DOCUMENT RESUME

ED 112 847 88 IR 002 555

AUTHOR Maltin, Larry J.
TITLE The Effect of Individualized Instruction on Selected Cognitive and Affective Measures.
INSTITUTION Project Individualized Instruction, Patchogue, N.Y.
SPONS AGENCY Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
PUB DATE Jun 75
GRANT OEG-NYSED-24185
NOTE 30p.; Not available in hard copy due to poor reproducibility of original document

EDRS PRICE MF-$0.76 Plus Postage. HC Not Available from EDRS.
DESCRIPTORS *Educational Research; Elementary School Students; *Individualized Instruction; Learning; Teachers; *Testing
IDENTIFIERS Affective Triad Scale; Elementary Secondary Education Act Title III; ESEA Title III; Individualized Instruction Scale

ABSTRACT

The effect of individualized instruction programs on academic achievement and selected school related attitudes of elementary school children was studied. It was hypothesized that students in individualized programs would have significantly higher achievement scores, more positive attitudes toward school and self, greater self-direction, and assume greater responsibility than their peers in other programs. The findings were: (1) significant differences were not found in achievement scores that could be attributed to different levels of individualization; (2) students in the individualized groups had significantly higher self-direction scores; (3) students with higher measured IQ scores had more positive attitudes toward school and self; and (4) responsibility for academic achievement for the fourth grade sample seemed to be more a function of intelligence than any other single factor. The Individualized Instruction Scale and Affective Triad Scale is appended. (Author)

PROJECT INDIVIDUALIZED INSTRUCTION
201 Sunrise Highway, Patchogue, N. Y. 11772

THE EFFECT OF INDIVIDUALIZED INSTRUCTION ON SELECTED COGNITIVE AND AFFECTIVE MEASURES

Project Individualized Instruction

(A Regional Approach to Systematic

Planning for Individualized Instruction)

Suffolk, BOCES 2

Prepared by Project Individualized Instruction
An ESEA Title III Project

Staff

Arline Winerman
Larry J. Maltin
Cindy MacDonell

Project Sponsored by the Four Long Island BOCES

Nassau BOCES, Dr. Callahan
Suffolk, BOCES 1, Mr. Peters
Suffolk, BOCES 2, Mr. Hines
Suffolk, BOCES 3, Dr. Wheaton

The work presented or reported herein was performed pursuant to an ESEA Title III grant, NYSED #24185. Contractors undertaking such projects under government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official position or policy of the USOE, the New York State Education Department, or the four Nassau-Suffolk Boards of Cooperative Educational Services sponsoring this project.

ACKNOWLEDGMENTS

We are grateful to many persons who helped us compile the data which made this study possible.

First, on behalf of Project Individualized Instruction, I wish to thank the Superintendents, the Principals, the Teachers, and *especially* the Children of the following districts: Central Islip, Commack, Connetquot, East Islip, East Meadow, Elwood, Harborfields, Hauppauge, Northport, Patchogue, Shoreham-Wading River, and Syosset. There were also three districts wishing to participate because of a strong commitment to individualized instruction, but asked to remain anonymous.

Second, I wish to thank the Sabbatical Adjuncts who gave so freely of the few precious days they had available during their sabbatical leave to work with us on this study: Rose Ambrosino, Clinton Atkins, Gerald Bradnick, Robert Giambattista, Mildred Levenson, Beatrice Miller, and William Orr.

Third, we are truly appreciative to the four Boards of Cooperative Educational Services, Mr. Hines, Dr. Callahan, Mr. Peters, and Dr. Wheaton, without whose joint sponsorship Project Individualized Instruction would never have existed.

Fourth, a note of thanks also to Jefferson Latham whose technical advice and computer skills were invaluable to us in performing all the statistical analyses.

Larry J. Maltin
Principal Investigator
June, 1975
Patchogue, New York

THE EFFECT OF INDIVIDUALIZED INSTRUCTION ON SELECTED COGNITIVE AND AFFECTIVE MEASURES

Project Individualized Instruction

Suffolk, BOCES 2

ABSTRACT

This study concerned itself with the effect of individualized instruction programs on academic achievement and selected school related attitudes of elementary school children. It was hypothesized that students in individualized programs would have significantly higher achievement scores, more positive attitudes toward school and self, greater self-direction, and assume a greater responsibility for their achievement than their peers in other programs. The effects of I.Q., sex, and previous levels of achievement were statistically controlled and the findings were: a) Significant differences were not found in achievement scores (reading comprehension, math concepts, and math problem solving) that could be attributed to different levels of individualization, although boys scored significantly higher than girls in math concepts; b) Students in the individualized groups had significantly higher self-direction scores; c) In general, students with higher measured I.Q. scores had more positive attitudes toward school and self, and girls had significantly more positive attitudes toward school and self than did boys; d) Responsibility for academic achievement for this fourth grade sample seemed to be more a function of intelligence than any other single factor. In general, girls assumed a greater responsibility for achievement than did boys, but the differences were not statistically significant.

THE EFFECT OF INDIVIDUALIZED INSTRUCTION ON SELECTED COGNITIVE AND AFFECTIVE MEASURES

Project Individualized Instruction

Suffolk, BOCES 2

BACKGROUND

Project Individualized Instruction, a three year ESEA Title III program, has had as its major objective "To foster the development of individualized instruction in the bi-county region of Nassau and Suffolk." The project was brought about by the combined efforts of the Long Island Regional Individualized Learning Council (LIRILC), the BOCES Regional Educational Planning Office (REP), and the four Long Island Boards of Cooperative Educational Services (BOCES). The District Superintendents of the four Island BOCES supervised and coordinated project tasks.

The original project proposal contained two goals. They were:

1. Locate and evaluate current individualized learning programs and practices in Long Island schools.

2. Collect and diffuse individualized learning methods, skills, and techniques, and to identify expertise for the purpose of training beginning and practicing teachers and administrators.

These basic goals have remained the focus of the project. For the second year they were expressed as two major product objectives--the first relating to the location and evaluation of individualization practices; the second addressing the collection and diffusion of these practices to pre- and in-service educators.

Within the first objective, two major emphases had existed. First, the processes of instruction which exemplify individualization continued to be evaluated through refinement of the Individualized Instruction Scale. The second major emphasis within this broad objective was new. Encouragement by the New York State Education Department resulted in a pilot study regarding the effects of individualized programs on elementary school children.

This thrust had been a natural outgrowth of the first year's work. With a functioning "process instrument," the Individualized Instruction Scale, it was possible to know with some objectivity (see instrument section of this report for a discussion of the I.I. Scale) which programs were good examples of individualization. The next step was to determine the effects of these processes on

students.

The pilot study[1] revealed that: a) students in the individualized groups had significantly higher scores on measures of attitude toward self and school, as well as higher self-direction scores, b) significant differences were not found in achievement scores (reading comprehension, math concepts, and math problem solving) between the two groups.

Encouraged by these findings, and the enthusiastic response from educators for additional information, the Project proposed, as part of its third year's activities, a larger study. This new study was to have built upon the earlier one in terms of instrumentation and statistical design. It was also expanded to include an additional variable: *Responsibility for Achievement*.

PROBLEM

One current trend in teaching and curriculum has emphasized the individualization of instruction and the use of other "non-traditional" approaches. Literally thousands of schools in America are now implementing some system of individualized instruction. The assumption is made that because learners differ in characteristics and needs, there can be no single educational method suitable for all teachers and students in their varied classroom situations. Individualized instructional strategies are intended to nurture these differences by focusing on the child. It provides for variation in educational techniques to capitalize on the particular characteristics of each student as he proceeds towards the competency goals of the program of which he is a part.

In the early steps of the development of the Individualized Instruction Scale, the Project established as its definition of individualized instruction the following:

> To individualize instruction is to adapt the instructional practices to the requirements of each learner. This procedure provides a learning environment in which a student can be taught according to his needs, at a pace that is right for him, and in a way that efficiently uses the resources available as he proceeds towards the competency goals of the program of which he is a part.

This definition assumes that *not* all goals and objectives need be common to all learners. In view of the fact that each learner has his unique needs, uniform goals and objectives may not apply equally well to every student. It further assumes that some latitude exists for individuals at all levels to provide input into decisions concerning instructional objectives. Moreover, in

---

[1] Larry J. Maltin, Assessment of the Impact of Individualized Instruction on Students--Technical Report. ERIC Clearinghouse on Information Resources, document number ED 096959.

a limited number of cases the individual may be free to make many more of these decisions for himself.

Within this framework of individualized instruction, it is assumed that objectives are selected for, or by, individuals in light of substantial learner diagnosis. This is crucial, as it determines the way the teacher guides and extends student learning. In order to select objectives, or to move towards their attainment, complete, continuous monitoring of the learner's status is of paramount importance. Information obtained through monitoring is comprised of data not only on the learner's academic achievement, ability and attitude, but also on his emotional needs, social relations, interests, expectations, level of maturity, present physical status, and other relevant information.

For any given learner, there must be many alternative methods to reach each objective. Some methods, by their very nature must be rejected as unsuitable for the situation, learner or both; whereas others are more appropriate. Inasmuch as it is not always possible to determine at the outset which specific strategy will be best suited to the requirements of each learner, many alternative strategies must be available to achieve each objective, together with some procedure of obtaining information regarding learner performance.

Individualized instruction may, but does not have to, take the form of the open classroom (Hull, 1973). The difference may be a subtle one since in open education the teacher still has a strong guiding role, the added element is the training of the child in directing his own education (Winett, 1973). Because it is assumed the child will choose wisely if given the chance, the basic approach allows the student freedom to choose the materials he uses and the activities in which he engages (Traub; Weiss, Fisher, & Musella, 1972).

The rationale for the logic of this, or any educational approach, is the notion that a system in which students study primarily to avoid the consequences of not studying is neither humane nor very productive. They should study because they want to, because they like to, because they are interested in what they are doing.

This study has thus been directed specifically at evaluating the impact of programs of individualization on elementary school children. The basic intent of the research was *not* to sit in judgment of any instructional program but rather to help provide one additional bit of information which educational decision makers may use when consideration is given about adopting, as well as continuing or discontinuing programs. An attempt was made here to determine whether there were significantly higher scores for elementary students in programs of higher levels of individualized instruction, when compared to students involved in programs having lower levels of individualization in:

1. academic achievement
2. self-direction
3. attitude toward school

4. attitude toward self.
5. responsibility for achievement

For the purposes of this study, these variables have been defined as follows:

1. *Academic Achievement.* Measures of academic achievement were reading and mathematics scores obtained from the April 1975 administration of the Iowa Test of Basic Skills, form 5, level 10.

2. *Responsibility for Achievement.* A personality construct representing the degree to which a child perceives a contingency between his own behavior and his academic successes and/or failures. The instrument used to measure the degree to which a child attributes success and failure to either internal (within himself) or external (events beyond his control) causes is the Intellectual Achievement Responsibility (IAR) Scale. A higher score on the IAR indicates a greater responsibility, or internal control orientation.

The following three variables have been developed by Project Individualized Instruction, based on the California Test of Personality, and comprise the Affective Triad Scale (ATS).

3. *Self-Direction.* The student who is said to be self-directive is one who enjoys a sense of freedom when he is permitted to have a reasonable share in the determination of his school behavior and in setting the general policies that shall govern his academic pursuits. His overt actions indicate that he can do things independently of others, depend upon himself in various situations, and direct his own activities.

4. *Attitude Toward School.* The student who has a positive attitude toward school enjoys being with other students, believes that his teachers like him, and finds the school work adapted to his level of interest and maturity.

5. *Attitude Toward Self.* The student who has a positive attitude toward himself feels he is well regarded by others, and that he enjoys a cordial relationship with people in general. In addition, he does not attempt to get his satisfaction in ways that are damaging and unfair to others, nor does he substitute fantasy for actual successes in real life.

HYPOTHESES

It was the purpose of this present study to address the following:

1. There will be a significant difference in mathematics and reading achievement scores between students in the individualized instruction programs and students in programs not having a high level of individualized instruction (i.e. the comparison groups).

2. Measures of self-direction will be higher for students in

the individualized programs than for students in the comparison groups.

3. Measures of attitude toward self will be higher for students in the individualized programs than for students in the comparison groups.

4. Measures of attitude toward school will be higher for students in the individualized programs than for students in the comparison groups.

5. Students in individualized programs will perceive a contingency between their classroom behaviors and their academic achievement such that, when compared to students not involved in programs of high levels of individualization:

a) there will be a greater degree of responsibility taken for their success in achievement,
b) there will be a greater degree of responsibility taken for their lack of success in achievement,
c) a greater degree of responsibility will be taken for their overall achievement.

METHOD

Design

A post-test control group design and step-wise regression analysis was used to determine the extent to which various levels of individualization could account for differences in observed measures of achievement and affective variables. This is a quasi-experimental design inasmuch as intact classes were used with no opportunity for assignment of pupils, teacher or treatment. The procedure relies quite heavily upon the genuine randomness of initial student assignment. In instances where randomness may be questionable, a covariance procedure is used to "adjust" each pupil's scores to account for initial differences. In the present study, achievement scores were adjusted in this manner.

Sample

Seven hundred and twenty fourth grade public school children from the Nassau-Suffolk County regions of New York State participated as subjects in this study. They were enrolled in thirty-two classrooms in sixteen elementary schools located in sixteen different school districts on Long Island. Eighty-six districts were ranked in terms of median family income. Forty-three districts were identified as being above the total group median, and forty-three as being below the median. Each group was again divided in terms of its own median. The result was four groups each representing a different economic level. Four districts were then randomly selected from each group and were identified as participant districts. Two additional districts were selected from those remaining in each group and were identified as alternates.

Twenty-one districts were contacted before cooperation could be secured from sixteen. As the data collection progressed, administrative difficulties were encountered in one of the districts and it was impossible to obtain data from this district. This necessitated dropping the district and reducing the number to fifteen (the number of students also dropped to six hundred and sixty).

Within each of the participant districts one elementary school with which the Project had worked with in the past, was selected. The principal of each school was contacted and asked to select two fourth grade classes using the following criteria:

1. Select one class whose teacher could be considered as having an individualized instructional philosophy and whose class could be characterized as being "individualized."

2. Select the second class whose teacher could be considered as having a non-individualized instructional philosophy and whose class could be characterized as having a very low level of individualization.

3. Both teachers, in the judgment of the principal, were to be "good" teachers.

4. The children in both classes had been heterogeneously grouped and placement was on a random basis relative to intelligence and past academic performance.

5. The teachers were willing to cooperate voluntarily in the study.

Following the identification of the two classes, the I.I. Scale was administered to establish the degree of individualization. In order to establish a bimodal distribution of programs only classes with a raw score of 165 or above, and those of 140 or below were included in the study. Classes for which complete data was not available for more than ten students were also not included, together with the corresponding "companion" class in that building.

Measurement Instruments

The instruments used in this study were: Iowa Test of Basic Skills (ITBS), form 5, level 10; Intellectual Achievement Responsibility (IAR) Scale; Individualized Instruction Scale (I.I. Scale); and Affective Triad Scale (ATS). A copy of each instrument (except the ITBS) may be found in the appendix. The following is a description of each of the measurement instruments.

Iowa Test of Basic Skills, form 5, level 10. The ITBS was used as the criterion measure for determining differences in academic achievement between the two groups of students.

Intellectual Achievement Responsibility Scale. In view of the

fact that the present study focused on locus of control relationships developed within an educational context, the IAR was chosen for its content specificity to academic and intellectual achievement events.

The IAR, developed by Crandall, Katkovsky and Crandall (1965) differs from all other locus of control scales in that it was designed to assess children's beliefs in internal versus external control in school related situations exclusively. Rather than focus on impersonal social forces, the IAR has limited the sources of external control to persons such as teachers, parents, and age mates, who are most likely to come into contact with the school-age child.

The IAR provides two subscale scores and a total score. The I+ subscale score measures the child's tendency to see himself as responsible for his successes, or positive reinforcements he receives. The I- subscale measures his tendency to see himself as responsible for his failures, or negative reinforcements in such situations. The total I score, the sum of the subscores, measures the child's general acceptance of responsibility for the outcomes of his achievement efforts. A high score on each of these scales represents internal responsibility, a low score, external responsibility.

The form of the IAR used in the present study had been rewritten by the Stanford Research Institute, Menlo Park, California, to make it more suitable for use with younger children.

Individualized Instruction Scale. The I.I. Scale was developed by Project Individualized Instruction as part of its effort to gather data on programs of individualization. The Scale, which assesses the degree to which a program is individualized, consists of fifty items. Taken together, the items reflect the extent to which instructional practices have been adapted to the needs of individual learners by providing: (1) a diversity of goals and objectives, which a learner may help define, (2) a range of alternative methods for reaching objectives, and (3) monitoring procedures which provide information (to the teacher and/or student) about the individual's current status and his progress toward goals. In thirty-one administrations of the I.I. Scale, the inter-rater correlation coefficients ranged from .33 to .93. Fourteen coefficients were equal to or greater than .80.

The fifty items of the I.I. Scale comprise an operational definition of individualized instruction as formulated by the Project. The items are organized into three sections based on whether the information can be readily obtained by observation or whether the teacher or students must be questioned. Each item is rated on a scale of 1 to 5, based upon the extent to which the item describes the program.

Affective Triad Scale. The ATS was organized around a concept of individualized instruction in which non-academic success is assumed to have been achieved when pupils demonstrate self-direction,

and positive attitudes toward self and school. The triad was developed by the Project, using the California Test of Personality as guidelines, solely for use in this study. The instrument is comprised of three short scales relating to the school situation--attitude toward school, self-direction, and attitude toward self.

Both the I.I. Scale and the ATS seek to measure similar factors. On the one hand, the I.I. Scale measures "objective reality," of the classroom setting, whereas the ATS measures a reality *as perceived by the children* in that program. Thus, if the success of a program is based upon some difference in student attitude or behavior, it is important to assess whether such differences occur in the presence or absence of specific program characteristics, in this case individualization. For example, item 23 of the ATS (Do you usually help other students with their work?) is responded to by the student, whereas the program, vis-a-vis the I.I. Scale, is measured by item 14 (There is peer teaching in the classroom.). Similarly item 17 on the ATS (Does the teacher usually tell you who to work with?) corresponds to the I.I. Scale item 35 (Students decide with whom they will work.).

Pupil Evaluation Program (PEP). Scores obtained during the previous year's administration of the PEP provided "base-line" academic achievement scores for the students.

I.Q. Scores. I.Q. scores were obtained from each participant district and were based upon previously administered scales. In two districts, school personnel administered I.Q. tests to those students for whom no score was available. In one district P.I.I. staff administered the Lorge-Thorndike Intelligence test, level 3, form A (verbal and non-verbal).

Data Collection

Initial contact was made with a teacher or principal in one of the elementary schools within each of the selected districts. This procedure was followed to help ensure cooperation on a voluntary basis, rather than the result of pressure from the central office. Once this initial approval was obtained, the district's superintendent was contacted by letter to secure official approval from the district. A copy of the instruments and an explanation of each, together with a time-line for data collection, were enclosed. A carbon of the letter and copies of the information packet were then sent to the principal of the participating school. Once the district approval was secured, arrangements were made to meet with each principal and the two teachers. In all, twenty-one districts were contacted and six declined for various reasons.

At this initial meeting it was explained that the study dealt with cognitive and affective differences between children in programs which had a large degree of individualized instruction as opposed to those from programs which had relatively little individualization of instruction. It was further explained that each program would be observed using the I.I. Scale, and that the children

would respond to the IAR, ATS, and ITBS at a later date. Arrangements were then made for observers to visit each of the classrooms. In addition, a date was set for "testing the children."

A team of observers, teachers and principals on sabbatical leave from their district positions and trained in the use of the I.I. Scale, conducted forty-five minute observations in the classrooms of each of the teachers. The students were administered the ITBS, ATS, and IAR by this same team during a six week period beginning the first week of April 1975. Due to the nature of the questions on the affective instruments, and the need to obtain candid responses, the teachers agreed that they would leave the room during the administration.

In several instances the decision was made to omit some children's test scores from the analysis. This decision was based upon the judgment of the team member assigned to that class. In each case it was felt that the child did not respond to one or more of the instruments in a serious manner, taking only several minutes to complete all the questions or marking the same answer for all items.

Assumptions, Limitations, and Implications

There are several major assumptions underlying the design of this study. These deal with the distribution of the dependent variables and the process of sample selection.

1. The selection of the districts, and the schools within each of the districts, using a stratified random sampling procedure makes the assumption that all levels of socioeconomic status are represented, thereby providing a control for that variable.

2. Equality of the groups of children is based upon the assumption that there was no systematic placement of students into one program or another. For all the districts included in the final analyses, there were no systematic requirements reported by the local administration for placement in a class having a high level of individualization or a low level of individualization. However, in some instances it was indicated that the parents had the option to request a new placement if they wished. Because such self-selection processes could introduce bias into the results, classes for which data was not available for more than ten children were dropped from the final analyses. As a balance against any possible bias resulting from placement within a given building, the companion class was also excluded from the final analyses.

3. Occurrence of achievement responsibility, I.Q., sex, academic achievement, self-direction, attitudes toward school and self are assumed to be equally distributed throughout the general population.

4. The students selected into the study represent a random sampling of students from the total elementary school population.

To the extent these assumptions are not grossly violated, the findings from this study may be generalized to the population of fourth grade school children. Of course, to the extent that fourth grade children reflect elementary school children in general, the findings either may or may not be generalizable to the overall elementary school population.

Data Analysis

In any investigation, the differences among phenomena are studied, and the question is asked whether these differences, or variations, can be attributed to some random fluctuations of the phenomena or the result of intervention on the part of the investigator. A major objective of experimental design, then, is to ensure that the differences observed may be attributed, within limits of error, to the treatment variable and to no other causal circumstance. Usually experimental controls, such as random assignment and matching, are used to ensure freedom from bias. In the present study, because of practical limitations associated with the school setting, a statistical, rather than an experimental, method was used to control the effect of extraneous variables.

The method used in the present study was the *SPSS (Statistical Package for Social Sciences) Step-wise Regression*. The mathematical model on which the analysis is based defines multiple regression as the line in multi-dimensional space equal to the total number of variables and representing the relationship among all variables. This commonality is used to explain the relationship between the independent and dependent variables. Further, this relationship may then be translated into a classical *Analysis of Variance* model by considering the variance associated with each independent variable. The procedure allows the researcher to first remove the effects of those variables determined beforehand to be confounding the study. (This analysis may be familiar to some as *Analysis of Covariance*.)

In more basic terms, the multiple regression approach seeks to answer the question, "Which of the variables account for the most significant amount of difference in the scores?". In the present study each student's ITBS scores were adjusted for his "starting level" based upon his scores on the PEP. All computations dealing with achievement were then calculated on the adjusted scores. The effects attributable to sex, intelligence, and level of individualized instruction were calculated to determine which of the three, or combination, accounted for the most variance. Two clear advantages of this procedure was that it provided for more than one criterion by which to measure the effects of the different levels of individualization, and it allowed for considerable flexibility of design.

RESULTS

The following results were obtained following analysis of the

data obtained from the two groups:

1. The relationship between intelligence and each of the dependent variables was complex.

2. When the effects of sex, I.Q., prior achievement in math and reading were taken into account, all adjusted achievement scores were higher for students in the individualized classes. However, the *F* test indicated the following:

   A. Overall, there were no significant differences in reading test scores between the two types of programs.

   B. There were no significant differences in math concept scores that were related to instructional program. Boys scored higher than girls ($p<.01$), after the effects of previous achievement and intelligence were removed.

   C. There were no significant differences in mathematic problem solving test scores that could be accounted for by differences in the level of individualized instruction.

3. The *F* test indicated the following results on the ATS:

   A. Girls had a significantly more positive attitude toward school than did boys ($p<.01$). Although the scores were higher for those children in the comparison group, these scores were not sufficiently greater than those from the high individualized group to attribute the difference to any systematic program effect.

   B. Overall, students in programs of high levels of individualization were significantly more self-directive ($p<.01$) than their peers in the comparison groups. In general, girls were more self-directive than were boys.

   C. Students with higher measured intelligence had significantly more positive attitudes toward self ($p<.05$). In general girls had significantly higher scores ($p<.05$) than boys. Students in the comparison group had more positive attitudes toward self than did those in the high individualized program, however these differences were not statistically significant.

4. The *F* test indicated the following results on the IAR:

   A. Differences in the degree of responsibility taken by the students for their success in achievement, after the effects due to sex and intelligence were removed, could not be attributable to the level of individualization in a program.

B. Overall, children with higher intelligence tended to ascribe a greater responsibility for lack of academic success to themselves than did children with lower I.Q. scores. In general, students in programs of low individualization assumed a greater responsibility for lack of success than did students in programs of higher levels of individualization. In both instances these differences were not statistically significant.

5. Analysis of prior achievement and I.Q. scores relative to current class placement indicated that, even after the effects of I.Q. were accounted for, the correlation coefficients suggested that students with high scores on earlier achievement scales may have been placed in classes with high levels of individualization (reading, r = .226; math concepts, r = .219; math problem solving, r = .237).

Discussion

It has been the purpose of this study to explore the relationship between various levels of individualized instruction and differences in test scores in academic achievement, and student attitudes.

Generally speaking it was expected that for each of the measures students in programs of higher individualization would have higher scores than their peers in programs of lower individualization.

It was thus hypothesized that students in the individualized classes would have higher ITBS scores in reading and math than students in classrooms with lower levels of individualization. However, although both the raw scores and the adjusted scores were higher, these differences were not sufficiently large enough to be statistically significant.

It was also hypothesized that students in high individualized programs would have higher scores on all the affective measures than students in the low individualized programs. As predicted, a significant difference was found in self-direction. Students in the more individualized classes were not only permitted to share in the planning and carrying out of their educational programs but had significantly different attitudes regarding their self-reliance. The reasons that significant relationships were not found between individualized instruction and the other variables, are not entirely clear. Among the reasons that might be offered to possibly account for the inconsistent findings are the following:

1. One school year was an insufficient length of time for exposure to individualized instruction.

2. A complex relationship between intelligence and the dependent variables.

3. Test-wiseness, specifically test-taking behavior.

4. Limitation of the instruments.

5. Lack of rigorous control.

6. Possible inverse relationship between self-direction and some of the variables.

To elaborate on the first point, perhaps such personality variables as locus of control, attitude to school and attitude self require more than one school year before any stable differences are found. For many of the children, this has been their first exposure to a program of individualized instruction, and have had to undergo a period of readjustment. During this period of time it may well have been that these children had become overly critical of themselves and of things around them.

The second reason deals with the complex relationship between intelligence and each of the dependent variables--a ceiling effect. The consequence of this relationship was such that intelligence may have had a greater or lesser effect, with regard to the test scores, at the upper or lower ranges of those variables under consideration.

The third reason pertains to test-wiseness and familiarity with testing in general. The team of observers administering the instruments reported that it was more difficult for them to maintain order in the individualized classes. They reported such disruptive behavior as calling out or joke-telling thereby disturbing those around them. There is no way of knowing whether other students in the sample had similar attitudes, but were not disruptive and so went undetected by the team.

The fourth reason reflects upon the possible inability of the instruments to detect subtle differences. Yet, if the results in terms of a significant difference in self-direction demonstrated a degree of success of the program, then perhaps success in other areas would be detected with instruments that were more sensitive to these differences.

The fifth reason is directly related to the quasi-experimental scheme of this study. The design rests on the assumption of random sampling of students from the total population, i.e. students were randomly assigned to their present classes. Inasmuch as intact classes and pre-existing programs were used, there was an absence of rigorous control. Thus, in interpreting the findings, this lack of control forces one to consider in detail the liklihood of extraneous factors accounting for these results. Differences specific to any group used in this study in terms of such uncontrolled factors as history, parental attitudes, levels of treatment, or the like may well be contributing to an interaction between some variables and the specific differences that distinguish that group.

The sixth reason is a possible negative relationship between

self-direction and the other dependent variables. If the results in terms of self-direction can be interpreted as demonstrating a greater degree of independence on the part of students from the highly individualized programs, then the theory offered by Trotta (1974) may be the most logical explanation of how responsibility for lack of academic success would have shown significance in the opposite direction. Trotta postulated, in his study, that the traditional classroom lent itself to a more directive approach to education.

> Various aspects of the learning process must be considered, such as feedback and frequent opportunities for comparison through formal lessons, assignments, tests and number or letter grades. Because open class students seemed to be more autonomous, they were further removed from the interpersonal interaction and direction of the teacher. This in turn, may have cut back on the amount of direct and immediate reinforcement the child received in his educational endeavors.[1]

Perhaps this same logic can be extended to include attitude toward school and attitude toward self. While the differences were not significantly large, it may indicate that this interpretation may be valid in a sufficiently large number of instances.

CONCLUSIONS

This study attempted to explore the relationship between two current methods of instruction and several selected cognitive and affective measures. The hypothesized relationships between programs of individualized instruction and the dependent variables were confirmed unequivocally in only one instance--*Self-direction*. The remainder of the findings indicated that differences in achievement test scores, attitude toward school, attitude toward self, and achievement responsibility were not sufficiently large enough to be statistically significant, after the effect attributable to sex and intelligence were removed.

1. There seemed to be a systematic bias in the assignment of students such that those with higher PEP scores were placed into high individualized programs. Inasmuch as the principals interviewed during the initial selection process were unaware of such selection criteria, the relationship between PEP scores and program would seem to be coincidental.

2. Students in individualized instruction programs did as well as their peers in the comparison groups in reading comprehension, math concepts and math problem solving. Although boys scored significantly higher ($p<.01$) than did girls.

---

[1] John Trotta, Open versus Traditional Education (Some effects on elementary school children). *New York State School Boards Association Journal*, 1974, (April), pg. 29.

3. Students in programs of individualized instruction are significantly more self-directive ($p < .01$) than their peers in the comparison groups.

4. In general, students with higher measured intelligence had more positive attitudes toward school and toward self. Overall, girls had significantly more positive attitudes toward school and self than did boys.

5. Responsibility for academic achievement for this fourth grade sample seems to be more a function of intelligence than any other single factor. In general, girls assumed a greater degree of responsibility for achievement than did boys, but the differences were not statistically significant.

In a more general sense, one may conclude from this study that there must be purpose and reason behind the instruction from the time the instructional program begins. The purpose and reason behind the programs included in this study are clearly academic skills, and to that extent the programs were successful. However, programs of individualization were established with the purpose and reason to include not only academic skills, but areas of affective growth considered by program planners to be equally important.

A major component of individualized instruction, as perceived by the Project, is that students become more self-directive. That is, they have an opportunity to provide input into the instructional program, sharing in the planning and evaluation processes. To that extent individualized instructional programs have been eminently successful. However, personality variables such as attitudes and locus of control may require more than a single school year to overcome the effects of a history of previous training.

BIBLIOGRAPHY

Crandall, Virginia, Katkovsky, Walter, & Crandall, Vaughn. Children's beliefs in their own control of reinforcements in intellectual-academic achievement situations. *Child Development*, 1965, 36, 91-109.

Hull, Ronald. Selecting an approach to individualized education. *Phi Delta Kappan*, 1973, 55 (3), 169-173.

Maltin, Larry J. Assessment of individualized instruction--technical report. BOCES 2, Patchogue, New York: Project Individualized Instruction (ERIC document number ED 096959), 1974.

Traub, Ross, Weiss, Joesl, Fisher, C.W., & Musella, Don. Closure on openness: describing and quantifying open education. *Interchange*, 1972, 3 (2-3), 69-84.

Trotta, John. Open versus traditional education (some effects on elementary school children). *New York State School Boards Association Journal*, 1974, (April), 24-30.

Winett, Richard A. Behavior modification and open education. *Journal of School Psychology*, 1973, 11 (3), 207-214.

APPENDIX

Individualized Instruction Scale

Affective Triad Scale

IAR

PROJECT INDIVIDUALIZED INSTRUCTION
201 Sunrise Highway, Patchogue, N. Y. 11772

INDIVIDUALIZED INSTRUCTION SCALE

FINAL REVISION

Scale administered by: _____ Date: _____

School and Program Name: _____

District: _____ Teacher(s): _____

How to score:

1) Scan the 50 responses to make certain that there are no omitted items. If an item has been omitted, draw a line through all the numbers for that item so that no credit will be allowed for the item scoring.

2) Count the number of items which have been answered, omitting any item through which a line has been drawn. Place the number of items answered in the two boxes labeled "B" below. (If all the items have been answered, enter "50" in these boxes.)

3) Before beginning this step, read the instructions on page 5 of the Guide. Next, find the sums of the circled and weighted scores on each page. Enter the sum in the appropriate space at the bottom of the page.

4) To find the ITEM SUMS, add the totals for the two pages and enter in box "A".

5) Perform the following computations to obtain a CORRECTED RAW SCORE (C) and a SCALE POTENTIAL (D).

A ( ) − B ( ) = C ( )

(ITEM SUMS) (CORRECTED RAW SCORE)

B ( ) × 4 = D ( )

(SCALE POTENTIAL)

6) To obtain the PROGRAM SCORE, divide Corrected Raw Score (C) by the Scale Potential (D), round to two decimal places, then multiply by 100. Enter below and in the appropriate space.

C ( ) ÷ D ( ) = _____ × 100 = _____

PROGRAM SCORE

OBSERVATION

barely somewhat moderately considerably completely

Respond to items 1-22 to the extent they describe the program at the time of observation.

1 2 3 4 5	1. STUDENTS WORK WITHOUT DIRECT SUPERVISION.
1 2 3 4 5	2. STUDENTS LOCATE SOURCES OF INFORMATION WITHOUT ASKING TEACHER(S).
1 2 3 4 5	3. STUDENT BEHAVIOR IS NON-PRODUCTIVE OR DISRUPTIVE.
1 2 3 4 5	4. STUDENTS GATHER NECESSARY MATERIALS FOR A GIVEN TASK.
1 2 3 4 5	5. STUDENTS HAVE FREE ACCESS TO MATERIALS AND EQUIPMENT.
1 2 3 4 5	6. THERE IS A WIDE SELECTION OF EQUIPMENT (A-V, OR ANY SPECIAL ITEMS APPROPRIATE TO THE SUBJECT) IN THE CLASSROOM.
1 2 3 4 5	7. DIFFERENT MATERIALS ARE IN USE SIMULTANEOUSLY.
1 2 3 4 5	8. TEACHER INITIATES MOST TASKS.
1 2 3 4 5	9. STUDENTS WORK ON DIFFERENT TASKS.
1 2 3 4 5	10. DIFFERENT INSTRUCTIONAL STRATEGIES (E.G. READING, DISCUSSION, WRITING, ETC.) ARE IN USE SIMULTANEOUSLY.
1 2 3 4 5	11. MATERIALS AND EQUIPMENT ARE ARRANGED IN INTEREST AREAS BY SUBJECT OR SPECIAL TOPIC.
1 2 3 4 5	12. INFORMAL STUDENT GROUPS ARE OBSERVED.
1 2 3 4 5	13. SKILLS GROUPS ARE FORMED AS NEEDED.
1 2 3 4 5	14. THERE IS PEER TEACHING IN THE CLASSROOM.
1 2 3 4 5	15. STUDENTS MOVE AROUND THE ROOM FREELY.
1 2 3 4 5	16. STUDENTS MAY NOT TALK WHILE THEY ARE WORKING.
1 2 3 4 5	17. STUDENTS' DESKS ARE ARRANGED IN ROWS.
1 2 3 4 5	18. THE AVAILABLE INSTRUCTIONAL MATERIALS ARE APPROPRIATE FOR A WIDE RANGE OF ABILITIES.
1 2 3 4 5	19. TEACHERS INTERACT WITH INDIVIDUAL STUDENTS WHILE THEY ARE WORKING.
1 2 3 4 5	20. INSTRUCTIONAL TIME IS PRIMARILY DEVOTED TO WORKING WITH INDIVIDUALS AND SMALL GROUPS.
1 2 3 4 5	21. A WIDE VARIETY OF INSTRUCTIONAL MATERIALS ARE AVAILABLE.
1 2 3 4 5	22. THERE ARE TEACHER-MADE MATERIALS, DEVICES, ETC. IN THE ROOM.

Page Total_____

barely somewhat moderately considerably completely

STUDENT RESPONSES

Interview several students before recording your responses to items 23 - 40. Paraphrase the items when necessary.

1 2 3 4 5	23. STUDENTS MOVE THROUGH THE SUBJECT MATTER AT DIFFERENT RATES.
1 2 3 4 5	24. STUDENT CONFERENCES ARE HELD TO PLAN FUTURE INSTRUCTIONAL ACTIVITIES.
1 2 3 4 5	25. STUDENTS SCHEDULE THEIR ACTIVITIES FOR THE DAY.
1 2 3 4 5	26. STUDENTS FEEL FREE TO VOICE THEIR FEELINGS TO THE TEACHER(S).
1 2 3 4 5	27. STUDENTS OPERATE THE AVAILABLE EQUIPMENT THEMSELVES.
1 2 3 4 5	28. STUDENTS SCORE THEIR OWN WORK.
1 2 3 4 5	29. STUDENTS ARE ALLOWED TO LEAVE CLASS ONLY AS A SUPERVISED GROUP.
1 2 3 4 5	30. STUDENTS MAY CHANGE THEIR SEATS WHENEVER THEY WISH.
1 2 3 4 5	31. STUDENTS ARE FREE TO REARRANGE THE ROOM FURNITURE.
1 2 3 4 5	32. EACH STUDENT HAS AN INDIVIDUAL CONTRACT, WORK AGREEMENT OR PRESCRIPTION SHEET.
1 2 3 4 5	33. STUDENTS MAY GO TO THE SCHOOL LIBRARY AT ANY TIME.
1 2 3 4 5	34. STUDENTS HAVE LATITUDE IN THE SELECTION OF TASKS TO SATISFY REQUIRED WORK.
1 2 3 4 5	35. STUDENTS DECIDE WITH WHOM THEY WILL WORK.
1 2 3 4 5	36. STUDENTS CAN TELL WHAT THEY WILL STUDY NEXT IN A GIVEN SUBJECT.
1 2 3 4 5	37. STUDENTS MAINTAIN, OR HAVE ACCESS TO, RECORDS OF THEIR OWN PROGRESS.
1 2 3 4 5	38. STUDENTS ARE TESTED WHEN THEY ARE READY.
1 2 3 4 5	39. THE RESULTS OF TESTS ARE INTERPRETED TO STUDENTS INDIVIDUALLY.
1 2 3 4 5	40. TEACHERS DISCUSS NON-ACADEMIC CONCERNS WITH STUDENTS.

TEACHER RESPONSES

Discuss items 41-50 with the teacher. Respond to each item as it describes teacher practices.

1 2 3 4 5	41. THERE ARE WRITTEN OBJECTIVES FOR EACH STUDENT.
1 2 3 4 5	42. DIFFERENT OBJECTIVES ARE IDENTIFIED FOR INDIVIDUAL STUDENTS.
1 2 3 4 5	43. OBJECTIVES FOR EACH STUDENT ARE REVIEWED AND REVISED REGULARLY.
1 2 3 4 5	44. FOR STUDENTS WITH SIMILAR NEEDS, SEVERAL ALTERNATIVE ACTIVITIES ARE AVAILABLE.
1 2 3 4 5	45. THE DECISION TO ASSIGN NEW WORK IS BASED UPON PROGRESS OF THE CLASS AS A WHOLE.
1 2 3 4 5	46. THERE ARE DIFFERENT PASSING "GRADES" FOR DIFFERENT STUDENTS.
1 2 3 4 5	47. THERE ARE ADDITIONAL PERSONAL CONTACTS WITH CHILDREN'S PARENTS ASIDE FROM THOSE SCHEDULED BY THE SCHOOL.
1 2 3 4 5	48. TEACHER'S RECORDS INCLUDE DETAILED INFORMATION ON STUDENT INTERESTS, NEEDS, BACKGROUND, ETC.
1 2 3 4 5	49. SAMPLES OF EACH STUDENT'S WORK ARE KEPT ON FILE.
1 2 3 4 5	50. MOST STUDENTS TAKE THE SAME TEST.

Page Total_____

CHILD'S NAME_____ ROOM NUMBER_____
LAST FIRST

INSTRUCTIONS

THIS BOOKLET HAS SOME QUESTIONS WHICH ASK ABOUT THINGS THAT MAY TAKE PLACE IN SCHOOL. THERE ARE NO RIGHT OR WRONG ANSWERS, ONLY OPINIONS. YOUR ANSWERS WILL SHOW YOUR OPINION, AND HOW YOU USUALLY FEEL OR WHAT YOU USUALLY DO ABOUT THINGS. FOR SOME OF THE QUESTIONS YOU ARE TO DECIDE WHETHER THE ANSWER IS YES OR NO. YOU ARE THEN TO DRAW A CIRCLE AROUND THE WORD YES OR NO, WHICHEVER SHOWS YOUR ANSWER. SOME OF THE QUESTIONS ASK YOU TO SELECT A REASON FOR WHY SOMETHING HAPPENED. YOU ARE THEN TO DRAW A CIRCLE AROUND THE (A) OR THE (B), WHICHEVER SHOWS YOUR ANSWER.

LOOK AT THE PRACTICE QUESTIONS BELOW:

PQ1. DO YOU OFTEN WANT TO PLAY? YES NO

IF YOU OFTEN WANT TO PLAY, DRAW A CIRCLE AROUND THE WORD YES, IF NOT, DRAW A CIRCLE AROUND NO.

PQ2. WOULD YOU LIKE TO FLY AN AIRPLANE? YES NO

IF YOU WOULD LIKE TO FLY AN AIRPLANE, DRAW A CIRCLE AROUND THE WORD YES, IF NOT, DRAW A CIRCLE AROUND NO.

PQ3. I LIKE TO WATCH TV. YES NO

IF YOU LIKE TO WATCH TV, DRAW A CIRCLE AROUND THE WORD YES, IF NOT, DRAW A CIRCLE AROUND NO.

PQ4 I'M A GOOD WORKER. YES NO

IF YOU ARE A GOOD WORKER, DRAW A CIRCLE AROUND YES, IF NOT, DRAW A CIRCLE AROUND NO.

PQ5. IF CHILDREN ARE NOT ALLOWED TO PLAY IN CLASS, IT IS BECAUSE

(A) THEY HAVE NOT FINISHED ALL OF THEIR WORK.

(B) TEACHERS DON'T LIKE CHILDREN TO PLAY IN CLASS.

IF THE REASON IS THAT THEY HAVE NOT FINISHED ALL OF THEIR WORK, DRAW A CIRCLE AROUND (A). IF THE REASON IS THAT TEACHERS DO NOT WANT CHILDREN TO PLAY IN CLASS, DRAW A CIRCLE AROUND (B).

AFTER YOU HAVE FINISHED THE PRACTICE QUESTIONS AND YOU UNDERSTAND WHAT TO DO, BEGIN ON THE NEXT PAGE. GO RIGHT ON FROM ONE PAGE TO ANOTHER UNTIL YOU HAVE FINISHED ALL OF THE QUESTIONS, OR ARE TOLD TO STOP. WORK AS FAST AS YOU CAN. REMEMBER THIS IS NOT A TEST, AND THERE ARE NO "RIGHT" OR "WRONG" ANSWERS. IF YOU ARE FINISHED WITH A SECTION BEFORE THE TIME IS UP, YOU MAY GO BACK AND ANSWER ANY QUESTIONS YOU DID NOT ANSWER BEFORE.

This Booklet was prepared by Project Individualized Instruction, Patchogue, New York pursuant to an ESEA Title III grant, NYSED #24185

1. WOULD YOU STAY HOME FROM SCHOOL A LOT IF YOU WERE ALLOWED?	YES	NO
2. DO YOU HAVE TO DO MANY THINGS IN SCHOOL YOU DON'T WANT TO DO?	YES	NO
3. DO YOU OFTEN WISH YOU WERE SOMEWHERE ELSE INSTEAD OF SCHOOL?	YES	NO
4. DO YOU USUALLY LIKE SCHOOL?	YES	NO
5. DO OTHER CHILDREN LIKE SCHOOL MORE THAN YOU DO?	YES	NO
6. DO ANY OF THE TEACHERS DISLIKE SOME OF THE CHILDREN?	YES	NO
7. ARE YOU PROUD OF YOUR SCHOOL?	YES	NO
8. DO MANY OF THE CHILDREN FEEL THAT SCHOOL IS A WASTE OF TIME?	YES	NO
9. DO YOU LIKE THE WAY YOUR TEACHER TEACHES?	YES	NO
10. DID YOU LIKE SCHOOL BETTER LAST YEAR?	YES	NO
11. DO MANY CHILDREN LIKE SCHOOL?	YES	NO
12. DO YOU THINK THAT THE CHILDREN AT SCHOOL LIKE YOU?	YES	NO
13. ARE THE CHILDREN AT SCHOOL USUALLY NICE TO YOU?	YES	NO
14. IS YOUR SCHOOL WORK INTERESTING?	YES	NO
15. IF YOUR FAMILY MOVED, WOULD YOU FEEL BADLY ABOUT GOING TO A NEW SCHOOL?	YES	NO
16. DOES THE TEACHER OFTEN PUNISH YOU FOR LITTLE THINGS?	YES	NO
17. DOES THE TEACHER USUALLY TELL YOU WHO TO WORK WITH?	YES	NO
18. DOES THE TEACHER USUALLY PLAN WHAT WORK YOU WILL DO FOR THE DAY?	YES	NO
19. ARE YOU ALLOWED TO DO WHAT YOU WANT AFTER YOUR WORK IS DONE?	YES	NO
20. ARE YOU PERMITTED TO HELP THE TEACHER DECIDE ON YOUR GRADES?	YES	NO
21. DO YOU HAVE ENOUGH FREE TIME IN SCHOOL?	YES	NO
22. ARE THE TEACHERS USUALLY TOO BOSSY?	YES	NO
23. DO YOU USUALLY HELP OTHER STUDENTS WITH THEIR WORK?	YES	NO
24. ARE YOU FREE TO GO TO THE SCHOOL LIBRARY AT ANY TIME?	YES	NO
25. DO PEOPLE STOP YOU FROM DOING MOST OF THE THINGS YOU WANT TO DO?	YES	NO
26. DO YOUR TEACHERS USUALLY NEED TO REMIND YOU TO DO YOUR WORK?	YES	NO
27. DO YOU USUALLY FINISH YOUR WORK?	YES	NO
28. DO YOUR TEACHERS OFTEN STOP YOU FROM TALKING WITH YOUR FRIENDS?	YES	NO
29. DO YOU KEEP ANY SAMPLES OF YOUR WORK?	YES	NO
30. DO YOU HAVE A CHANCE TO LEARN MANY NEW THINGS?	YES	NO

31. Do your classmates think you do well in school?	YES	NO
32. In school, are people often mean or unfair to you?	YES	NO
33. Do teachers often think that you cannot do things very well?	YES	NO
34. Do people in school often do nice things for you?	YES	NO
35. Do your classmates usually think that your ideas are bad?	YES	NO
36. Do your teachers usually seem to think you are wrong?	YES	NO
37. In school, do people often try to cheat you?	YES	NO
38. Do your classmates often want to help you?	YES	NO
39. Are most of your classmates glad you are in their class?	YES	NO
40. Are you afraid of many people?	YES	NO
41. Do the people in school criticize you too much?	YES	NO
42. In school, are people often so kind that it makes you feel happy?	YES	NO
43. Do you think your teacher often pays no attention to you?	YES	NO
44. Do you often feel that the teachers bother you?	YES	NO
45. Does the teacher usually ask you questions you can answer?	YES	NO
46. Do your classmates think you are smart?	YES	NO
47. Are there people in school so unfair that you have to be mean to them?	YES	NO
48. Do your classmates make fun of you?	YES	NO
49. Do you often feel that no one really cares about you?	YES	NO
50. In school, do other people usually try to understand your feelings?	YES	NO
51. Do you have many friends in school?	YES	NO
52. Do the people in school usually remember how well you do things?	YES	NO
53. Is it easy for you to do well in school?	YES	NO
54. Are things so dull that you often daydream?	YES	NO
55. Are you usually proud of your work?	YES	NO
56. Do teachers often ask you to do such hard things that you won't do them?	YES	NO
57. Do your classmates usually want you to do things with them?	YES	NO
58. Do you think you are dumb?	YES	NO
59. Do you deserve high grades?	YES	NO
60. Does your teacher care about you?	YES	NO

This scale was developed by Project Individualized Instruction, Patchogue, New York pursuant to an ESEA Title III grant, NYSED #24185.

1. IF A TEACHER PASSES YOU TO THE NEXT GRADE, IT IS BECAUSE

(A) SHE LIKED YOU.

(B) YOU DID GOOD WORK.

2. WHEN YOU DO WELL ON A SCHOOL TEST, IT IS BECAUSE

(A) YOU WORK HARD.

(B) THE TEST IS VERY EASY.

3. WHEN YOUR SCHOOL WORK IS VERY HARD TO UNDERSTAND, IT IS BECAUSE

(A) THE TEACHER ISN'T GIVING YOU ENOUGH HELP.

(B) YOU AREN'T LISTENING TO WHAT SHE SAYS.

4. WHEN YOU CAN'T REMEMBER MUCH OF A STORY YOU READ, IT IS BECAUSE

(A) THE STORY ISN'T ANY GOOD.

(B) THE STORY ISN'T ABOUT SOMETHING YOU LIKE.

5. IF YOUR MOTHER SAYS YOU ARE DOING WELL IN SCHOOL, IT IS BECAUSE

(A) YOUR SCHOOL WORK IS GOOD.

(B) YOUR MOTHER IS FEELING WELL.

6. IF YOU DO BETTER THAN USUAL IN SOMETHING AT SCHOOL, IT IS BECAUSE

(A) YOU WORK HARDER.

(B) SOMEONE HELPS YOU.

7. WHEN YOU LOSE AT A GAME OF CARDS OR CHECKERS, IT IS BECAUSE

(A) THE OTHER PLAYER IS GOOD AT THE GAME.

(B) YOU DON'T PLAY WELL.

8. SUPPOSE A PERSON DOESN'T THINK YOU DO GOOD WORK.

(A) YOU CAN MAKE HIM CHANGE HIS MIND IF YOU TRY TO.

(B) SOME PEOPLE WILL THINK YOU DON'T DO GOOD WORK NO MATTER WHAT YOU DO.

9. IF YOU FINISH A PUZZLE REAL FAST, IT IS BECAUSE

(A) THE PUZZLE ISN'T VERY HARD.

(B) YOU WORK CAREFULLY ON THE PUZZLE.

10. IF SOMEONE TELLS YOU THAT YOU ARE DUMB, IT IS BECAUSE

(A) HE IS MAD AT YOU.

(B) WHAT YOU DID REALLY WASN'T VERY BRIGHT.

11. IF YOU WANTED TO BECOME A TEACHER, SCIENTIST, OR DOCTOR AND DIDN'T MAKE IT, IT WOULD BE BECAUSE

(A) YOU DIDN'T WORK HARD ENOUGH.

(B) OTHER PEOPLE SHOULD HAVE HELPED YOU MORE.

12. IF SOMETHING IS EASY TO LEARN AT SCHOOL, IT IS BECAUSE

(A) YOU PAY ATTENTION.

(B) THE TEACHER GIVES YOU LOTS OF HELP.

13. IF A TEACHER SAYS TO YOU, "YOUR WORK IS FINE," IT IS BECAUSE

(A) TEACHERS USUALLY SAY THAT TO ENCOURAGE PUPILS.

(B) YOU DID A GOOD JOB.

14. WHEN ARITHMETIC OR NUMBER PROBLEMS ARE HARD TO WORK AT SCHOOL, IT IS BECAUSE

(A) YOU DON'T DO ENOUGH WORK ON THE PROBLEMS.

(B) THE PROBLEMS ARE TOO HARD.

15. IF YOU FORGET SOMETHING THE TEACHER SAYS IN CLASS, IT IS BECAUSE

(A) THE TEACHER DOESN'T SAY IT VERY WELL.

(B) YOU DON'T TRY VERY HARD TO REMEMBER.

16. IF YOU WEREN'T SURE ABOUT THE ANSWER TO A QUESTION THAT YOUR TEACHER ASKED YOU, BUT YOUR ANSWER TURNED OUT TO BE RIGHT, IT WOULD HAPPEN BECAUSE

(A) THE TEACHER WASN'T AS PARTICULAR AS USUAL.

(B) YOU GAVE THE BEST ANSWER YOU COULD THINK OF.

17. IF YOU REMEMBER MOST OF A STORY YOU READ, IT IS BECAUSE

(A) THE STORY IS ABOUT SOMETHING YOU LIKE.

(B) THE STORY IS GOOD.

18. IF YOUR MOTHER SAYS YOU'RE ACTING SILLY,

(A) IT IS BECAUSE OF SOMETHING YOU DID.

(B) IT IS BECAUSE SHE IS NOT FEELING GOOD.

19. WHEN YOU DO NOT DO WELL ON A SCHOOL TEST, IT IS BECAUSE

(A) THE TEST IS VERY HARD.

(B) YOU DON'T DO YOUR WORK.

20. WHEN YOU WIN AT A GAME OF CARDS OR CHECKERS, IT IS BECAUSE

(A) YOU PLAY REAL WELL.

(B) THE OTHER PERSON DOESN'T PLAY WELL.

21. IF PEOPLE THINK YOU DO GOOD WORK, IT IS BECAUSE

(A) THEY LIKE YOU.

(B) YOU DO THINGS WELL.

22. IF THE TEACHER DIDN'T PASS YOU TO THE NEXT GRADE, IT WOULD HAPPEN BECAUSE

(A) SHE HAD IT IN FOR YOU.

(B) YOUR SCHOOL WORK WASN'T GOOD ENOUGH.

23. IF YOU DON'T DO AS WELL AS USUAL IN SOMETHING AT SCHOOL, IT WOULD HAPPEN BECAUSE

(A) YOU DON'T DO YOUR WORK.

(B) SOMEONE BOTHERS YOU.

24. IF A BOY OR GIRL SAYS THAT YOU DO GOOD WORK, IT IS BECAUSE

(A) YOU DO THINGS WELL.

(B) THEY LIKE YOU.

25. IF YOU BECAME A FAMOUS TEACHER, SCIENTIST, OR DOCTOR, IT WOULD HAPPEN BECAUSE

(A) OTHER PEOPLE HELPED YOU WHEN YOU NEEDED IT.

(B) YOU WORKED VERY HARD.

26. IF YOUR MOTHER SAYS YOU'RE NOT DOING WELL IN YOUR SCHOOL WORK, IT IS BECAUSE

(A) YOUR SCHOOL WORK ISN'T GOOD.

(B) YOUR MOTHER ISN'T FEELING WELL.

27. IF YOU ARE SHOWING A FRIEND HOW TO PLAY A GAME AND HE HAS TROUBLE WITH IT, THAT WOULD HAPPEN BECAUSE

(A) HE WASN'T ABLE TO UNDERSTAND HOW TO PLAY.

(B) YOU COULDN'T EXPLAIN IT WELL.

28. WHEN ARITHMETIC OR NUMBER PROBLEMS ARE EASY TO WORK AT SCHOOL, IT IS BECAUSE

(A) THE PROBLEMS ARE EASY.

(B) YOU WORK HARD ON THE PROBLEMS.

29. WHEN YOU REMEMBER SOMETHING THE TEACHER SAYS IN CLASS, IT IS BECAUSE

(A) YOU TRY HARD TO REMEMBER.

(B) THE TEACHER SAYS IT WELL.

30. IF YOU CAN'T WORK A PUZZLE, IT IS BECAUSE

(A) YOU ARE NOT GOOD AT WORKING PUZZLES.

(B) THE INSTRUCTIONS WEREN'T WRITTEN CLEARLY ENOUGH.

31. IF YOUR MOTHER TELLS YOU THAT YOU ARE BRIGHT AND CLEVER,

(A) IT IS BECAUSE SHE IS FEELING GOOD.

(B) IT IS BECAUSE OF SOMETHING YOU DID.

32. IF YOU ARE EXPLAINING HOW TO PLAY A GAME TO A FRIEND AND HE LEARNS QUICKLY, IT WOULD HAPPEN BECAUSE

(A) YOU EXPLAINED IT WELL.

(B) HE WAS ABLE TO UNDERSTAND IT.

33. IF YOU'RE NOT SURE ABOUT THE ANSWER TO A QUESTION YOUR TEACHER ASKS YOU AND THE ANSWER YOU GIVE TURNS OUT TO BE WRONG, IT WOULD HAPPEN BECAUSE

(A) THE TEACHER WAS MORE PARTICULAR THAN USUAL.

(B) YOU ANSWERED TOO QUICKLY.

34. IF A TEACHER SAYS TO YOU, "TRY TO DO BETTER," IT IS BECAUSE

(A) SHE WANTS YOU TO TRY HARDER.

(B) YOUR WORK ISN'T AS GOOD AS USUAL.

Adapted by the Stanford Research Institute, Menlo Park, California, from the IAR by Virginia C. Crandall, Walter Katkovsky, and Vaughan J. Crandall, and reproduced by permission of the authors and the Stanford Research Institute.