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TEACHERS' BELIEFS, CLASSROOM ATMOSPHERE, AND STUDENT BEHAVIOR.

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THIS STUDY INVESTIGATED THE INFLUENCE OF TEACHERS' OVERT CLASSROOM BEHAVIORS (EARLIER SHOWN TO BE A FUNCTION OF THEIR BELIEF SYSTEMS) UPON THE LEARNING AND PERFORMANCE OF STUDENTS IN 118 K-1 CLASSES IN RURAL AND URBAN SCHOOL DISTRICT, SCORES FOR EACH CLASS ON HARVEY'S STUDENT RATING SCALE (ON WHICH OBSERVERS RATE STUDENT COOPERATION, PARTICIPATION, AND INITIATIVE) WERE FACTOR ANALYZED INTO SEVEN CLUSTERS--COOPERATION, STUDENT INVOLVEMENT, ACTIVITY LEVEL, NURTURANCE SEEKING, ACHIEVEMENT LEVEL, HELPFULNESS, AND CONCRETENESS OF RESPONSE. THE 90 TEACHERS OF THESE CLASES WERE MEASURED ON HARVEY'S TEACHER RATING SCALE (ON WHICH OBSERVERS SCORE ATTITUDE TOWARD THE CHILDREN AND FLEXIBILITY). THREE FACTORS WERE EXTRACTED--RESOURCEFULNESS, DICTATORIALNESS, AND PUNITIVENESS. TWO MEASURES OF THE CONCRETENESS-ABSTRACTNESS OF THEIR BELIEF SYSTEMS WERE ALSO ADMINISTERED TO TEACHERS--HARVEY'S "THIS I BELIEVE" TEST AND THE CONCEPTUAL SYSTEMS TEST. ABSTRACTNESS WAS (1) POSITIVELY CORRELATED WITH RESOURCEFULNESS, (2) NEGATIVELY CORRELATED WITH DICTATORIALNESS AND PUNITIVENESS, (3) POSITIVELY RELATED TO STUDENT RATINGS ON COOPERATION, INVOLVEMENT, ACTIVITY LEVEL, ACHIEVEMENT, AND HELPFULNESS, AND (4) NEGATIVELY RELATED TO STUDENT RATINGS ON CONCRETENESS AND NURTURANCE SEEKING. THE AUTHORS CONCLUDED THAT THE ABSTRACTNESS OF TEACHERS' BELIEFS INFLUENCES THEIR CLASSROOM BEHAVIOR AND ALSO THE PERFORMANCE OF THEIR STUDENTS. (LC)

Teachers' Beliefs, Classroom Atmosphere and Student Behavior[1]

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Footnotes

1. The collection of these data and part of their analyses were supported by the Office of Economic Opportunity, Contract OEO-1274 with the Extension Division of the University of Colorado.

2. Harvey's participation in the data collection part of this study occurred while he was a Fellow at the Center for Advanced Study in the Behavioral Sciences. His subsequent participation has been supported by a Career Development Award from the National Institute of Mental Health.

Harvey, White, Prather, Alter and Hoffmeister (1966) found recently that preschool teachers of concrete and abstract belief systems differed markedly in the classroom environments they created for their students. Teachers representing System 4, the most abstract belief system treated by Harvey, Hunt and Schroder (1961) differed from representatives of System 1, the most concrete mode of functioning characterized by Harvey et al. (1961), in what was presumed to be an educationally desirable direction on all 26 dimensions of classroom behavior on which they were rated.

The difference was statistically significant on 14 dimensions: System 4 teachers expressed greater warmth toward children, showed greater perceptiveness of the children's wishes and needs, were more flexible in meeting the interests and needs of the children, were more encouraging of individual responsibility, gave greater encouragement to free expression of feelings, were more encouraging of creativity, displayed greater ingenuity in improvising teaching and play materials, invoked unexplained rules less frequently, were less rule oriented, were less determining of classroom and playground procedure, manifested less need for structure, were less punitive, and were less anxious about being observed.

A cluster analysis of these 14 dimensions (Tryon & Bailey, 1965, 1966) yielded the three factors of resourcefulness, dictatorialness and punitiveness. System 4 teachers were more resourceful, less dictatorial and less punitive than System 1 teachers.

While consistent both with our theoretical stance and a wide range of other differences found between the more concretely and the more abstractly functioning individuals (e.g., Adams, Harvey & Heslin, 1966; Harvey, 1963; 1966; Harvey & Ware, 1967; Ware & Harvey, 1967; White & Harvey, 1965), the finding that teachers' belief systems affect their overt behavior in the classroom does not bear directly upon the more educationally significant question of the influence of teachers' beliefs and behavior upon the learning and performance of their students. It is with this latter question that the present study is concerned.

More specifically, the main aim of this study was to assess the relationship between students' performance and teachers' resourcefulness, dictatorialness and punitiveness. In addition, the study provided a test of the replicability of the earlier findings that concrete and abstract teachers differ in the kinds of classroom behavior they manifest.

The general expectancies were that teachers of more concrete belief systems would display less resourcefulness, more dictatorialness and more punitiveness in the classroom than the more abstract teachers, as found in the previous study (Harvey, et al,,1966); and that greater abstractness, greater resourcefulness, less dictatorialness and less punitiveness on the part of the teacher would be associated with more educationally preferable performances of the children.

Method

Concrete and abstract teachers of kindergarten and first grade were rated on the 14 dimensions found by Harvey et al. (1966) to discriminate significantly between concrete and abstract teachers. Their students were rated, as a class, on a specially constructed 31-item rating scale.

Teacher Rating Scale. This instrument, while providing the necessary information for a test of the replicability of the earlier results (Harvey, et al., 1966), was intended primarily as a measure of teachers' overt resourcefulness, dictatorialness and punitiveness. It consisted of the 14 items from which these three factors were derived: (1) warmth toward the children, (2) perceptiveness of the children's needs and wishes, (3) flexibility in meeting the needs and interests of the children, (4) maintenance of relaxed relationships with the children, (5) encouragement of individual responsibility, (6) encouragement of free expression of feelings, (7) encouragement of creativity, (8) ingenuity in improvising teaching and play materials, (9) use of unexplained rules, (10) rule orientation, (11) determination of classroom procedures, (12) need for structure, (13) punitiveness and (14) anxiety induced by the observers' presence.

Student Rating Scale. This measure of student behavior, which provided the major dependent variables of this study, consisted of the following items: (1) overall adherence to the teacher's rules, (2) immediacy of response to the rules, (3) adherence to the spirit(vs. the letter) of the rules,

(4) information seeking, (5) independence, (6) cooperativeness with the teacher (7) task attentiveness, (8) enthusiasm, (9) voice in classroom activities, (10) voluntary participation in classroom activities, (11) free expression of feelings, (12) diversity of goal relevant activities, (13) student-initiated activity, (14) amount of activity (15) considerateness toward classmates, (16) reciprocal affection between classmates, (17) cooperation with classmates, (18) taking turns with classmates, (19) amount of interaction with classmates, (20) novelty of response to problem or teacher's question, (21) appropriateness of response, (22) accuracy of facts, (23) integration of facts, (24) orientation toward specificity of facts (vs. more general principles), (25) roteness of answers or solutions, (26) active hostility toward the teacher, (27) passive hostility toward the teacher, (28) fear attentiveness (anxiety), (29) aggression toward classmates, (30) guidance seeking, and (31) approval seeking.

Each of the dimensions in both the teacher and student rating scale was rated on a six-point scale: 3, 2, and 1 for "far," "considerably" and "slightly," above average respectively; and -1, -2, and -3 for "slightly," "considerably" and "far" below average respectively. The "average" category was omitted with the aim (by creating a forced choice condition) of avoiding the common tendency of observers (Os) to assign a wide variety of discriminably different behaviors to this category. Through a training program described later, an attempt was made to establish equivalent "averages" for all Os.

Subjects

Since the present study was part of a larger investigation concerned with the effects of prior participation in Head Start, classrooms were selected for observation if they contained at least one kindergarten or first grade student who had gone to Head Start nine months earlier (i.e., during the summer of 1965) and who was attending public school for the first time. These criteria yielded 118 classes, 92 kindergarten and 26 first grade, in 18 rural and urban Colorado school districts. The 92 kindergarten classes were taught by 64 teachers while the 26 first grade classes were taught by 26 teachers. Each of the 118 classes, with an average of 26 students, was observed and rated as a class, not as individual students, on the student rating scale.

Of the 90 teachers, 67 completed the "This I Believe" (TIB) Test and 66 completed the Conceptual Systems Test (CST). Both the TIB and CST are tests of concreteness-abstractness of belief systems, the former being based upon sentence completions and the latter upon response to objective items.

The "This I Believe" (TIB) Test. This test, developed specifically as a measure of concreteness-abstractness of conceptual or belief systems (e.g., Harvey, 1964, 1966; Harvey, et al., 1966; Ware & Harvey, 1967; White & Harvey, 1965), requires S to indicate his beliefs about a number of socially and personally relevant concept referents by completing in two or three sentences the phrase "This I believe about_____." the blank being replaced successively by one of the referents.

The referents employed in the present study were "religion," "friendship," "the American way of life," "sin," "education," "the family," "people on welfare," "punishment," "teaching " and "sex."

From the relativism, tautologicalness, novelty and connotative implications or richness of the completions, together with criteria implied below, respondents may be classified into one of the four principal systems posited by Harvey et al. (1961) or into some admixture of two or more systems.

More specifically, Ss are classified as representing predominantly System 1, the most concrete mode of dimensionalizing and construing the world, if their completions denote such characteristics as high absolutism, high tautologicalness, high frequency of platitudes and normative statements, high ethnocentrism, high religiosity, assertion of the superiority of American morality and expression of highly positive attitudes toward institutional referents.

Subjects are categorized as representing System 2, the next to the lowest level of abstractness, if, in addition to being highly evaluative and absolute, they express strong negative attitudes toward such referents as marriage, religion, the American way of life--the same referents toward which System 1 representatives manifest highly positive attitudes.

Responses to the TIB are scored as representing System 3 functioning, the next to the highest level of abstractness posited by Harvey, et al. (1961), if they indicate more relativism and less evaluativeness than Systems 1 and 2 and at

the same time express strongly positive beliefs about friendship, people and interpersonal relations.

System 4 functioning, the highest of the four levels of abstractness, is indicated by TIB responses that imply a high degree of novelty and appropriateness, independence without negativism, high relativism and contingency of thought, and the general usage of multidimensional rather than unidimensional interpretive schemata.

Of the 67 teachers who completed the TIB, 50 were classified as System 1, none was categorized as System 2, four were scored as System 3, eight were classified as weak instances of System 4, and five were scored as admixtures of Systems 1 and 3. In the analysis involving the TIB the admixtures were omitted; Systems 3 and 4 were combined into the more abstract group; and System 1 teachers were treated as the more concrete group. Of the 50 concrete teachers, 30 taught 44 classes of kindergartners and 20 taught 20 classes of first-graders. Seven of the 12 abstract teachers taught 11 kindergarten classes while the other five abstract teachers taught five first-grade classes. Thus it should be noted that while both concrete and abstract first grade teachers each taught only one class, kindergarten teachers, both concrete and abstract, each taught an approximate average of 1 1/2 classes.

The Conceptual Systems Test (CST). All but one of the 67 teachers who completed the TIB Test also completed the objective measure of belief systems, the CST. From a pool of

several hundred items and numerous runs through Tryon's program of cluster analysis (Tryon & Bailey, 1965; 1966) seven factors have been extracted and replicated which are theoretically consistent with the major characteristics of the four principal belief systems posited by Harvey, et al. (1961). These factors as we have tentatively labeled them (Harvey, 1967) are (1) Divine Fate Control, (2) Need for Simplicity-Certainty, (3) Need for Structure-Order, (4) Distrust of Social Authority, (5) Friendship Absclutism, (6) Moral Absolutism, and (7) General Pessimism.

While the CST was administered in its entirety, for purposes of this study scores were derived for only the three clusters of Divine Fate Control, Need for Simplicity-Certainty and Need for Structure-Order. The combined scores from these three factors were treated as our second measure of a teacher's concreteness-abstractness. Representative items comprising each of the three of these component factors include:

1. Divine Fate Control (DFC) is assessed by such items as "There are some things which God will never permit man to know," "In the final analysis, events in the world will be in line with the master plan of God," and "I believe that to attain my goals it is only necessary for me to live as God would have me live."

2. Need for Simplicity-Certainty (NS-C) is inferred from response to such statements as "I dislike having to change my plans in the middle of a task," "It is annoying to listen to a lecturer who cannot seem to make up his mind as to what he really believes," and "A group which tolerates extreme differences of opinion among its own members cannot exist for long."

3. Need for Structure-Order (NS-O) is derived from such items as "I don't like to work on a problem unless there is a possibility of coming out with a clear-cut, definite answer," "I don't like for things to be uncertain and unpredictable," and "I like to have a place for everything and everything in its place."

Training of observers and assessment of inter-observer reliability. Each of the nine Os, all females, participated in six training sessions during which six teachers and their classes were observed and independently rated. Each observation session was followed by a lengthy group discussion among the Os and other staff members aimed at increasing the reliability of the ratings through improving observation techniques and clarifying and standardizing meaning and usage of the rating categories.

Inter-judge reliability for the nine Os was assessed for both the teacher and student rating scales at three points: immediately following the last training session, one week after field observations began, and immediately preceding completion of the experimental observations, 2 weeks later. The mean correlation between every pair of judges for the teacher scale was .78, .76 and .70 for the three periods respectively; the corresponding reliability values for the student scale were .84, .75 and .77.

Procedure. Each teacher and her students were observed in the classroom on a single occasion by a single O for approximately two hours. All teachers had been advised earlier

by their principals of the dates on which they were to be observed.

Observation occurred during normal classroom activities on a day free of special events in order to render the conditions of observation as comparable as possible across classrooms. The O arrived before class, introduced herself, explained (with the aim of allaying the teacher's apprehension and fostering her cooperation) that the purpose of the visit was to gather examples of good teaching procedure that could be utilized as bases for future teacher training programs, and requested that she be allowed to observe while remaining as inconspicuous as possible in order to minimize the effects of her presence upon the children. To further O's unobtrusiveness and simultaneously to increase the liklihood of both the teacher and her students behaving in their usual fashion, each teacher was asked not to converse with O during the observation period.

The teacher and her class were rated by the same O, the students being observed and rated first as independently as possible of the teacher's behavior. This procedure was aimed at minimizing the contamination between the dependent and independent variables likely to result from the students and teacher being rated by the same O. Extensive pretesting indicated that this procedure, of having the O first concentrate on and rate the behavior of the students as a class before focusing on the teacher, yielded a relationship between student and teacher ratings that was no higher than that between separate ratings of the teacher and her students

by different judges. In fact, the evidence indicated clearly that, while the use of a single O for both the teacher and her students may have produced contamination, at the same time it produced seemingly more valid ratings than those yielded by the practice of one judge observing only the teacher while the other O noted only the responses of the children. Thus the degree of contamination inherent in the method of observation we employed appears to be preferable to the loss of validity that results from attempts of O's to rate the behavior of the teacher and her students without the use of the other as a referent.

In rating the children, care was exercised to rate the class as a whole and not to give inordinate weight to a small minority by concentrating on the behavior of a single child or a few children.

Results

Tests of Assumptions

Before analyzing the effects of teachers' overt behavior upon students' performance, it was first necessary to test two basic assumptions: (1) that the 14 items of the teacher rating scale would yield the three factors of resourcefulness, dictatorialness and punitiveness, as they had in the earlier study (Harvey, et al., 1966); and (2) that variations in the concreteness-abstractness of the teachers' beliefs would lead them to score differently on these three behavioral factors.

The validity of the first assumption was demonstrated by the results of a factor analysis of the teacher rating scale by Tryon's method of cluster analysis (Tryon & Bailey, 1965; 1966) which yielded the three anticipated clusters.

Resourcefulness was comprised of four behavioral items. They, together with their factor leadings (represented by the values in the parentheses) were: utilization of physical resources (.77), diversity of simultaneous activities (.77), encouragement of creativity (.72) and ingenuity in improvising teaching and play materials (.71).

Dictatorialness contained seven items; need for structure (.90), flexibility (-.90), rule orientation (.86), encouragement of free expression of feelings, (-.84), teacher determination of classroom procedures (.81) and the use of unexplained rules (.70).

Punitiveness was based on three items: warmth toward the children (-.86), perceptiveness of the children's needs and wishes (-.85) and punitiveness (.77).

The second assumption also proved to be warranted. Teachers classified on the basis of the TIB as being concrete were significantly less resourceful ($t=4.03$, $p<.001$), significantly more dictatorial ($t=1.67$, $p<.05$), and were more punitive, although not significantly more, ($t=1.05$, $p<.10$) than teachers classified as abstract. Moreover, the abstractness measure from the CST correlated significantly positively with teacher resourcefulness ($r=.37$, $p<.005$), and significantly negatively with both teacher dictatorialness ($r=-.19$, $p<.05$) and punitiveness ($r=-.19$, $p<.05$). These results, through replicating the more essential findings of our earlier study

(Harvey, et al., 1966), make it clear that variation in the concreteness-abstractness of teachers' beliefs generates theoretically consistent and predictable parallels in the overt behavior of these individuals. Thus an examination of the effects of teachers' beliefs and behavior upon their students, the major concern of this study, becomes appropriate.

Concreteness-Abstractness of Teachers Beliefs and Student Performance.

Factor Analysis of the Student Rating Scale. In order to extricate the more generic dimensions encompassed within the 31-item student rating scale and thus enhance the coherency of the presentation of results, the student rating scale was factorized by Tryon's method of cluster analysis (Tryon & Bailey, 1965; 1966) and the resulting factors related to variation in teachers' beliefs and overt behavior.

Seven factors were derived from the student rating scale. The first cluster, termed cooperation, was comprised of five items, which with their factor loadings were: immediacy of response to rules (.91), overall adherence to teachers' rules (.86), child-sustained activity (.68), cooperativeness with teacher (.57), and adherence to the spirit of the rules (.55). The second factor, which centered around student involvement, consisted of eight items: enthusiasm (.89), voluntary participation in classroom activity (.82), free expression of feelings (.78), voice of students in classroom activity (.78), independence (.76), information seeking (.72), insecurity (-.66) and task attentiveness (.63). The third factor, labeled activity level,

was derived from two items: amount of activity (.81) and diversity of goal-relevant activity (.81). The fourth factor, nurturance seeking, contained two items: guidance seeking (.68) and approval seeking (.59). The fifth factor, termed achievement level, included three items: accuracy of facts (.81), appropriateness of solution (.80) and integration of facts (.71). The sixth factor, helpfulness, was comprised of four items: consideratenss toward classmates (.79), cooperativeness with classmates (.71), taking turns (.56) and aggression (-.49). The seventh cluster, referred to as concreteness of response, contained three items: roteness of answers or solutions (.88), orientation toward specificity of facts (.71) and novelty of answer or solution (-.56).

Four of the items from the student rating scale were not included in any of the seven clusters: amount of interaction, reciprocal affection, passive and active hostility. Results relating to these four items will not be reported.

TIB Classification and Student Performance; Comparisons were made between the 64 classes taught by the 50 teachers classified by the TIB as being concrete and the 16 classes taught by the 12 teachers on each of the seven factors derived from the student rating scale.

As indicated in Table 1, students of more abstract teachers, in comparison to their counterparts, were significantly more involved in classroom activities,

Table 1 About Here

more active, higher in achievement and less concrete in their responses. They were also less nurturant seeking, more cooperative and more helpful, but not significantly more, than students of concrete teachers.

CST Factors and Student Performance. Teachers' scores on the abstractness measure from the CST and on each of the three factors going into this measure were correlated with each of the seven factors from the student rating scale. These relationships are presented in Table 2.

Table 2 About Here

The CST measure of abstractness related significantly to every one of the student performance factors. Greater abstractness of the teacher was accompanied by greater involvement, greater cooperation, more activity, less nurturance seeking, higher achievement, greater helpfulness and less concreteness on the part of the students.

While all three of the factors constituting the measure of teacher abstractness correlated in the predicted direction with performance of the children, the teachers' need for structure-order correlated the highest and most consistently. In fact, the teacher's need for structure-order had greater influence on the performance of the children than her belief in divine fate control, need for simplicity-consistency and overall abstractness.

Teachers' Overt Behavior and Student Performance. Teachers' scores on the behavioral factors of resourcefulness, dictatorialness and punitiveness were correlated with the seven student performance clusters, the results of which are included in Table 3.

Table 3 About Here

The resourcefulness of the teacher correlated significantly positively with student cooperation, involvement and activity and significantly negatively with the concreteness of students' responses.

The teachers' dictatorialness correlated significantly negatively with the students' cooperation, involvement, activity, achievement and helpfulness and significantly positively with students' concreteness of responses.

Teachers punitiveness correlated significanlty negatively with student cooperation, involvement, activity, achievement and helpfulness and significantly positively with the concreteness of the students responses.

Nurturance seeking was the only one of the seven student performance clusters that did not relate significantly to any one of the teacher behaviors.

Discussion

By replicating the findings of our earlier study (Harvey, et al., 1966), these results make it clear that the concreteness-abstractness of teachers' belief systems affect their overt resourcefulness, dictatorialness and punitiveness in the classroom. In addition, the results of the present study allow the inference that not only does the abstractness of teachers' beliefs influence their own classroom behavior, it also affects the performance of the students themselves.

The obtained differences between concrete and abstract teachers probably would have been accentuated had the group of more abstract teachers been comprised only of

clear instances of System 4. Instead unclear instances together with cases of System 3 were combined with clear instances of System 4 to constitute the abstract group in this study. Yet, if our experiences from the earlier (Harvey, et al., 1966) and the present study are typical, a large sample of teachers would be necessary to yield an adequate number of clear cases of System 4. Of the 292 teachers to whom we have administered the TIB, only 18, or six per cent, have been classified as System 4, not all of which were ideal cases. While strongly suggesting that in terms of absolute numbers few teachers operate at the System 4 level, it should be noted that this percentage is identical to the seven per cent of System 4 individuals we have found from among approximately 3000 undergraduates administered the TIB. In fact, this percentage appears to be so constant across a large sample of subjects that some special factor(s) may be necessary to account for it.

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Table 1

Comparison Between Performances of Students of Concrete and Abstract Teachers (as classified by the TIB)

Student Rating Scale Factors	Concrete Teachers		Abstract Teachers		
	Mean	SD	Mean	SD	t
Cooperation	4.05	0.82	4.34	0.75	1.26
Involvement	3.60	0.87	4.09	0.90	1.96*
Activity	3.29	1.01	4.22	1.02	3.29**
Nurturance seeking	2.91	0.99	2.56	0.95	-1.27
Achievement	3.90	0.71	4.25	0.56	1.81*
Helpfulness	4.03	0.65	4.20	0.63	0.97
Concreteness	3.78	0.88	3.27	0.80	-2.12*

*t for p.05, 78 df, one-tailed test = 1.67

**t for p.01, 78 df, one-tailed test = 2.38

Table 2

Correlations Between Clusters from the Conceptual Systems Test and the Student Rating Scale

Student Rating Scale Factors	Teacher Variables:CST Clusters			
	1.Divine Fate Control	2.Simplicity-Consistency	3.Structure Order	4.Abstractness (Σ 1-2-3)
Cooperation	-.14	-.21*	-.22*	.21*
Involvement	-.10	-.18*	-.21*	.18*
Activity	-.12	-.13	-.34**	.19*
Nurturance Seeking	.14	.12	.24*	-.18*
Achievement	-.22*	-.21*	-.30**	.27**
Helpfulness	-.17	-.17	-.15	.19*
Concreteness	.06	.23*	.29**	-.19*

* r for p .05, 84 df, one-tailed test = .18

** r for p .01, 84 df, one-tailed test = 26

Table 3

Correlations of Teacher Dictatorialness, Punitiveness and Resourcefulness to Student Performance Factors

Student Behavior	Teacher Behavior		
	Resourcefulness	Dictatorialness	Punitiveness
Cooperativeness	.23**	-.18*	-.34**
Involvement	.69**	-.84**	-.73**
Activity	.76**	-.33**	-.29**
Nurturance Seeking	-.12	-.05	-.01
Achievement	.28**	-.28**	-.32**
Helpfulness	.02	-.23**	-.32**
Concreteness	-.60**	.67**	.56**

* r for p .05, 116 df one-tailed test = .15

** r for p .01, 116 df one-tailed test = .22