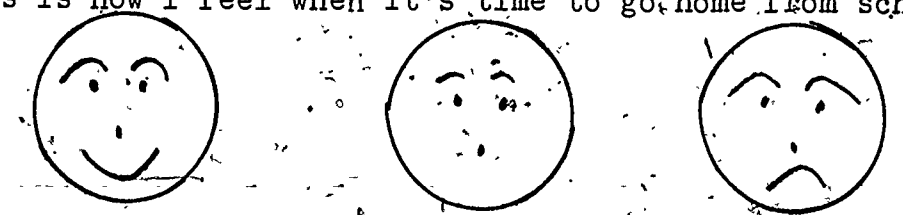
16. This is how I feel about school rules.



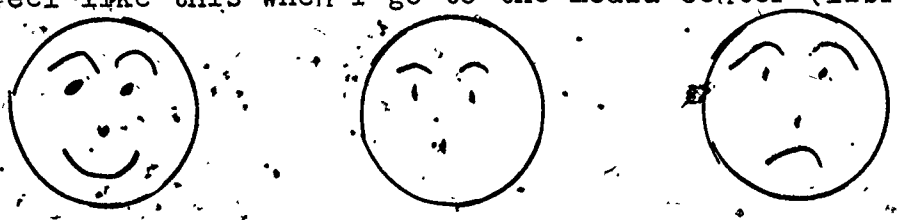
17. I feel this way when the teacher asks me questions.



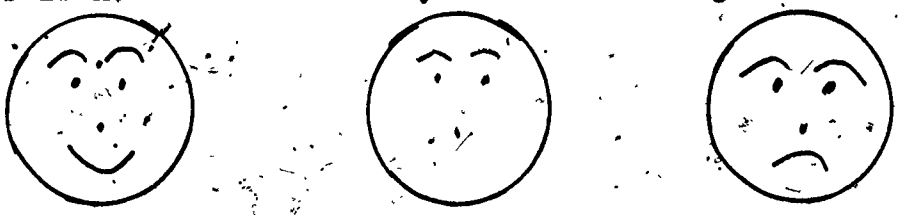
18. This is how I feel when it's time to go home from school.



19. I feel like this when I go to the media center (library).



20. This is how I feel about my school building.



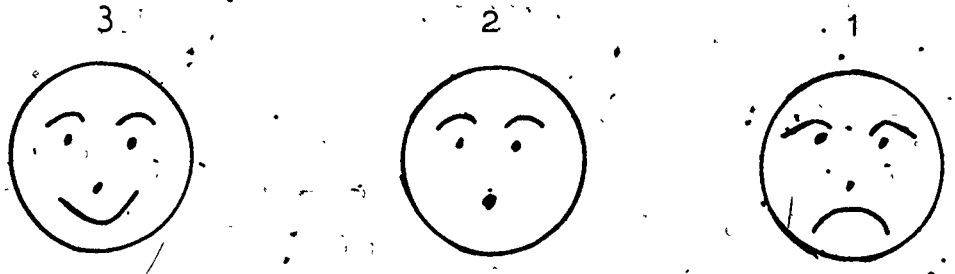
SCORING PROCEDURES
FOR

THE FACES TEST

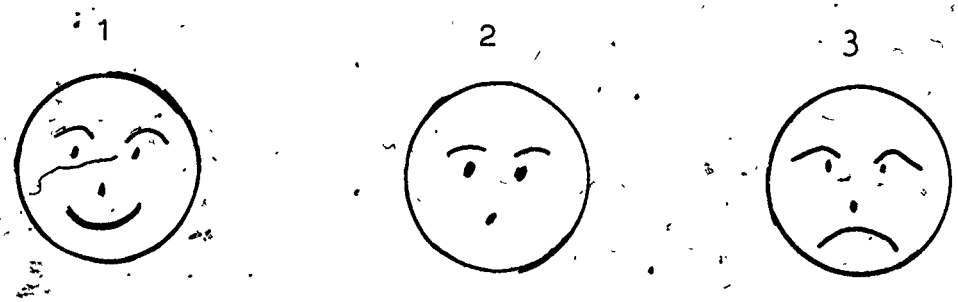
The 20 items of the Faces Test yield three scores on what can be called three factors. These three factors and the items that are part of these factors are given below.

FACTOR	ITEMS
I. Attitude toward school climate	1, 4, 7, 10, 13, 16, 19, 20
II. Attitude toward independent study	2, 5, 8, 11, 14, 17
III. Attitude toward school-work	3, 6, 9, 12, 15, 18

Each item is scored on a 3 point scale with a "positive" response getting a 3 and a "negative" response a 1. For example, for item 1, "This is how I feel when I come to school.", the weighting is



All other items, with the exception of 4, 12, and 18, are similarly weighted. For items numbers 4, 12, and 18, the three-point scale is reversed. For example, for item 4, "I feel like this when someone does not follow the rules.", the weighting is



In order to obtain a score on a factor, the weights for the items that are included in that factor are simply added. Thus, for factor I, the scores can range from 8 to 24, whereas for factors II and III, the scores can range from 6 to 18.

APPENDIX B

SEMANTIC DIFFERENTIAL TESTING PROJECT

Name _____

School _____

Grade _____ Age _____

Today I would like you to think about yourself and your schoolwork and how you feel about yourself and your schoolwork. The things you tell us will not be used in any way to give you a grade. Also, there are no right or wrong answers to the things we are going to ask you.

On the next six pages you will find a list of words which mean the opposite of each other. An example of these words is:

HAPPY _____ SAD

At the top of each page will be some things about school like Reading and Me. If you feel that you are always happy with reading, place an X in box 1. If you feel you are not always happy with reading but are happy most of the time, place an X in box 2. If you feel you are sometimes happy and sometimes sad with reading, place an X in box 3. If you feel you are not always sad but sad most of the time with reading, place an X in box 4. If you feel you are always sad with reading, place an X in box 5. However, if you feel you cannot answer to the thing, place an X in box 3.

On each of the words on the next pages, try to think about how you really feel about the school thing at the top of the page and mark your answer so it is as close to how you feel. Mark only one answer for each pair of words. Make sure your answer is in the box, not outside the box.

Reading and Me

HAPPY	ALWAYS HAPPY	MOST ALWAYS HAPPY	HAPPY SOMETIMES SAD	MOST ALWAYS SAD	ALWAYS SAD	SAD
QUIET	ALWAYS QUIET	MOST ALWAYS QUIET	QUIET SOMETIMES LOUD	MOST ALWAYS LOUD	ALWAYS LOUD	LOUD
BAD	ALWAYS BAD	MOST ALWAYS BAD	BAD SOMETIMES GOOD	MOST ALWAYS GOOD	ALWAYS GOOD	GOOD
SLOW	ALWAYS SLOW	MOST ALWAYS SLOW	SLOW SOMETIMES FAST	MOST ALWAYS FAST	ALWAYS FAST	FAST
NICE	ALWAYS NICE	MOST ALWAYS NICE	NICE SOMETIMES AWFUL	MOST ALWAYS AWFUL	ALWAYS AWFUL	AWFUL
BIG	ALWAYS BIG	MOST ALWAYS BIG	BIG SOMETIMES SMALL	MOST ALWAYS SMALL	ALWAYS SMALL	SMALL
CRUEL	ALWAYS CRUEL	MOST ALWAYS CRUEL	CRUEL SOMETIMES KIND	MOST ALWAYS KIND	ALWAYS KIND	KIND
WEAK	ALWAYS WEAK	MOST ALWAYS WEAK	WEAK SOMETIMES STRONG	MOST ALWAYS STRONG	ALWAYS STRONG	STRONG
FAIR	ALWAYS FAIR	MOST ALWAYS FAIR	FAIR SOMETIMES UNFAIR	MOST ALWAYS UNFAIR	ALWAYS UNFAIR	UNFAIR
HIGH	ALWAYS HIGH	MOST ALWAYS HIGH	HIGH SOMETIMES LOW	MOST ALWAYS LOW	ALWAYS LOW	LOW
DISLIKE	ALWAYS DISLIKE	MOST ALWAYS DISLIKE	DISLIKE SOMETIMES LIKE	MOST ALWAYS LIKE	ALWAYS LIKE	LIKE
HARD	ALWAYS HARD	MOST ALWAYS HARD	HARD SOMETIMES EASY	MOST ALWAYS EASY	ALWAYS EASY	EASY

School and Me

HAPPY	ALWAYS HAPPY	MOST ALWAYS HAPPY	HAPPY SOMETIMES SAD	MOST ALWAYS SAD	ALWAYS SAD	SAD
QUIET	ALWAYS QUIET	MOST ALWAYS QUIET	QUIET SOMETIMES LOUD	MOST ALWAYS LOUD	ALWAYS LOUD	LOUD
BAD	ALWAYS BAD	MOST ALWAYS BAD	BAD SOMETIMES GOOD	MOST ALWAYS GOOD	ALWAYS GOOD	GOOD
SLOW	ALWAYS SLOW	MOST ALWAYS SLOW	SLOW SOMETIMES FAST	MOST ALWAYS FAST	ALWAYS FAST	FAST
NICE	ALWAYS NICE	MOST ALWAYS NICE	NICE SOMETIMES AWFUL	MOST ALWAYS AWFUL	ALWAYS AWFUL	AWFUL
BIG	ALWAYS BIG	MOST ALWAYS BIG	BIG SOMETIMES SMALL	MOST ALWAYS SMALL	ALWAYS SMALL	SMALL
CRUEL	ALWAYS CRUEL	MOST ALWAYS CRUEL	CRUEL SOMETIMES KIND	MOST ALWAYS KIND	ALWAYS KIND	KIND
WEAK	ALWAYS WEAK	MOST ALWAYS WEAK	WEAK SOMETIMES STRONG	MOST ALWAYS STRONG	ALWAYS STRONG	STRONG
FAIR	ALWAYS FAIR	MOST ALWAYS FAIR	FAIR SOMETIMES UNFAIR	MOST ALWAYS UNFAIR	ALWAYS UNFAIR	UNFAIR
HIGH	ALWAYS HIGH	MOST ALWAYS HIGH	HIGH SOMETIMES LOW	MOST ALWAYS LOW	ALWAYS LOW	LOW
DISLIKE	ALWAYS DISLIKE	MOST ALWAYS DISLIKE	DISLIKE SOMETIMES LIKE	MOST ALWAYS LIKE	ALWAYS LIKE	LIKE
HARD	ALWAYS HARD	MOST ALWAYS HARD	HARD SOMETIMES EASY	MOST ALWAYS EASY	ALWAYS EASY	EASY

Arithmetic and Me

HAPPY	ALWAYS HAPPY	MOST ALWAYS HAPPY	HAPPY SOMETIMES SAD	MOST ALWAYS SAD	ALWAYS SAD	SAD
QUIET	ALWAYS QUIET	MOST ALWAYS QUIET	QUIET SOMETIMES LOUD	MOST ALWAYS LOUD	ALWAYS LOUD	LOUD
BAD	ALWAYS BAD	MOST ALWAYS BAD	BAD SOMETIMES GOOD	MOST ALWAYS GOOD	ALWAYS GOOD	GOOD
SLOW	ALWAYS SLOW	MOST ALWAYS SLOW	SLOW SOMETIMES FAST	MOST ALWAYS FAST	ALWAYS FAST	FAST
NICE	ALWAYS NICE	MOST ALWAYS NICE	NICE SOMETIMES AWFUL	MOST ALWAYS AWFUL	ALWAYS AWFUL	AWFUL
BIG	ALWAYS BIG	MOST ALWAYS BIG	BIG SOMETIMES SMALL	MOST ALWAYS SMALL	ALWAYS SMALL	SMALL
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WEAK	ALWAYS WEAK	MOST ALWAYS WEAK	WEAK SOMETIMES STRONG	MOST ALWAYS STRONG	ALWAYS STRONG	STRONG
FAIR	ALWAYS FAIR	MOST ALWAYS FAIR	FAIR SOMETIMES UNFAIR	MOST ALWAYS UNFAIR	ALWAYS UNFAIR	UNFAIR
HIGH	ALWAYS HIGH	MOST ALWAYS HIGH	HIGH SOMETIMES LOW	MOST ALWAYS LOW	ALWAYS LOW	LOW
DISLIKE	ALWAYS DISLIKE	MOST ALWAYS DISLIKE	DISLIKE SOMETIMES LIKE	MOST ALWAYS LIKE	ALWAYS LIKE	LIKE
HARD	ALWAYS HARD	MOST ALWAYS HARD	HARD SOMETIMES EASY	MOST ALWAYS EASY	ALWAYS EASY	EASY

Me

HAPPY	ALWAYS HAPPY	MOST ALWAYS HAPPY	HAPPY SOMETIMES SAD	MOST ALWAYS SAD	ALWAYS SAD	SAD
QUIET	ALWAYS QUIET	MOST ALWAYS QUIET	QUIET SOMETIMES LOUD	MOST ALWAYS LOUD	ALWAYS LOUD	LOUD
BAD	ALWAYS BAD	MOST ALWAYS BAD	BAD SOMETIMES GOOD	MOST ALWAYS GOOD	ALWAYS GOOD	GOOD
SLOW	ALWAYS SLOW	MOST ALWAYS SLOW	SLOW SOMETIMES FAST	MOST ALWAYS FAST	ALWAYS FAST	FAST
NICE	ALWAYS NICE	MOST ALWAYS NICE	NICE SOMETIMES AWFUL	MOST ALWAYS AWFUL	ALWAYS AWFUL	AWFUL
BIG	ALWAYS BIG	MOST ALWAYS BIG	BIG SOMETIMES SMALL	MOST ALWAYS SMALL	ALWAYS SMALL	SMALL
CRUEL	ALWAYS CRUEL	MOST ALWAYS CRUEL	CRUEL SOMETIMES KIND	MOST ALWAYS KIND	ALWAYS KIND	KIND
WEAK	ALWAYS WEAK	MOST ALWAYS WEAK	WEAK SOMETIMES STRONG	MOST ALWAYS STRONG	ALWAYS STRONG	STRONG
FAIR	ALWAYS FAIR	MOST ALWAYS FAIR	FAIR SOMETIMES UNFAIR	MOST ALWAYS UNFAIR	ALWAYS UNFAIR	UNFAIR
HIGH	ALWAYS HIGH	MOST ALWAYS HIGH	HIGH SOMETIMES LOW	MOST ALWAYS LOW	ALWAYS LOW	LOW
DISLIKE	ALWAYS DISLIKE	MOST ALWAYS DISLIKE	DISLIKE SOMETIMES LIKE	MOST ALWAYS LIKE	ALWAYS LIKE	LIKE
ID	ALWAYS HARD	MOST ALWAYS HARD	HARD SOMETIMES EASY	MOST ALWAYS EASY	ALWAYS EASY	EASY

Social Studies and Me

HAPPY	ALWAYS HAPPY	MOST ALWAYS HAPPY	HAPPY SOMETIMES SAD	MOST ALWAYS SAD	ALWAYS SAD	SAD
QUIET	ALWAYS QUIET	MOST ALWAYS QUIET	QUIET SOMETIMES LOUD	MOST ALWAYS LOUD	ALWAYS LOUD	LOUD
BAD	ALWAYS BAD	MOST ALWAYS BAD	BAD SOMETIMES GOOD	MOST ALWAYS GOOD	ALWAYS GOOD	GOOD
SLOW	ALWAYS SLOW	MOST ALWAYS SLOW	SLOW SOMETIMES FAST	MOST ALWAYS FAST	ALWAYS FAST	FAST
NICE	ALWAYS NICE	MOST ALWAYS NICE	NICE SOMETIMES AWFUL	MOST ALWAYS AWFUL	ALWAYS AWFUL	AWFUL
BIG	ALWAYS BIG	MOST ALWAYS BIG	BIG SOMETIMES SMALL	MOST ALWAYS SMALL	ALWAYS SMALL	SMALL
CRUEL	ALWAYS CRUEL	MOST ALWAYS CRUEL	CRUEL SOMETIMES KIND	MOST ALWAYS KIND	ALWAYS KIND	KIND
WEAK	ALWAYS WEAK	MOST ALWAYS WEAK	WEAK SOMETIMES STRONG	MOST ALWAYS STRONG	ALWAYS STRONG	STRONG
FAIR	ALWAYS FAIR	MOST ALWAYS FAIR	FAIR SOMETIMES UNFAIR	MOST ALWAYS UNFAIR	ALWAYS UNFAIR	UNFAIR
HIGH	ALWAYS HIGH	MOST ALWAYS HIGH	HIGH SOMETIMES LOW	MOST ALWAYS LOW	ALWAYS LOW	LOW
DISLIKE	ALWAYS DISLIKE	MOST ALWAYS DISLIKE	DISLIKE SOMETIMES LIKE	MOST ALWAYS LIKE	ALWAYS LIKE	LIKE
HARD	ALWAYS HARD	MOST ALWAYS HARD	HARD SOMETIMES EASY	MOST ALWAYS EASY	ALWAYS EASY	EASY

Science and Me

HAPPY	ALWAYS HAPPY	MOST ALWAYS HAPPY	HAPPY SOMETIMES SAD	MOST ALWAYS SAD	ALWAYS SAD	SAD
QUIET	ALWAYS QUIET	MOST ALWAYS QUIET	QUIET SOMETIMES LOUD	MOST ALWAYS LOUD	ALWAYS LOUD	LOUD
BAD	ALWAYS BAD	MOST ALWAYS BAD	BAD SOMETIMES GOOD	MOST ALWAYS GOOD	ALWAYS GOOD	GOOD
SLOW	ALWAYS SLOW	MOST ALWAYS SLOW	SLOW SOMETIMES FAST	MOST ALWAYS FAST	ALWAYS FAST	FAST
NICE	ALWAYS NICE	MOST ALWAYS NICE	NICE SOMETIMES AWFUL	MOST ALWAYS AWFUL	ALWAYS AWFUL	AWFUL
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CRUEL	ALWAYS CRUEL	MOST ALWAYS CRUEL	CRUEL SOMETIMES KIND	MOST ALWAYS KIND	ALWAYS KIND	KIND
WEAK	ALWAYS WEAK	MOST ALWAYS WEAK	WEAK SOMETIMES STRONG	MOST ALWAYS STRONG	ALWAYS STRONG	STRONG
FAIR	ALWAYS FAIR	MOST ALWAYS FAIR	FAIR SOMETIMES UNFAIR	MOST ALWAYS UNFAIR	ALWAYS UNFAIR	UNFAIR
HIGH	ALWAYS HIGH	MOST ALWAYS HIGH	HIGH SOMETIMES LOW	MOST ALWAYS LOW	ALWAYS LOW	LOW
DISLIKE	ALWAYS DISLIKE	MOST ALWAYS DISLIKE	DISLIKE SOMETIMES LIKE	MOST ALWAYS LIKE	ALWAYS LIKE	LIKE
HARD	ALWAYS HARD	MOST ALWAYS HARD	HARD SOMETIMES EASY	MOST ALWAYS EASY	ALWAYS EASY	EASY

SCORING SCHEME FOR SEMANTIC DIFFERENTIAL

The scoring scheme for any concept on the Semantic Differential for children is based on six of the twelve adjective pairs. The six adjective pairs are: Happy-Sad, Bad-Good, Nice-Awful, Cruel-Kind, Fair-Unfair, Dislike-Like. In each case a "positive" response receives a 5 and a negative response a 1 with 4, 3, 2 used to complete the middle three boxes. For example:

Happy	5	4	3	2	1	Sad
Bad	1	2	3	4	5	Good

By summing across the six adjective pairs a total score can be obtained. These scores can range from a high of 30 to a low of 6.

EXTERNAL BIBLIOGRAPHY

Anifant, D.C. "Risk-Taking Behavior in Children Experiencing Open Space and Traditional Schools" (Doctoral Dissertation, University of Maryland, 1972) Dissertation Abstracts International, 1972, 33, 2491A.

Beals, J.P. "An Investigation of Emotive Perception Among Students in Open Space and Conventional Learning Environments." (Doctoral Dissertation, University of Tennessee, 1972). Dissertation Abstracts International, 33, 5955A.

Beckley, L.L. "Comparative Study of Elementary School Student Attitudes Toward School and Self in Open Concept and Self-Containing Environments" (Doctoral Dissertation, Perdu University, 1972) Dissertation Abstracts International, 1973, 34, 206A.

Burnham, B. "Achievement of Grade One Pupils in Open Plan and Architecturally Conventional Schools." York County Board of Education Report, Aurora, N.Y., 1971. (Appeared in Growth Points, 1971).

LaForge, H.E. "The Effect of the Open Space Design of an Elementary School Upon Personality Characteristics of Students" (Doctoral Dissertation, University of Houston, 1972) Dissertation Abstracts International, 1972, 33, 1365A.

Leuders-Salmon, F.A.M. "Team Teaching and the 'Active' Classroom: A Comparative Study of the Impact of Team-Teaching Schools on Classroom 'Activity'." (Doctoral Dissertation, Stanford University, 1972). Dissertation Abstracts International, 32, 6686A.

McCallum, C.J. "Children's Problems as Perceived by Children and Teachers in Open Space, Team-Teaching, and Traditional Elementary Schools" (Doctoral Dissertation, University of Colorado, 1972) Dissertation Abstracts International, 1972, 32, 6764A.

Myers, R.F. "Comparison of the Perceptions of Elementary School Children in Open Area and Self-Contained Classrooms in British Columbia." Journal of Research and Development in Education, 1971, 4, pp. 100-106.

Read, F.L. "Initial Evaluation of the Development and Effectiveness of Open Space Elementary Schools" (Doctoral Dissertation, United States International University, 1973) Dissertation Abstracts International, 1973, 33, 3221A.

Sackett, J.W. "A Comparison of Self-Concept and Achievement of Sixth-Grade Students in an Open Space School, Self-Contained School, and Departmentalized School" (Doctoral Dissertation, The University of Iowa, 1971) Dissertation Abstracts International, 1971, 32, 2372A.

INTERNAL BIBLIOGRAPHY

Anttonen, R.G. Faces Questionnaire, 1974.

Anttonen, R.G. and Jernegan, W. Evaluation Report Summer Happening and Network Schools, 1976.