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ABSTRACT

In developing an ecological theory of teaching, the classroom is viewed as a sociological unit. The unit of interest was the teacher-student learning group. The basic question explored was: What is the relationship between human interactions and the physical and social context of the group. Teams of scholars met in seminars, each member bringing the concepts and perspectives of his respective discipline or area of inquiry. In this "bridging report," three researchers combined their different approaches to contibute to an ecological theory of teaching. The first approached the subject from the perspective of child development, the second from an ethnographic viewpoint and the third from a sociological perspective. (JD)

BRIDGING REPORT 3

Bridging the Research of

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BRIDGING REPORT 3

Introduction

This is one of a series of reports by the Far West Laboratory for Educational Research and Development (FWL) concerned with developing an ecological theory of teaching. Under funding by the National Institute of Education, the project has been underway since December 1977 and is projected to continue contingent upon funding from NIE.

The uniqueness of the program lies in four undergirding assumptions. It is proposed that by attending to each, educational R&D needs which to date have received little attention will be accommodated. These are:

- The need to develop a theory which *views and explains classroom teaching and learning as sociological in nature.* This contrasts with and adds to current theories which are primarily psychologically-based.
- The need to develop a theory that it is *grounded in and emerges from the realities of ongoing classroom life,* incorporating teachers' understandings of their own worlds. To date, theories about schooling have been based for the most part on explanatory models that are derived from other settings, e.g., diagnosis and prescription (from medicine), input-output (from industry), PPBS (from the military), etc.
- The need to apply and capitalize upon the perspectives of multiple appropriate social sciences in order to understand more fully classroom life. Psychology has been the dominant discipline in educational R&D. *A multidisciplinary approach*

will add the unique and diverse perspectives of other fields, e.g., human ethology, sociology, environmental social-psychology, anthropology, human ecology, etc. to the research efforts.

- The need to attend to and apply research methodologies appropriate to inquiring into specific questions while maintaining high standards of excellence. *Methodologies drawn from the disciplines within the social sciences cited above will add to current research repertoires,* thus making possible selection from more than a single paradigm for inquiry.

To carry out this program, four long-range goals have been proposed. These are:

(1) To develop a theory that approaches and explains what goes on in teacher-student learning groups from an ecological perspective. Such a perspective goes beyond the teacher-single student dyadic paradigm pervasive in most current educational research. In addition, it attends to the myriad of complex variables that combine to explain *how human interactions shape and are shaped by the physical and social context of the class unit (teacher-student learning group).*

(2) To examine, modify, and/or create *research methodology that accommodates a multivariable, multidimensional, multiperspectival theory and makes possible inquiring into its operationalization in naturalistic settings.* In particular, such methodology must serve to capture the interrelationships among these variables while maintaining the integrity of ongoing classroom life.

(3) To survey, adapt and/or generate *training/development strategies that engage teachers, students and relevant others in applying an ecological perspective to classroom teaching and learning.* Traditionally, teacher training has been based primarily upon psychological theories of how individuals learn. It is anticipated that training/development strategies that focus instead on the sociological nature of human interactions while attending to the total ecology of the classroom will be useful.

(4) To test the theory by conducting a *restructuring experiment in nature.* Such an experiment would (a) implement in the natural setting of a school the teaching/learning strategies which build from the theory, and (b) study their effects by applying research methodologies which will have been developed concurrent with theory development.

To guide the effort, a Seminar of Scholars was organized. Composed of scholars from disciplines not usual to the educational research enterprise as well as those engaged in it, the Seminar serves both to inform theory development and to review and critique ongoing project activities.

At the initial meeting in San Francisco in May, 1978 the seminar participants reviewed reactions to a draft document which presented working definitions of those theoretical constructs proposed by the principal investigators as critical parameters for theory development. (Prior to this meeting, the document had been reviewed and critiqued by eleven experts with diverse perspectives, including members of the seminar.) From these deliberations emerged a consensus that the unit of interest for anchoring the theory is

how human interactions shape and are shaped by the physical and social contexts of the teacher-student learning group. To explore how elements and interactions among elements contributory to understanding and describing how such a unit of analysis might be identified or generated, it was recommended that, as its next step, the FWL staff undertake a series of *bridging activities.*

Bridging activities are designed to bring together two or more scholars with diverse perspectives in order to provide opportunities to create intellectual *bridges* between the concepts and perspectives of their respective disciplines or areas of inquiry. As participants in the activity, scholars are asked:

(a) What does your own research, as well as the research knowledge of your discipline, have to offer an ecological theory of teaching in terms of findings, concepts, or methodology?

(b) What further information is required and what additional methodological concerns need to be addressed to enable your own research to be considered *ecological* according to the working criteria established by the Seminar of Scholars?

(c) In combination, what do your areas of research suggest as important variables and combinations of variables to consider in building the theory? What do the combined fields suggest regarding methodological issues and procedures to be considered in designing the inquiry strategies to be used in building a "grounded" theory?

FWL investigators participate in these bridging discussions and serve as facilitators and recorders. Following each session, they draft a document which reflects the outcomes of the bridging session. This document is read

and revised by the bridging participants, and, as appropriate, additional statements are included. The final product is exemplified in this report, one of a number completed or in process of completion.

The experience of bridging the ideas of two or more scholars has proven to be immeasurably valuable to the ongoing development of an ecological theory of teaching. Bridging activities provide an exciting arena for interaction among persons who otherwise might not juxtapose their knowledge for purposes of systematic inquiry. The result of their interaction delineates variables and raises questions for further inquiry which in themselves inform theory development.

A report follows of the knowledge, insights, and recommendations obtained through one of the bridging activities. The purposes of and participants in this particular activity are presented. The findings that emerged from the deliberations are reported. This latter discussion includes three areas of interest: (1) a review of the contributions to an ecological theory of teaching of each research base; (2) a discussion of areas of inquiry to be pursued in order to build an ecological theory of teaching that is grounded in the realities of the teacher-student learning group based on the combined perspectives of the three researchers; and (3) methodological concerns and procedures that emerge from and support the constructs presented in the previous discussions.

Purpose and Participants

As noted above, the May 1978 meeting of the Seminar of Scholars proposed that scholars from varying disciplines be brought together in "bridging groups" to explore the following question:

How human interactions shape and are shaped by the physical and social context of the teacher-student learning group.

The Seminar of Scholars felt that this multi-disciplinary exploration would further the theoretical elaboration of concepts and variables related to this question in order to move toward the development of an ecological theory of teaching.

In order to explore the effects of exogenous variables on the teacher-student learning group, a bridging team met for two days at the Laboratory. It was composed of Dr. J. Ronald Lally, on leave from the Department of Child and Family Studies at Syracuse University while serving as chairperson for the Department of Human Development at Far West Laboratory; Dr. Reyes Ramos, Department of Urban Studies, University of Texas at Arlington; and Dr. Ray C. Rist, College of Human Ecology, Cornell University. William J. Tikunoff, Beatrice A. Ward, and John R. Mergendoller from the Laboratory staff also worked with the team.

Dr. Lally brought to the discussions his perspectives on child development and his experience as the chairperson of the Department of Child and Family Studies at Syracuse. His research efforts have been aimed at the integration of the theoretical frameworks of Piaget, Erikson, Fraud and Alinsky to expand upon isolated single discipline approaches to child development and family studies. The parallels between Dr. Lally's work in training infant caregivers (see Figure 1) and teacher education were perceived to be important to defining the parameters for an ecological theory of teaching. His synthesis of research methodology from developmental and emotional psychology was expected to provide useful models for the work of this project.

Dr. Ramos contributed the benefits of his experience in ethnographic research in schools. He brought a perspective on schooling that has been shaped by his studies of the successful adaptation strategies of beginning

Figure 1: Evolution of an Effective Infant Caregiver Integration of Multiple Information Services

CIRCLE A: CONCRETE ACTIVITIES
CIRCLE B: CHILD DEVELOPMENT INFORMATION
CIRCLE C: POINT OF VIEW OF CAREGIVER

UNDERLYING CENTER CIRCLE: THE INFANT'S EXPERIENCE

ILLUSTRATION 1

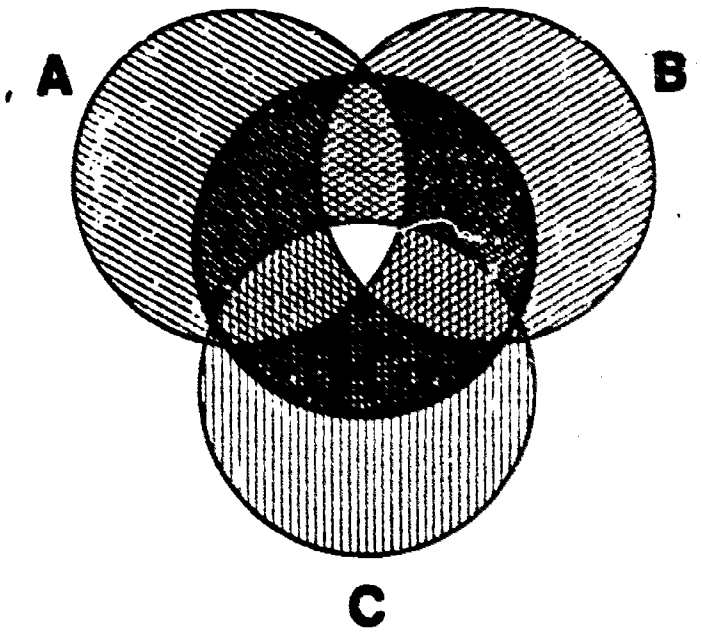


ILLUSTRATION 2

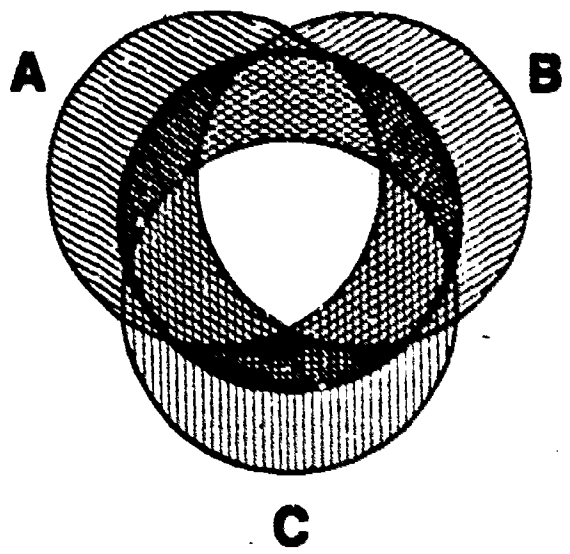
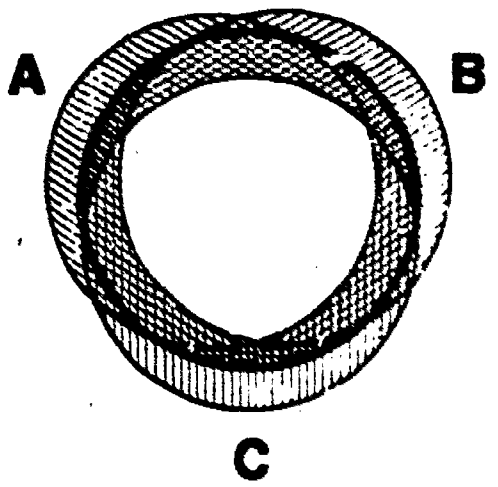


ILLUSTRATION 3



OFF PURPOSE BEHAVIOR. *Examples: A) imposing activities on child; B) failing to link child development information and understanding of individual child; C) coming from own point of view (e.g., "Must learn task and perform well for trainer").*

SOMEWHAT ON-PURPOSE BEHAVIOR. *Examples: A) paying attention to infant and altering activities, but not integrating child development information and point of view of caregiver; B) using child development information to see the individual child, but not integrating concrete activities or point of view of caregiver; C) owning own feeling but not integrating concrete activities and child development information.*

MORE ON-PURPOSE BEHAVIOR. *Examples: combining two of the three components to facilitate a more accurate view of the infant's experience.*

ON PURPOSE BEHAVIOR. *Examples: integrating of child development information, concrete activities, and point of view as they apply to the individual infant. Interacting with child on basis of understanding of the interrelationships.*

junior high school students: a view of "student as survivor." His research methodology stresses the necessity of identifying family, community, and other factors that serve as important determinants of how a person functions in a group, e.g., a teacher-student learning group.

Dr. Rist provided a sociological perspective to the discussion. His extensive research on racial integration and urban schooling served as the data base for his contributions. His experience in tracing social problems through macro and microanalytic procedures provided guidelines for approaching research in schools from an ecological perspective.

Contributions to an Ecological Theory of Teaching

When considering those aspects of life and situations, events, etc., that extend beyond the boundaries of the teacher-student learning group, yet have important interrelationships with what occurs in this group, the participants provided several insights. Building from his studies of infants and infant care-givers, Dr. Lally suggested that developmental theory has a place in an ecological theory of teaching. To be helpful, theory integration is necessary. Information regarding cognitive, social-emotional, language, and physical development should be considered concurrently as well as separately. Table 1 provides an example of the multiple developmental domains that might be considered for ages birth through 60 months and 6-10 and 11-20 years. Participants in the teacher-student learning group--more specifically, the teacher--need to become aware of the intermingling of developmental factors and the ways in which various combinations affect how individuals act, react, and interact in different settings. For example, a second grade child and a junior high school youth differ not only in size and the amount of information they can master but they also are qualitatively different in the way they view the

Table 1: The Developmental Domains of Human Development from Birth through 60 Months

Approximate Age	SOCIAL-EMOTIONAL DEVELOPMENT: Stages of Social-Emotional Development	Facilitative Environmental Supports	Adult Virtues Facilitated	Stages of Psychosexual Development	COGNITIVE DEVELOPMENT: Styles of Interaction	Periods and Stages of Cognitive Development	Description of Periods and Stages	Facilitative Environmental Supports
0	Relatively undifferentiated self. (Little distinction between self and others.)				0-1 Getting. Relative Passivity. ("Passively" getting.)	I.A. Sensori-Motor Period 0-24 mos. 0-1 Reflexive 1-4 First Differentiations 4-8 Reproduction 8-12 Coordination 12-18 Experimentation 18-24 Representation	Thinking is sensory-motor based 0-1 Behavior is reflexive. 0-4 Differentiations in sucking, grasping, etc., appear. Combines schemes and reflexes. 4-8 Infant learns how to make interesting spectacles last. 8-12 Coordination of schemes. Use of tools. Intentionality. 12-18 Discovery of new means through experimentation. Use of objects in novel ways. 18-24 Discovery of new means through mental representation. Begins to figure things out in his/her head.	0-5 Appears to be critical need for variation in stimulation. 5-9 Infant needs to experience a variety of familiar situations in which s/he has an interest and on which s/he can act to prolong or reproduce. 9-18 Infant needs opportunities to exercise newly acquired motor skills and to observe results of variation in efforts 0-24 Infant needs experiences which help him/her to explore learning themes (Means-ends relationships, spacial relationships, etc.) 9-24 Child needs role models to imitate. Child needs active interchanges with adults and peers. 12-60 months--Infant needs experiences which facilitate the learning of: distance, area, size, and time; order of things; grouping of things; opposites; proper names; amounts and quantity; reading and writing of numbers, letters and words; how and why things happen.
12 mths	Trust vs. Mistrust	Consistent, responsive maternal care. Mutually regulated mother-infant relationship.	Hope	Oral	1-3 Getting what feels good. 3-12 Taking and keeping what feels good.			
30 mths	Autonomy vs. Shame, Doubt	The child needs encouragement to "stand on his own two feet" and protection from arbitrary experiences of of shame & doubt.	Will	Anal	18-30 Holding on and letting go.	II. Sensori-Motor Learning Themes 0-24 months 1. Means-Ends Relationships 2. Spatial Relationships 3. Cause and Effect Relationships 4. Permanence of Objects 5. Imitation 6. Classification 7. Skill Combinations		
6 yrs	Initiative vs. Guilt	The child needs to be given opportunities to cooperate & share responsibilities with others. He/she also needs protection from often overwhelming aggressive impulses.	Purpose	Phallic	30-60 Intrusiveness. (This goes along with child's mobility and language skills.)	II. Pre-Operational Period (2-7 years)	2-7 years--Child's thought is: centered, irreversible, egocentric. Does not understand rules. Does not understand that others can come to conclusions different than his/hers.	
10 yrs	Industry vs. Inferiority	The child needs to work with and alongside others.	Skill	Latency		III. Concrete Operational (7-11 years)	6-11 years--Child uses logical operations with concrete objects: problems. Uses predominantly socialized speech. Understands rules, capable of true cooperation. Solves conservation problems. Realizes others have opinions different from his. Acquires classification and seriation skills. Uses abstract reasoning in the context of the environment.	
20 yrs	Identity vs. Diffusion	The adolescent needs opportunities to "try out" various and often diverse roles, concepts, etc.	Fidelity	Adolescence		IV. Formal Operational (11 years and above)	11 years and above--Capable of hypothetical thinking, scientific reasoning. Can solve complex verbal problems.	

ble 1 (continued)

Estimate age	MORAL DEVELOPMENT: Point of View from which Moral Decisions are Made	MORAL DEVELOPMENT: Stages of Moral Development	MORAL DEVELOPMENT: Facilitative Environmental Supports	LANGUAGE DEVELOPMENT: Stages of Language Development	LANGUAGE DEVELOPMENT: Facilitative Environmental Supports	PHYSICAL DEVELOPMENT: Stages of Physical Development	PHYSICAL DEVELOPMENT: Facilitative Environmental Supports
0	0--Pre-egocentric	0-24 months--Dominated by egocentric point of view. Inability to take the position of another.	0-36 months--Activities which help child experience the interactive effect of themselves with objects and people, such as: Experimentation, Judgment, Teaching other children, Following directions, Completing tasks, Being aware of choices, Being given responsibility for own action, Problems and frustrations, and Initiation	0--Non-vocal and crying.	0-60 months--Imitating baby sounds. Imitating unfamiliar sounds, such as "la-la". Carrying out verbal requests with appropriate gestures; carrying out verbal requests; producing and listening to sounds; labelling objects, toys, action words, qualities or qualifiers, prepositions; model adult language; ask questions; use role playing; use long phrases or complete sentences; use common label for superficially dissimilar objects; elicit receptive language to facil. understanding of questions & directions; use personal-social positive words (offer help; praise; encourage; make solicitous remarks; greet).		
-12 mths	1-12 months--Egocentric.			1-3 months--Differentiated crying; coos, babbles.		1-16 weeks--gains control of oculomotor muscles, general movement in relation to stimulation.	1-16 weeks--things to look at that move and of various colors; the touch of caregiver and various tactile sensations.
8				2-12 months--Meaningful sounds; receptive language--combined babbles, 2 or 3 words.		4-7 months--command of muscles that support head and move arms.	4-7 months--things to reach for and handle; being held and moved; squeaking toys.
						7-10 months--command of trunk and hands; sits, grasps; transfers and manipulates, crawls.	7-10 months--materials out of reach to crawl or stretch to attain; bars to pull on; things at which to kick; things to grasp.
						10-13 months--uses legs and feet, forefingers and thumbs, pokes, walks, stands.	10-13 months--table to hold onto and walk around; clapping games; pointing games.
30 hs	24 months--Negative will. Beginning awareness of choice. ↓ Punishment and reward. ↓ 36 months--Beginning awareness of responsibility for product.	24 months-adolescence-- I. Pre-conventional. Right & wrong judged by whether behavior is rewarded or punished. II. Conventional. Child comes to "conform" because this is good in its own right. III. Post-conventional. Arrival of autonomous moral principles apart from authority of others.	24 months-adolescence-- I. Child needs opportunities to examine pros & cons of his/her behavior in his/her own terms, on his/her own level. II. Child needs many and varied concrete experiences with objects. Exposure to moral point of view one step beyond child's will promote development. III. Adolescent needs exposure to verbally complex problems, concepts.	24 months--Uses negatives "No."; uses sentences; knows 30-50 words; extensive, receptive language.		24 months--walks and runs, bowel & bladder control.	24 months--materials for climbing, swinging; small muscle games; tricycle.
60 hs				36 months--Extensive expressive language; explains self; varied number of words--700 or more; use of language as tool almost automatically; manipulation of symbols.		36 months--increased mobility, can use tools, runs, jumps, climbs; control of muscles used in speech; uses body for own purposes as a tool.	36-60 months--balls, skates, bikes, races, nesting boxes, etc.
10 s				18-60 months--Uses language for story telling, making jokes, etc.		60 months--matured in motor control, hops, skips - sophisticated movements.	
0 s							

world cognitively and socially. Careful attention to developmental phenomena as explained by Erick Erikson and others increases the observation potential of the teacher and leads to smooth action in the teacher-student learning group.

Based on his research findings, Dr. Lally further indicated that a teacher's personal beliefs and values, particularly those related to expectations based on the teacher's perceptions of children at various developmental levels, influence the ways he or she perceives a teacher-student learning group and the members of that group and shape his or her interactions with group members, faculty, and parents. These values serve to create a hidden "curriculum plan" that greatly affects the teaching-learning process. They often build upon knowledge and experience that is external to the teacher's teaching-learning world. The teacher's combined knowledge of the classroom (e.g., students, curriculum, etc.), the school in general, and the larger world in which the teacher operates, is what Ramos refers to as the "common sense knowledge" teachers use to create what might be labeled as participation and learning activities (see discussion that follows of Dr. Ramos' research).

Interviewing and observing teachers during value clarification sessions--even if one has to create the sessions--provides a mechanisms for tapping these hidden notions and seems critical to developing a theory of teaching that includes a teacher's personal frame of reference.

From another perspective, Dr. Lally noted that choosing the teacher-student learning group as the focal point for theory development has political and social implications. When responsible officials acquiesce to political expediency in decisions affecting that group--e.g., size of the group, availability of support staff--they may restrict the ability of the teacher (and

the group) to function in appropriate ways. An evaluation of the support and nurturance provided to the group by the institution in which it resides might be a useful concept to keep in mind while developing an ecological theory. Without gauging the limiting or expanding effect of the broader institution on the teacher and students, it is difficult to have confidence in outcome measures that consider the impact of teachers on students.

Dr. Ramos enlarged the concern regarding the perceptions of the teacher, as per Dr. Lally's discussion, by noting that people in a teacher-student learning group operate in different domains and those domains outside the particular group under investigation influence what happens within it. Thus, when studying a teacher-student learning group one should be concerned about the participants' lives outside "school" and seek to find ways to discover them. Further, it is important to recognize that observed performance may disguise the actual state of affairs. Researchers need to know when front stage and/or back stage (Goffman, 1959) performance is being observed. In particular, if one wishes to approach teaching from an ecological perspective, it is important to find out what events, things, actions, etc. people actually are taking into account.

During the discussion, Dr. Ramos indicated that in much sociological research the focus tends to be on what gets produced. Attention rarely is on the producer and the relationships between the producer and the product. For example, in studies of classrooms, interaction patterns of classroom members and coping stratagies used by these individuals generally are emphasized. As a result we do *not* learn why particular classroom members do what they do. More often, we get a researcher's assumption of what is going on in the classroom.

Even though ethnographies of classroom settings appear as if a particular person has been studied, there are at least two things that present ethnographies do not give us: (1) a detailed account of the personal histories of the persons under study, and (2) a detailed account of how the particular people under study use what they know about the world in which they live, i.e., *common sense knowledge*, to make sense out of what they are doing. Consequently, we rarely learn the *why* behind teacher-student coping stratagies, why students within the classroom cope with one another in the ways they do, and why and how a particular individual ties what goes on in the classroom with what goes on outside the classroom, e.g., the rest of the school and those relevant parts of the community in which the person operates.

Dr. Ramos suggested that by studying particular persons and discovering the common sense knowledge each uses to make sense out of what he or she is doing, one is able to learn in a concrete fashion how persons (e.g., persons in a teacher-student learning group) tie what goes on (in the group) with the larger world in which they live. The link will be with particular, relevant aspects of the community, not the larger community in general. What is discovered are those people and events which help or hinder the persons in the teacher-student learning group and the nature and degree to which the events that are created by people outside the group come to be known as the "good" or "bad" events in the life of the group member.

In conducting research in these areas, Dr. Ramos has found that unexpected events, particularly events that are viewed as "trouble" by the relevant individuals, serve as an efficacious starting point for going behind the obvious and tapping an individual's common sense knowledge and linkages with external events, people, agencies, etc. He suggests that people's ways of

coping with an unexpected event provide the researcher with data to contrast with what the researcher and the people under study themselves would expect to go on if the unexpected event had not occurred.

Unexpected events are useful as methodological devices because when they occur, several things get revealed. One is the *taken-for-granted world*. The common sense knowledge the people under study take into account and use to make sense out of what they are doing often is taken-for-granted and not readily available to a non-member of the particular setting or group under study (Cicourel, 1964; Mehan and Wood, 1975). It takes an unexpected event, whether troublesome or not, to get the people under study to reveal what they take into account when they cope with everyday situations. Dr. Ramos posits that it is not just the occurrence of an unexpected event, but the way in which the people under study manage the event, that reveals the taken-for-granted world.

Unexpected events also reveal interactional, or coping, strategies. Dr. Ramos suggests that strategies can be "found" when unexpected event data are collected and compared with baseline data (data collected through standard procedures and under standard conditions). His argument is as follows. As field researchers, we observe interaction and we record conversations and interviews. Generally, if not all the time, we often take these data and proceed as if our data represent the way it "really" is for the people under study. Most of the time we have no way of knowing if what we are observing or hearing is a strategy in use (i.e., a put on, a con job, or an act of "fuzzing" it). Indeed, any field researcher worth his "salt" doubts the credibility of what the people under study are saying and doing, and he works at trying to find out what is "really" going on. But, the point still remains that the people under study may go to great efforts to present and

maintain the "fronts" that Goffman (1959) so eloquently tells us about. The researcher has no way of knowing whether or not what is being presented is a coping strategy in use or an example of normative behavior (i.e., people conforming to the researcher's assumptions of the people under study).

Unexpected events might help field researchers overcome this dilemma. As suggested, the person under study tends to reveal what he takes into account when trying to cope with an unexpected event. In so doing, the person may reveal aspects of his behavior and aspects of what he knows about the world in which he lives to the field researcher that would not otherwise be observable. If the researcher compares these data with data obtained under standard conditions, he may be able to learn when the person under study has used a particular coping strategy in the past, and when he is using it in present and future encounters. It is in this sense that Dr. Ramos suggests that when we collect and compare baseline data with unexpected event data, we can be in a better position to discern what behavior may constitute a coping strategy in use, and thus also be in a better position to discern what may constitute normative behavior.

A third factor which the occurrence of unexpected events may reveal to the researcher is the different social contexts in which the people under study operate. As noted above, when people manage an unexpected event, they expose what they take into account (i.e., their common sense knowledge), which in turn reveals how they structure and manage a specific situation in terms of other past and probable future situations. Dr. Ramos suggests that the common sense knowledge people use to structure and manage a particular situation can be seen as the link between the different situations that make up a person's everyday life. Thus, in managing unexpected events,

the people under study may reveal not only the immediate social context in which they operate, but the "larger" social context in which the immediate context is embedded.

As unexpected events reveal the broader social context in which the people operate, they also make visible the boundaries of the research setting for the researcher. In a sense it can be said that the discovery of the broader social context in which people operate is synonymous with the discovery of the parameters of the research setting. Researchers indeed start a field research project with some definite ideas of the types of people, places, and activities to be studied, but it takes something like an unexpected event to reveal the other *relevant* aspects of peoples' lives, places, and activities.

A virtue in discovering the boundaries of the research setting is not only that we are able to discover what else needs to be studied, but also that we are able to collect data on the same people in different settings. What the people under study tell us at one point or in one situation can be compared with how they perform at other times and in other places. This is important in terms of verification of ethnographic data. According to Ramos, then, we need to collect at least two types of data. One is baseline data. These are the data which researchers accumulate as they go about doing their field research in "standard" ways (i.e., those basic ways suggested in methodology textbooks, Denzin, 1970; Filstead, 1970; Lazarsfeld, 1972). The other is "unexpected event data." These are the data which are provided and produced by people's ways of managing an unexpected event.

Building upon Dr. Lally's discussion of teachers' personal frames of reference and Dr. Ramos' recommendations regarding avenues for tapping into such frames of reference and persons' world beyond the teacher-student learning

group, Dr. Rist presented a framework within which he recommended that teaching in the social context of the school should be considered. This framework looks at teaching in relation to:

- other adults with instructional responsibilities

  other teachers
  principal
  other professional staff
  para-professional staff

- students

  present group of students
  prior groups of students

- materials

  present curriculum materials
  prior curriculum materials

- parents and community

  knowledge of parents
  communication with parents
  knowledge of community

- legal requirements

  union rights/obligations
  court orders
  legal rights of children

- personal experience

  past experiences in school
  present estimation of learning climate in school
  present estimation of personal security

- knowledge of teaching

  own schooling
  master teachers
  peers
  in-service
  personal experience

Inasmuch as Drs. Tikunoff and Ward in their research on teaching have suggested that the teacher-student learning group functions as one interconnected

instructional-social system rather than as two separate systems, Dr. Rist linked his views regarding those exogenous variables that were most relevant to developing an ecological theory of teaching to this concept. In referring to the instructional-social unit (as Dr. Rist called it) he indicated that he wondered about the boundaries between what is social and what is instructional. He further indicated that he thought it would be necessary to focus on a "slice" of the unit in order to conduct a research effort. An ecological approach that is topic free may be possible on the instructional side. Whether there are universals that are applicable across sites, contexts, etc. on the social side appeared less certain to him.

Further, selecting an appropriate level of analysis for work related to an ecological approach to teaching poses several issues. If one considers the constructs of activity structures, participation structures, and the physical environment (which were discussed by other bridging teams) as being components of an instructional-social system, this system fits within the larger environments of the school and community. Figure 2 illustrates the interrelationships as proposed by Dr. Rist.

Within the instructional-social unit, activity structures, participation structures, and the physical environment are seen as having separate as well as interrelated influences upon the participants, their actions and interactions. In turn, factors within the school and community influence the unit with the school having a more direct, flexible, and possibly, greater influence than the community (as indicated by the broken line between the school and the instructional-social unit).

Regarding levels of analysis there is a considerable gap, for example, between the level of a particular interconnection of activity/participation

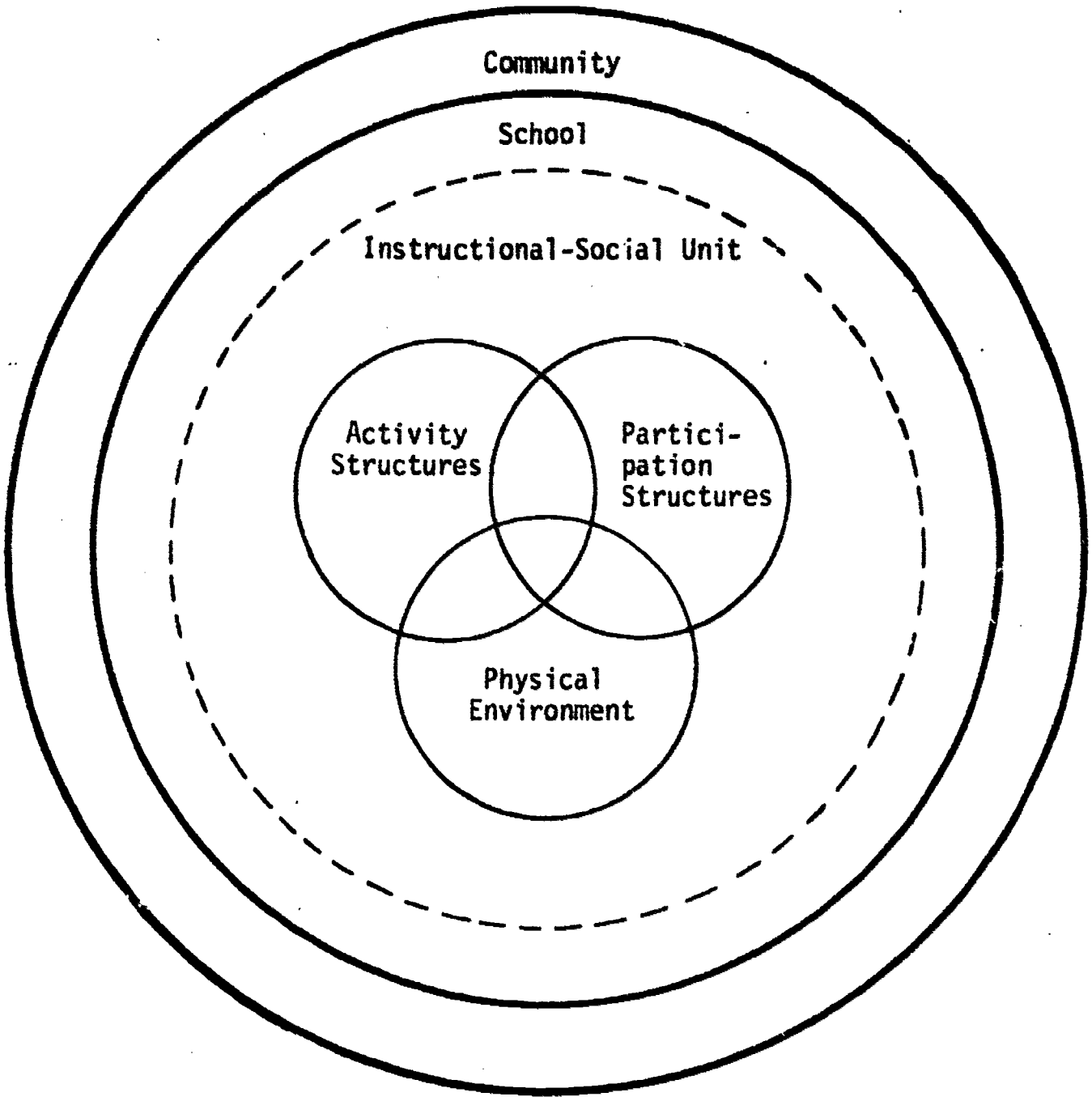


Figure 2

Relationships between Instructional-Social Components and Larger Environments

structure for a specific individual and the whole instructional-social unit. Instructional and social concerns that are of interest to an ecological theory of teaching may fit at different levels of analysis and have to be teased out based on factors such as group size (as per Caplow's research), or, as noted by Dr. Lally, on the developmental level of the participants. As individuals move from infant egocentrism, they become increasingly influenced by the broader environment. The infant has very little direct contact with the broader environment, e.g., the community. Gradually, with growth and increasingly complex cognitive structures, an individual begins to develop the ability to interact with a broader environment and to recognize the effect of self on society and society on self. Figure 3 illustrates this transition from relatively few direct environmental influences to many environmental influences. Variations in development of autonomy and the skills for coping with the broader environment suggest that awareness and knowledge of the developmental aspect of the impact of the environment on the learners in a teacher-student learning group may be important. Teachers and trainers of teachers should not expect teachers of sixth grade students to have the same type and amount of impact on the students as would a teacher of kindergarten students. Sixth grade students interact in, and are aware of, a more complex direct environment. Many more people and ideas have a chance to influence them than is the case with kindergarten students. For example, the peer group of the sixth grader has much more influence over the way the student will act with reference to adults than does the peer group of the kindergarten student.

As illustrated in Figure 3, generally the parent is the first direct environmental influence felt by an individual although society does influence the infant indirectly through the parent. Later school and community influences

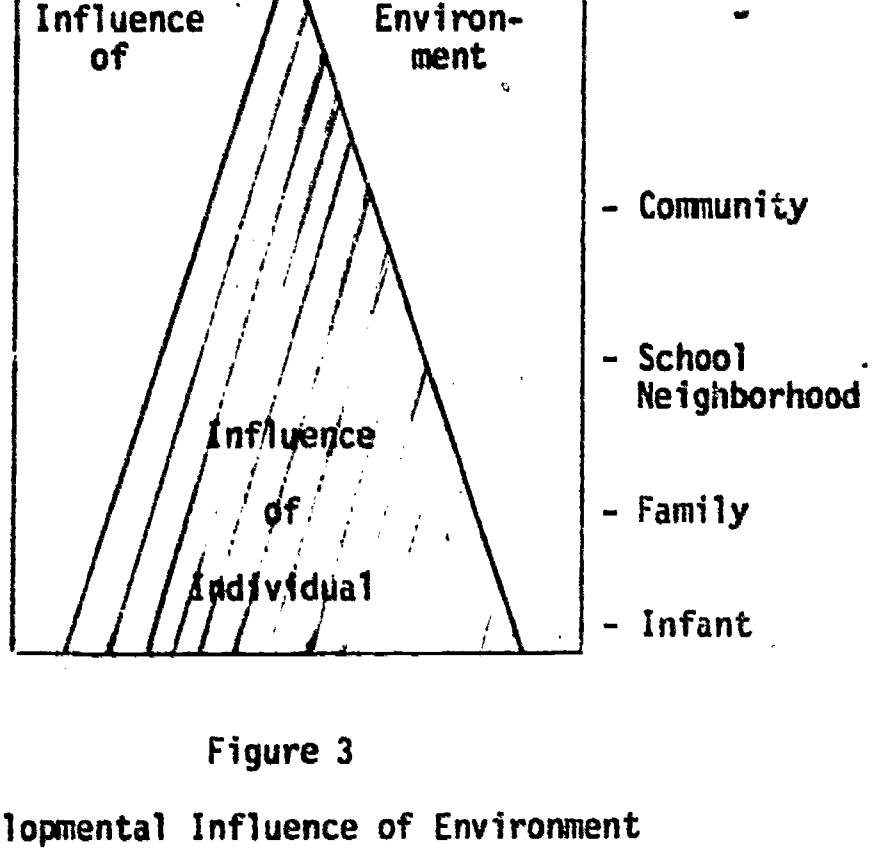


Figure 3

Developmental Influence of Environment

are added. By the time an individual reaches adult life, the total array of external forces influence what occurs in a person's life in ways that make the relative influence of the individual less potent than at earlier ages. This does not mean that one person can't have a dramatic impact. It does mean that the impact might come from any part of the environment.

Future Areas of Inquiry

Combining their various knowledge bases and areas of interest, the bridging team identified ten factors that, in their opinion, warrant further study in order to understand the social-instructional dynamics of teaching and learning. The factors and some possible sub-factors include:

1. Administrative Structure

    a. Patterns of reciprocity between teachers and principal
    b. Principal's decision-making style
    c. Support of change, transitions

2. Organizational Structure

   a. Chain of command
   b. Number of grades in the school
   c. Number of adults in classroom: status, division of labor
   d. Division by grades or non-grading

3. Patterns of professional interaction, formal and informal

   a. Collegiality
   b. Openness about sharing problems, solutions, materials
   c. Competition
   d. Non-school hour contact
   e. Attitude toward extracurricular activities
   f. Professional growth activities

4. Curriculum and impact on teaching options

   a. Amount of input teacher has in creating curriculum: proactive, reactive
   b. Ways that curriculum structures/constrains teaching options
   c. Orientation; group-individualization continuum

5. Physical Structure

6. Family/community situation

   a. School-family communication
   b. Parent impact: perceived, actual, desired
   c. Parents' perceived impact of the school on students
   d. Family characteristics: demographic, socio-emotional, developmental
   e. School and other community agencies: linkages, means of communication ties to families

7. External social/political constraints; effect of imposed structures

   a. Court orders
   b. Union contracts
   c. Local interest/pressure/minority groups
   d. School board politics
   e. Tax referendums
   f. Competency-based teaching and competency-based education movements
   g. Accountability

8. Judgment of professional milieu

   a. Competence of other teachers
   b. Interest of other teachers
   c. Effort of other teachers
   d. Personal safety of self
   e. Sense of community/administrative support
   f. Personal efficacy; control over environment

9. Teacher values

    a. Personal value standards
    b. Behavioral expectations
    c. Tolerance of student "deviance"

10. Judgment of class milieu

    a. Physical attractiveness, popularity, beauty/stature
    b. Parents' expectations for child's abilities, attributes

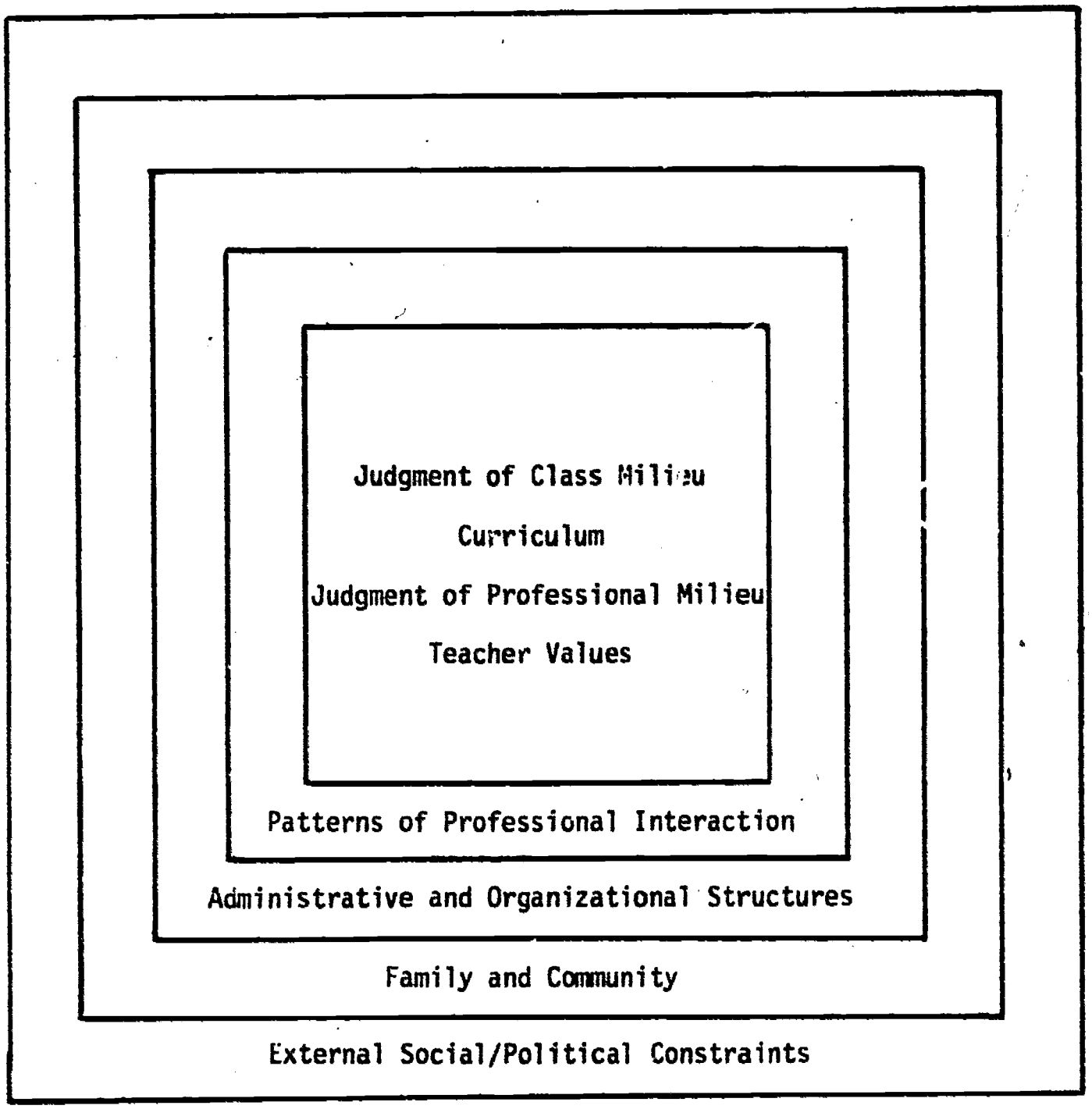
Four of the ten factors listed above may be considered "core" elements. These are those factors that fall within and impinge most directly upon a teacher-student learning group. They include judgment of the class milieu, curriculum, judgment of professional milieu and teacher values. Moving out from this core the other factors can be arranged in concentric circles indicating the remoteness of a factor to the day-to-day interactions of the teacher and student.

Figure 4 presents the arrangement that was proposed by Drs. Lally, Ramos, and Rist. Patterns of professional interaction are placed nearest to the teacher-student learning group "core". External social and political constraints are shown to be the most removed from the group. The physical structure factor is not included in the model because the "bridgers" concluded that they were insufficiently informed regarding the relationships of this factor to the others in the model to determine its placement in the schema. Placement of the other factors is based on the informed judgments of the bridgers. It is important to note that the student was purposely omitted as a "core" factor.

Building from this model, numerous research agendas might be established in order to investigate the interrelationships among the various factors. An infinite variety of combinations and permutations of factors might be considered.

Figure 4

A Model of Factors Related to the Study of Classroom Interaction



Nonetheless, the participants suggested four potential foci for future research. They are:

- The core factors as they interact with and shape each other and the effects thereof on what occurs in the teacher-student learning group.
- The informal patterns of professional interaction as they relate to, shape and are shaped by formal administrative and organizational structures and the effects on what occurs in a teacher-student learning group.
- The family and community situations as they interact with, shape and are shaped by administrative and organizational structures.
- The effects of external social and political constraints upon administrative and organizational structures.

Ultimately, inquiry in each of these areas should seek data on the ways the "combined" factors influence behavior in the teacher-student learning group. Work in the "core" area should not isolate single factors for study since these factors are not divisable without some real loss of understanding. Likewise, any research on administrative and organization structures should consider them together. Links between the external social and political constraints and the administrative and organizational structures that bypass the family and community are of particular interest. Whether any such links exist without mediation by and through the family and/or community is worth investigating.

Methodological Concerns and Procedures

Investigating and "making sense" of the complex systems illustrated in the proposed model requires experimentation with diverse research techniques.

While they differed in the paths they would take to arrive at "researchable" pieces of the model, the three participants agreed that they would begin with observation of one or more teacher-student learning groups. Using "raw" behavioral data obtained in such settings, they then would identify relevant questions that get at outside influences upon the group.

Dr. Ramos' notion of pursuing problems or unexpected events, Dr. Rist's strategy for moving into the smaller system from the viewpoint of one or more of the levels away from the core of the model, and Dr. Lally's emphasis upon observer-teacher-student joint development and investigation of interrelationships among factors all are feasible strategies for pursuing the proposed research topics. Using three or four separate strategies to study similar but not necessarily identical interrelationships may be a necessary and important step in the theory building process.

Whatever approach is used, sampling of people, behaviors, factors, etc., presents a major problem. How much observation may be necessary to obtain "sufficient" information to establish linkages (such as those suggested in the research topics) is unknown. The need to examine the predisposition of the research team to ask certain questions and expect certain linkages also must be considered as must the subjects' (e.g., student, teacher, administrator, parent, politician) explanations of why they did things the way they did. There was a general agreement to recommend intensive work in one school during a pilot year in order to attend to such issues and obtain indepth data regarding a multiplicity of linkages among factors and levels in the model.

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