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EDITORIAL STATEMENT

In recent years, we have become convinced that there is a logic to research in comparative human development which is basically similar, regardless of whether one is looking at comparisons across cultures, across species, or across ages within a species. The notion of using naturally occurring contrasts between human groups to find out more about people in general is a very old one, whose history needs no recounting. What seems new at this juncture in the history of the social sciences is an intense and growing interest in understanding the significance of group differences as a problem of basic research, as well as a necessary accompaniment to applications of that research in the areas of mental health and education.

Thus, it is no accident that the contributors to this first issue of the Quarterly Newsletter of the Institute for Comparative Human Development are card-carrying members of several social science disciplines. If our basic premises are correct, comparative research should be interdisciplinary by its very nature.

While this state of affairs may seem like a good thing (who criticizes the *idea* of interdisciplinary research?) it also carries with it a rather sizeable set of problems (a lot of people criticize the *products* of interdisciplinary research). It is these problems which we hope to address.

The format of the Newsletter is a response to a problem we all face—we must keep up with events in two or more disciplines. Since it is virtually impossible to incorporate the relevant literature *within* any one discipline, our best hope of increasing our research power is to be highly selective in the material we include and to be brief. Brevity is easily achieved; we will limit our contributions to “notes” six manuscript pages in length, and to annotated bibliographical entries.

Being selective and relevant is more difficult. We have sought two means of accomplishing these goals. First, our notes will be from investigators whose work has general significance for comparative research. Readers are free to submit manuscripts and we shall feel free to solicit manuscripts, as we did for this issue. This issue of the Newsletter contains no empirical papers in the “notes” section. We expect subsequent issues to contain a mix of empirical and

theoretical papers concerned with language, social interaction, social cognition, methodology, and cognitive processes in general. This omission was neither an oversight nor a reflection of policy—the data were slow coming in for the empirical study we planned for this issue, so we’ll include it (and perhaps others) next issue.

Second, we will ask one of the contributing researchers (or research groups) to be responsible for compiling a set of about one dozen annotated references that have been influential in their thought in the past year. The research included in the bibliography need not be comparative, but its relevance to the comparative enterprise should be spelled out in the annotation. Any reader is welcome to contribute items to the bibliography on an ad hoc basis. The editors will collate the material for each issue of the Newsletter.

We have tried to indicate what we have in mind by the annotated bibliographic entries in the second section of the Newsletter. The articles chosen represent information that was significant to the reporter. It also happens, in this issue, to represent information that we have been sharing with each other in recent months.

The “we” referred to here are members of the Laboratory of Comparative Human Cognition and its training counterpart, the Institute for Comparative Human Development.

This Newsletter is designed to fulfill one of the Institute’s principal functions—to act as an information center for scholars interested in problems of population differences in cognitive performance. While cultural factors have been the focus of our interest, members of our group work with populations defined by a variety of criteria.

The major function of the Institute is to train professionals in basic, comparative research techniques from psychology, anthropology, linguistics, and sociology relevant to issues in cognition. A good deal of our work is multidisciplinary in terms of both theory and method, which helps explain why the contents of this Newsletter might seem diverse: from our point of view they are not so diverse as they appear.

It is our hope to make the annotated references, as well as the notes, reflect the diversity that organizes other people’s work.

As its title indicates, we intend this Newsletter to be a quarterly event. Its future is in your hands. We welcome your contributions. Let us hear from you.

WILLIAM S. HALL and MICHAEL COLE

Differential Deficit: Psychometric Remediation is not Acceptable for Psychometric Artifact

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Comparative cognitive psychologists often pit against one another individuals drawn from various populations that manifest quite different levels of over-all cognitive skill. For this reason, these researchers have generally relied on *differential deficit* methodology, which is characterized by the administration of two tests to the populations of concern. What is of interest is the presence of a Groups \times Tests interaction, such that the between-groups difference is either greater (differential deficit) or not greater (no differential deficit) on one test than on the other. It is generally inferred from a differential deficit that the two populations differ with respect to the test factor or process that manifests the difference, but not on the test that either fails to manifest a difference or manifests a lesser difference.

Chapman and Chapman (1973a and b) have recently argued that inferences about mechanism derived from demonstrations of differential deficit might well be invalid, due to possible artifact based on certain psychometric properties of tests, item difficulty, and test-score variance. They have argued that these psychometric factors alone can produce the Groups \times Tests interaction. This is possible in either of two ways. First, the ability of a test to discriminate between groups depends on its difficulty for the groups tested. Tests that are either too easy or too difficult for the groups in question will not discriminate between them. Lord (1952) has shown that, in order to optimize sensitivity to group differences, tests must be constructed so that their difficulty, as determined by the mean performance of both groups, is in the midrange.

Consider the comparison between schizophrenic patients and normal control subjects on recognition and recall of word lists. Assuming nonsystematic sampling from these two populations, we would expect the patients to manifest inferior cognitive test performance. Using differential deficit methodology, investigators (e.g., Koh, Kayton, and Berry, 1973; Traupmann, 1975) have found that schizophrenics recall fewer items, but recognize about the same number of items as normal control subjects. However,

the recognition task is generally easier; unless special procedures are instituted, more items will be recognized than recalled. It may be that the recognition test has failed to discriminate between schizophrenic and normal groups because individuals of both groups were at the "ceiling" of test performance.

This artifact might be avoided by constructing the test in such a manner that mean performance for the combined groups on recognition is the same as mean combined performance on recall. Given that recall and recognition proved equally difficult, one could not attribute a Groups \times Tests interaction to psychometric artifact arising from differential test difficulty. However, the interaction could still emerge from psychometric artifact, that associated with test-score variances. That is, if the new recognition test produced greater variance in test scores than the recall test, a Groups \times Tests interaction that relied on the failure of the new recognition test to discriminate between the groups could result solely from its greater variance (i.e., less discriminability).

Chapman and Chapman (1973a and b) have argued that unambiguous interpretation of the Groups \times Tests interaction requires that the tests be matched for item difficulty and item variance. They have prescribed a procedure for doing so. Briefly, it involves two phases of testing. In the first phase, normal (or criterion) subjects are tested with a large pool of items under conditions defined by the two (or more) tests. A subset of the total pool of items is then drawn so that the two tests can be constructed within the constraints of equal difficulty and variance. In the second phase, a new sample of criterion subjects and subjects from the population of interest are tested with the psychometrically constructed tests.

The Chapmans have explicated a particularly thorny problem for comparative researchers—the presence of possible psychometric artifact in population comparisons. However, their prescription has pitfalls of its own. In one of two possible cases, the ability to generalize from the Groups \times Tests interaction is seriously restricted and, in the other case, valid inferences from the Groups \times Tests interaction are not possible. Both arise because their technique requires systematic bias in item selection.

One case occurs when the psychometrically constructed tests consist of the same set of items. In order to understand the shortcoming inherent in this case, it is important to appreciate the factors governing test selection. Two factors appear to be most important. First, tests are chosen because they are integrated theoretically, usually in terms of the processes or mechanisms involved in responding to the items, and, second, this theoretical network is shaped by the fact that, at least under certain conditions, *responding to the same set of stimuli (items) differs systematically with test conditions*. For exam-

ple, the selection of recall and recognition tests mentioned earlier was motivated largely by the two-process theories of retrieval from memory storage that were in vogue at the time. These theories evolved, at least in part, because, under standard testing conditions, more items are recognized than are recalled by normal subjects.

Psychometric doctoring, undertaken to equate tasks for difficulty and variance, is blind to the rationale governing task selection as tests on which to compare naturally existing populations in the first place. But selecting items to meet psychometric specifications identifies items that do not share the property of the total pool of items that determined test selection. Insofar as this subset has attributes that differentiate it from the total pool, the investigator is seriously restricted in generalizing from the Groups \times Tests interaction to possible tests involving items other than those selected.

A more serious difficulty arises for the prescription offered by Chapman and Chapman when the items comprising the two tests must be entirely or partially different in order to meet the psychometric requirements. Their prescription does not require that the two tests consist of the same items; it only establishes that the tests meet the requirements of equal difficulty and variance. In fact, if the tests are constructed of different items, valid inferences from the Groups \times Tests interaction are not possible. The reason is that *systematic selection* of the items, which is required to achieve equal test difficulty and item variance, introduces the possibility of systematic bias in the design. This bias takes the form of a List (Item + Context) \times Tests interaction. This interaction has a potential effect on the Groups \times Tests interaction, and the particular form that the Groups \times Tests interaction takes may be due entirely to the particular items selected in order to equate the tests for difficulty and variance; it may have no validity apart from the List \times Tests interaction.

In summary, when the same items can be found to construct both tests, generalization of the Groups \times Tests outcome is restricted to the items selected, and when different items must be located to construct the tests, valid inferences are not possible.

An alternative strategy for combating psychometric artifact in differential deficit designs would appear to be central to the *process orientation* to comparative research discussed by Medin and Cole (1976). In essence, the investigator's recourse to possible psychometric artifact relies on manipulating the process in a manner other than that given by the two test procedures. If results of the manipulation are consistent with the process invoked to account for the differential deficit, additional weight is accorded the interpretation.

For example, one interpretation of the differential

deficit in recall relative to recognition for schizophrenic patients is that these individuals fail to implement active strategies for processing information to the cognitive depth necessary to support recall. This interpretation will have merit beyond possible psychometric artifact to the extent that investigators can manipulate, either among schizophrenics or among normals, various aspects of the information-processing strategies, such that schizophrenics and normals respond similarly. For instance, sorting words to be recalled into self-determined categories (Larsen and Fromholt, 1976) or making judgments of their affective values (Koh, Kayton, and Peterson, 1976) have been sufficient to eliminate the differential recall deficit for schizophrenic patients.

What is suggested by these remarks is that only through research that involves manipulation of hypothesized mechanisms can we deal effectively with the possibility of psychometric artifact in comparative research based on differential deficit designs.

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Attribution Theory and Social Interaction: Some Ethnographic Accounts

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Some recent ethnographic research has interesting implications for attribution theory, an influential

perspective in social psychology. Based on the work of Heider (1958), this approach depicts people as causal analysts, continuously trying to make sense of the social world by attributing on-going events to more stable, underlying causes. As described by Heider, the process of attribution involves a critical distinction between personal and environmental causality: behavior can be seen as generated by the actor's personal qualities, or by properties of the surrounding environment, social or nonsocial. Participants' ascription of personality dispositions to one another is assumed to have important regulatory consequences for their interaction (Hastorf, Schneider, and Polefka, 1969). Labeling a person can lead to the person being treated in a particular fashion, which, in turn, can imply that the person will behave in line with the environments others consistently create for persons so labeled. Consequently, the ascription of personality traits is a crucial aspect of our everyday explanatory system, according to attribution theorists, and central to our organization of interpersonal environments for each other.

Research has supported our common-sense notion that considerable consensus can be achieved by observers attributing personality traits to the same actor. Where does this consistency come from? Various explanations have been offered; in the psychological literature, these take the form of either a "realist" or "idealist" account. A realist position (e.g., Allport, 1961) holds that such dispositional consistency of personality is actual. Personality research suggests, however, that behavioral consistency across situations is not very high (Mischel, 1968). The idealist position holds that dispositional consistency lies not so much in the person, but in the labels used to describe the person and in the consequences of applying these labels (Schneider, 1973). This pushes the question of consistency back to an issue in semantics and not in personality. D'Andrade (1974) has recently offered evidence that this consistency in naming traits from observed behaviors may be due to the role of semantic factors in memory for social events. People's memories of each other's behavior were found to be radically different from their accounts of behavior when they rated interaction immediately after it occurred. Much of the consistency in the delayed recollections could be understood in terms of semantic similarities between the various behavioral categories. In this way, semantic factors may be said to order the labels people have for each other and, accordingly, to have implications for how interaction is managed.

Like much of social science, attribution theory has a narrow empirical base, and reports from other cultures, or accounts derived from different methodologies, can raise difficult problems. Following Becker's (1962) sociological labeling theory, Selby has written a book (1974) describing the processes of

deviance labeling among the Zapotec Indians of Mexico and a small paper (1975) directing this data to a critique of attribution theory. He argues that, in the Zapotec society, personality traits did not serve to explain deviant behavior. Although features of personality were elaborated in this society, they did not appear to play an *explanatory* role. Rather, deviant behavior was described and explained in interactional terms by the Zapotec.

Selby claims that the Zapotec have an alternative theory of deviance, a folk version of a sociological labeling theory. According to the Zapotec, the consistency in people's behavior is not made by a consistency in their personality, nor in the labels they use to describe each other. Rather, the consistency apparent in people's behavior is made up of the specifics of roles available to a person at any given time. A person trapped in a particular social situation may commit a murder. A few years later, after a brief jail sentence, that same person may be on the town council with the relatives of the murdered person. Is the person still a murderer? Not according to the Zapotec, who may refuse to recall such an incident. Rehabilitation takes place by the erasure of the label, and this is made possible by the rearrangement of the person's place in the social world. Social roles function as slots, and people's behavior fits the contours of the slots they inhabit. People are able to talk about and behave consistently with each other in terms of these social slots. Selby's examples and discussion are too brief to permit a complete analysis of his thesis, but the issues he raises are important for attribution theorists, and invite further investigation.

A detailed account of the social organization of consistency in the ways people talk about and behave with each other is available in Wieder (1974). The setting is a halfway house for drug addicts. The division between staff and residents runs deep; not only do they limit their interactions to the necessities, but they even have a "code" governing their conduct with each other.

Wieder takes a difficult line of inquiry into the workings of this code in the halfway house. Neither labels nor roles constitute exact guides to behavior, and consistency in either must be understood as products of the interactional work that members of the two groups do with each other (Cicourel, 1974; Mehan and Wood, 1975). The task Wieder tackles, and it is a task that neither psychologists nor ethnographers take seriously enough, is the description of this work.

Briefly, the code specifies that residents should not trust staff and should be totally loyal to each other. By orally detailing and using this code, both residents and staff have readily available a way of talking about and attributing traits to each other. Note also that their attribution of positive and negative traits fits into the social roles available in this setting. The

code takes on some analytical power when one realizes that it is not only applied consistently to particular people, but also that it is predictive of the way the staff and residents behave with each other.

Wieder attempts to describe how the code functions so that both staff and residents keep reproducing the reality in terms of which the code represents a sensible adaptation of the two groups to each other. To do this, he examines what members get out of each telling of their code. Everyone complained about the code—staff that it kept them from doing their therapeutic jobs as counselors, residents that it kept them under constant suspicion, in threat of a bust, and, subsequently, jail. Yet everyone appeared to be reaping some interactional benefits from each telling of the code. For example, Wieder noticed that staff could excuse itself from serious efforts at reform on the basis that the men had the code before they were assigned to the house. This is highlighted by staff actually supporting the use of the code; when one resident began to turn another in, the staff stopped the resident on the grounds that he was breaking the code and accordingly risking his life. On the other hand, the code gave the residents a tremendous interactional resource for putting the staff in its place and for securing minimal protection from the staff's policing functions via intimidation. In short, Wieder argues that through each of these examples of "telling the code," both staff and residents received something that they needed in the context in which they were immersed, while at the same time, by following the code, they helped to create the contexts in terms of which telling the code could make sense.

By locating the dynamics of telling the code, Wieder has performed an important service for the attribution theorist. He does more than document the labels members appended to each other and how those labels were a sensible product of the social interactions of the people involved. He also documents how participants were each involved from moment to moment in generating both the labels used and the environments in terms of which the labeling made sense (no matter how painful the institutional consequences). In this way, behavioral consistency appears to be a product of a plot by many people in their construction of environments for their mutual participation. People do not act consistently simply because that is the way they are. Nor do they act consistently simply because others expect it of them; self-fulfilling prophecies are not unilateral determinants. Rather, they must be made out of something. Wieder's suggestion is that they are made out of people's reflexive efforts to understand each other in terms of environments which they have just helped to create. Behavioral accounts of such processes are rare (although see Schefflen, 1973). But with some behavioral accounts in hand, we may be able to give

substance to the functions which attribution theorists and sociologists have been suggesting dispositional labels and social roles play in people's relations with each other.

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A Theory of Conversation*

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The following comments are meant to generate a theory of the ontogeny of inquiry. Specifically, we are interested in the origins of the question-answer format. The lack of hard data on some of the issues raised requires us to consider these comments as speculative; however, at the same time they do lend a kind of coherence to existing data.

If one measures what mothers of infants do, one finds that question-asking is a very common activity. This is surprising, when we consider that, in some sense, the oral form of question is inappropriate for the infant, who cannot process the oral information. Several factors, however, indicate that it may not be as inappropriate as we might initially believe. First, there is some evidence that at very early ages the infant is, in fact, sensitive to the question form; that is,

* Excerpted from a longer paper presented at AERA, San Francisco, April, 1976.

questions have a raised inflection and this raised inflection is detectable (Kagan and Lewis, 1965; Lieberman, 1967). Moreover, the raised inflection is exaggerated by the adult speaker; the function, we believe, is to produce a response in the infant. Observation of mothers interacting with their infants indicates that the exaggerated question form with its raised-inflection ending results in raising the arousal level of the infant. The termination of the arousal in a discharge, such as cooing or smiling, serves as the answer to the care-giver's question. Consider this example: The mother is changing the infant and they are looking at each other's face. The mother, having powdered the infant, says, "Does that feel goood?" This question is repeated—sometimes with variations—and at the same time the mother displays a variety of facial expressions, which may be somewhat exaggerated. Her tempo increases until the infant is aroused and begins to grin. This appears to be the answer to the question, because two events usually take place after the infant's response: (1) the mother stops asking the question, and (2) most often she supplies the oral answer for the infant. "Yes it does," she says. Notice this strange, but not unusual, phenomenon in which the mother seems to both ask and answer the question. Careful observation, in fact, reveals that she has been able to elicit an answer from the infant. Of course, for the infant it could not be an oral response; nevertheless, it is an answer and the care-giver accepts it as such. This format of question-asking is common for mothers and their infants, and is now being related to more formal linguistic acts. We have shown that starts and terminations of utterances in both mother and 12-week-old infant are related to the language ability of these same infants at two years (Freedle and Lewis, 1977) as well as to the mother's desired socialization attempts (Lewis and Cherry, 1977).

Although the conversational structure of question-answer continues throughout infancy and early childhood, the behaviors subsumed under this activity change. The behavior repertoire changes as a function of the developmental level of the infant—as it gets older it can perform more acts, and these acts become more complex; the care-givers' rule for acceptance of what constitutes an answer to their questions also changes (of course, this, in turn, is dependent on the care-giver's perception of the child's changing skills).

Observation of the mother's questioning behavior indicates that initially almost any response is acceptable. Within the first 18 months, arousal discharge becomes less acceptable, and such infant responses as orientation—looking at mother when she asks a question, and verbal responses—grunts at simple, single-word utterances, become increasingly preferred. These responses are accepted as replies which covary with the unfolding skills of the child. By two

years of age, the child appears to (1) recognize questions as opposed to directives given in a question format (Shatz, 1975). For example, "Jerry, can you close the door?" does not really mean "can you" but "will you" close the door. (2) The child also knows that a true question format requires a reply. "Respond if questioned" is a particularly interesting rule, because it often leads to rather strange behavior in preschool children. One can observe that a young child often responds to a question with a reply which has little to do with the question. This behavior can be explained if we believe that the child has overlearned the simple rule of respond if questioned. Parenthetically, this rule-learning may explain some of the unusual responses given when children's beliefs are questioned. An answer is needed to the question format, and the child's answer often has less to do with the question itself than with the desire to produce an answer, resulting in a *non sequitur*, or worse. By 24 months, the child's predominant reply is oral, even though nonoral responses are still being employed and will continue through adulthood.

The final question-answer form chiefly involves the oral mode, but accompanying it is usually visual regard and facial expression, an integration of the earlier modes of reply with the cognitively more advanced skills of language.

INDIVIDUAL DIFFERENCES

The preceding discussion attempts to develop the growth of the question-answer format, from a non-verbal to a verbal interaction, but it must be recognized that the *rate* and *degree* of skill development in this area are very much individual differences. Before discussing individual differences, at least two dimensions of this skill should be considered: the rate or the time of appearance of the oral use of question-answer by adult and child, and the degree of use or the amount of conversation (number of utterances) which can be considered to be question-answering.

If our analysis is correct, the most effective source in determining the rate and degree of this skill is the social environment. There are large individual differences in the development of the skill. Some mothers consistently use the question-answer format, which, if it does not provide an answer, at least seems to alert the child to an event taking place and, as such, may facilitate the verbal coding into an ongoing activity. Other mothers seldom use this format. Individual differences appear to be based on two premises, which vary among adults in the degree to which they are held. The first premise we shall call *interpersonal*, and reflects the person's attitude toward other people. If one wishes to be interactive, to be reciprocal in interpersonal dealings, the question-answer format is ideal. If, however, one is not interested in the responses of another, then reciprocity is

not necessary and behavior facilitating it will be ignored. People usually don't ask questions if they are not interested or willing to hear the opinions of others.

The second premise, more specifically related to the behavior toward children, is *informational*. Why ask young children questions—or, more broadly, why talk at all—if the child cannot understand you? This premise is based on the view that any oral interaction with a young child is silly, since it can do no good; the organism is too immature to profit from it. Both these premises seem to be operating, usually affecting such group differences as social class, where one can find the middle class much more likely to engage in question-asking than the lower class (Cherry and Lewis, in press; Minton, Kagan, and Levine, 1971).

Two further group differences in this regard are of some interest: the difference between child-child and adult-child patterns of speaking, and sex differences in question-asking. We believe that adults are normally more likely to attempt to elicit a response from a child than is another child; thus, we should be more likely to find conversation—reciprocal and exchange behavior—around a single theme to be more likely to occur in adult-child than in child-child speech.

In terms of sex differences, we have found that girls are more likely to be asked questions than are boys (Lewis and Cherry, 1977) and that girls are more likely to be answered after a question than are boys (Cherry, 1975). In addition, vocalization behavior of three-month-old girls is more likely to be responded to than is boys' (Freedle and Lewis, 1977).

As we stated earlier, the ontological and individual differences in the use of the form of inquiry are only now being explored. It is our belief that these origins and differences are to be found in the social interactive life of the child and the other social objects which surround it.

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Students' Interactional Competence in the Classroom

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Courtney B. Cazden, a noted authority on child language and education (see, for example, Cazden, 1969; 1972), took leave from the Harvard Graduate School of Education to spend the 1974-75 academic year in her previous career as an elementary school teacher. She taught in a cross-age, ethnically mixed classroom at the Emerson School of the San Diego Unified School District. There was an equal number of Black and Mexican American students in her combined first-second-third grade classroom. Cazden assumed full teaching responsibilities. She designed curricula, conducted lessons, evaluated students, met with parents, and attended faculty meetings. In January, 1975, she was joined by LaDonna Coles as a team teacher.

Cazden's decision to experience once again the "real world of teaching" provided her with invaluable personal insight (Cazden, 1976). It also provided us with the opportunity to use her classroom as a field laboratory to examine the structure of classroom interaction and the social organization of classroom instruction.

DATABASE AND TOPICS FOR ANALYSIS

We are using videotape as a data-gathering device in our study of classroom interaction. Two different batches of data lend themselves to different topics of analysis. One set of tapes, gathered in the Fall and Winter, focuses on teacher-centered classroom activities. The other set, gathered in the Spring of the year, concentrates on student-centered activities.

Teacher-Centered Activities

We videotaped the first hour of classroom activi-

ties each day of the first week of school and that same hour approximately every third week thereafter. That data-collection schedule produced a corpus of nine teacher-directed academic lessons.

We are comparing teacher-student interaction across these nine tapes to examine a number of topics, including: (1) the interactional activities of teachers and students that assemble classroom lessons as sequentially organized events; (2) the often-unstated normative procedures which sustain interaction during lessons; and (3) the skills and abilities that students must use in order to be competent participants in classroom lessons.

1. *The sequential organization of lessons.* We have described classroom lessons as a series of "topically relevant sets of instructional sequences" (Mehan, et al., 1976a). The teacher elicits information from the students, provides them with information, and directs them to take procedural action in a series of sequences that are topically related.

Co-occurrence relationships govern the organization of classroom lessons such that particular replies are demanded by particular Initiation acts. Once a speech act has been initiated, interaction continues until a symmetry between Initiation and Reply acts is obtained. If the presuppositions of the Initiation act are realized in the next turn of talk, the result is a three-part, teacher-student "exchange." The first part of the exchange is the Initiation act, the second part is the Reply act, and the third part is an Evaluation act, which comments on the completion of the Initiation act. If the presuppositions of the Initiation act are not immediately realized, the teacher employs one of a number of interactional strategies (including prompting incorrect or incomplete replies, repeating or simplifying the initial Initiation act) until the presuppositions are realized. The result is an "extended sequence" of interaction, the end of which is marked by the positive evaluation of the appropriate reply. Teachers and students progress through these ordered sets of sequences from the beginnings of lessons to their conclusions.

2. *The normative order of classroom lessons.* We have found it heuristic to treat the classroom as a small society or community. As in other communities, preferred patterns of activities prescribed for members of the classroom community are guided by rules or norms.

The normative order of classroom lessons includes a set of procedures for allocating turns and gaining access to the floor. Each speech act initiated by the teacher during classroom lessons not only specifies the kind of action to be taken; it also specifies who is to take the action. The "Individual Nomination" procedure prescribes that the speaker identified by name is the next speaker. The "Invitation to Bid" procedure also indicates that one speaker speaks at a time, but requires that speakers first bid for and be

awarded the floor. The "Invitation to Reply" procedure allows many speakers to reply without first bidding for the floor.

Thus, while access to the floor is governed by rules, the rules prescribe different behavior. There are occasions when pupils can reply directly and others when they must first receive permission to reply. There are occasions when one rule rather than another operates. This variation occurs from exchange to exchange within a lesson, between phases of a lesson, and across lessons.

3. *Students' competence in teacher-directed lessons.* Our research, like other research on the social organization of the classroom (Shultz, 1976; Hall, 1974; Shuy and Griffin, 1975), is showing that the academic dimensions of classroom instruction are embedded in an interactional nexus. To be competent members of the classroom community, students must not only master academic subject matter; they must also learn the normative demands of classrooms.

Although the teacher's practical concern is for classroom order, the rules governing this normative order are not communicated directly to students. Because the rules governing turn-taking are tacit, students must infer the appropriate way to engage in classroom interaction from contextually provided information. To be competent members of the classroom community, students must be able to interpret implicit classroom rules and provide the proper action on the right occasion. They must know which classroom rule is in effect at a given time, and know which behavior is demanded by each rule.

The students' primary responsibility in these lessons was to reply correctly and appropriately when called upon, although as the year progressed the students found seams in the fabric of this predominantly teacher-directed activity. As the teacher turned to write on the chalk-board, pin information to a map, or consult learning materials in her lap, the students inserted their own information into the conversation, and then ceased talking as the teacher turned toward the class again. Although the Individual Nomination and Invitation to Bid turn-taking procedures specified that only speakers identified by name were to reply in the next turn of talk, the students found other conversational "slots" for their replies on certain occasions. Students who were not specifically allocated the floor inserted replies when the teacher had difficulty obtaining correct information from a series of nominated students. They also began to insert information after a nominated student replied, but before the teacher reclaimed the floor to evaluate a reply, or to begin a new sequence of initiations.

The ability of these students to find appropriate ways to contribute their interests to teacher-directed activities developed over the year. It demonstrates an aspect of the interactional competence required to

negotiate the normative aspects of the classroom. Being a competent member of the classroom involves learning when and with whom and in what ways to talk, and knowing the right times and places to act in certain ways.

Student-Centered Activities

The competent student. Our interest in students' interactional competence suggested that we examine students in a variety of classroom situations. Therefore, when we obtained a wireless microphone in the spring of the year, we videotaped a different student for the first hour of each school day. During this time, the students worked alone or in small groups on a classroom activity of their own choice ("choosing time"), as they were involved in whole-class procedural and academic activities ("circle on the rug"), and as they worked in small groups on a classroom activity of the teacher's choice ("lessons"). This data-collection procedure gives us a continuous "hour in the life" of each student in a student-centered academic activity, a teacher-directed academic/procedural activity, and a teacher-directed academic activity.

These hour-in-the-life tapes are enabling us to compare students' displays of interactional competence when they are with peers and when they are with adults. The procedure is revealing the seldom-seen student perspective on classroom activities and contributions to classroom organization.

As we study classroom interaction from the student's perspective, we are finding that the alignment of behavior and situation is a significant skill in the repertoire of the "competent student." It appears that the raw number of appropriate and inappropriate behavior does not vary across students in the classroom. But those students whom the teacher independently rates as "good students" are those who are able to keep their appropriate behavior in the eyes of the teacher, and their inappropriate behavior out of sight. The students who are not rated as "good students" have not made that distinction. They indiscriminantly perform inappropriate action both in the teacher's gaze and out of it.

This phase of our analysis is showing how teachers and students cooperatively accomplish classroom events like a "lesson" or a "circle on the rug." During the course of classroom activities, teachers and students mutually influence one another, and thereby jointly contribute to the social organization of the classroom. Indeed, students are structured and modified by adults in the classroom. But equally importantly, students modify the behavior of adults just as much as they are socially structured and modified by them (Mehan, et al., 1976c).

The instruction chain. When Cazden was joined by Coles as a team teacher in January, they set up a number of learning centers. This new classroom ar-

angement also enabled us to introduce more controlled observational techniques into our study.

We constructed an "instruction chain" between teacher, the student with the microphone for the day, and that student's work group as a natural part of the morning activity. The teacher provided a set of instructions about an academic task to the "target student." After the teacher listened to that student formulate the instructions, the student gave instructions to her/his work group. The students in the group then worked on the assigned task.

This instruction chain enables us to compare the teacher's formulation of instructions to the target student with the target student's formulation of the instructions to the teacher and to the work group. Our analysis of these materials (Mehan, et al., 1976b) is revealing important differences between teacher-to-student and student-to-student instructional styles.

The formulation of instructions to work groups by target students appears to be less elaborate than the teacher's. While the teacher relied primarily on words to provide instructions, the target students employed both verbal and nonverbal modalities to accomplish these same instructional functions.

Although the target students did not duplicate adult modes of instruction, the reduction in oral information does not imply a limitation in students' competence. The students provided functionally equivalent instructions when they coded information in other modalities. There is a potential implication for classroom instruction if we continue to find that the use of nonverbal modalities are functional for instruction. Such findings recommend a de-emphasis on predominantly oral modes and an emphasis on "modeled" and "demonstrated" instructions.

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BUDOFF, M., and CORMAN, L. 1974. Demographic and psychometric factors related to improved performance on the Kohs Learning-Potential procedure. *American Journal of Mental Deficiency*, 78 (5): 578-585.

The learning-potential (LP) assessment technique is hypothesized to be more sensitive in tapping the intellectual potential of culturally different and/or economically disadvantaged children than are traditional single-assessment IQ instruments. When children were divided into three ability groups on the basis of IQ test performance and then given a seriation test (Budoff, 1971) using the learning-potential training technique, two important findings were obtained. First, the authors report a much larger increase in seriation performance for the two sub-100 IQ groups after LP problem-relevant training than for the high IQ group. The result is unlikely to be caused by regression to the mean, because improvement was greater for the middle IQ group than for the lowest emotionally mentally retarded (EMR) group. Second, the seriation test performance was superior to IQ as a predictor of teachers' ratings of classroom performance for both of the sub-100 IQ groups. Budoff and Corman found that the usual correlations held between background variables like race and socioeconomic status and IQ performance for 600 EMR children. When a LP training procedure was instituted for Kohs blocks performance, not only were Kohs scores raised, but the presence of minority group children in the "dull" and "subnormal" categories was reduced to their proportional representation in the population as a whole.

These findings suggest that cognitive psychologists and psychometricians seriously reconsider the ability of traditional single-assessment IQ tests to adequately assess the disadvantaged child's true ability to learn new material, rather than merely display his present repertoire of facts and strategies. Problem-relevant training may help the poor and/or nonwhite child to narrow the cognitive gap between his previously learned problem-solving strategies and those implicit to the problems he usually encounters on traditional middle-class-bias IQ tests.

MARY CROSS

D'ANDRADE, R. G. 1974. Memory and the Assessment of Behavior. In: H. M. Blalock, Jr. (Ed.), *Measurement in the Social Sciences*. Chicago: Aldine, pp. 159-186.

SHWEDER, R. A. 1975. How relevant is an individual difference theory of personality? *Journal of Personality*, 43: 455-484.

These two articles summarize research initiated by D'Andrade and cleverly extended by Shweder that casts serious doubts on the validity of behavior-rating scales (interpersonal checklists, personality inventories, questionnaire interviews, etc.) as accurate descriptions of the behaviors being rated. When more than a very short period of time passes between observation and "checking," the intercorrelations between items are better explained by the conceptual similarity of the items used than by the actual intercorrelations of the behaviors in question.

As pointed out by the authors, these findings seriously undermine theory in several domains of comparative research.

MICHAEL COLE

MERCER, J. 1973. *Labelling the Mentally Retarded*. Berkeley, California: University of California Press.

———. 1974. A policy statement on assessment procedures and the rights of children. *Harvard Educational Review*, 44.

Mercer's detailed survey of the incidence of diagnosed retardation among various subcultural communities in a California city have pointed to the primary role of the school in this labeling process and the unequal distribution of such labeling across ethnic groups. Mild mental retardation (as diagnosed by IQ tests) appears nearly unrelated to the level of competence an individual is judged to exhibit in his or her everyday, out-of-school behavior. Further, ethnic differences, which are substantial on IQ measures, disappear when the same children are assessed on Mercer's Adaptive Behavior Scales. Mercer's research program shows dramatically the inadequacies and dangers of a single, school-based measure such as the IQ in the diagnosis of retardation, and begins to develop a more differentiated approach to the notion of "competence."

MICHAEL PRATT

STOLTZ, W., and TIFFANY, J. 1972. The production of "child-like" word associations by adults to unfamiliar adjectives. *Journal of Verbal Learning and Verbal Behavior*, 11: 38-46.

Children's free associations to verbal stimuli have long been used as one measure of their semantic development. What has remained obscure in a lot of this work is a sense of the notion that "semantic development is appropriate." It is often assumed that the development referred to is akin to a level of ability for processing semantic information, but it could also be that children's specific knowledge, not any general ability, is being tapped. This latter interpretation is given strong support in this study, in which college-educated adults are shown to emit "child-like" associative patterns when low-frequency words ("erotic") are given instead of high-frequency words ("sexy"). This frequency effect has rarely been controlled for in developmental or comparative work, casting doubts on several well-known lines of research.

MICHAEL COLE

MISHLER, E. G. 1975. Studies in dialogue and discourse: An exponential law of successive questioning. *Language in Society*, 4: 31–52.

——— 1975. Studies in dialogue and discourse II. Types of discourse initiated by and sustained through questioning. *Journal of Psycholinguistic Research*, 4:99–121.

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Sociolinguistic analyses of linguistic functions in discourse emphasize their social meaning. From audio recordings of first-grade classrooms, Mishler has demonstrated that dialogue structure can be described by the question-response-confirmation (QRC) unit; structural variation upon that unit, and variations in the utterance forms and functions which are used to construct that unit, reflect authority relationships in the classroom. Teachers control their interactions with children in part by “chaining” QRC units; children’s responses are short, syntactically simple, yet highly adequate and appropriate. With one another, children share—or compete for—control by “arching” QRC units, i.e., by answering questions with questions so that units overlap; responses to one another are more complex and less appropriate, in that successive turns freely elaborate prior topics. The implications for developmental research are clear: children know how to adjust dialogue structure for certain participant and setting characteristics, and communicative competences include understandings of social meaning and appropriateness.

MARYL GEARHART

LEIN, LAURA. 1975. You were talkin though, Oh yes, you was. *Council on Anthropology and Education Quarterly*, 6: 1–11.

Lein has extended the research initiated by Labov (and pursued by others, such as Phillips and Boggs) on situational determinants of speech to Black migrant children.

Of particular interest, apart from the comparisons of the children’s speech frequency and complexity in the presence of peers, adults, and teachers, is her description of the use of language for evaluation by parents and teachers. What is intended by the teacher to be motivating may, in fact, be inhibiting the migrant children in school. Lein provides examples which show how sociolinguistic misunderstanding precludes the formation of a good working relationship between teacher and child.

JUDITH ORASANU

TURNER, ROY. 1975. Words, Utterances and Activities. In: R. Turner (Ed.), *Ethnomethodology*. Baltimore: Penguin, pp. 197–215. Also in J. Douglas (Ed.), 1970. *Understanding Everyday Life*. Chicago: Aldine, pp. 165–187.

Turner argues that J. L. Austin’s concept of performativeness applies as much to utterances which are descriptions of other utterances as it does to utterances such as promises, requests, etc., most often used as examples of performatives. Turner demonstrates this through an analysis of a transcript of some therapy talk in which a speaker recounts a previous conversation during which he was snubbed. The important point is that the speaker’s abil-

ity to produce a coherent, recognizable description of the previous utterances is dependent on his ability to manage both the previous and present social interactions.

Research on social cognition and its development, which is often examined by means of a subject’s accounts of observed or described social occasions, cannot, if Turner’s argument holds, remain separate from work on the development of social interactive skills.

DENNIS NEWMAN

WOOTTON, A. J. 1974. Talk in the homes of young children. *Sociology*, 8: 277–295.

Evidence for social class differences in the effects of child-rearing practices on children’s growing communicative skills has been accumulated primarily from parental interviews and from observations of selected interactive contexts and experimentally contrived tasks. By equipping children with microphones in their homes, Wootton was able to collect a speech corpus representing those contexts naturally created by a preschool child and his family. Wootton’s findings cast doubt on a coherence of class structure describable by understandings shared and mutually created by its various members. Rather, middle-class parents work to include the child as a creative co-constructor of a shared reality by formulating and sharing assumptions and providing contexts in which the child’s efforts to make sense of his experience are accepted and contiguously elaborated; working-class parents assume that socialization and development are natural emergent processes not requiring parental involvement, assigning the responsibility for growth to the child. Bernstein’s notion that a “restricted code” is effective because parent and child share assumptions about roles and contexts may therefore be an incorrect interpretation of working-class parent-child talk.

MARYL GEARHART

MEHAN, HUGH, and WOOD, WILLIAM, 1975. *The Reality of Ethnomethodology*. New York: John Wiley and Sons.

This book offers a new perspective for the social sciences. Mehan and Wood take seriously the possibility that the theoretical paradigms and methodologies thus far developed by the social sciences are inadequate to capture the essentials of social organization. The book is best at pointing out the complexity of human communication in contrast to the theoretical principles that have failed to articulate that complexity. Unfortunately, the authors do not appreciate the contributions from linguistics, psycholinguistics, and the philosophy of language to their own enterprise. I can best illustrate my evaluation by reference to two of their clearer claims: that “categorical selection [of words] is situationally accomplished” seems crucially true and has been lost sight of too often; that “the internal structure of a categorization is renewed on each occasion of interaction” seems mainly false, and would lead this entire enterprise down a garden path. Nevertheless, the message of this work for cross-cultural research is that if we do not take into account (in much more extreme and appropriate ways than have been tried so far) displayed cultural categories, we are not likely to understand cross-cultural differences. I think Mehan and Wood, who, incidentally, provide an excellent, if idiosyn-

cratic, introduction to ethnomethodology, are probably right.

JOHN DORE

SIMON, HERBERT A. 1975. The functional equivalence of problem-solving skills. *Cognitive Psychology*, 7: 268–288.

QUINTON, G., and FELLOWS, B. J. 1975. "Perceptual" strategies in the solving of three-term series problems. *British Journal of Psychology*, 66: 69–78.

Simon provides a theoretical analysis of several strategies for solving the Tower of Hanoi problem, which vary in the degree to which they rely upon perceptual testing, rote memory, or recursive routines. When one obtains comparable scores or solutions to experimental tasks from children of different ages or cultural experience, it is tempting to infer that they used comparable procedures to arrive at the final product. Simon's analysis, and Quinton and Fellows' empirical demonstration of the diversity of adult strategies in solving three-term series problems, caution against such inferences. They also highlight the need to go beyond the summary score to obtain convergent information on behavior in any task situation.

Once various strategies have been identified, memory and prior skill requirements, and efficiency and transferability can be assessed with various groups of people.

JUDITH ORASANU

ISTOMINA, Z. M. 1974–1975. The development of voluntary memory in preschool-age children. *Soviet Psychology*, 13: 5–64.

These thirty-year-old Soviet studies, reprinted here in English for the first time, offer an innovative and exciting approach to a central problem in psychology and anthropology—how to specify the relationship between cognitive activities in experimental and in everyday situations.

Among U.S. investigators, the study of "everyday" cognition is often posed as one requiring observation of activities as they unfold in "naturally occurring" situations. The methodological problems posed by such an approach are formidable: How can "real-life" situations be compared and contrasted with experimental situations

when they differ simultaneously in so many ways? How can one make inferences about underlying cognitive processes from observations of "free" ongoing behavior?

Istomina's research makes imaginative contributions to both these problems. She bridges the gap between "everyday" and laboratory tasks by simulating an everyday situation *in the laboratory*, thereby securing control over aspects of the task which permit direct comparison with the same task in an experimental format. Her research was devoted to tracing the development of intentional, purposeful, remembering activities over the age span of three to seven years. Her principal hypothesis was that special operations devoted to the specific goal of "remembering" would first develop in a context in which mnemonic goals were meaningful to the child and would later be extended to a context in which such goals were set externally (here, by the direct request of an experimenter). The memory task was a conventional one: free recall of a list of words. Word recall was rendered meaningful by being embedded in a make-believe game in which children playing kindergarten went off to shop for supplies in a grocery store operated by other children. The same children who participated in these play experiments were also run on an equivalent word list in a standard laboratory format. With this basic design, Istomina was not only able to demonstrate age and situation interactions, but to make considerable progress in identifying specific situational features controlling level of performance and qualitative characteristics of children's mnemonic activities.

By the clever use of written shopping lists and other experimental techniques in the play situation, Istomina made certain remembering activities "external"—that is, directly observable in the child's behavior. These behavioral observations placed the enterprise of "inferring" cognitive processes from experimental data on firmer ground.

Istomina's substantive findings on memory development will be of interest to both research psychologists and early-childhood educators; her research methodology should be a source of many new and exciting investigative techniques for all social and behavioral scientists engaged in comparative studies.

SYLVIA SCRIBNER