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**ABSTRACT**

In the current controversy over accountability in education, educators concerned with the affective aspects of education seem to be in danger of losing the battle of "behavioral objectives" on two fronts: (1) demonstrating that the affective behavior of the teacher does make a difference in educational outcomes, and (2) demonstrating how affective educational outcomes can be satisfactorily evaluated. The National Consortium for Humanizing Education addressed itself to the first of these questions; this document reports on three large N studies of teacher behavior. The first two studies indicate that in describing relationships with affective teacher behavior, it is necessary to move into polynomial models. The third study demonstrates that in predicting student outcomes, factors other than the linear term of the mean of the teacher's behavior add considerably to the predictive power of the model. Additionally, the fact that the teacher's stability of affective behavior is a significant predictor of student outcomes offers some implications which help explain why polynomial models of affective teacher behavior seemed to be more adequate than linear models. Extensive data graphs, tables, and charts are included. (Author/PC)

## POLYNOMIAL REPRESENTATION OF TEACHER BEHAVIOR

by

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In the current controversy over accountability in education, we educators concerned with the affective aspects of education seem to be in danger of losing the battle of "behavioral objectives" on two fronts: (1) demonstrating that the affective behavior of the teacher does make a difference in educational outcomes and (2) demonstrating how affective educational outcomes can be satisfactorily evaluated. The National Consortium for Humanizing Education addressed itself to the first of these questions and today I will report on three large N studies of teacher behavior.

The first two studies indicate that in describing relationships with affective teacher behavior, it is necessary to move into polynomial models. The third study demonstrates that in predicting student outcomes, other factors than the linear term of the mean of the teacher's behavior add considerably to the predictive power of the model. Additionally, the fact that the teacher's stability of affective behavior (her deviations around her own mean) is a significant predictor of student outcomes offers some implications to help explain why polynomial models of affective teacher behavior seem to be more adequate than linear models.

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## STUDY NUMBER 1

SIXTH DEGREE ORTHOGONAL POLYNOMIAL MULTILINEAR  
REGRESSION ANALYSIS FOR TRENDS ACROSS TIME  
AMONG CLASSROOM FUNCTIONING VARIABLES

## PURPOSE OF STUDY

This study posed two questions:

1. Will sixth degree orthogonal polynomial multilinear regression analysis yield significant non-linear trends across time among Classroom Functioning Variables (as measured by Flanders' Interaction Analysis Categories, Cognitive Functioning Categories, and Process Scales) for Control (No-Training Condition) groups and/or for Experimental (Training Condition) groups?
2. Are the trends for the Experimental groups different from those of the Control groups?

## DESIGN

Sample

The sample for this study consisted of all Year 01 teachers who submitted 6 or more tapes, two of which were the September, 1971 and May, 1972 tapes. Total N for the study was 234. Table 29 displays the N by grade-level groups within treatment conditions.

Data Collection

Data for the study was the individual's score for each tape (month) on each of 10 Flanders' Interaction Analysis Categories, 10 Cognitive Functioning Categories, and 5 Process Scales. The data was collected by the regular procedures for assessment of tape data described in Part I.

## ANALYSIS

The levels of the independent variable for this analysis were the nine months of the school year from September, 1971 to May, 1972 during which tapes were obtained from teachers

Table 29: Teacher Sample for Trend Analysis by Grade Level Groups Within Treatment Conditions

		Number of Teachers	
		Control	Experimental
	Grade Level Groups		
	1	9	11
	2	12	10
	3	11	10
	4	11	10
	5	11	12
	6	10	11
	7-9	11	26
	10-12	29	40
Totals	1-6	64	64
	7-12	40	66
	1-12	104	130

at monthly intervals. The procedure used was a sixth-degree orthogonal polynomial multilinear regression analysis across time (months). Each regression coefficient was computed\* independently of the others and each was tested for significance at the  $p < .05$  level. If more than three coefficients were significant, they were eliminated on the basis of  $R^2$  until only the three components achieving the highest  $R^2$  remained. The resulting regression equation was used to generate the curve representing the trend of the behavior across time.

This procedure was repeated for each of the 25 study variables for each of the groups within each of the conditions. Since there were 10 groups (Grades 1, 2, 3, 4, 5, 6, all Elementary, grades 7-9, grades 10-12, All Secondary) for each of two conditions (Control and Experimental) for each of 25 variables, a total of 500 regressions were completed.

## RESULTS

### From Control Group Data

A question of some concern to the researchers was whether time of year might be a confounding factor for the study variables. Thus, the analyses of most interest in this study were those utilizing the data from the control groups. Table 30 displays the significant components of the polynomial expressions of the fitted curves for each analysis in which a significant trend was detected in the control data. Of the 250 analyses conducted with this data, 79 significant trends were detected. Twenty-four of these were in the 50 analyses with the data from School Level groups (All Elementary and All Secondary). When the teachers in the School Level groups were treated separately in grade level groups, the resulting 200 analyses yielded 55 significant trends with 41 occurring among the elementary grades and 14 occurring among the secondary groups.

Of the 79 significant trends, 70 were fitted with polynomial expressions which contained a linear term; 57 had a cubic component, and 32 had a quartic component. The majority of the curves had a decreasing function. (See further discussion below).

Three major forms of fitted curves occurred in this data. They are represented in Figure 4. The most commonly fitted curve was one with both linear and cubic terms. Thirty-nine curves were of this form but 14 of those had an added 5th

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\*Using procedures to compensate for unequal N of observations at time points.

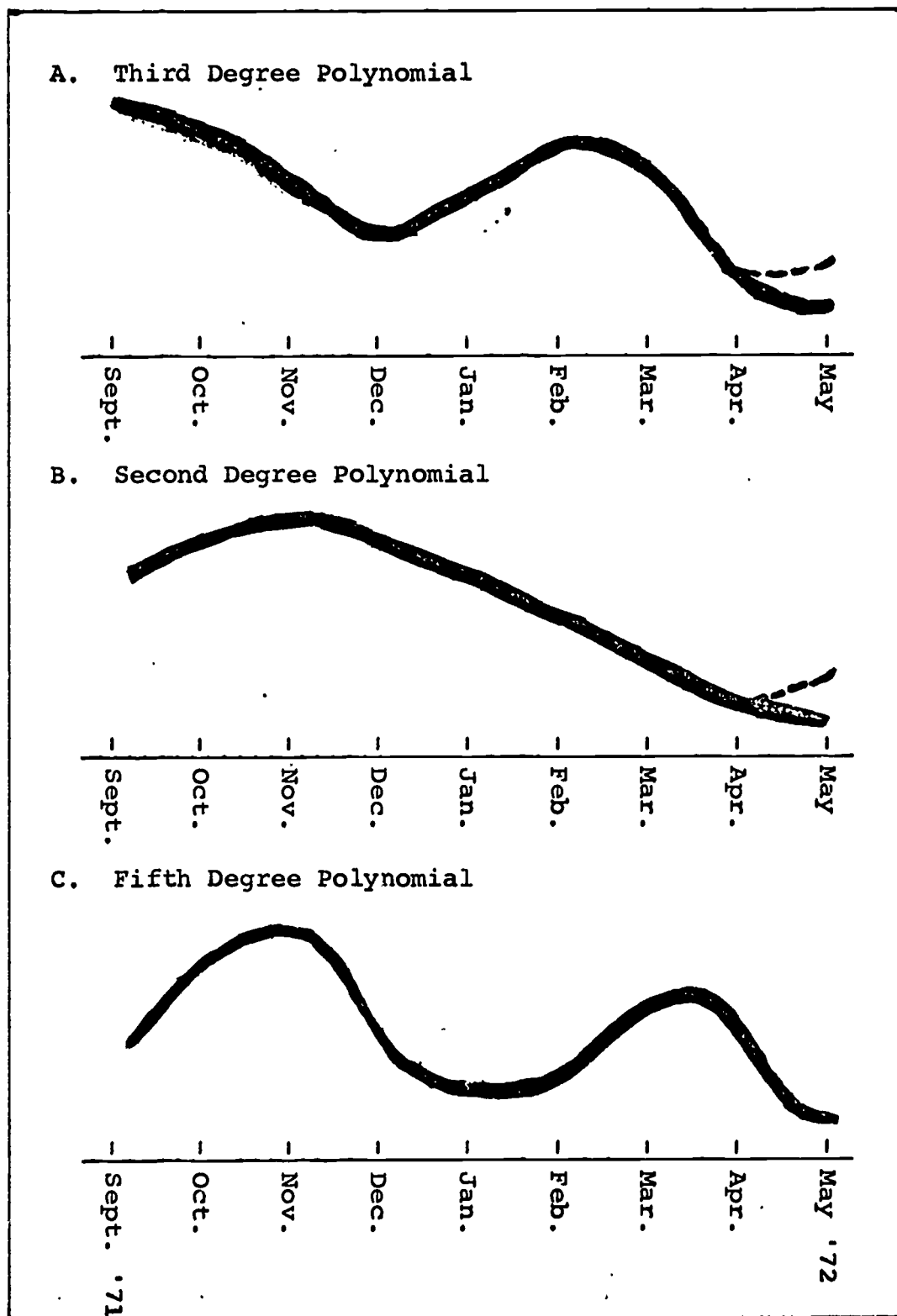
Table 30: Significant Components of the Polynomial Expressions for Significant Trends Detected in Control Group Data

	By School Level		By Grade Level Groups									
	All Elem.	All Sec.	1	2	3	4	5	6	7-9	10-12		
F-1	2,3,5	--	--	--	--	--	1,2,3	--	--	--	--	
F-2	1,3,5	--	--	1,3,5	--	1,3	1,3,5	--	--	--	--	
F-3	1,4,5	1,3	--	--	--	1,2,4	1,3,5	--	--	1,3	--	
F-4	1,2,3	--	--	--	1,2	--	--	1,4	--	--	--	
F-5	--	--	--	--	--	--	--	--	2,3,5*	--	--	
F-6	1,3,5	--	--	--	--	--	--	--	--	--	--	
F-7	--	--	--	--	--	--	--	--	--	--	--	
F-8	1,3	--	1,3	--	--	--	--	--	--	--	--	
F-9	--	--	1	--	--	--	--	--	--	--	--	
F-10	1,3,5	--	--	--	--	--	--	--	--	1,3,5*	--	
C-1	2,3,6	--	--	--	--	--	--	--	--	--	--	
C-2	1,2,3	1,3	--	1,2,3	1,2	--	1,3	1,2,6	--	1,2,3	--	
C-3	--	--	--	--	--	--	--	--	--	--	--	
C-4	--	--	--	--	--	--	--	--	--	--	--	
C-5	1,3	--	1,3	--	1,3,5	--	--	--	--	--	--	
C-6	--	2,4,6*	1,2	3	--	1,3 *	--	--	--	2,3,5*	--	
C-7	--	--	--	--	1,3	--	--	--	--	--	--	
C-8	--	--	--	--	--	--	--	--	--	--	--	
C-9	--	--	1,3,5*	--	--	--	--	--	--	--	--	
C-10	--	--	--	--	--	--	--	--	--	--	--	
M	1,3	2,3	--	1,2	--	1,2	1,3,5	--	2,3,5	1,2	--	
G	1,3	1,2,3	1,3	1,3	1,3,4	1,3	1,3,5	--	2,3,5	1,2	--	
SP	1,3	1,2	--	--	1,2,3	1,2	1,3,4	--	1,2	1,2	--	
R	1,3	1,3	1,2	--	1,3,5	1,2	1,3,4	1,2	1,2	1,3	--	
SI	1,3	1,3	1,2	--	1,3,5	1,3	1,3	--	--	1,3	--	

\* = in same direction as the expected direction of treatment benefits for Experimental Groups.



Figure 4: General Forms of Commonly Occurring Significant Negative Trends in Control Group Data



degree component. (When compared with observed data, this quintic component usually occurred when there had been an April or May "recovery" from a decreasing function). Twenty-two trends were expressed with linear and quadratic components and 8 of these included a cubic term. (Again, this cubic term was associated with "recovery" from decreasing function in the observed data). The third repeated form was that of a fifth degree polynomial expression with the linear and quartic terms eliminated as insignificant. This form occurred five times and four of these were in the secondary grade-level groups (7-9 and 10-12).

#### From Experimental Group Data

Table 31 displays the significant polynomials of the fitted curves for each analysis in which a significant trend was detected in the data from Experimental groups. Of the 250 analyses conducted with this data, 97 significant trends were detected. Twenty-eight of these were in the 50 analyses with the data from School Level groups (All Elementary and All Secondary). When the teachers in the School Level groups were treated separately in grade level groups, the resulting 200 analyses yielded 69 significant trends with 38 occurring among the elementary grades and 31 occurring among the secondary groups.

Of the 97 significant trends, 46 were fitted with polynomial expressions which contained a linear term; 70 had a quadratic component, and 68 had a cubic component. About half of the curves had a decreasing function. (See further discussion below).

The forms of the fitted curves were not as consistent in the Experimental Data as in the Control data. However, of the 38 significant positive trends (in the direction\* of anticipated treatment benefits) two general forms of fitted curves occurred commonly. They are represented in Figure 5. The arrows in the figure represent those points in time at which treatment (training of teachers) was applied. The most commonly fitted curve was one with both quadratic and cubic terms. Nineteen curves had this form, but 12 of those were cases in which the quadratic and cubic terms were components of a 5th or 6th degree expression. The second generally occurring form in this data was that of a 5th or 6th degree

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\*Either an increasing or a decreasing function, depending upon whether high or low levels of the specific behavior were desired treatment benefits. Positive directions are indicated in Table 31 by a +.

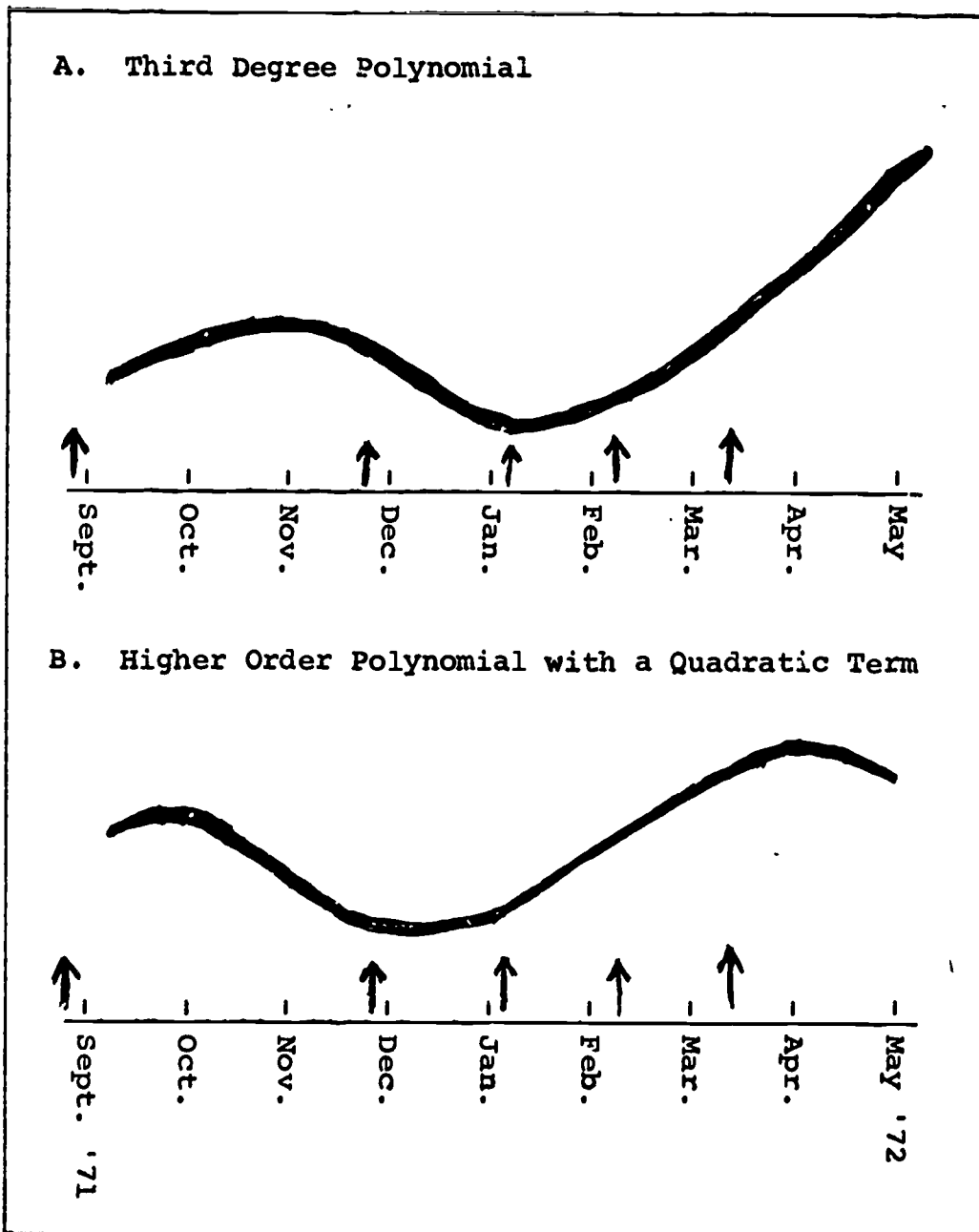


Table 31: Significant Components of the Polynomial Expression for Significant Trends Detected in Experimental Group Data

	By School Level		By Grade Level Groups									
	All Elem.	All Sec.	1	2	3	4	5	6	7-9	10-12		
F-1	--	--	--	--	--	--	--	--	1,2,3 <sup>+</sup>	1,2,3		
F-2	1,3,5 <sup>+</sup>	1,2,3 <sup>+</sup>	--	3,5,6 <sup>+</sup>	2,3,5 <sup>+</sup>	--	1,3,5 <sup>+</sup>	2,3,6 <sup>+</sup>	--	2,3,6 <sup>+</sup>		
F-3	--	1,2,3	--	--	2,5,6 <sup>+</sup>	--	--	--	--	--		
F-4	1,2,6	1,3,4	--	--	--	--	--	--	--	2,5		
F-5	1,2,6	--	--	2,3,5 <sup>+</sup>	--	--	--	--	2,3,4	--		
F-6	--	3,4 <sup>+</sup>	3,4	1,2,3	1,3 <sup>+</sup>	1,2,3 <sup>+</sup>	2,3,6	2,3,5	1,2,3 <sup>+</sup>	1,2,3		
F-7	--	--	--	--	--	--	--	1,2,3	3,4,5	--		
F-8	2,3,5	--	1,3	3,5,6	--	--	1,2,6	--	2,3,4	--		
F-9	--	--	--	--	--	--	--	--	--	3,5,6 <sup>+</sup>		
F-10	2,3,5	1,6	--	2,3,6 <sup>+</sup>	--	--	--	1,2,3 <sup>+</sup>	1,2,3	2,5,6 <sup>+</sup>		
C-1	1,2,6	--	1,3,5	2,3,5	1,2,3	--	--	--	2,3,4	--		
C-2	1,3,6 <sup>+</sup>	1,6	--	2,3,5	--	--	2,3,5 <sup>+</sup>	--	--	2,3		
C-3	--	--	--	--	--	--	--	--	--	--		
C-4	--	1,5,6	--	--	--	--	--	--	1,2,3	2,3,5		
C-5	2,3,6	--	1,2,3	3,5,6	--	--	--	--	2,3,4	--		
C-6	--	--	--	--	--	--	--	--	--	--		
C-7	--	1,2,3	--	--	1,2,3	2,3,4	--	--	--	1,2,3,4 <sup>+</sup>		
C-8	--	--	--	--	--	--	--	--	--	2,3,5		
C-9	--	--	--	--	--	--	--	--	1,2,3 <sup>+</sup>	--		
C-10	2,4,6	3,5,6	--	--	--	--	--	1,5,6 <sup>+</sup>	1,2,3	2,5,6		
M	1,2,3 <sup>+</sup>	3,4	--	--	--	2,3,5 <sup>+</sup>	--	1,2,4 <sup>+</sup>	2,3,4	1,2,3		
G	1,2,6 <sup>+</sup>	3,4	--	--	2,3,5 <sup>+</sup>	2,3,5 <sup>+</sup>	--	1,4 <sup>+</sup>	2,3,4	2,4,5		
SP	1,2,5 <sup>+</sup>	4	2,3,5 <sup>+</sup>	--	2,3,5 <sup>+</sup>	--	--	1,4 <sup>+</sup>	2,3,4	1,2,4		
R	1,2,5 <sup>+</sup>	4	--	--	--	2,4,6 <sup>+</sup>	--	--	2,3,4	3,5,6		
SI	1,2,5 <sup>+</sup>	4	--	1,2,5 <sup>+</sup>	1,2,3 <sup>+</sup>	--	--	--	3,4,5	--		

+ = in expected direction of treatment benefit

Figure 5: Two General Forms of Commonly Occurring Significant Positive Trends in Experimental Group Data With Applications of Treatment Indicated



polynomial expression which included a significant quadratic component as one of three terms. This form occurred 8 times.

#### From Comparison of Control versus Experimental Trends

The trends for each dependent variable were compared for each of the grade-level groups. Of the 400 trend analyses carried out with data from grade-level groups, the regression was significant in 124 cases. These cases were so distributed that at least one regression of the pair was significant in 102 of a possible 200 paired comparisons (the comparison of the trend of a behavior variable in grade-level matched experimental vs. control groups).

Table 32 displays the results of the comparison. The symbols used are defined in the table; but, to summarize, the "+" and "-" symbols denote the direction of the behavior trends while the letters and numbers indicate significance. Specifically, a "+" denotes a favorable comparison; i.e., one in which it can be considered that the Experimental group has moved in the expected direction of treatment benefit as indicated by (1) a significant positive trend of the experimental group paired with either a significant control group trend in the opposite direction or with a non-significant control group in the same or opposite direction or (2) a non-significant positive trend of the experimental group paired with a significant control group trend in the opposite direction.

Similarly, a "-" denotes an unfavorable movement of the Experimental group away from the expected direction of treatment benefit as indicated by (1) a significant negative trend of the experimental group paired with either a significant control group trend in the positive direction or with a non-significant control group trend in the same or opposite directions or (2) a non-significant negative trend of the experimental group paired with a significant control group trend in a positive direction.

The letters "ND" indicate that both trends were in the same direction. A "+X" or "-X" standing alone or with the letters "ND" indicates that only the experimental trend was significant. The letter "C" immediately following the directional symbol ("+" or "-") indicates that only the control trend was significant while the number "2" following the directional symbol indicates that both the control and the experimental trends were significant.

The incidence of favorable and unfavorable comparisons are summed by grade-level groups in Table 33. Elementary Teachers have more favorable than unfavorable comparisons (44 to 23) while the Secondary teachers have more unfavorable ones.

Table 32: Summary of 6-Degree Polynomial Multilinear Regression Analysis Across Time -- Direction & Treatment Assignment of Significant Behavior Trends for 200 Paired Analyses of Experimental & Control Grade-Level Groups

Variables	Elementary Schools by Grade						Secondary by Grade	
	1	2	3	4	5	6	7-2	10-12
F-1	--	--	--	--	+C	--	+X	-XND
F-2	--	+2	+X	+C	+2	+X	--	+X
F-3	--	--	+X	+C	+C	--	--	+C
F-4	--	--	+C	--	--	-2ND	--	-XND
F-5	--	+X	--	--	--	--	-XND	--
F-6	-XND	-XND	+XND	+XND	-XND	-XND	+2ND	-XND
F-7	--	--	--	--	--	-XND	-XND	--
F-8	-2ND	-XND	--	--	-XND	--	-XND	--
F-9	-C	--	--	--	--	--	-XND	+X
F-10	--	+X	--	--	--	+XND	-XND	+2ND
C-1	-XND	-XND	-XND	--	--	--	-XND	--
C-2	--	-2ND	+C	--	+2	-2ND	--	-2ND
C-3	--	--	--	--	--	--	--	--
C-4	--	--	--	--	--	--	-XND	-XND
C-5	-2ND	-XND	-CND	--	--	--	-XND	--
C-6	+CND	+C	--	+CND	--	--	--	-C
C-7	--	--	-XND	-XND	--	--	--	-XND
C-8	--	--	--	--	--	--	--	-XND
C-9	+CND	--	--	+X	--	--	+X	--
C-10	--	--	--	--	--	+XND	+XND	+XND
M	--	+C	--	+2	+C	+X	-2ND	-2ND
G	+C	+C	+2	+2	+C	+X	-2ND	-2ND
SP	+XND	--	+2	+C	--	+X	-2ND	-2ND
R	+C	--	+C	+2	+C	+C	-2ND	-2ND
SI	+C	+X	+2	+C	+C	--	-XND	+C

#### Symbols Used

##### When only Experimental Trend is Significant:

- +X Experimental trend toward, and control away from, expected direction.
- X Experimental trend away from, and control toward, expected direction.
- +XND No Difference -- both trends away from desired direction; control non-sig.
- XND No Difference -- both trends away from desired direction; control non-sig.

##### When both Experimental and Control Trends are Significant:

- + 2 Experimental trend toward and control away from expected direction.
- 2 Experimental trend away from and control toward expected direction.
- + 2ND No Difference -- both trends significant in expected direction.
- 2ND No Difference -- both trends significant away from expected direction.

##### When only Control Trend is Significant:

- + C Experimental non-sig. trend in desired direction with control away from it.
- C Experimental non-sig. trend away from desired direction with control toward expected direction.
- + CND No Difference -- both trends in expected direction; experimental non-sig.
- CND No Difference -- both trends away from expected direction; experimental non-sig.
- Neither group significant

Table 33: Summary of Favorable Versus Unfavorable Comparisons of Experimental Group Trends with Control Group Trends

Grade-Level Groups		No. Favorable* Comparisons	No. Unfavorable Comparisons
Elementary	1	6	5
	2	7	5
	3	8	5
	4	10	2
	5	8	2
	6	7	4
Sec- ondary	7-9	4	13
	10-12	6	11
Totals	Elementary	46	23
	Secondary	10	24
	All	56	47

\*Favorable comparison: one in which it can be considered that the Experimental group has moved in the expected direction of treatment benefit.

Closer examination of Table 32 indicates that the Elementary school teachers generally have favorable comparisons on the Interpersonal Process (M, G, SP, R, SI) and Indirect Behavior (F-1, F-2, F-3, F-4) variables. The picture for the Secondary Schools is not as favorable as that of the Elementary Schools but the Senior High School (grades 10-12) does better than the Junior High (grades 7-9).

Although the data exhibits negative movement for the experimental groups, these are usually accompanied by negative movement of the matching control group as well. There is no case in which the experimental group had a significant negative direction accompanied by a significant positive direction for the control group. There are two cases (indicated by "C" in Table 32) in which the experimental group had a non-significant negative movement paired with a significant positive movement of the control group.

#### DISCUSSION

The "-XND", "-2ND", "+C", and "-CND" symbols registered in Table 32 are reflective of a general tendency which was found in the data. This tendency was most marked in the significant trends for the control group data. (See Table 30).

That is, in general<sup>21</sup>, the behavior trend for the control group was a movement across the year from September to May towards increased amounts of direct teacher behavior (F-5, F-6, F-7, C-1), increased amounts of Silence and Chaos (F-10, C-10), lower levels of student participation (F-8, F-9, C-5, C-6, C-7, and C-8), and less facilitative levels of interpersonal processes. This was not strictly a linear trend and, of course, it varied considerably among grade-levels and variables but, in general, it showed a decreasing function from September through December or January, a partial recovery in January or February, and a second downward trend through May. For some variables there was a second slight recovery in May, ending the downward trend with April. (See A and B of Figure 4).

Thus, for the experimental group to show positive movement, they had to over-come this general downward trend before positive movement could be evidenced. The symbol "+C" in Table 32 indicates cases in which a significant negative trend in the control group is paired with a non-significant positive trend

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<sup>21</sup>Exceptions are indicated by \* in Table 30.

of the experimental group. These cases are interpreted as being instances in which the experimental group succeeded in breaking up the negative trend but not in making significant positive movement. The symbols "-ND", "-2", "-2ND" in Table 32 indicates those cases in which the experimental group reflected the general negative tendency of the data.

The general trend across time for the experimental groups was not as consistent as for the control groups, which also substantiates the concept of the experimental treatment benefits being in a direction opposed to the direction of the normal processes evidenced across the school year. Of the 97 significant trends detected in the experimental data, 38 were in the direction of expected treatment benefits. For the control groups, only 7 of the 79 significant trends were in this direction.

While examining the behavior trends across time, anecdotal evidence was discovered indicating that the measures selected for the study do reflect classroom processes accurately. This was found in the data taken in the week immediately following two racial incidents (a rape and a stabbing) in one of the secondary schools. The data for that time period (Feb., 1972) supplied by the faculty of the school which was involved in the racial incidents exhibited a severe depression in the variables most directly related to facilitative interpersonal processes. Thus, the data for that month for that school showed (1) marked decreases (from the levels attained in both the month preceding and the month following) in amount of praise given, questions asked by pupils, and student ideas accepted, and (2) a sharp increase in criticism and justification of authority and the amount of silence or confusion in the classroom. Decreases were also registered in the levels of the teacher's Meaning, Genuineness, Respect for Students, Success Promotion, and in the degree of Student Involvement in classroom processes.

#### SUMMARY

In conclusion, the findings from this study were:

1. The data supplied anecdotal validation that the measures selected for the project do reflect classroom process accurately.
2. Significant trends across time were found in the Control group data.

3. These trends were consistent with the interpretation that there is a deterioration across the year from September till May in the levels of facilitative conditions offered students.
4. Significant trends across time were detected in the Experimental Group data.
5. These trends were not as consistent as the trends from the Control data but were compatible with the interpretation that the benefits of the treatment applied (training of teachers) were in directions opposed to the direction of the normal processes evidenced across the school year.
6. Of the 97 significant trends in the Experimental data, 38 were in the direction of expected treatment benefits.

The first implication of this study for the applied research studies was that time of year was a confounding factor for the study variables and must be taken into consideration in the interpretation of research results. Secondly, a comparison of (1) the variables in which positive movement was evidenced and (2) the content of the training sessions for the year indicates a correspondence between the skills in which instruction was explicit and the variables in which movement was exhibited. This comparison led to the hypothesis that for the attainment of desired treatment benefits in additional variables, specific skills development training programs for those behaviors should be applied. To test this hypothesis, the training modules for the second year would have to undergo revision.



## STUDY NUMBER 2

## RESPONSE SURFACE ANALYSIS\*

## PURPOSE OF STUDY

This study posed four questions:

1. Can replicable, predictable, and significant relationships be detected among Classroom Functioning Variables as measured by Flanders' Interaction Analysis categories, Cognitive Functioning Categories, and Process Scales?
2. Will these relationships be different at the elementary and secondary levels?
3. Can specific recurring predictors be identified for each of the Classroom Functioning Variables?
4. Can response surfaces generated from the regression equations resulting from backward elimination multi-linear regression analysis provide information that will be useful in guiding the design of training programs?

## DESIGN

Sample

The sample for this study was all Year 01, Year 02, and Year 03 teachers who submitted 5 or more tapes during the year. Table 38 presents the data base for the study.

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\*This study is only summarized here as it was presented in detail in F. N. Roebuck and D. N. Aspy, Response Surface Analysis: Interim Report No. 3. Monroe, LA: National Consortium for Humanizing Education, Northeast Louisiana University (National Institute of Mental Health Research Grant No. 5 P0 1 MH 19871), 1974. Separate presentation of this study was necessary because it involved 86 pages of illustrations of response surfaces generated from the analyses.

Table 38: Data Base for Response Surface Analysis

	Elementary			Secondary		
	Yr. 01	Yr. 02	Yr. 03	Yr. 01	Yr. 02	Yr. 03
No. of Teachers	162	132	55	98	60	44
No. of Hours of Instruction Coded	1,194	974	322	607	376	225

## Data Collection

Study variables were the individual's scores on 10 Flanders' Interaction Analysis Categories, 10 Cognitive Functioning Categories, and 5 Process Scales. The data was collected through the normal procedures for assessment of tape data described in Part I.

## ANALYSIS

Response Surface Analysis was carried out for each of the 25 study variables. The procedure used was to designate each of the study variables in turn as the dependent variable with the remaining 24 variables being considered as independent. The computer was then loaded with the linear, quadratic, and cross-product values of the independent variables and backward elimination multilinear regression analysis was carried out. The procedure was continued until only two variables were left in the model. The resulting regression equation was used to generate points with which to plot the response surface. The regression equation with 3 variables was also identified and a 3-variable response surface was generated for each study variable.

The analysis for each study variable was carried out separately for elementary (grade 1-6) and secondary (grade 7-12) teachers as it was anticipated that the relationships would be different at the two levels. Since there were three samples (Year 01, Year 02, and Year 03) at each level which were analyzed separately, a total of 150 analyses were conducted. Each analysis yielded two response surfaces -- a 2-variable surface and a 3-variable surface--for a total of 300 surfaces which were constructed.

## RESULTS

### From Regression Analysis

A majority of the regressions were significant at  $p < .001$ ; however, they ranged as high as  $p < .75$ . Acceptable levels of significance were  $p < .05$ . Only 19 of the 150 regressions failed to achieve this level of significance. Variable F-7 at the Secondary Level was the only variable which was consistently insignificant; it failed to reach the .05 level in all three samples.

Achieved  $R^2$  for the three-variable equations ranged from .01 to .99. Some variables were predictable at approximately the same levels of  $R^2$  from sample to sample (within a school

level) while other variables showed wide differences in achieved  $R^2$  among samples. A methodical comparison of the  $R^2$ 's provided an estimate of the stability of predictability of the study variables from sample to sample. Table 39 summarizes the results of this comparison.

Some study variables consistently predicted the same dependent variables from sample to sample within a school level. These predictors were designated "Recurring Variables." Table 40 presents the Recurring Variables for each dependent variable at each school level.

It is obvious from scanning Table 40 that some variables featured more frequently as predictors of the other study variables. The relative frequency of each of the study variables as a predictor is summarized in Table 41.

#### From Construction of Response Surfaces

The 300 response surfaces generated from the 150 2-variable and the 150 3-variable regression equations derived from the three samples at each of two school levels were examined for information as to the dynamic relationships among the variables. Each surface presented its own exhibit of the dynamics of the inter-relationships of the study variables; however, two general observations could be made of the surfaces as a set.

First, many of the variables were related to the dependent variable in a curvilinear rather than a linear fashion. All but 11 of the 150 2-variable regression equations contained at least one quadratic or cross-product term, while 146 of the 3-variable equations contained such a term.

Second, the surfaces emphasized the dynamic quality of the inter-relationships of the predictor variables. In several cases, the directionality of the relation between the dependent variable and a predictor variable was completely reversed as the value of a second predictor variable changed.

### DISCUSSION

One of the major reasons for conducting this extensive examination of the relationships between Classroom Functioning variables was the need of the researchers to be able to specify the expected direction of treatment benefit for each of the 25 study variables. The National Consortium for Humanizing Education had hypothesized that a humane classroom was characterized by four types of behavior:

Table 39: Stability of Predictability of Study Variables  
from Sample to Sample within School Levels

		Elementary Level	Secondary Level
Stable	With Consistently Ample $R^2$	F-5 C-2 C-4 C-7 C-10 M G SP R SI	F-5 F-10 C-2 C-10 M R SI
	With Consistently Low $R^2$	F-2	F-7* F-8*
Not Characterized as to Stability	Ample $R^2$	F-4 F-10	F-3 C-4 C-5* C-9* SP
	Low $R^2$	F-6 F-8* F-9 C-1*	F-6* F-9 C-8*
Unstable	With Inconsistently Ample $R^2$	C-9	F-4 C-7 G
	With Inconsistently Low $R^2$	F-1* F-3* F-7 C-3* C-5* C-6 C-8*	F-1* F-2* C-1* C-3* C-6

\*Indicates that at least one of the 3 regressions within the school level for the variable did not reach  $p < .05$ .

†Ample  $R^2$  was defined as  $R^2 > .35$  in at least two of the three samples.

Table 40: Recurring\* Predictive Variables

Dependent Variable	Elementary Teachers			Secondary Teachers		
	2 Samples	3 Samples	Variable Recurring as Predictive of Dependent Variable in Equations for	2 Samples	3 Samples	Variable Recurring as Predictive of Dependent Variable in Equations for
F-1	M, C-7	F-9	M, SI	M, SI	C-7	C-7
F-2	SI	C-2, M	C-7, C-5	C-7, C-5	SI	SI
F-3	R, C-5, C-7	C-7, SI	C-4, SI	C-4, SI	C-2	C-2
F-4	R, C-3	C-6	SP, R, C-7	SP, R, C-7	C-5	C-5
F-5	M, C-1, C-2, SI	C-5	C-5, R	C-5, R	M	M
F-6	C-2	C-1, M, C-2	SI	SI	F-10, C-1	F-10, C-1
F-7	C-2	F-7, R	R, C-2	R, C-2	C-1, M	C-1, M
F-8	C-2	M	C-2, SP, F-2, F-1	C-2, SP, F-2, F-1	F-2	F-2
F-9	SI, C-2	C-1	C-2, SI	C-2, SI	C-1	C-1
F-10	M, R, C-6	C-8	C-6	C-6	R, M	R, M
C-1	M	F-4, C-7	F-5, C-8	F-5, C-8	F-4, R, C-7	F-4, R, C-7
C-2	F-2	F-5, C-8	C-7, F-4, M	F-3, F-4, M	G	G
C-3	F-4, F-7	R	R, F-4	R, F-4	C-7	C-7
C-4	F-4, F-8, SI	C-4	F-3, SI, F-8	F-3, SI, F-8	F-7	F-7
C-5	F-4, F-8, SP	C-4	C-3, M, F-1, SI	C-3, M, F-1, SI	C-4, F-1	C-4, F-1
C-6	F-4, F-8, SI	F-7, M	F-3, F-7, C-7	F-3, F-7, C-7	M	M
C-7	F-8, SP	SI	F-6	F-6	F-5, SI	F-5, SI
C-8	M, SI, C-3, C-4	R, F-2	C-1, C-7	C-1, C-7	R	R
C-9	F-1	F-2	F-7, F-2, M	F-7, F-2, M	C-1	C-1
C-10	C-4, F-5	G	M, C-1, F-2	M, C-1, F-2	G	G
M	F-7, M	G	F-1, C-7	F-1, C-7	G, C-7	G, C-7
G	F-2, C-4, M, C-1	G				
SP	C-7, F-3					
R	F-1, C-7					
SI						

\*Recurring from sample to sample as predictor for same dependent variable.

Table 41: Summary of Predictive Appearances  
of Recurring Variables

Predictive Variables	No. of Appearances		
	Total	Elementary Data	Secondary Data
M:	53	29	24
C-7: Student Thinks	39	17	22
SI: Student Involvement	34	16	18
R: Respect	32	15	17
C-1: Teacher Recalls Facts	25	10	15
C-2: Teacher Asks for Facts	23	14	9
F-2: Teacher Praises	19	10	9
F-4: Teacher Asks Questions	17	10	7
F-7: Teacher Criticizes	17	10	7
G: Genuineness	15	6	9
C-4: Teacher Asks for Thinkings	14	9	5
F-1: Teacher Accepts Feelings	13	4	9
C-5: Student Recalls Facts	12	5	7
F-5: Teacher Lectures	10	5	5
F-3: Teacher Accepts Ideas	8	2	6
C-8: Student Asks for Thinking	8	6	2
C-3: Teacher Thinks	7	5	2
C-6: Student Asks for Facts	7	5	2
F-8: Student Responds	6	4	2
SP: Success Promotion	6	2	4
F-9: Student Initiates	3	3	*
F-10: Silence or Confusion	3	*	3
F-6: Teacher Gives Directions	2	*	2
C-9: Non-Cognitive Behavior	*	*	*
C-10: Silence and Confusion	*	*	*

\*Variable occurred only at random in this data; i.e., it did not recur from sample to sample within a level as predictor for the same dependent variable.

1. Frequent acceptance of student feelings,
2. High amounts of student participation,
3. High levels of student thinking beyond the use of facts, and
4. High degrees of student involvement.

From this hypothesis, the expected direction of treatment benefits was self-evident for variables F-1, F-8, F-9, C-7, and the Process Scales. And from the implications of directionality of these variables, expected direction could be derived for variables F-2, F-3, F-4, C-2, and C-4. However, the implications for F-5, F-6, F-10, C-1, C-3, C-5, C-6, C-9 and C-10 were not so clear. By examining the response surfaces generated in this study, it was possible to specify the expected direction of treatment benefit for all variables.

Examination of the individual response surfaces also provided guidance for focusing training to change specific aspects of teacher or student behavior. For example, examination of the response surfaces for F-9 (Figures 6 & 7) suggested that in order to increase the amount of Student Initiation at the elementary school level, training should focus on helping the teacher to understand the meaning-to-the-student of his classroom experiences and to communicate acceptance of the student's feelings. At the high school level, training to increase Student Initiation should focus on helping the teacher (1) to raise his levels of skill in promoting the student's achievement of individual goals and (2) reduce the amount of time he spends asking students to recall facts. (See Figures 6 and 7).

#### SUMMARY

In conclusion, the findings from this study are:

1. Replicable, predictable, and significant relationships were detected among variables of teacher and student classroom functioning.
2. These relationships were different at the secondary and elementary school levels.
3. Specific recurring predictors for each of the study variables were identified.
4. Some of the classroom functioning variables co-varied significantly and frequently with a large number of the other study variables, and these



predictors were few enough in number to suggest that efficient programs for changing overall classroom functioning could be developed by focusing training efforts on these few highly predictive variables.

5. The individual response surfaces generated for each study variable provide specific suggestions for focusing training efforts aimed at changing selected aspects of teacher or student behavior.
6. Two of the 4 most frequently recurring predictors (and 3 of the top 10) were variables which had been postulated by Rogers as being positively related to effective learning environments.
7. Most of the frequently recurring predictors were related to the kinds of behavior classified by Flanders' as "Indirect."
8. The kinds of behavior hypothesized by the National Consortium for Humanizing Education as characterizing a humane classroom were also the kinds of behavior which were frequently recurring predictors of the other study variables.
9. The curvilinear relationships detected were strong enough and constant enough to suggest that educational researchers need to emphasize the building and testing of at least quadratic models.

The most important implication of this study for the NCHE applied studies was the specification of the expected direction of treatment benefits for each of the 25 classroom functioning variables. However, the other findings from this study have important implications for applied research in education in general. Also, the methodology (Response Surface Analysis) seems a promising one for researchers in education and other social sciences.

Figure 6: Response Surface for  
 F-9: STUDENT INITIATES at the Elementary School Level

$$F-9 = 6.59066 - 47.9076F1F1 + 15.013F1M$$

$R^2 = 0.172$

$s_E = 5.945$

$F = 16.559$

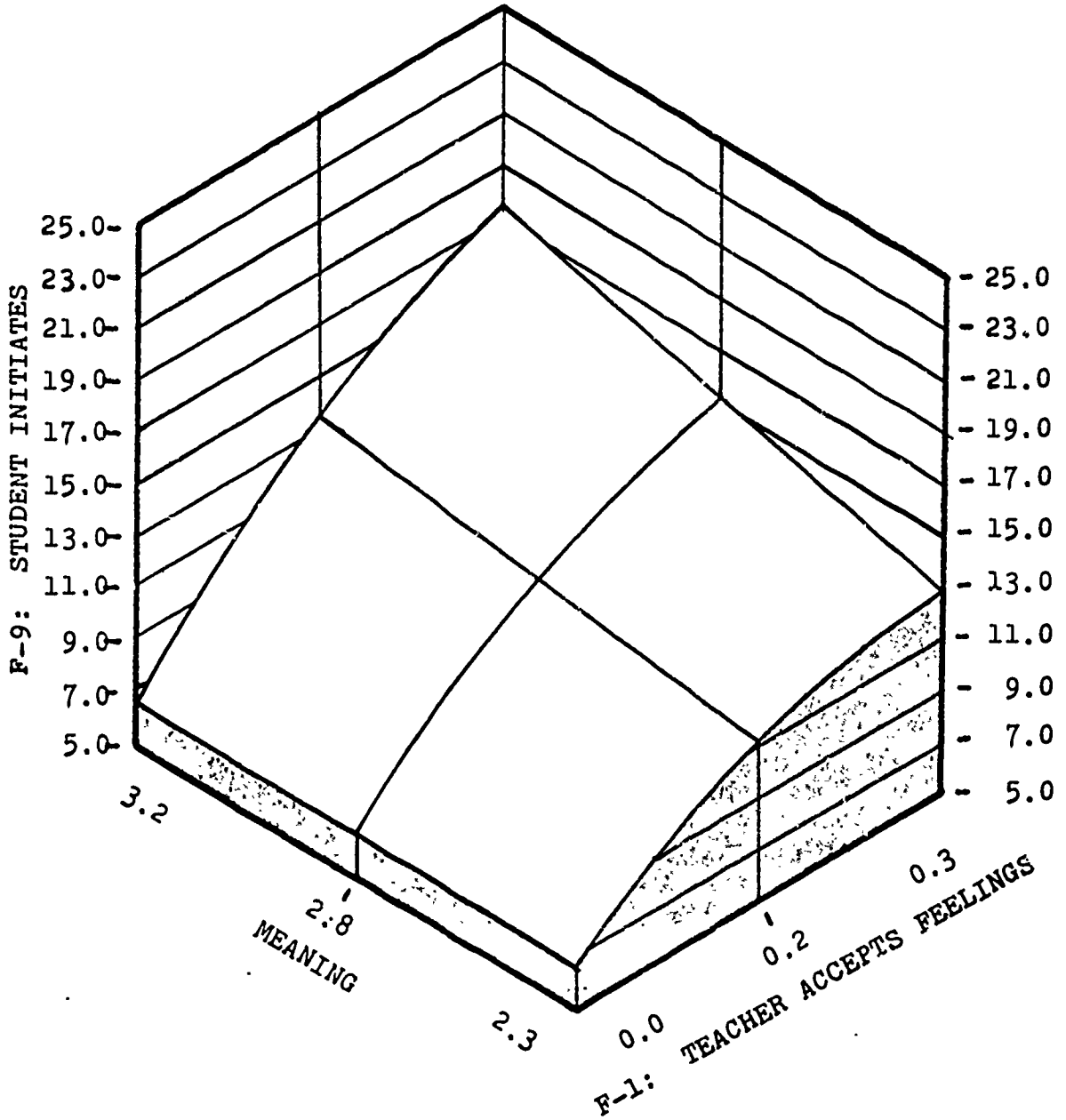


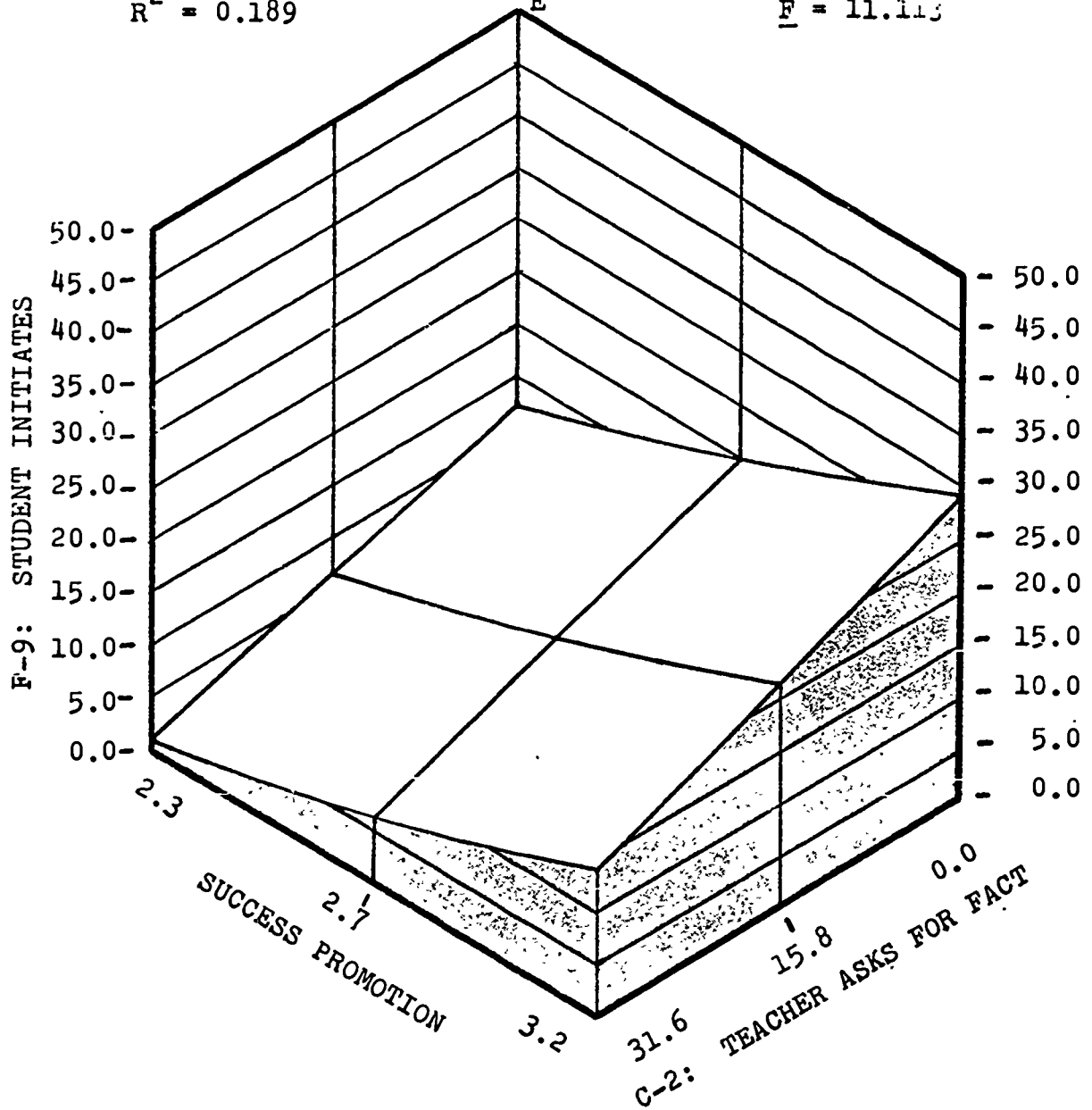
Figure 7: Response Surface for  
F-9: STUDENT INITIATES at the Secondary School Level

$$F-9 = - 5.07259 - 0.153C2SP + 0.334SPSP$$

$$R^2 = 0.189$$

$$S_E = 9.408$$

$$\underline{F} = 11.115$$



## STUDY NUMBER 3

THE CLASSROOM FUNCTIONING VARIABLES AS PREDICTORS  
OF CHANGE ON STUDENT OUTCOME MEASURES OF ABSENTEEISM,  
SELF-CONCEPT, AND ACHIEVEMENT

## PURPOSE OF THE STUDY

This study posed two questions:

1. When Student Outcome Measures of change have been adjusted for pre-test standing, will multi-linear regression analysis detect significant relationships between the adjusted change measures and the Classroom Functioning variables?
2. Which Classroom Functioning variables are the better predictors of the adjusted change measures?

## DESIGN

Sample

The Teacher sample for this study included all Year 01 experimental and control classroom teachers who submitted four or more tapes during the year. "Special teachers" (art, music, speech therapy, etc.) were not included and the study was restricted to Math and English Teachers at the Secondary level. The student sample was formed of all students who (1) had been taught by "included" teachers and (2) had taken pre- and post-tests of student outcome measures. Table 56 displays student and teacher N by grade level.

Data Collection

Data for the independent variables in the study were the individual's scores on all submitted audio tape recordings of classroom instruction on each of the 10 Flanders' Interaction Analysis Categories, 10 Cognitive Functioning Categories, and 5 Process Scales. The data was collected by the regular procedures for assessment of Tape data described in Part I.

The dependent variables were pre- and post-test measures on Metropolitan Achievement Tests (for students in grades 1-6),

Table 56: Distribution of Sample for  
Study 14 by Grade Level

Grade Levels		Teacher N	Student N
1		20	442
2		22	488
3		21	451
4		21	492
5		23	532
6		15	485
7-12	Math	16	1,365*
	English	18	2,113
Total		156	5,003

\*These students contained within  
English N.

California Achievement Tests (for students in grades 7-12), How I See Myself Tests (students in grades 3-12), and total days absent for the year (for all students). The pre-tests were administered in November, 1971 and the post-tests in April, 1972 by the students' regular classroom teachers and scored by the test publishers.

### ANALYSIS

Sixty-four multi-linear regression analyses were carried out. The dependent variables were adjusted change\* scores on student tests. Table 59 lists the dependent variables. Separate analyses were carried out for grade levels, 1, 2, 3, 4, 5, 6, and 7-12. Grades 7-12 were run as one level because of organizational factors of the schools; i.e., all students changed classes thus limiting the number of teachers in a particular subject matter to two or three per grade.

Independent variables were means and standard deviations of measures of selected Classroom Functioning Variables. The teacher's Grand Mean\*\* for the year was used as a measure of average level of functioning. The standard deviation of the teacher's scores around his own mean was used as an estimate of stability of functioning. In all there were 28 Independent Variables, as follows:

- X and  $\hat{\sigma}$  of F-1: Accepts Student Feelings
- X and  $\hat{\sigma}$  of F-2: Use of Praise and Encouragement
- X and  $\hat{\sigma}$  of F-3: Accepts Student Ideas
- X and F-6: Give Directions or Commands
- X and  $\hat{\sigma}$  of F-7: Use of Criticism and Justification of Authority
- X of F-9: Student Initiated Response
- X of C-1: Teacher Recalls Facts

---

\*Adjusted change was post-test minus pre-test to yield raw change which was then adjusted for pre-test standing. This was done for all variables except (1) first grade tests where absolute post-test scores were used as no pre-test data was available and (2) absence where total days absent was the dependent variable.

\*\*Grand Mean = average over all tapes submitted.

$\bar{X}$ of C-2:	Teacher Asks for Facts
$\bar{X}$ and $\hat{\sigma}$ of C-3:	Teacher Thinks
$\bar{X}$ and $\hat{\sigma}$ of C-4:	Teacher Asks for Thinking
$\bar{X}$ of C-5:	Student Recalls Facts
$\bar{X}$ of C-6:	Student Asks for Facts
$\bar{X}$ of C-7:	Student Thinks
$\bar{X}$ of C-8:	Student Asks for Thinking
$\bar{X}$ and $\hat{\sigma}$ of M:	Teacher's Understanding of Meaning to Student of Classroom Experiences
$\bar{X}$ and $\hat{\sigma}$ of G:	Teacher's Genuineness in Person-to-Person Interactions
$\bar{X}$ of SP:	Teacher's Promotion of Success of Student's Goals
$\bar{X}$ of R:	Teacher's Respect for Students
$\bar{X}$ and $\hat{\sigma}$ of SI:	Student's Involvement in <u>Learning Activities</u>

In carrying out the regressions, the measures of each teacher's functioning were regressed against the Mean Change on the dependent variable for the students taught by that teacher. Therefore, degrees of freedom for each analysis were based on N of classrooms (teachers) rather than N of students. Since the N of classrooms was in all cases smaller than the number of independent variables to be considered, the computer was programmed to halt computation when the degrees of freedom for regression were equal to residual degrees of freedom minus one.

## RESULTS

### Prediction of Change

The R-squares displayed in Table 57 represent the amount of remaining variance predicted by Classroom Functioning variables after the variance due to Pre-test Standing had been removed. In other words, once you have accounted for change related to where the student was on entering, then these R-squares tell you how good teacher behavior was as a predictor of change. All regressions for which R-square is reported were significant at  $p < .05$ .

Table 57: Results of Multilinear Regression Analysis:  
Variation (R<sup>2</sup>) in Adjusted\* Mean Gain  
Predicted by Teacher Behavior Factors

Dependent Variables	Grade Levels						
	1	2	3	4	5	6	7-12
Teacher School Acceptance			.41**	.23	.53	.61	.73
Physical Appearance			.78	NS	.64	.45	.82
Interpersonal Adequacy			.81	NS	.85	.48	.86
Autonomy			.63	.19	.75	.45	.88
Academic Adequacy			.29	.14	.73	.69	.84
Total Days Absence	.71	.84	NS	.14	.42	.38	.54
Reading Vocabulary	.68	.35	.83	.50	.75		
Reading Comprehension	.43	.80	.89	.88	.42		.39
Word Analysis	NS	.37	.90				
Language Usage				.85	.88		.39
Language Mechanics							.59
Spelling			.84	.53	.70		
Math Computation			.73	.56	.64		.86
Math Concepts			.86	.35	.15		.78
Math Problem-Solving			.83	.42	.72		

X = No data at this level on this variable NS = Regression not Significant at acceptable level (p < .05)

\*Adjusted for Pre-test standing except 1st grade data uses absolute post-test standing (no pre-test available) and Total Days Absence uses raw totals.  
\*\*Numbers Represent R<sup>2</sup>





Classroom Functioning as a predictor of change varied with the dependent variable and with the grade level. However, there were several patterns in the data presented in Table 57.

First, teacher functioning was a good predictor of absolute standing at the end of the year for first grade students, in all areas except word analysis skills.

Second, except for the third and fourth grades, teacher functioning was a good predictor of the total days absent for her students. The relationship was an inverse one for all predictors except F-6 and F-7. The same trend was observed in third and fourth grades but it did not reach significance in the third grade regression and was not a high predictor at the fourth grade level.

Third, in general, teacher functioning was not as good a predictor of student gain in the fourth grade as it was for the other levels of students.

Fourth, above the fourth grade, teacher functioning was a better predictor of gain in skills than of gain in concepts. For example, in grades 7-12, the R-square for Language Mechanics was .59 but was only .39 for Language Usage. For Math Computation, the MCR square was .86 but, for Math Concepts, it was .78. The same situation was observed at grade 5. Reading Vocabulary was .75 and Comprehension was .42; Math Computation was .64, Math Problem-Solving was .72, and Math Concepts was .15. At the fourth grade level, prediction of change in Math followed the same pattern but not in reading. Below the fourth grade level, only the prediction of post-test standing for first grade follows the pattern, with Reading Vocabulary registering an R-square of .68 and first grade Reading Comprehension registering .43.

#### Identification of Predictors

The regression equations were examined to determine the relative predictive power of the independent variables. The dependent variables were grouped in three categories: (1) Absence, (2) Self-Concept Measures, and (3) Achievement Measures. Then the regression equations for each category were examined and the number of times a variable appeared as a predictor of change in regression equations at each level for each category was counted. This was divided by the number of equations for the category to get the percent of equations for the category in which the variable appeared as a predictor of gain. This operation was repeated for each category and for the total of all categories. The results are displayed in Table 58.

Table 58: Percent of Equations for Category in which Variable Appears\* as a Significant Predictor of Gain

Independent Variables	CATEGORY & LEVEL PREDICTED											
	ABSENCE		SELF-CONCEPT		ACHIEVEMENT		ALL CATEGORIES					
	EL.	SEC.	EL.	SEC.	EL.	SEC.	EL.	SEC.	EL.	SEC.	1-12	
F-1	20%	--	16%	20%	42%	--	30%	9%	26%			
F-2	20	200% <sup>+</sup>	50	20	30	40%	36	45	38			
F-3	20	--	22	--	30	40	26	18	25			
F-6	--	100	33	20	23	--	24	18	23			
F-7	40	--	33	20	46	80	40	45	41			
C-1	--	--	--	--	3	--	--	--	--			
C-2	20	--	11	--	23	--	18	--	15			
C-3	20	--	44	40	15	20	26	27	26			
C-4	40	--	--	40	19	20	14	27	16			
Meaning	20	100	11	40	34	20	24	36	26			
Genuineness	40	100	11	--	34	--	26	9	23			
Success	20	--	5	--	3	--	6	--	5			
Promotion	20	--	--	--	7	--	6	--	5			
Respect	20	--	--	--								
Student	20	--	38	40	15	20	24	27	25			
Involvement	20	--	22	--	30	60	22	36	25			
F-9	20	100	11	--	15	20	12	9	11			
C-5	--	--	16	20	34	--	24	9	21			
C-6	--	100	11	--	34	40	22	18	21			
C-7	--	--	22	20	38	--	28	9	25			
C-8	--	--	18	5	26	5	49	11	60			
N of Equations	5	1	18	5	26	5	49	11	60			

EL: Elementary (1-6)

SEC: Secondary (7-12)

\*Variable is counted as appearing if either  $\bar{X}$  or  $\hat{\sigma}$  appeared as predictor in regression.

<sup>+</sup>Variable appeared as both  $\bar{X}$  and  $\hat{\sigma}$  in the regression.



### Single Predictors

The most highly predictive single variables were F-1, F-2, F-3, F-7, F-9, C-3, C-8, M and SI. Cognitive 1 (Teacher Recalls Facts) was a predictor only for elementary Achievement and was negatively correlated with achievement. Cognitive 2 (Teacher Asks for Facts) was predictive for elementary students but not for secondary students. Of the Student Behavior variables, the most highly predictive were F-9 (Student Initiates) and Cognitive 8.

### Predictive Clusters

To simplify this rather complex picture of the relative predictive power of the variables, the independent variables were grouped into four clusters according to the kind of behavior being measured. Then for each category of dependent variables, the predictive appearances of the independent variables were summed over each cluster and divided by the total number of predictive appearances of all variables for the category. This provided a picture of the relative power of the different clusters of Classroom Functioning Variables in predicting change. The results are displayed in Table 59.

The teacher's Cognitive Behaviors had relatively little predictive power except for Self-Concept at the secondary level. The Teacher's Specific Affective Behaviors and the Process Scales appeared more frequently as predictors than either Student Behavior or Teacher's Cognitive Behaviors. However, Student Behavior measures were frequent predictors of gain in Achievement. The percentage of predictive appearances of Student Behavior in Achievement regressions was almost the same for the Elementary and the Secondary levels although comparing the two levels reveals discrepant percentages for Student Behavior in Absence and Self-Concept Regressions.

### Average Level vs. Stability of Functioning as Predictor

Tables 58 and 59 dealt with total appearances of a variable regardless of whether it appeared as a Mean (average level of teacher's functioning on that variable) or as a Standard Deviation (stability of teacher's functioning on that variable). Tables 60 and 61 deal with the predictive appearances of the two kinds of measures for the variables.

In Table 60, the process used to produce Table 3 was repeated, except that for Table 60 only the appearances of standard deviations of the variables were counted for each cluster and divided by the total number of all (both X and Y) appearances. This provided a picture of the percentage of

Table 59: Percent of Total Predictive Appearances in Category  
by Variable Clusters for School Level

Variable Cluster (Groupings of Independent Variables)	Level and Category Predicted					
	ABSENCE		SELF-CONCEPT		ACHIEVEMENT	
	EL.	SEC.	EL.	SEC.	EL.	SEC.
Specific Affective Behaviors	31%	42%	44%	28%	36%	44%
Teacher Cognitive Behaviors	25%	-0-	15%	28%	11%	11%
Process Scales	37%	29%	19%	28%	21%	12%
Student Behaviors	7%	29%	20%	16%	32%	33%

Specific Affective Behaviors:

- F-1: Accepts Feelings
- F-2: Uses Praise
- F-3: Accepts &/or Uses Student Ideas
- F-6: Gives Instructions
- F-7: Justifies Authority

Teacher Cognitive Behaviors:

- C-1: Teacher Recalls Facts
- C-2: Teacher Asks for Facts
- C-3: Teacher Thinks
- C-4: Teacher Asks for Thinking

Process Scales:

Meaning, Genuineness, Respect for Student, Success Promotion, Student Involvement

- EL: Elementary (1-6)
- SEC: Secondary (7-12)

Student Behaviors:

- F-9: Student Initiates
- C-5: Student Recalls Facts
- C-6: Student Asks for Facts
- C-7: Student Thinks
- C-8: Student Asks for Thinking

Table 60: Percent of Predictive Appearances in Category (by Variable Cluster per Level) that is Accounted for by Stability of Teacher Functioning Factors

Variable Cluster (Groupings of Independent Variables)	Level and Category Predicted					
	ABSENCE		SELF-CONCEPT		ACHIEVEMENT	
	EL.	SEC.	EL.	SEC.	EL.	SEC.
Specific Affective Behaviors	25%	14%	11%	14%	16%	22%
Teacher Cognitive Behaviors	12%	-0-	6%	14%	2%	-0-
Process Scales	6%	29%	11%	7%	13%	12%
Student Behaviors	-0-*	-0-	-0-	-0-	-0-	-0-

Specific Affective Behaviors:

- F-1: Accepts Feelings
- F-2: Uses Praise
- F-3: Accepts &/or Uses Student Ideas
- F-6: Gives Instructions
- F-7: Justifies Authority

Process Scales:

Meaning, Genuineness, Respect for Student, Success Promotion, Student Involvement

- EL: Elementary (1-6)
- SEC: Secondary (7-12)

Teacher Cognitive Behaviors:

- C-1: Teacher Recalls Facts
- C-2: Teacher Asks for Facts
- C-3: Teacher Thinks
- C-4: Teacher Asks for Thinking

Student Behaviors:

- F-9: Student Initiates
- C-5: Student Recalls Facts
- C-6: Student Asks for Facts
- C-7: Student Thinks
- C-8: Student Asks for Thinking

\*No Stability Measures of Student Behavior Variables were included in the Analysis.

Table 61: Proportion of Predictive Appearances in Category by Variable Cluster Per Level that is Accounted for by Stability of Teacher Functioning Factors

Variable Cluster (Groupings of Independent Variables)	Level and Category Predicted					
	ABSENCE		SELF-CONCEPT		ACHIEVEMENT	
	EL.	SEC.	EL.	SEC.	EL.	SEC.
Specific Affective Behaviors	.80	.33	.25	.50	.46	.50
Teacher Cognitive Behaviors	.50	-0-	.40	.50	.21	-0-
Process Scales	.16	1.00	.57	.25	.68	1.00

Specific Affective Behaviors:

- F-1: Accepts Feelings
- F-2: Uses Praise
- F-3: Accepts &/or Uses Student Ideas
- F-6: Gives Instructions
- F-7: Justifies Authority

Teacher Cognitive Behaviors:

- C-1: Teacher Recalls Facts
- C-2: Teacher Asks for Facts
- C-3: Teacher Thinks
- C-4: Teacher Asks for Thinking

Process Scales:

Meaning, Genuineness, Respect for Student, Success Promotion, Student Involvement

EL: Elementary (1-6)  
SEC: Secondary (7-12)

Predictive Appearances in Category that is accounted for by the stability of teacher functioning.

In Table 61, the relative predictive power of the two kinds of measures for the independent variables (average level of functioning and stability of functioning) is emphasized. It displays the ratio (proportion) of appearances of the stability measures to the total appearances of the variables. By examining this table, it was apparent that the stability of the teacher's functioning in the Process Levels was more important to secondary school students than to elementary students except in predicting self-concept changes. However, the stability of the Specific Affective Behaviors was more important than average level of functioning in predicting the Absence of elementary students. Compare this with the proportion for prediction of Absence by stability of Process levels. With a proportion of .16, it is evident that it is the average level of Interpersonal Process functioning that is more important for the elementary student.

## DISCUSSION

### General Relationships

In all but four of the 64 multi-linear regression analyses conducted in this study, the Classroom Functioning Variables were related to the student outcome measures at levels of significance less than .05. R-squares achieved in the significant regressions ranged from .14 to .88.

The relationships reported in this study are somewhat stronger than those reported for similar studies by previous investigators. Factors related to the added strength of the relationships reported here include the following:

1. The independent variables were measures of the actual processes occurring in the learning situation rather than presage characteristics of the teacher, the students, the curriculum, or the learning context.
2. The independent variables were generated from repeated measures of the processes occurring in the learning situation, thus providing (1) an average level of functioning for the year and (2) an estimate of stability of functioning for the year.
3. The dependent variables were not change for individual students but were mean change for all the students taught by the teacher.



4. The R-squares reported are for a component of the total variance; i.e., the variance remaining after the variance due to pre-test standing has been adjusted for.

Although the specific relationships between the Classroom Functioning Variables and the Change measures varied considerably from grade to grade and from test to test, the data presented here seems to indicate that the teacher's level of functioning is an important contributor to student change as it accounted for one-quarter to nine-tenths of the variance for all but eight of the relationships tested. (See Table 57). The generally low R-squares for the fourth grade (in comparison to the other grades) are interesting and it is hypothesized that these may be related to the "fourth grade slump" in creativity and achievement reported by other researchers.

### Specific Patterns

Of particular interest to the researchers were the relationships between the Classroom Functioning variables and student absenteeism. As indicated in Table 59, the Specific Affective Behaviors and the Process Scales were the most frequent predictors of absence at both the elementary and the secondary levels with Student Behavior variables having an equal importance at the secondary level. Examination of the regression equations indicate that student absenteeism increases when process levels, number of questions asked by the teacher, praise, acceptance of student ideas, and acceptance of student feelings are lowered or when criticism is high. Similarly, there is an inverse relationship between absenteeism and student initiation and students asking for facts. Put simply, this means that when the teacher is functioning at high levels of acceptance and responsiveness to students, they miss fewer days of school during the year.

The second interesting pattern of relationships displayed in Table 57 is the systematically higher R-squares for skills tests compared to measures of more abstract kinds of learning for grades 1, 4, 5, and 7-12. In terms of this data, it would seem that, at the upper grade levels, the teacher has a more direct effect on students' attainment of specific skills than on their attainment of concepts or more abstract processes. That this pattern is also reflected in grade 1 reading but not in grades 2 and 3 may be an effect of the nature of first grade reading instruction.

The researchers had hypothesized that the Classroom Functioning variables would have stronger relationships with the Self-Concept Factors than with achievement tests. However, this hypothesis had to be rejected as the average



of the R-square for all Self-Concept regressions was .55 while the average for the Achievement regressions was .62. In effect, the Classroom Functioning variables were equally effective predictors for change on both the Self-Concept Factors and the Achievement tests.

#### Relative Predictive Power of Variable Clusters

Table 59 presents the relative predictive power of the different kinds of Classroom Functioning variables. For elementary students (grades 1-6) the Specific Affective Behaviors are most important, followed by Student Behaviors and Process Scales with the Teacher's Cognitive Behaviors contributing less to the variation of both Self-Concept and Achievement measures. Of the Student Behaviors, the most predictive were F-9 (Student Initiates) and C-8 (Student Asks for Thinking) indicating the importance of student participation and student direction setting in learning. Examination of the regression equations indicate that the relationships are in similar directions to those for Absenteeism; i.e., positive gain is positively related to the Classroom Functioning variables except F-6, F-7, and C-1. When F-7 and C-1 appear as predictors, they are usually negatively correlated. F-6 is positively correlated with elementary student gain and negatively correlated with secondary student gain.

The data presented in Table 61 as to the proportion of predictive appearances of the variables which were contributed by the stability of functioning factors indicates that both stability (the teacher offers relatively the same levels of functioning; i.e., has a small standard deviation around his own mean) and average level of functioning were of equal importance for about half of the relationships. However, the stability of the Specific Affective Behaviors were more frequent predictors of elementary Absenteeism than the average level of functioning while for the secondary students the stability factors were the only Interpersonal Process factors which predicted either Absenteeism or Achievement. Stability factors did not account for a large proportion of the appearances of Teacher Cognitive Behaviors as predictors of change in student outcomes.

#### SUMMARY

In conclusion, the findings from this study were:

1. The Classroom Functioning variables are good predictors of student change when raw change is adjusted for pre-test standing.

2. When the teacher is functioning at high levels of acceptance and responsiveness to students, students miss fewer days of school during the year.
3. At the upper grade levels, the teacher has a more direct effect on students' attainment of specific skills than on attainment of concepts or more abstract processes.
4. The Classroom Functioning variables were equally effective predictors for change on both Self-Concept factors and Achievement tests.
5. Both the stability of the teacher's functioning and the average level of functioning on Specific Affective Behaviors and Process Scales are important predictors of change but the relative importance of the two kinds of measures of teacher functioning vary with the kind of gain predicted and the grade level of the student.
6. The stability of the teacher's functioning in the Cognitive Behaviors was not an important predictor of change, but average level of functioning was.
7. Student gain (positive change) was positively related to the Classroom Functioning variables except F-7 and C-1 which were inversely related while F-6 was positively related for elementary students and inversely related for secondary students.

The conclusion of the researchers from this study was that higher functioning teachers produce more gain in student measures of Self-Concept and Achievement and their students are absent fewer days.

**School Prevention of Addiction Through Rehabilitation and Knowledge (SPARK)**

Board of Education  
110 Livingston St., Room 235  
Brooklyn, N. Y. 11201

Program Director: Arthur Jaffe  
Program Director, The Peer Group Program, Earl Jung

The SPARK program is at work in all 94 of New York City's public high schools, through group and individual counseling, training peer leadership cadre, home visits, parent workshops, parent/child group sessions, community involvement, curriculum development, in-service training for teachers, referrals of emergency cases, visitations by staff to "feeder" junior high schools, student field trips to therapeutic communities, and the exploration of alternatives, such as poetry, drama, music, karate and yoga.

The Viking Press  
625 Madison Ave.  
New York, N. Y. 10022

The Viking/Esalen book publishing program conveys some of the approaches and ideas developed through Esalen. Subjects vary from psychology to education, and from meditation to civil liberties. The books divide themselves between theoretical statements, personal accounts, and exercise manuals to develop consciousness. One of the series is *On the Psychology of Meditation*, by Claudio Naranjo and Robert E. Ornstein.

Other Viking titles pertinent to alternatives to drugs: *Getting There Without Drugs: Techniques and Theories for The Expansion of Consciousness*, by Buryl Payne, *Human Teaching for Human Learning: An Introduction to Confluent Education*, by George Brown, and *Ways of Growth, Approaches to Expanding Awareness*, by Herbert A. Otto and John Mann.

Metropolitan Information Service  
Center for New York City Affairs  
New School for Social Research  
72 Fifth Ave.  
New York, N. Y. 10011

*City Almanac*, \$15 a year, 6 issues. Blanche Bernstein, Editor.

Provide Addict Care Today, Inc.  
(PACT)

415 Madison Ave.  
New York, N. Y. 10017  
Rexford E. Tompkins, Chairman; Ward Chamberlin, President.  
Initial goal is to develop jobs for rehabilitated addicts and place qualified, pre-screened applicants in these jobs. Concentrates on the private sector and on the leading companies of New York City. Newsletter *PACT Report*.

Rochester Institute of Technology  
135 Jefferson Rd.  
Rochester, N. Y. 14623

Plans for the establishment and operation of an "Urbanarium" to become operational in 1974. The Urbanarium will develop community education

programs for people normally not enrolled in formal education programs, using a variety of learning formats, including exhibits, television programming, workshops, simulation exercises and publications to help people of the Greater Rochester area explore future options open to the metropolitan area. The Institute will disseminate reports, results, findings and methods developed through a grant from the W. K. Kellogg Foundation. The project is seen as a national prototype which, after evaluation, could be a model for use in other communities.

The University of the State of New York  
The State Education Department  
Division of Higher Education  
Albany, N. Y. 12224

Issues periodically, *Educational Opportunity Forum*. Special issue on Psychological Humanistic Education, Vol. I, No. IV fall, 1969, includes bibliography by Alfred Alschuler and Terry Borton on Humanistic Education, Psychological Education, The Eupsychian Network, Affective Education, Curriculum of Concerns, The Human Potential Movement, Personological Education, Synectics, Personal Learning, Intrinsic Education, etc.

Celebrations Group (Marilyn Wood)  
Festival Music Company (Bob Wood)  
100 Third Ave.  
New York, N. Y. 10003

Communal and collaborative celebrations, environmental events, and festivals.

Action Priorities, Inc.  
154 West 57th St., Studio 847  
New York, N. Y. 10019

Charles F. Schwep, President; Spenser (Sonny) Jameson, Executive Vice President; Merle Gulick, Chairman of the Board.

A private-public sector partnership between the Bristol-Myers Product Division, the Addiction Services Agency, and the Board of Education brought action teams to four elementary schools, five junior highs, and 11 high schools in New York City. Action supervisor/trainers involved the adult school coordinators and five youth leaders selected in each school in rap sessions to identify the problems that the students thought most pressing. Training was provided to students in conducting surveys, data collection and analysis and resources provided to assist students in designing "products," i. e., magazines, poetry anthologies, videotape reports, rap rooms, films, plays, puppet shows, poster exhibits, etc. The objective of the action program is to help identify and solve problems within our communities, especially the problem of drug abuse and the many conditions which cause it, by involving young people in the process of making positive changes.

New Careers Development Center  
238 East Building  
Washington Square Campus, New York University  
New York, N. Y. 10003

Publications include selection of "Training Guides" and "Research Papers." Example: *Guide to Funding New Careers Programs*, \$5.

## MARYLAND

National Institute of Mental Health  
Dr. Bertram S. Brown, Director  
5600 Fishers Lane  
Rockville, Maryland 20852

Federal agency with responsibility for mental health research, training, and services. Contact:

Division of Scientific and Technical Information  
Julius Segal, Ph.D., Director

National Clearinghouse for Mental Health Information

Carrie Lee Rothgeb, Acting Chief

(Write for publications lists and information relating to programs.)

National Institute on Drug Abuse  
Dr. Robert DuPont, Director  
11400 Rockville Pike  
Rockville, Maryland 20852

Federal agency with responsibility for activities in areas of drug abuse research, prevention, treatment, and rehabilitation. Contact:

Division of Resource Development  
Stuart Nightingale, M.D., Director

Drug Abuse Prevention Branch  
Dr. John Olsen, Acting Chief

National Clearinghouse for Drug Abuse Information

Jean McMillen, Program Manager

(Write for publications lists and information relating to programs.)

National Institute on Alcohol Abuse and Alcoholism  
Dr. Morris E. Chafetz, Director  
5600 Fishers Lane  
Rockville, Maryland 20852

Federal agency with responsibility for research, treatment, rehabilitation, and information dissemination on alcohol abuse and alcoholism. Contact:

National Clearinghouse for Alcohol Information

Terry Bellicha, Acting Assistant Director

9119 Gaither Drive  
Gaithersburg, Maryland 20760

(Write for publications lists and information relating to programs.)

The American City Corporation  
Urban Life Center  
American City Building  
Columbia, Md. 21043

Newsletter, *New and Renewing Communities*, \$25 a year.

Contact: Jean Straub

Futuremics, Inc.

P. O. Box 48

Annapolis, Md. 21404

Monthly newsletter, *Footnotes to the Future*, \$10 a year. Futuremics, Inc. is a consulting firm and association of professionals committed to helping individuals, groups and organizations meet and solve problems which have a direct bearing on the future.

Human Relations Task Force  
Synod of the Chesapeake  
320 Hillen Road  
Baltimore, Maryland 21204

Institute for Consciousness and Music

721 St. Johns Road  
Baltimore, Maryland 21210

The Institute

Rock Hall Farm

Box 174

Dickerson, Md. 20753

Specializes in the art of cultural change. Two current projects: study of the future of a small town (Media, Pa.) and future of a large restaurant. S. Frederick D'Ignazio and Clark Wilson, directors.

Mid-Atlantic Training Committee, Inc.

5603 North Charles St.

Baltimore, Maryland 21210

Contact: Virginia Culley

A nonprofit cooperative of educators, group facilitators, organization development consultants and training advisers, serving the area between New York and North Carolina. In addition to scheduled programs in human relations training and basic skills, consultative services and custom-designed programs may be arranged. Individual and corporate membership. Brochure and current schedules available upon request.

## OHIO

Board of Interdenominational Training in Ohio

412 Sycamore St.

Cincinnati, Ohio 45202

Community Service, Inc.

Box 243

Yellow Springs, Ohio 45387

Founded by Arthur Morgan to study small communities as an alternative to city culture, CSI has pioneered in developing patterns of intentional community. Under Griscom Morgan's direction, CSI is an information center and counselor to small communities. Membership is \$10 per year, which includes newsletter, and quarterly, *Community Comments*. Write for membership information and literature list.

New Schools Exchange Newsletter

St. Paris, Ohio

Bill Harwood, Editor, \$10 a year.

Formerly located in Santa Barbara, NSE has moved to an Ohio farm, where it will continue to work with the Center for Experimental Education, Antioch College.

The Ohio State University Libraries

Office of Educational Services

Columbus, Ohio

Published *Alternatives in Print*, a national directory of alternatives organizations and publishers, arranged geographically and by subject. Compiled by the American Library Association, Social Responsibilities Round Table Task Force on Alternative Books in Print.

Task Force on Mobilizing Community Program Resources for Intergroup Resources

Akron Public Library

55 S. Main St.

Akron, Ohio 44362

Contact: Laurel Fisher

Charles Merrill Publishing Co.  
1300 Alum Creek Drive  
Columbus, Ohio

*Values and Teaching: Working with Values in the Classroom*, by Louis E. Raths, Merrill Harmin and Sidney B. Simon. \$3.95. (A theory of values and a classroom methodology.)

*New Priorities in the Curriculum*, by Louise Berman, \$6. (Framework for developing process-curriculum.)

Pflaum/Standard  
38 West Fifth St.  
Dayton, Ohio 45402

Published the *Search for Values* program, developed by The Center for Learning, Inc., Villa Maria, Pa.

*Search for Values: Introduction* by Sidney B. Simon. Dimensions of Personality Program for High Schools and Adult Education. Brochure and materials list available.

*The Mother Earth News*  
Box 38  
Madison, Ohio 44057

Bi-monthly magazine with a wide variety of "how-to" articles relating to alternative vocations.

## PENNSYLVANIA

Group Life Institute  
Central Pennsylvania Synod  
Lutheran Church of America  
Room 208  
900 South Arlington Ave.  
Harrisburg, Pa. 17109

Media & Methods  
134 N. 13th St.  
Philadelphia, Pa. 19107

Research for Better Schools, Inc.  
1700 Market St., Suite 1700  
Philadelphia, Pa. 19103

One of the regional educational laboratories with the primary objective "to create and demonstrate a rich array of tested alternatives to existing educational practices."

Publications include *An Annotated Bibliography on Administering for Change*, by Louis M. Maguire, Sanford Temkin, and C. Peter Cummings. Brochure available.

TEAM: Training Ecumenically to  
Advance Mission  
1211 Chestnut St.  
Room 906  
Philadelphia, Pa. 19107

Affective Education Development Project  
Room 325  
Philadelphia Board of Education  
21st and Parkway  
Philadelphia, Pa. 19103

Norman Newberg and Terry Borton, Directors. Has been developing curriculum and providing in-service training for "process education"; the theory and application of this curriculum are explored in Borton's *Reach, Touch and Teach*. (McGraw-Hill.)

The Architects Workshop  
Philadelphia Chapter

American Institute of Architects  
2012 Walnut St.  
Philadelphia, Pa.

*A Primer for Community Design Centers*, published as part of a demonstration Federal grant project to study CDC's, emphasizes that the professional planners should be on tap, and not on top, that they should work with the community to achieve goals the residents want to achieve, rather than operating in a vacuum.

Committee for the Future  
130 Spruce St., Suite 17B  
Philadelphia, Pa. 19106

A non-profit organization "dedicated to bringing the options for a positive future into the public arena for decision and action." Uses the SYNCON process for synergistic convergence. Jerry Glenn, SYNCON Coordinator.

*New Worlds Newsletter*.

Group for Environmental Education, Inc. (GEE!)  
1214 Arch St.  
Philadelphia, Pa. 19107

Alan Levy, Richard Saul Wurman, and William B. Chapman, Directors  
Nonprofit corporation engaged in innovative curriculum, materials, and program development in learning areas related to man's interaction with his physical surroundings.

Current publications available from The MIT Press, Cambridge, Mass. 02142.

*Our Man-Made Environment: Book Seven*, \$4.95

*Yellow Pages of Learning Resources*, \$1.95

*The Nature of Recreation*, \$4.95

*Man-Made Philadelphia*, \$3.95

*The Process of Choice*, \$10.00

## VIRGINIA

Communities, Inc.  
P. O. Drawer 426  
Louisa, Virginia 23093

Community Publication Cooperative formed by several collectives involved in publishing hopes to provide a service to as wide a readership as possible, in both urban and rural communities, with the objective to "provide many alternatives to many people."

Midwest Office: Communitas, Box 223

Yellow Springs, Ohio 45387

Western Office: Commune North, The Alternatives Foundation  
P. O. Drawer A.

San Francisco, Calif. 94131

In addition to back issues of several merged publications, the Co-op publishes *Community Market Catalog*, \$1. Subscription to *Communities* magazine is \$6 a year (seven issues).

Hollins College  
Dept. of Psychology  
Hollins College, Va.

Contact: Paul Woods, Editor of *Source Book on the Teaching of Psychology*, to be published summer, 1973 by Scholars Press, Ltd., P. O. Box 7231. Includes 40 course outlines and teaching bibliographies in 14 traditional areas of psychology, plus materials on behavior modification, community mental health, and other recently developing fields.



Loose-leaf format to permit annual supplements and revisions. Based on Course Outlines Project of the APA's Division on the Teaching of Psychology.

*Journal of Applied Behavioral Science*

1815 North Fort Myer Drive  
Arlington, Va. 22209

Published by the NTL Institute for Applied Behavioral Science

NTL Institute for Applied  
Behavioral Science

1815 North Fort Myer Drive  
Arlington, Virginia 22209

NTL Institute was organized in 1947 to apply what behavioral scientists have learned in the last half century about man, organizations, and social systems to the problems of individuals, families, schools, businesses, service organizations, churches, industry and Government. It does so by educating men and women to recognize and develop their potentials in response to the dazzling array of alternatives in life styles, careers, and patterns of interaction available to them. An NTL founding principle is to serve as a focal agency in developing the laboratory method of learning group dynamics. It is now organized into five centers: Development of Individual Potential, Professional Development, System Development, Black Affairs, and Macro System Change, all located in the Washington, D. C. area.

NTL Learning Resources  
Corporation

2817-N Dorr Ave.  
Fairfax, Va. 22030

Produces books, exercises and other materials in the applied behavioral sciences. List available.

Community Leader Training  
Associates, Inc.

511 Monte Vista Drive, S. W.  
Blacksburg, Va. 24060

Donald R. Fessler, Director  
Logical Problem-Solving and Group Effectiveness training for community leaders.

Simulation Sharing Service  
E v 1176

Richmond, Va. 23209

George McFarland, Editor. Newsletter, \$5 a year.  
(of value to those interested in simulation games in religious education.)

## WISCONSIN

Alternative Sources of Energy  
Route #1, Box 36B

Minong, Wisconsin 54859  
Contact: Don Marier

Newsletter, *Alternative Sources of Energy*, bi-monthly, \$2 year. Issue No. 9, Feb. 1973 is a bibliography.

Dane County Drug Abuse  
Training Center

31 Henry St.  
Madison, Wisconsin 53703

Dave Joranson, Program Director

Educators Progress Service, Inc.  
Randolph, Wisconsin 53956

*Educator's Guide to Free Films*, an 800 page list-

ing, updated annually, of free loan films from various sources. Similar volumes cover curriculum materials, tapes, transcriptions, and filmstrips, \$11.75.

National Center for Innovative Higher Education  
University of Wisconsin

Green Bay, Wisconsin

Information-sharing among experimental colleges and programs across country.

The Student Association for the  
Study of Hallucinogens, Inc. (STASH)

638 Pleasant St.

Beloit, Wisconsin 53511

Founded and solely controlled by students, STASH disseminates unbiased and valid information about psychoactive drugs. Supporting membership is \$5 and entitles member to newsletter STASH CAPSULES, bi-monthly. Sustaining membership is \$125. Includes subscription to *Grassroots* information service, in binder format, updated by monthly supplements, a *Directory of Drug Information and Treatment Organizations*, STASH Capsules, a monthly *Drug Education Report*, and subscription to the *Journal of Psychedelic Drugs*. Membership includes access to the resources of the STASH library through computerized, custom bibliographic searches and hard copy documentation service.

Wisconsin Coalition for Educational Reform  
216 N. Hamilton St.

Madison, Wisconsin 53703

In cooperation with Freedom Through Equality, Inc., Milwaukee, and the Wisconsin Student Union, prepared and distributed:

*Wisconsin Student Rights Handbook*

*A Handbook for Parents*

*A Student Book*—how-to's on high school organizing.

Institute for Research on Poverty

The University of Wisconsin

Social Science Building

1180 Observatory Drive

Madison, Wisconsin 53706

The Federal Government's main organization doing basic research on the problem of poverty, its nature and its possible causes and cures. Through a multi-disciplinary approach analysis is carried beyond formulation and testing of fundamental generalizations to development of relevant policy alternatives.

Bibliography, "Income Support Schemes: References and Selected Annotations from Academic Literature," a list of the Institute's Discussion Paper and Reprint series, free. Renee K. Barnow, Assistant Editor.

## CONNECTICUT

Croft Educational Services

100 Garfield Ave.

New London, Conn. 06320

Educational journals for school administrators and teachers, and professional books for educators.

*Federal Aid Service*, newsletter.

Education Ventures, Inc.

209 Court St.

Middletown, Conn.

Materials and games to teach achievement motivation.

The Greater Hartford Process, Inc.  
100 Constitution Plaza  
Hartford, Conn. 06103

Olcott D. Smith, Chairman, Board of Directors  
Marion E. Morra, Director of Communications  
Report, "The Greater Hartford Process", prepared  
by GHP and The American City Corporation. \$10.  
Occasional Newsletter: *Work in Progress*.

The New England Training  
Institute

125 Sherman St.  
Hartford, Conn. 06105

Number Nine: A Crisis-Growth Center for Young  
People

266 State St.

New Haven, Conn. 06511

Ted Clark and Dennis and Yvonne Jaffe.

The Teachers' Center at Greenwich  
1177 King Street

Greenwich, Conn. 06630

Director: Celia Houghton

Director of Advisory Service: Jenny Andrea

Publication: "The Center," and Open Education  
Workshops.

## ALABAMA

The Association for Creative Change  
107 South 20th St.

Birmingham, Ala. 35233

Formerly the Association of Religion and Applied  
Behavioral Science

Contact: The Rev. William A. Yon

The Southern Poverty Law Center  
Washington Building

Montgomery, Ala. 36101

Julian Bond, President

## ARIZONA

Educational Innovators Press, Inc.  
5315 E. Broadway

Tucson, Arizona 85711

*Developing and Writing Behavioral Objectives*, A  
Handbook Designed to Increase the Communica-  
tion of Laymen and Educators, \$1.95.

Booklets for developing evaluative skills, \$1 each:  
A Scheme and Structure for Evaluation; Evaluation  
Design; Coding and Writing Test Items; A  
Case Study; Proposal Guidelines; Performance  
Objectives; Needs Assessment.

Futures Conditional

Box 1531

Wickenburg, Arizona 85358

A Participation Trendletter to Create a More  
Humanistic Future, Co-founder and Editor: Robert  
Theobald; Associate Editor, J. M. Scott; Partic-  
ipation Editor: Beverly Bodioga. Subscription  
\$24 a year.

Futures Conditional hopes to facilitate and stimu-  
late two kinds of active participation among its  
readers by (a) linking individuals and groups who  
are already involved in creating ideas, projects or  
programs and (b) collecting or creating new syn-

ergetic interaction materials. The May, 1973 issue  
contains a chart outlining specifics of how to  
participate.

Tempe Elementary School District  
No. 3

ESEA Title III, "Preventing Drug  
Abuse"

P. O. Box 27708

Tempe, Arizona 85282

Dr. Ethel C. Anderson, ESEA Title III Project  
Coordinator

This school district studied in detail the extent of  
drug abuse in its elementary and junior high  
schools, and found that the decision to try drugs  
generally occurs between 9 and 12 years of age.  
The Tempe programs, like the Coronado program  
which influenced its development, combines a cog-  
nitive approach with the affective domain, center-  
ing around the concepts of values and decision-  
making in situations involving choices between  
more-or-less risky behaviors. Information and ma-  
terials are available about the program.

## COLORADO

Aspen Institute for Humanistic  
Studies

P. O. Box 219

Aspen, Colorado 81611

R. O. Anderson, Chairman

J. E. Slater, President

Publications: *Aspen Institute Quarterly* (free)  
1973 Program and Brochure available upon re-  
quest. Occasional papers on: the Aspen Executive  
Program; the Communications and Society Pro-  
gram; Environment and the Quality of Life; Sci-  
ence, Technology and Humanism. One of the sum-  
mer programs in 1973 is "Education, Work, and  
the Quality of Life," under direction of Dr. James  
O'Toole.

Education Commission of the States

822 Lincoln Tower Building

1860 Lincoln St.

Denver, Colorado 80203

Magazine, *Compact* annual subscription \$6. (six  
issues.) [The June, 1970 issue included a State-by-  
State summary of drug abuse programs in an  
issue devoted to "Drugs in the Schools."]

Educational Change, Inc.

Box 2450

Boulder, Colorado 80302

Publishes *Change* Magazine, monthly, \$6 student  
subscription; \$12 professionals, and \$15 other.  
George W. Bonham, Editor-in-Chief.

ERIC Clearinghouse for Social

Studies/Social Science

Education

855 Broadway

Boulder, Colorado 80302

Robert S. Fox, Director

Newsletters: *Keeping Up*, and *Looking At* free  
upon request.

The Social Science Education Consortium (SSEC)

855 Broadway

Boulder, Colorado 80302

The primary mission of SSEC is the delivery of

innovation in social science education to the classroom and to bring together social scientists and teachers to improve teaching and curriculum development for the elementary and secondary schools. Annual subscription to SSEC Social Studies Curriculum Materials Data Bank, \$12. Binder format, two supplements a year.

Western Interstate Commission for Higher Education  
P. O. Drawer "P"  
Boulder, Colorado 80302

Robert H. Kroepsch, Executive Director

A public agency through which the 13 western States cooperate to increase educational opportunities for westerners, to expand the supply of specialized manpower in the West, to help universities and colleges improve both programs and management, and to provide public information about the needs of higher education.

Brochure and subscription rates to publications available.

*Systems Approach to Program Evaluation in Mental Health*, a collection of papers developed by the Program Evaluation Task Force of the Western Conference on the Uses of Mental Health Data. Project sponsored by WICHE and NIMH.

## FLORIDA

The Center of Man  
P. O. Box 14126

University Station  
Gainesville, Fla. 32601

Contact: Barbara Downing

Department of Health and Rehabilitative Services  
Florida Drug Abuse Program  
Tallahassee, Florida

Leisure Studies Program  
University of South Florida  
Tampa, Fla. 33620

A clearinghouse for information on leisure studies.

## GEORGIA

National Organization of Human Services (NOHS)  
2800 Camp Creek Parkway (Q4)  
Atlanta, Ga. 30337

Membership requirements: employment in positions working to solve psychological, sociological and behavioral problems of individuals and groups—may be student, or graduate of an approved educational program preparing human service workers.

West Georgia College  
Psychology Dept.  
Carrollton, Ga. 30117

Mike Arons, Chairman

"Southern outpost of humanism. Our primary emphasis is on the student's personal development . . . the less predictable he is, the more successful we are."

## INDIANA

Educational Alternatives Project  
Indiana University  
Bloomington, Indiana

Vernon H. Smith and Robert D. Barr, co-directors.  
Publication: *Changing Schools: An Occasional Newsletter on Alternative Public Schools*. Special Issue No. 006 on evaluation for alternative schools.

The Institute of Human Relations Training  
3843 Washington Blvd.  
Indianapolis, Ind. 46205

Annual *Journal of Human Relations Training and Directory of Who's Who in Human Relations Training*, \$6 a year.

National Instructional Television Center  
Box A

Bloomington, Indiana

"Inside/Outside," a 30-part series of television programs, produced by NITC in cooperation with a consortium of some 30 State Departments of Education, health and mental health agencies, will be broadcast into classrooms in at least 30 States, beginning September, 1973.

The series deals with emotions and attitudes, and is designed to stimulate discussions of values and morals. Each 15-minute segment depicts contrasting points of view, and without reaching a resolution, prompts the teacher and pupils to discuss possible courses of action. Dr. Orvis A. Harrelson, a physician and educator in Tacoma, Washington, was chief consultant to the series.

NITC also has Centers in Washington, D. C., Atlanta, Milwaukee, and San Francisco.

## IOWA

University Associates Publishers and Consultants  
P. O. Box 615  
Iowa City, Iowa 52240

*A Handbook of Structured Experience for Human Relations Training*, by J. William Pfeiffer and John E. Jones. (3 volumes, at \$3 each. Each book contains 25-30 exercises widely used in human relations training, for improving communication, listening, self-awareness, group dynamics, and non-verbal communication.)

## KENTUCKY

Perceptual Alternatives Laboratory  
University of Louisville  
Louisville, Ky. 40208

Emerson Foulke, Director

## LOUISIANA

Department of Psychology and Counselor Education  
Nicholls State College  
Thibodaux, La. 70301

Contact Walter A. Dickenson for reprints of "A Humanistic Program for Change in a Large City School System," (Louisville Public Schools) *Journal of Humanistic Psychology*, fall, 1970.

## MICHIGAN

National Community School  
Education Association  
923 East Kearsley St.  
Flint, Michigan 48503



Contact: Nick Pappadakis  
Basic Reference: *The Community School Basic Concepts, Functions and Organization*, by Frank J. Manley and W. Fred Totten, Allied Education Council, Distribution Center, Galien, Mich. 49113, \$7.95.

New Life Environmental Design Institute  
Box 648

Kalamazoo, Michigan 49005

Contact: Richard Tilmann, Sharon Tilmann, or Chuck Bidleman

Assists individuals and organizations, public and private, official and counter-culture in designing projects directed toward effective social change and alternative life styles. Newsletter, *Alternatives Network Bulletin Board*, and a distribution service, at cost, for information about worthwhile community groups. NLEDI evolved a campaign, "Operation Involvement," sponsored by the Community Relations Department of the City of Kalamazoo.

North American Student Cooperative  
Organization (NASCO)

2546 Student Activities Bldg.

Ann Arbor, Mich. 48104

Community Market Catalog, \$1, order from  
Box 426

Louisa, Virginia

Newsletter, resource bank of manuals, films and bibliographic material on all aspects of cooperative development and operation. Conferences on co-op education and management training.

Outside the Net

P. O. Box 184

Lansing, Mich. 48901

Subscription, \$2 a year. Alternative education emphasis.

## MINNESOTA

National Hotline and Switchboard  
Exchange, Inc.

The Exchange

311 Cedar Ave. South

Minneapolis, Minn. 55404

Monthly newsletter, *The Exchange*, \$10 a year, includes 1973 edition of National Directory. Newsletter only, \$6. Staff: Ben Beitler, Steve Bhaerman, Frank Caprio and Becky Perkins.

Winston Press, Inc.

25 Groveland Terrace

Minneapolis, Minn. 55403

Published *Clarifying Values through Subject Matter: Applications for the Classroom*, by Merrill Harmin, Howard Kirschenbaum, and Sidney B. Simon.

Education Exploration Center

3104 16th Ave. South

Minneapolis, Minn. 55407

Established the Minnesota Consortium for Multi-Alternative Education to organize and share resources. Newsletter.

Ecology Placement Service

1711 Lincoln Ave.

St. Paul, Minn. 55105

Monthly Bulletin of opportunities for work in such

fields as air pollution control, agricultural research, education research, marine sciences and engineering.

## MONTANA

Gallatin Council on Health  
and Drugs

Box 1375

Bozeman, Montana 59715

Contact: Marie E. Harland, Associate Director  
Crisis center, workshops, in-service training for teachers. Youth Employment Service, Volunteer Aide program for teenagers, self-awareness camp for 5th and 6th graders, Arts and Crafts program, and rap sessions.

## NEW JERSEY

"Get Your Head Together"

12 High Street

Glen Ridge, N. J. -

Contact: Bryan or Judy Orr

A youth development facility offering free medical, legal, and psychiatric services.

National Youth Development Center

411 Hackensack Ave.

Hackensack, N. J. 07601

National Council on Crime and Delinquency has planned a new Center to develop and direct a nationwide program with three specific objectives: (1) monitor and effect allocation of youth resources at all governmental levels; (2) promote diversion of children from the criminal justice system; and (3) promote alternatives to incarceration for delinquents through effective community-based services and use of volunteers.

Contact Fred Ward for information at above address.

## NORTH CAROLINA

Smith Richardson Foundation  
Center for Creative Leadership

5000 Laurinda Dr.

P. O. Box P-1

Greensboro, N. C. 27402

John Red, Jr., President. The Center has launched a program of continuing fellowships and special short-term internships. Fellows get salary and support for a year. Fellowships are for scholars; the internships are aimed at persons from business and industry. Idea is to get a mix of individuals involved in management development, leadership training and assessment.

Technical Assistance Development System

The University of North Carolina

A Div. of the Frank Porter Graham

Child Development Center

625 W. Cameron Ave.

Chapel Hill, N. C. 27514

*Replication Guidelines*. (The outcome of a conference to discuss First Chance Projects.) Tadscrip #1, 1972.

*Program Planning and Evaluation*, by Jarres Gallagher, Richard Surles, and Andrew Hayes.

## OREGON

Office of Federal Relations  
Extension Hall Annex  
University Campus  
Corvallis, Oregon

*Developing Skills in Proposal Writing*, by Mary Hall, \$10.

## TENNESSEE

Committee of Southern Churchmen,  
Inc.

P. O. Box 12044  
Nashville, Tenn. 37212

*Katallagete (Be Reconciled)*, Journal of the Committee of Southern Churchmen. James Y. Holloway, Editor; Will D. Campbell, Director. Quarterly, \$2 to \$5 contribution includes Journal.

## TEXAS

Consultant/Trainers Southwest  
3709 Locke Lane  
Houston, Texas 77027

Contact: Ms. Mary Beth Peters

Graduate Program in Mental Health Information  
University of Texas at Austin  
Austin, Texas 78712

Contact: Barry M. Cohen

Graduate students in mental health information at the University of Texas at Austin are producing the first national publication for people involved in communication efforts in the field of mental health and mental retardation. The magazine will cover all facets of communication, ranging from advice on low-budget operation to information on innovative programs. Ideas, advice, inquiries, or contributions for publication should be sent to the above address.

## UTAH

Olympus Publishing Co.  
937 East Ninth St.  
Salt Lake City, Utah, 84105

Career education, pre-school home-based learning environment.

## VERMONT

Stephen Greene Press  
Box 1000  
Brattleboro, Vt.

Published *The Home Health Handbook: A Preliminary Guide to Self-Help and Rural Medicine*, edited by Stu Copans and David Osgood. Third edition. \$3.95. (The other two were mimeographed and given away.)

From Preface: "We know the Handbook will never be finished, complete, or sufficient, and we need people's criticisms and comments to help it keep evolving. Please write to us c/o the Stephen Greene Press and tell us what you like, what you disagree with, what seems wrong to you from your experience, and what you think we should include in the next printing."

## WASHINGTON

Northwest Passage  
1000 Harris St.  
Bellingham, Wash. 98225

Fortnightly journal of ecology, politics, the arts, and good healthy living, \$6 a year, \$125 for a lifetime.

Provincial Leadership Training Committee  
1551 10th Ave., East  
Seattle, Wash., 98109

Contact: Mrs. Lynn Young

The Re-Evaluation Counseling  
Communities

International Reference Committee  
719 Second Ave. North

Seattle, Wash. 98109

Harvey Jackins, Director

*Present Time*, newsletter for The Re-Evaluation Counseling Communities, published by Rational Island Publishers, P. O. Box 2081, Seattle, 98111.

"If a distress pattern attacks you (and nothing else ever does), help is always close at hand. This help is the human being inside the distress pattern, the pattern's first victim and your natural ally against it. Reached in the ways you know or can learn, the human being will emerge to your support and the two of you will celebrate a cooperative human triumph over distress and unreason."—Harvey Jackins.

Jail and Prison Rehabilitation Project

P. O. Box 5313, K. St. Sta.

Tacoma, Wash. 98405

Newsletter: *Prison Reform Views*, George Zantua, Editor-in-Chief. Ron Hanna, Director. Membership \$5 a year; \$3 students, \$10 patron.

## CANADA

Abraxas  
812 16th Ave. S. W.  
Calgary, Alberta  
Canada T2R OT2

Susan Lewis, Project Director

A drug project designed to investigate an alternative lifeskills approach to drug abuse prevention.

Challenge for Change/Société Nouvelle

National Film Board

P. O. Box 6100

Montreal 101, Quebec

Canada

An experimental program established by the Canadian Government as a participation between the National Film Board and certain Federal Government departments. It was designed to improve communications, create greater understanding, promote new ideas and provoke social change.

Newsletter, *Access*. Editor, Elizabeth Prinn; Associate Editor, Dorothy Todd Henaut.

Human Behavior Research Group,  
Ltd.

108 Hazelton Ave.

Toronto

Ontario, Canada MSR 2E5

Program "Opportunities for Youth," in its third year, with expanded budget, has been judged successful on several counts, mainly pragmatic. Its significance as an experiment in "culture design for an unknown culture," has not been broadly perceived, according to W. R. Clement, Director, Policy Research Unit.

## EPILOGUE

Perhaps one Third Century resolution we Americans might consider making is foregoing our tendency to turn all pursuits, and words, into fads. Unless we are careful, "alternatives" might become the Fad Word of 1973 before the real meaning of the experience has permeated the social body. Fortunately we have such creative spirits as Kurt Vonnegut among us to afford new words for social relationships and the human quandary.

In *Cat's Cradle*, he introduced us to a number of terms that come as near as any to capturing the mood of the modern searcher for sense in a seemingly mad world. The following insights are from "The Books of Bokonon," with exegesis by Vonnegut.

"If you find your life tangled up with somebody else's life for no logical reasons," writes Bokonon, "that person may be a member of your *karass*. Man created the checkerboard; God created the *karass*." By that he means that a *karass* ignores national, institutional, occupational, familial, and class boundaries. . . .

A *duprass* is a *karass* built for two.

A *granfalloon* is a false *karass*, of a seeming team that is meaningless in terms of the way God gets things done.

A *wampeter* is the pivot of a *karass*. No *karass* is without a *wampeter*. Anything can be a *wampeter*: a tree, a rock, an animal, an idea, a book, melody, the Holy Grail. . . . At any given time a *karass* has two *wampeters*—one waxing in importance, one waning.

A *wrang-wrang*, according to Bokonon, is a person who steers people away from a line of speculation by reducing that line, with the example of the *wrang-wrang's* own life, to an absurdity.

Bokonon also says: "Pay no attention to Caesar. Caesar doesn't have the slightest idea what's really going on."

Although volumes issued under the aegis of Federal Agency do not ordinarily afford the intimacy of an author's preface and epilogue, this represents an effort to change a few entrenched habits.

So, in addition to the formal credits and acknowledgements that follow, I would also like to give credit where credit is also due: to my *duprass* and *karass* which include Lura S. Jackson who has been the *wampeter* of the Alternative Pursuits *karass*; individual members of Alternatives teams who have kept in touch and continue to share their enthusiasms and doldrums. A few new members entered this *karass* and kept faith with the project, protecting me from the *granfalloons* and *wrang-wrangs*: Rowan Wakefield of the Aspen Institute; Tom Pike, Calvary Episcopal Church, New York City; Donald Barnes and Virginia Newton, Institute for Educational Development; Floyd Flom, Economic Development Council of New York City; Sharon Hewlett, Manpower Career Development Agency; Jane Garmey, John Jay College of Criminal Justice; Tom Reade, Brooklyn Community College; Josh Reynolds, Stress Transformation Center, New York City. An assortment of teachers, volunteers and students in several New York City High Schools, have shared their excitement and frustrations in the process of introducing new programs in their schools. I was also fortunate to have a

critical Australian with an eye for detail and clarity who helped immeasurably with the chores, Tina Smith, on leave from a family mental health clinic in Sydney, as wife of a Commonwealth Fellow.

—Louisa Messolonghites

## CREDITS AND ACKNOWLEDGEMENTS

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