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ABSTRACT

The stability of classroom behavior is examined from several perspectives: (1) the relative consistency of teacher behavior in two different sections of the same course taught concurrently; (2) the relative consistency of student behavior in math and English classes attended concurrently; and (3) differences in student and teacher behavior in math vs. English classes (to determine the effects of subject matter on teacher and student behavior). In general, stability coefficients obtained here were much higher than those expected on the basis of earlier research on stability in courses taught successively rather than concurrently. Even so, high inference ratings were more stable than low inference counts of discrete behaviors, and many behaviors did not occur often enough to allow stable measurement, despite intensive observation. The data are discussed with reference to implementing different treatments in experimental studies in order to document the differential effects, and in reference to the possibility of linking teacher stability on clusters of variables with information about student outcomes. (Author/MV)

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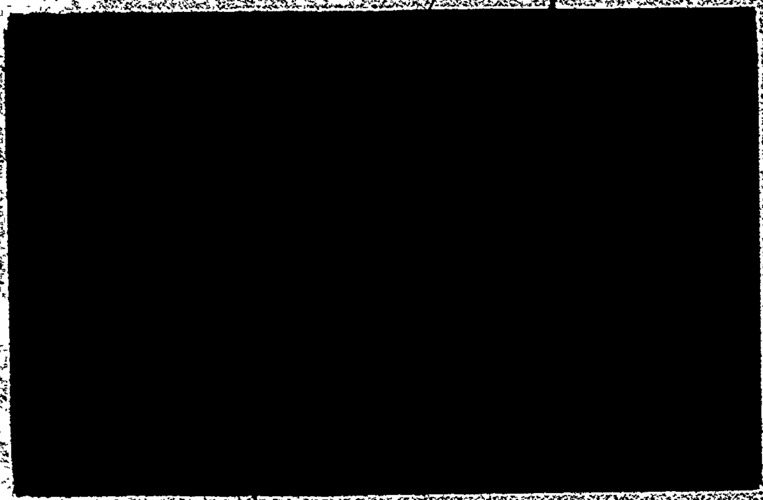

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The Center's work is supported by the National Institute for Education and by the University of Texas System, as well as through contract research and development programs for public agencies.

# Investigations of Stability in Junior High School Math and English Classes: The Texas Junior High School Study[1]

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Abstract

This research examines stability of classroom behavior from several perspectives: 1) the relative consistency of teacher behavior in two different sections of the same course taught concurrently; 2) the relative consistency of student behavior in math and English classes attended concurrently; and 3) differences in student and teacher behavior in math vs. English classes (to determine the effects of subject matter on teacher and student behavior). In general, stability coefficients obtained here were much higher than those expected on the basis of earlier research on stability in courses taught successively rather than concurrently. Even so, high inference ratings were more stable than low inference counts of discrete behaviors, and many behaviors did not occur often enough to allow stable measurement, despite intensive observation. The data are discussed with reference to implementing different treatments in experimental studies in order to document the differential effects, and in reference to the possibility of linking teacher stability on clusters of variables with information about student outcomes.

Footnotes to Authors

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## Introduction

The degree to which teacher behavior is consistent or stable across observations is important to investigations of the relationships between teaching processes and their outcomes. It affects the magnitude of potential correlations between process measures and outcome measures in much the same way that test-retest reliability (stability) affects the potential correlations between test scores and other measures.

Stability also enters into theoretical conceptualizations. Many investigations of teacher effectiveness are based on a stated or implied interest in generic teaching behaviors that cut across contexts, subject matter, student types, and other variables often used to circumscribe discussions of teaching. The idea is to identify relationships between generic teaching variables and generic outcomes. This approach is tenable only if there really are generic teaching variables with generic outcomes.

There was little interest in the stability of classroom process measures until fairly recently. There is considerable interest presently, partly because of greater recognition of the considerations described above, and partly because of two recent influences. One has been the appearance and aftermath of Dunkin and Biddle's (1974) The Study of Teaching. After reviewing most of the existing process-outcome research on teaching, these authors concluded that a major deficiency of this research had been the failure to take into account classroom context variables that influence processes and process-outcome relationships. Context was presented as a topic worthy of consideration in its own right, and also as something that needed to be taken into account more successfully in research on process-outcome relationships. Some important contexts ~~might be~~ subject matter, area, class discussion vs. individual seatwork or grade level.

The other recent influence which has led to an interest in the stability of classroom processes has been the application of generalizability theory to classroom behavioral data (Shavelson and Dempsey-Atwood, 1976). Applying statistical concepts and procedures developed from test and measurement approaches, methodologists interested in generalizability theory have elaborated the point made above, that process-outcome relationships are affected by the stability of process measures, illustrating some of their conclusions with stability data from existing studies.

Shavelson and Dempsey-Atwood (1976) surveyed most of the existing stability data on classroom processes and concluded that generalizability of many of these measures is limited in most cases. Measurement is not yet standardized, since a variety of observation systems are used. Also, context is seldom varied in ways that would allow its effects to be included in research designs systematically rather than left to contribute to error variance yielding low stability in process measures. In general, they found that global ratings were more stable than low inference frequency counts of discrete behaviors. Low stability in frequency counts often is due to low frequency occurrence, which restricts variance so that stability calculations are based on inherently unreliable data. Also, low inference variables are more subject to context effects and therefore more subject to instability when context is overlooked.

In contrast to generalizability theory approaches, studies designed and conducted by the Correlates of Effective Teaching Program are based on attempts to understand the reasons for instability. The Junior High School study, from which these data come, is one of a series of programmatic efforts to study teaching processes and the variables which affect them. These studies have shown that there are few, if any, generic teaching processes (certainly none that can be expected to have constant and predictable effects across settings), so that it is likely that searching for them will not be very fruitful. Instability of processes across contexts is viewed as not only unavoidable but appropriate or ideal: teachers <u>should</u> teach differently in different contexts, and effective teachers are likely to do so. The task of researchers who want to understand teaching effectiveness is to identify and examine these context differences. Treating them as error variance and either ignoring or trying to minimize them will mask orderly relationships.

Before discussing the Junior High School Study and the stability data for this report, some of the findings from earlier process-product research at second and third grades (The Texas Teacher Effectiveness Study) will be discussed as background (Brophy and Evertson, 1976; Note 1). In that study, context distinctions were built into data collection and analyses. Therefore, systematic differences in patterns of process-outcome relationships could be examined for different settings (low vs. high socio-economic schools) and for teacher-student interaction occurring in different contexts (whole class vs. small group interactions and contacts initiated by teachers vs. contacts initiated by students).

Stability of process measures was also examined across time (two school years) and across contexts (whole class interactions in the morning and in the afternoons, as well as those in small groups). In general, these investigations revealed that high inference ratings were more stable than scores based upon low inference coding of discrete behaviors. This agrees in general with the Shavelson and Dempsey-Atwood findings.

In particular, a set of 12 high inference ratings developed by Emmer (Note 2) and discussed in Emmer and Peck (1973), showed correlations of .53 to .86 across contexts within the same school year, and nine of these 12 rating scales showed correlations between .55 and .88 across school years (Brophy, Coulter, Crawford, Evertson, and King, 1975). Two of the three measures that were not stable across years concerned <u>student</u> rather than <u>teacher</u> behavior (pupil passivity and pupil-pupil interaction), which is not surprising, since different pupils were involved. However, the teacher measure that did not show consistency was a rating of teacher presentation, one of the variables identified by Shavelson and Dempsey-Atwood as likely to be consistent.

The data on stability across years in this earlier study (Brophy, Evertson, Crawford, King and Senior, Note 3), probably were artificially low for at least two reasons. One was that there was a district-wide mandated change in curricula and methods between the two years. We suspect that this is one reason why "teacher presentation of subject matter" was not stable, as previously mentioned. A second reason was that only four observations were conducted per classroom in the first year of the study, compared to 14 in the second year. Four observations simply were not enough to obtain a reliable sample of many of the behaviors being coded.

## Texas Junior High School Study

The data collected in the Texas Junior High School Study are more suited to the assessment of stability of classroom process measures. The design was improved over the earlier study in several ways for the purpose of examining stability: 1) Data were collected during the <u>same school year</u> in parallel sections of seventh and eighth grade mathematics or English classes taught by the same teachers in the same schools; 2) Pairs of observers alternated visits to 136 classrooms averaging 20 hours of observation in each; 3) Data were collected on a large number of individual students, enabling investigations of student effects on stability as well as teacher effects; and 4) The low inference coding system was modified especially for use in secondary classrooms in order to capture appropriate contextual differences. Details of sample selection, methodology and rationale for the Junior High School study are discussed below.

## Methodology and Rationale

Description of the Sample. Sixty-eight teachers (39 in English and 29 in Math) were observed in nine of the 11 junior high schools in a large urban school district. Since two sections for each teacher were observed, there were a total of 136 classrooms in all. Two observers alternated visits to these classes, averaging 20 one-hour observations in each class, although the actual range was from 16-22 observations. Observations began in early fall, 1974, and ended in May, 1975. Junior high schools in the district were included in a local busing plan which provided for busing of black students (only) to the predominately white junior high schools.

Teachers selected for the study were those with at least one previous year of experience in their subject matter area. Student teachers, first year teachers, or teachers who shifted into these areas from some other subject matter were not included. Each teacher was observed in two separate sections of his or her subject matter (math or English) which allowed systematic attention to the question of teacher stability versus variability in process behavior across classroom settings. Inclusion of two different but important school subject areas allowed analyses of possible differences between optimal teaching for English versus math teachers.

The teacher sample was unusually complete and representative. The number of teachers in the sample was not only large enough to allow confidence in the statistical analyses to be used, but it was representative in that it included almost all eligible teachers in the city school system and was reasonably free of volunteer effects or other sample bias effects.

Approximately twelve students in each class were randomly chosen within sex as "target" students (total N=1412). It was apparent that observers would not be able to identify and remember code numbers for all students in each class in which they observed (some observers saw as many as 500 - 600 students a week). Therefore, in order to be able to record at least some individual student data, a small subsample of target students was identified in each class. These "target" students were selected randomly from teachers' rolls before any observations were conducted in any classrooms. These students were assigned identification numbers which were used to record each dyadic contact that they shared with the teacher. The remainder of the class (non-target, total N=2008) were also included in the data collection, but their responses were designated only by check marks in the "male" or "female" columns provided on the coding sheets. These undifferentiated dyadic contacts were used in aggregate scores or for computing class means and proportions for each teacher.

One exception to random selection was made, however. In selecting target students, efforts were also made to use a large sample of students who were attending both a math and an English class included in the study (N=199). These selection procedures resulted in a subgroup of students who were taught by two different teachers. This subgroup will be referred to as "overlap" students. Therefore, the design of the study made it possible to examine stability of individual teachers' behaviors across sections, and also stability of individual student behavior across teachers and subject.

In most cases, the sections taught by each teacher were ostensibly alike, so that the students differed, but the subject matter content, teacher, and school were the same. Some differences were introduced, however, by tracking within schools. This sometimes created differences between the student populations in the two classrooms of interest. In general, however, there was reason to expect stability.

This expectation was enhanced by the fact that the study was confined to teachers who had taught for at least a year in their present subject matter area and to class sections that met continuously and thus were structurally comparable (we avoided split sections that met for part of the time before lunch and the remainder of the time after lunch.)

It was believed that by examining stability <u>across</u> contexts of subject matter and time of day, we would be better able to determine how those contexts affect other findings of the study and to take into account student effects on teachers. Analyses such as those discussed in this paper will serve to identify classroom processes and teacher behaviors and characteristics which are generic and stable and those which are situation specific.

Description of the Instruments

A list and brief description of the data subsets is provided in Appendix A.

Classroom Observational Coding System. The primary low inference observation instrument was an adaptation of the coding system used in the Texas Teacher Effectiveness Study (Brophy & Evertson, Note 4; Brophy, Evertson, Baum, Crawford and Edgar, Note 5). See Appendices B & C for copies of the coding sheets. This modified instrument was developed to include a wide range of variables, including most of those stressed by the observational systems that have been used most frequently in previous educational research, as well as some unique to this system. The major adaptations and expansion were done to add variables based on Kounin's (1970) research on classroom management techniques, and to break down teacher behavior more specifically according to context variables having to do with the time and nature of classroom interaction during which a particular observation took place.

The coding system provided space for coders to record the amounts of time teachers spent in various activities such as: class discussion, drill, lost time, transitions, etc. Space was also provided for coders to check off the content area of the lessons for that day (e.g., division with whole numbers or fractions for math classes, or grammar, drama presentations, literature, etc., for English classes).

Another addition to the coding system was provision for a detailed recording of student misbehaviors (mild misbehaviors, socializing, sassing, verbal or physical aggression) and the manner in which the teacher handled the incident. In addition, coders recorded the appropriateness of the disciplinary intervention (target error, timing error or overreact, ignore). This allowed us to examine not only the type of student misbehavior but teacher reaction to it and its appropriateness.

The system was expanded to include categories allowing detailed coding of teacher-initiated versus student-initiated public response opportunities, private contact initiated by student or teacher (work-related, procedural, or personal-social) and classroom behavior-related incidents. In all, the system was more complex and detailed than previous systems (Brophy & Evertson, Note 6) in order to allow recording of behaviors we believed more likely to occur with older students.

Observers were trained to the reliability criterion of 80% agreement.

$$\% \text{ agreement} = \frac{\text{Codes agreed upon by Coders A \& B}}{\text{Coder A's codes (which Coder B missed) + Coder B's codes (which Coder A missed) + those agreed on by both + those coded by both but disagreed on.}}$$

See Coulter (Note 7) for a detailed explanation of training procedures. In all, over 768 frequencies were tallied from this system, providing measures of <u>absolute</u> as well as <u>relative</u> occurrence of given teacher behaviors.

Each behavior coded with the low-inference coding system was individually tallied and summed and these frequencies yielded two types of scores: (1) <u>rate</u> scores, for which frequencies were divided by number of minutes per average class period (50 in this case), thus giving an index of the <u>absolute</u> or mean rate at which certain behaviors occurred (such as correct answers per observation), and (2) proportion scores, which were computed by dividing raw frequencies of the variables in the coding system by the frequencies of the major categories, in order to see the relative occurrence of given behaviors (i.e., the proportion of process questions was computed by dividing frequency of these questions by the total of all questioning categories). Ultimately the proportions of each of the question types would sum to 100%.

However, some of these proportion measures involved more than one value in the numerator or denominator. For example, the variable "don't know or no response after which teacher gave the answer" includes both "don't know" and "no response" in the denominator. These were combined because both were low frequency variables, compared to correct and incorrect answers. Thus, the variable "don't know and no response with gives answer" was derived by summing the times that teachers gave the answer to students when they either said that they did not know or made no response, and dividing this total by the total number of times that students in the class said that they did not know or made no response.

Also, many variables have two values included in the numerator. For example, the measure "student behaviors with management and no error" reflects the proportion of behavior contacts coded as limited to a management response (vs. nonverbal intervention, criticism, or threat) and as containing no error (vs. a target error, a timing error, or an overreaction). Each behavior contact that was solved with only management response and solved in a way that involved no error counted toward the total used in the numerator of this proportion, and the sum of these interventions was divided by the total number of behavioral interventions observed in the classroom to obtain the proportion score. Three of the following sections will include data derived from this coding system using these measures.

Classroom Observation Scales. In addition to coding classroom behaviors, observers also filled out at least one set of 12-item classroom observation scales per observation. For each item, they rated on a five-point scale such variables as level of student attention, clarity of presentation, enthusiasm, and negative or positive affect. (Reliability was computed by percent agreement within one point, and this ranged from 71% to 100%). Also, observers rated the presence or absence of certain types of teacher questions: memory-fact related, higher cognitive level, or personal-self questions.

Observer Ratings of Teachers. At the end of the year, observers filled out another set of five-point scales, which included 79 ratings of teachers on attributes such as personal-social interactive style, competency in their subject area, and classroom organization and control. Since each teacher was rated by more than one observer, their ratings were correlated to get reliability estimates. Fifteen items were dropped for unreliability when $p > .10$. Even so, there is some reason to suspect halo effect in these ratings, since 42 teachers were seen in both their sections by the same two observers, 22 teachers were rated by three observers, and only four teachers were rated by four observers.

Observer Ratings of Students. In addition, observers also completed 26 five-point rating scales on each target student they observed, dealing with work habits, likeability, classroom conduct, and physical development. Again, each target student was seen by at least two observers. Reliability estimates for these items were high ($p \leq .01$). In addition, teachers filled out a five-item rating scale on target students regarding likeability, achievement level, motivation, work habits and classroom behavior.

Student Ratings of Teachers. At the end of the school year, students were asked to fill out nine five-point rating scales about their teachers. These scales included essentially two types of items: those which assessed general liking of the teacher ("I would go to this teacher if I had a problem") and those which assessed the degree the student felt he learned the subject matter ("I learned a lot from this teacher"). All students, both target and non-target, filled out these ratings.

Data Analysis

Two types of analyses were performed, a series of ~~two-way~~ classification analyses of variance and a series of Pearson product-moment correlations. In the case of the analyses of variance, rate and proportion scores, high-inference observer ratings, and the student ratings of teachers were used as dependent measures in analyses which examined stability across subject matter. Since each teacher taught two sections of his or her subject, these are referred to as first and second observed sections. Class section, in this case, was included in the analyses as a within-groups factor. Therefore, there were rate and proportion variables for all classes, and the classes were categorized on the basis of subject matter (between-groups math and English) and class section (within-groups--first vs. second observed section). See Table 1 for information about the spacing of these sections. This allowed examination of the effects of subject matter, and class section, and interactions between the two. Section II will deal with findings from these analyses.

Correlations were also computed for all variables across class sections. The results of this analysis will be presented in Section I and will indicate which behaviors of teachers are unstable across his or her two sections and which are unaffected by section differences.

In addition, correlations were computed for the subsample of overlap students who were observed in both a math and an English class involved in the study. This analysis permitted examination of student behaviors and of teacher behaviors toward individual students in the two classes in which the student was observed. These results, presented in Section III, will be discussed in terms of student effects on teacher and classroom processes.

In summary, the following sections of this report each address the issue of stability vs. variability in classroom process measures in naturalistic classroom observation. They examine this issue by separately considering these possible sources of instability:

- behaviors which vary across sections of the same subject matter taught by the same teacher (Section I)
- behaviors which vary across two subject matters using high and low inference measures (Section II)
- behaviors which are affected by individual student variations across two different classes and teachers (Section III).

## I. Correlations Between the Two Sections of the Same Subject for All Variables

The analyses for this section were done by correlating all variables for each teacher's two class sections. They include both the high inference and the low inference coding system data. Data are presented and discussed in terms of those measures which show high or low stability within the year and those which do not.

Content Formats (See Section 2 of the coding sheets in Appendix B)

Observers noted the lesson format during each observation and checked the appropriate categories.

Information for developing these instructional formats was obtained by preobservation and interviews with teachers. These formats included 11 categories for content areas covered during English classes, and six for activities during math classes. A residual "other" category was added to each set to allow for recording of content areas that did not fit within the coding schemes. These data were summed and converted to frequencies per class hour.

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Insert Table 2 about here

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Correlations of these format scores across the two class sections in which each teacher was observed yielded information on the degree to which the teachers initiated similar instructional activities in their two classes. High consistency was expected here, because the two classes observed for each teacher were sections of the same course, and because these sections generally were observed across similar patterns of observational visits (i.e., the observers set regular coding schedules during each week to spread visits as evenly as possible). Thus, if the teachers taught similar content, the data on formats should have yielded strong positive correlations. The data presented in Table 2 indicate that this was the case. All correlations were significant beyond the .01 level, and all but one were above .65. The only exception was the relative frequency of drama exercises in English classes, and even here the correlation was .41.

The significance of the data in Table 2 is that teachers in this sample did engage in similar activities in different sections of their same subjects. Within this particular study, this indicates that, unless similar activities were implemented differently in the two class sections taught by each teacher, we can expect similarities in content covered when we compare classroom behavioral measures for these sections. If significant differences appear, they are more likely to reflect differences in students than to be ascribable to content format differences.

## Low Inference Process Measures

The low inference observational coding system yielded frequency measures of classroom processes. These frequencies were divided by teacher controlled time per 50-minute class period to get rate measures. The major rates are shown in Table 3. Proportion measures were also derived from the raw frequencies for total occurrence of the behaviors across all observations. (Computation of these variables was discussed in the Introduction.) A complete list of these proportion measures is shown in Table 4 and the variable numbers in the tables will be included in parentheses for easy reference as each measure is discussed.

Rate Measures

Means for rate variables are presented in Table 8. (See columns headed "Observed section".) Rate measures relating to public response opportunities were generally quite stable.

Insert Table 3 about here

These included the rates for public response opportunities per class period (1), as well as for the subcategories dealing with type of question (2-5), method of selecting a student to respond (6-10), and the quality of student response (11-14); also rates of student initiated questions and comments (15-16), rates of teacher praise and criticism (17-18) and rates of sustaining interactions with the original respondent by asking follow-up questions (20-22). All of these measures and their subcategories had moderate to high stability coefficients, except for the frequency of choice questions (4) (yes-no, either-or questions). This probably is because such questions are infrequent after the first few grade levels.

These data indicate that, across their two sections, teachers were consistent in the amount of classroom time devoted to question and answer situations or discussions in public settings (as opposed to seat work or other non-interactive activities); in the kinds and levels of difficulty of the questions they asked; in their methods of calling on students to respond; in the quality of the answers they elicited (another indication of difficulty level of questions); in their rates of praise and criticism of student answers; and in their rates of asking follow-up questions. To a lesser degree, there was consistency in student initiated questions and comments during public discussions. The students in the two sections were different, so that this correlation indicates a combination of consistency in the frequency of such discussion settings and consistency in encouraging or allowing student initiatives.

The remaining variables in Table 3 are all moderately to highly stable ($r$'s ranging from .49 to .79). These coefficients are not as high as those for public academic interactions. Curiously, the data for private contacts do not show teacher initiated contacts (26, 28, 31, 33) to be consistently more stable than student initiated contacts (24, 25, 27, 29, 30, 32). It may be that the students become more consistent and predictable in their adjustments to the student role so that student behavior in different class sections (even though different students are involved) can be expected to be similar if teacher behavior is similar (as was the case here). Regardless, these data help underscore the mutual relationships between measures of teacher and student behavior. Just as measures of teacher behavior are affected by students to some (usually unknown) degree, so are measures of student behavior affected by teachers. The measures of student initiation shown here are partly reflective of the kinds of classroom environments that teachers create, and the specific expectations they project concerning what is desirable, appropriate, and allowable.

The same is true for behavioral (disciplinary) contacts (34-37) and for total reinforcing and aversive contacts (38, 39) which also showed moderately high stability. The rates of typical and even serious misbehaviors that individual teachers encounter in different classrooms appear to be similar, suggesting that teachers are directly or indirectly responsible for them.[3] Some teachers are excellent classroom managers who can minimize such problems, while others encounter them regularly.

In general, the stability of these behavioral rate measures was much higher than expected based on past research. Possibly, this was due to the sample selection criteria, which insured that the two class sections observed for each teacher would be as similar as possible, and that all the teachers would be experienced.

Proportion Measures

Means for proportion measures in first and second sections are given in Table 9. These measures were derived from raw frequencies. In addition to the rate measures, there were a great many other measures which were subdivisions of the major categories. For example, response opportunities were subdivided into process, product, choice, and opinion questions. The first

[3]Analysis of covariance was performed to determine to what extent, if any, certain stability correlations might be artificially inflated because of differences among schools. In their analysis, a model predicting teachers' second class-section scores from school CAT means was compared to a model having both school CAT means and first class-section scores as predictors. The results of the analysis indicated that between-school variance did not have a significant effect on the coefficients.

four variables in Table 4 are the proportions of response opportunities which were either process, product, choice, or opinion questions (1-4).

Insert Table 4 about here

Each of these is a percentage of the total number of response opportunities. Added together, they constitute 100% of all response opportunities coded for all class discussion.

Similar relationships hold for the other proportion measures. In each case, the first variable in the title is the subsuming category of which the other measures are subsets. The larger category variable was used as the denominator in computing the proportion score. For example, the variable "correct answers praised" was computed by dividing the total number of correct answers praised by the total number of correct answers. The result is a proportion indicating the relative frequency with which a given teacher was apt to praise students following correct answers.

Since the proportions generally reflect combinations of the rates, there was reason to expect similar stability coefficients for given subsets of the data. However, this is not always the case; there were some interesting exceptions and they will be noted as they occur.

Type of Question. Product questions are the most typical type of response opportunity, and the variable composed of the proportion of response opportunities which were product questions (2) did show moderate stability. However, the proportion of response opportunities which were process questions (1) showed even *higher* stability. These questions apparently appear often enough to allow reliable measurement, but teachers may differ systematically in their frequency of asking process questions ("Why" or explanation questions,) so that this type of question was the most stable across sections even though it was not the most frequent. However, there was no stability in the proportion of times in which process questions were answered correctly (5), although there was stability in the proportion of product questions answered correctly (6). This may reflect the variation in the difficulty of process questions, in comparison to the more factual product questions. For the latter, the key factor is whether or not the students have read and remembered the material and therefore product questions are presumably easier than the more complex process questions which require reasoning. This instability may reflect student differences in ability within the teachers' two sections.

Neither student opinion (4) nor choice questions (3) were stable. This was expected for opinion questions, which are infrequent and extremely variable in type and content. Choice questions were expected to be more stable, based upon research in the early elementary grades. The fact that they were not in the present study indicates again that this type of question may not be asked as much in the higher grades.

Selection of Respondents. The five methods of selecting respondents (9-13) all showed some stability, including call outs by students. This has been observed before (Crawford, Brophy, and Evertson, Note 8), and it indicates again that measures like these reflect not only student activity but also the degree to which teachers encourage and allow such activity. Teachers tend to be stable across classes in the proportion of student call outs that occur in their classrooms, apparently because they communicate consistent expectations and exert consistent socialization pressures upon students in this regard.

Quality of Student Answers. The proportions of response opportunities which were correct answers (19) were more stable than those for the various forms of incorrect answers (20, 21, 22), and the proportions for student incorrect answers were more stable than those for "don't know" responses (21). However, the stability of failures to respond was higher, indicating that even though the actual occurrence of this type of student behavior was infrequent, teachers tended to be consistent across class sections. Possibly these results indicate that difficulty level of questions remains stable, if we can assume that failure to respond (no response) indicates difficult questions and/or student ability or willingness to answer.

Teacher Feedback to Answers. Most measures of teacher feedback to correct responses (23-28) were stable. The single exception was "correct answers after which the teacher asked a non-academic question" (25). The means for this variable in Table 9 show that this type of feedback seldom occurred. However, while teacher feedback to incorrect answers (29-39) showed only three stable teacher responses [criticism (29); asking a new question (32); and giving process feedback (36)], these responses were among those which occurred the least often. Teacher feedback to "don't know's" and failures to respond (40-48) showed only moderate stability for a few measures [repeating the question (41); asking a new question (43); and asking another student (47)]. Again, examination of the means shows that asking another student occurred proportionately more than other types of feedback, both for incorrect answers (38) and for failures to respond (47). However, this type of feedback is stable only for "don't knows" and failures to respond. In part, this was due to differences in raw frequencies. Correct answers are more frequent than any other types of student response, and incorrect answers are more frequent than "don't know" or no response. However, these figures also reflect the fact that teachers are more predictable when things are going smoothly and according to expectation. Curriculum outlines and teacher plans are generally geared to obtaining correct responses and moving forward in the lesson, and often there is little or no specific preparation for dealing with incorrect responses (Blank, 1973; Good and Brophy, 1977).

Another interpretation of these findings is that incorrect, "don't know" and no response answers have a wider range of possible feedback depending upon the type of error the student makes, whereas correct answers do not present such decision points for teachers. Instability in this case could reflect student differences and possible differences in ability levels between the two sections.

The most stable measures of teachers' handling of wrong answers were those relating to criticism, asking a new question, or providing process feedback, although the mean proportions were very low for any of the above responses to wrong answers (.02, .05 and .10 respectively). The most stable teacher measures in situations where the students responded with "don't know" or made no response were those for repeating the question (41), asking a new question (43), or calling on another student (47). These mean proportions were .08, .04 and .47 respectively. However, in general, teacher sustaining feedback to incorrect (188) or "don't know" and no responses (189) was not stable when various feedback strategies were added across categories. Teacher sustaining feedback to response opportunities (190) in total was stable, however, largely because correct answers made up the major portion of academic response opportunities.

Combinations of categories

Combinations of the major components of response opportunities (selection, questions, answers, or feedback) were examined by creating variables which described the immediate precedent or consequent of a single behavior. For example, the types of selection used to ask the various types of questions were compared. The rationale for looking at such combinations is that context effects can more easily be recognized when a combination variable does not follow the pattern expected of the single variables of which it is composed. For example, as discussed in the preceding section, the data indicate that the proportion of response opportunities which were answered correctly was stable, but that when analyzed for types of questions, only correct answers following product questions was a stable variable. This suggests that the immediate precedent of a behavior is important to know about, since it establishes a context for the interaction in terms of type of selection, type of question, or type of answer which led to the subsequent question, answer and/or feedback.

Selection and question. The data on the combinations of type of question and type of selection of respondent (58-73) mostly reflect the relative frequencies of the variables used in the combinations. In general, frequent and typical combinations showed moderate to high stability, whereas the more unusual combinations had very low stability (e.g. process questions which were answered by a student calling out (70) ).

Question and feedback. While teacher praise of student answers showed stability for process, product and choice questions (74-76), the proportions of response opportunities which were praised for any type of question are low (.16 for process, .10 for product, and .06 for choice). The extent to which teachers do praise, then, is apparently fairly consistent across class sections. To the extent that teachers criticized at all, they tended to do so for product questions (79). Again, the mean proportion of response opportunities which were criticized was also extremely low (.01).

Repeating the question was stable across sections only in connection with choice questions (82), even though choice questions were not as frequent as other types of questions. This combination occurred only 1% of the time, on the average.

Simplifying the question as a feedback strategy to product questions (84) answered incorrectly was stable even though this only occurred 2-3% of the time in the average class. It was expected that simplification would be most appropriate, and therefore predictable, for process questions, which frequently are complex and can be broken down into easier steps. Nevertheless, neither simplifying nor asking new questions was stable as a follow up to process questions (83, 86).

The remaining data in this section mostly indicate that other types of feedback are also stable when they follow product questions, but not for process questions. One possible reason is that since process questions vary considerably in difficulty and complexity, no single teacher response is always used by a teacher. On the other hand, it is possible that causes for errors to product questions are more uniform, so that it is reasonable to expect the feedback in this situation to be stable also.

Selection and Answer. Types of respondent selection connected with wrong answers (111-115) show that incorrect answers associated with non-volunteers and with preselected-patterned turn students are stable across classes. Possibly this technique is related to teacher style. Teachers may use these questioning methods with non-responders in order to insure participation. Also, volunteers and students calling out are relatively unlikely occurrences unless students know the answer. In any case, wrong answers are less stable under these conditions than they are when students are required to respond either as non-volunteers or in a patterned order.

Selection and Feedback. Praise and criticism in different kinds of response situations (125-129) do not always follow expectations: praise to volunteers and students who call out was just as stable across class sections as praise to non-volunteers (125-127). Criticism to non-volunteers (128) was the only situation in which criticism showed any stability. Asking simplified questions (137) and asking new questions (142) were also stable for non-volunteers, suggesting that teachers may systematically try to draw these students out and get them to participate.

The data for integrating student answers into the discussion (149-153) showed generally higher stability than those for most other teacher feedback reactions. The exception was integration in preselect patterned situations, which had a nonsignificant negative coefficient. Possibly, the preselect patterned situation involves drills focused on getting the answers, and integration usually is irrelevant and breaks the pace of the class. Most of the rest of the data for teacher feedback (154-174) indicate higher stability for non-volunteer, volunteer, and call outs, compared to the two types of preselection. This also reflects the frequencies of these types of selection.

<u>Answer and Selection</u>. Types of answers again indicate that preselect nonpatterned and non-volunteer response opportunities involved more difficult questions (175-187), at least relative to the achievement levels of the students called on to respond.

<u>Student Initiated Questions and Comments</u>. The measures dealing with student questions and comments and with teachers' reactions to these initiations (191-237) showed moderate to high stability.

These measures included rates and proportions of such initiations which were questions vs. comments; the proportion called out; those which were relevant; and those within each of these categories that the teachers responded to with criticism or other types of feedback. Again, even though ostensibly these are measures of student behavior, the consistency across class sections indicates that they reflect the degree to which teachers encourage and allow such behavior. By and large, teachers control the patterns of student initiations, although as will be discussed in Section III, the same students also tend to elicit similar responses from different teachers.

Coefficients for variables relating to student initiated questions are generally higher than those for parallel variables relating to student initiated comments. This is likely due to the fact that student questions occurred about three times as often as did student comments and were probably based on much more reliable estimates.

Private Contacts

Student and teacher initiated work, procedural, personal, and social contacts showed similar levels of moderate stability. This suggests that teachers are reasonably predictable in what they do when they are not conducting general class lessons, and also predictable concerning the kinds of student behavior that they encourage or allow. This includes such teacher behaviors as the relative time devoted to each of the major types of personal contacts; the frequency of praise and criticism in work contacts; the typical length of work contacts; approving vs. delaying vs. refusing student requests; and the quality of feedback given to students during private contacts. Student measures include the frequency of initiation of contacts with the teacher, and of each of the subtypes involved. The rates of praise in student initiated contacts were slightly more stable than those of criticism (240-241), but this was reversed in teacher-initiated contacts (256-257).

Behavioral Contacts

Correlations across sections of student misbehaviors (268-339) and teacher reactions to these misbehaviors were scattered, although perhaps higher than might have been expected. As with the data for call outs and student initiated private interactions, stability here indicates that the teachers wers somewhat predictable in the kinds of student behavior that they encouraged, tolerated, or eliminated, and also predictable in their reactions to misbehavior when it did occur. The stability coefficients for different types of student misbehavior mostly reflect the raw frequencies of these kinds of misbehavior, but there were more psychologically explainable patterns in the teacher response data. In general, there was moderate stability in the kinds of reactions the teachers made to student misbehavior, and somewhat higher stability in the relative effectiveness with which they dealt with it.

Teacher reactions coded as involving no error generally were stable and were by far the most frequent, and so were the particular errors they made (when combined across all kinds of student misbehaviors).

There was a very high coefficient for the measure of student misbehavior combined with teacher criticism and target errors (.86), suggesting that certain teachers consistently make target errors and other teachers consistently do not. The same was true for timing errors, although the coefficient was not nearly as high (.46).

Measures relating particular types of student misbehavior to particular types of teacher responses generally did not show stability. Probably particular types of student misbehaviors are not consistently associated with particular types of teacher responses. This probably is an instance where instability is appropriate, because teachers should individualize their management responses to particular students and situations. The data for types of teacher responses across all types of misbehaviors did show moderate to high stability, however, again indicating that teachers are predictable in the way they deal with management problems. This is essentially what Kounin (1970) reported, and what we have seen in our earlier research.

General Measures

The last 21 variables in Table 4 are general proportion measures derived by combining data from many different contexts. The variables themselves reconfirm much of what already has been said: teachers are moderately consistent and predictable in their rates of both praise and criticism; in the proportion of classroom time devoted to public response opportunities vs. private contacts; in the types and frequencies of student initiations that they allow; in the frequencies with which they have to deal with misbehavior; in their frequencies and types of non-academic contacts with students; and in the types and levels of feedback they give to students.

High Inference Ratings by Observers

Classroom Observation Scales (COS)

Two sets of high inference ratings were completed by the classroom observers. The first was a set of 12 Classroom Observation Scales (COS) (Emmer and Peck, 1973; Emmer, Note 2) and included in previous process-outcome and stability investigations (Brophy, Coulter, Crawford, Evertson, and King, 1975; Brophy and Evertson, Note 1). These scales were completed every time the observers visited the classroom, and ratings were averaged within and across observers to arrive at a single score for the teacher. In addition to the 12 scales included in the original battery, three additional scales dealing with the relative frequencies of fact questions, explanation questions, and personal questions also were rated on each visit and averaged to get single scores.

The stability coefficients for these 15 rating scales are shown in Table 5. The first 12 scales for the COS instrument all showed high stability, with coefficients ranging from .73 to .86. These coefficients for junior high teachers teaching in different class

Insert Table 5 about here

sections during the year are generally higher than those for second and third grade teachers teaching in different contexts during the same year and in similar contexts across two different years (Brophy, et al, 1975).

The three measures of level of question all showed significant stability coefficients, but those for fact and explanation questions were much higher than that for personal questions. The high coefficients for fact and explanation questions fit in with the pattern seen in the COS measures indicating that discussion of academically relevant content is the most common activity in these classrooms. Personal questions are less likely to be seen and less stable in their occurrence, probably because they depend more on teacher initiation and personal preference or style than fact or explanation questions, which are mainstays of questioning students or conducting discussions.

The earlier investigation by Brophy, et al (1975) revealed that all 12 of the COS scales showed high stability across context within the same year, but only nine of the 12 showed stability across years. The exceptions were teacher presentation, pupil to pupil interaction, and passive pupil behavior. Differences on the latter two variables were attributed to changes in the curriculum made between the first and second year of observation.

The present data indicate that the difference in students probably was not the reason for low stability, at least not it its own right. All three of these variables had very high stability coefficients in the present study, even though the teachers were dealing with different students in the two class sections. This indicates, once again, that measures of student behavior are strongly affected by the expectations and general socialization activities of the teacher, and that these measures reflect the teachers as much as the students. Apparently, teachers are more consistent within shorter time spans in the kinds of things that they expect and/or tolerate from their students, so that comparable student behavior is observed in different class sections seen concurrently. It is not clear why pupil to pupil interaction and pupil passivity were not stable across years in our earlier study. Apparently, though, the differences have something to do with the teachers and cannot be attributed solely to different student populations.

Observer Ratings of Teachers. In addition to the 15 COS scales filled out on each classroom visit, the observers rated the teachers on another 64 scales at the end of the year. The ratings of each two observers were averaged to arrive at a single score for each classroom. These ratings dealt with a broad range of variables, such as the appearance of the room and classroom climate, but most are high inference judgments about teacher process behavior. Finally, there were some judgments about general teaching effectiveness and about overall observer impressions of the teacher (would the observer like to have this teacher if they were in the grade that the teacher teaches?)

As shown in Table 6, all 64 of the stability coefficients from these ratings were significant beyond the .01 level, and many were extremely high. These generally high correlations probably indicate a

Insert Table 6 about here

degree of halo effect operating when coders see the same teacher in both sections (as they frequently did), as previously discussed in the first section, although these variables were expected to show generally high stability anyway. The only ones that did not have coefficients of .70 or higher were the ratings of crowdedness of room, quality of teacher directions, variety of assignments, and consistency in giving feedback regarding seat work and homework. Low stability for crowdedness of room was to be expected (some correlation was expected because crowdedness was more a characteristic of schools than of individual rooms). However, the teachers' two sections did differ in crowdedness on occasion.

The variables that had the highest stability coefficients were those for classroom management, affective characteristics, teacher awareness of the observer, teacher confidence, and the observer's opinions of the teacher's overall general competence and attractiveness as a teacher. These are not surprising. They probably combine the most halo effect with the most genuine stability across class sections, because they involve the most general and probably stable (at least in the short run) teacher qualities.

Taken together, these high inference ratings indicate that teachers look very similar in different class sections, at least when teaching similar students in the same courses in the same grades in the same school. The degree of stability observed probably is higher than would have been expected on the basis of earlier research (Shavelson and Dempsey-Atwood, 1976). Some of this can be attributed to halo effect, but most of it appears to be genuine, indicating that the very low stability coefficients seen in some earlier studies probably were due to the limited amount of data collected in each classroom, or to differences between classrooms in student composition, course title, or organization. The present data suggest that parallel sections of the same course given comparable students are quite comparable and would be good places in which to conduct research that requires matching of classrooms taught with different treatments or approaches.

Student Ratings of Teachers. Toward the end of the school year, the students in each class were asked to rate their teachers on nine high inference ratings dealing with their perceptions of the teacher's competence as an instructor and affective orientation toward teaching and students. Correlations across class sections were significant beyond the .01 level for all nine scales, ranging from .56 to .75 (Table 7). Like the observer ratings in Table 6, these student ratings

Insert Table 7 about here

suggest that teacher behaviors (or at least the impressions that teacher behaviors engender) are stable across comparable class sections with different groups of students. However, the coefficients for student ratings are not as high as those for observer ratings, suggesting again that the observer ratings probably were inflated by halo effects.

## II. Subject Matter and Class Section Differences for High and Low Inference Measures

The previous section dealt with the question of general stability of teacher behavior across two class sections. Stability was estimated by correlating measures of each behavior for the two class sections. High correlation coefficients mean similar teacher behavior in each of their classes.

This section examines the effect of subject matter on many of these same variables. The first part of this section presents the low inference measures, such as the rate and proportion scores computed for each teacher and for each class section. The second part of this section will report results from the high inference rating scales described in the introduction (See Appendix A for descriptions of each of these measures).

These scores were used as dependent variables in a series of two-way analyses of variance which examined possible subject matter (Math vs. English) and class section (first vs. second observed sections) differences.

### Low Inference Measures

These data are reported in Tables 8 and 9, and the variable numbers correspond to those in Tables 3 and 4 for comparison. Tables are organized by presenting the mean rates or proportions for subject matter separately, along with the probability levels if the differences reached significance. Secondly, the means for first vs. second observed sections are presented, with the probability levels if these differences reached significance. The last column indicates the probability levels of any subject matter by class section interactions which were significant.

Seventy-one variables reached significance for the subject matter comparisons, while only 44 did for the comparisons of the two observed sections. The interactions between section and subject yielded 21 significant findings, where 20 would be expected by chance.

Insert Tables 8 & 9 about here

Results are presented by major subdivisions of the observational coding system which comprised the low inference data set. These coding system divisions were constructed to address teacher-student interactions by the context in which they occurred.

Public Academic Response Opportunities

The first major section of the coding system recorded public response opportunities heard by the entire class (see Section 1, Appendix B for example of section of coding sheet). These interactions were coded for type of questions, method of respondent selection, quality of student's response, and type of teacher's reaction to the response. The relative stability of these categories has been discussed in the previous section.

Subject matter made clear distinctions among types of questions asked by teachers. English teachers used many more opinion questions and slightly more product questions (i.e. fact questions for which there is usually a single correct answer). Math teachers posed more process questions--the "why" type of questions requiring an extended, reasoned-through response. Choice questions were also used more by English teachers than math teachers. Possibly the nature of junior high mathematics, being the final attempt to lay a solid foundation of general mathematics with students before going on to algebra, geometry, and trigonometry in high school--for the college-bound students at least--could account for the use of process questions.

English classes, on the other hand, are possibly a more appropriate forum for expression of student's opinions, particularly in literature. The official English curriculum of the school system included six units of approximately equal importance, only one of which was grammar. The others included: careers, mythology, the novel, the short story, and folklore.

The way students were selected for response opportunities also seemed to be strongly related to subject matter. Across many variables, the teachers' style of preselecting and patterning their choice of respondents occurred much more in English than math. By this, we mean that the teacher named the student who was to respond before stating the question, and that the teacher proceeded around the room in some orderly manner--either down rows, every other student, or some other predictable pattern. Preselection has the function of allowing the student to be forewarned that this is "his" question, perhaps stimulating greater concentration. Conventional thinking in instruction techniques has usually held that this is counterproductive because students will relax and tune-out if they know the question will not be directed to them. However, previous studies (Brophy & Evertson, 1976) have indicated this type of selection to be positively associated with learning gains in the early grades, probably due to either equalization of response opportunities or reduced anxiety on the part of the student answering--or to a combination of these factors. This is the first time, however, that we have found indications of respondent-selection to be subject specific. It is possible that some of the classroom activities for English are more conducive to following patterns of response opportunities than math activities.

In looking at student responses, the data indicated that there were more correct answers given in English classes than math classes. This finding is plausible since English is not as precise and objective a subject as math. There were also significantly more incorrect answers in math. Since responses were coded as correct or incorrect according to the teacher's reaction, a broader range of material could be considered correct in English. Possibilities existed for students to be coded as answering correctly in English for a wider variety of responses. In addition, math teachers used, on the average, twice as many process questions as did English teachers. These require both longer answers and usually a verbal explanation of the reasoning process behind a concept, making them more difficult to answer correctly. Math teachers were more prone to criticize "don't know's" or no responses from students, but criticism of any response seldom happened. Math teachers pushed for a response and also tended to integrate a student's correct answer into the ongoing class discussion more often than English teachers. Math teachers may have been more focused on specific goals.

Time Utilization

As Dunkin and Biddle (1974) noted, contextual effects generally have not been considered adequately in teaching effectiveness studies. The coding system for this study addressed one aspect of this problem by coding classroom format (Section 2, Appendix B). This was measured by indicating the number of minutes spent in each format, such as minutes in independent seatwork, transitions, or class discussion.

In these contexts math teachers tended to spend more time at the board and in lecture; English teachers' lessons, conversely, were characterized by time spent on special projects, with advance organizers being used extensively to introduce a new topic. This is both logical and reasonable, considering the nature of the two subject matters. However, English teachers were coded as spending more time in testing. We suggest that this may be due to the fact that spelling tests were given on a routine basis, whereas math testing usually took the entire class period and observers normally did not code during this time.

Student Initiated Questions and Comments

Some questions and comments during public interaction are initiated by the student rather than the teacher; they are public in nature, meant for the entire class' hearing. The data again fell cleanly into subject-matter categories, with "comment" variables in English and "question" variables in math. In general, the data indicate that most questions and comments were relevant to the lesson content, with English teachers responding to more call outs and using more praise in their feedback..

English teachers may have been more anxious to fill silences and appear warmer and more accepting of their students, by praising more and accepting call outs as a means of accomplishing this. English teachers also were not bound by a rigorous subject matter where there was no room for error. Their objectives were more generally to promote communication skills.

Math teachers gave more lengthy and process feedback. Math class seemed to be a place for attending to problem-solving tasks directly, while English class allowed more personalized input--hence, the greater incidence of comments. Curricula would account for this, as English students, particularly when doing literature study and research projects, were encouraged to relate these to their own lives rather than simply learn foundational skills, as in math.

Teacher Initiated and Student-Created Contacts

Student created contacts occurred in both math and English classes, but those which were content-related and responded to in a lengthy way occurred more in math. This appears reasonable since math content requires memorization and working through steps in solving problems, while student created contacts in English dealt more with procedural or personal requests. A student's personal request made in math class was more often denied or delayed than in English class, suggesting more public and private contacts for math students. Math teachers also tended to give more sustaining feedback to students who did not know the answers.

Behavioral Contacts

The data indicate that there were more minor misbehaviors in English than in math classes. English teachers typically responded mildly, with some form of non-verbal intervention, such as a look or by moving closer to the offender, or with a mild remonstrance which we termed a "management" response. They were usually on target with their management, meaning that they correctly identified the student doing the misbehavior.

While the overall occurrence of misbehaviors was lower in math classes, those that did occur were more serious in nature and were responded to more strenuously by the teacher, who more often criticized or threatened even mild misbehaviors. Math teachers also made more target errors, meaning that they selected the wrong student to discipline more frequently.

Where differences between sections were significant, nearly half of these reflected swings of only a few percentage points, so that while these differences were statistically significant, they were not practically or meaningfully so. The same number of significant mean differences occurred for each class section and in each section the same types of variables were those which reached significance. It might have been reasonable to expect more student misbehaviors, less teacher sustaining feedback, or fewer interactions for second observed sections because they met later in the day and fatigue could be a factor, but this was not the case. Examination of ~~Table 1 shows that~~ most second observed sections followed rather closely after the first observed sections. Also, there were some interactions between observed section and subject matter but again there were no interpretable patterns. In summary, the data show marked subject matter differences but few class section differences which indicated patterns. This suggests that teachers tend to be stable in their behavior across different class sections but subject matter differences are present and clearcut.

The picture which emerges is of a typical junior high math teacher being very businesslike and attending rather closely to the curriculum and foundations of general math. The classroom emphasis is on acquiring basic number skills and understanding basic mathematical principles. Process questions, process feedback to public and private contacts, keeping contacts content-related rather than personal, eliciting questions rather than comments from student-initiated exchanges, integrating student responses into ongoing classroom process, and more frequent use of criticism for incorrect responses or inappropriate behaviors (although on an absolute basis it does not occur often), all suggest a rather impersonal, task-oriented environment.

English teachers, on the other hand, used special activities, more personal and opinion questions, praise, moderate behavioral responses, and encouragement and acceptance of student comments as techniques to personalize the subject matter. Junior high students were encouraged to relate the curricula to themselves personally through career units and discussion of issues raised in literature as they applied to their own lives. They generally are not acquiring basic foundational skills, as in math, but rather attempting to develop broader abilities and higher level skills such as researching, writing, and integrating ideas.

As previously mentioned, there was general stability between class sections; therefore, little appeared in the way of variation of teacher behavior but great subject matter differences did appear. It is possible that subject matter determines teaching style differences between sections, or that the individual's personality determines his choice of occupation, and, therefore, what subject he will teach. Or, perhaps, the situation is explained by some interaction of the two explanations. At any rate, these differences are likely to appear across subjects and would be taken into account in research that includes several subject matters and involves attempts to generalize across them.

## High Inference Ratings

The second part of this section will discuss differences in subject matter and class period effects using high inference measures. Shavelson and Dempsey-Atwood found these more global ratings to be more stable, thus we will consider them separately from the low inference coding of discrete behaviors.

The first set of high-inference data to be examined are from the Classroom Observational Scales (COS). These variables were among those most heavily stressed in the development and application of classroom observation systems. Two-way analyses of variance were conducted on the scales using subject matter and class section as classifying variables.

These analyses allowed comparisons between subjects for each of the high inference ratings. Only those variables for which the findings held across observations are reported. Other variables significant by subject area for one observation, but not the other, have been listed in the tables, but no attempt has been made to explain those at this point. It is expected that future hypotheses will be generated from these data to account for such "instability".

Classroom Observation Scales

Attentiveness of students, teacher presentation of subject matter, convergent evaluative interactions, and questions with applications to students' lives were the only variables on which differences occurred.

Insert Table 10 about here

The attention level of students was higher in English than in math. This might be explained by the teacher's style of presentation, since teacher showmanship was also rated higher in English classes. Math teachers lectured more; the lectures may have been directed to small groups within the class (e.g. lecturing to those students who exhibited difficulty mastering a technique or understanding a concept, while other students may have been busy with other individual or group assignments and still others may have been involved in peer tutoring, etc.).

Teacher Presentation of Subject Matter. Math teachers utilized the teacher presentation method more than English teachers did ($p \leq .05$). Teacher presentations were observed during about 20% of the time in math classes, but were observed much less frequently in English. Much of the material in the math classes was likely to be fact-related and likely to follow a logical sequence. In order for material to be factually correct, and in order to provide a model for student problem solving, teachers assumed a role of "authority" or "expert in the field". On the other hand, English lesson content may have been more flexible than that of math.

Convergent evaluative interactions. Math teachers tended to strive more for "right" answers without probing than did English teachers. Although the difference between subject areas is significant ($p \leq .05$), neither group tended to use this questioning technique with great frequency.

Questions with applications to students lives or current events. English teachers tended to ask significantly more questions of this nature than did math teachers ($p \leq .01$), probably because math teachers adhered more strictly to the text and other prepared illustrations so that students learned first to solve problems in a common context that can be used for later reference. Also, it is probably assumed that if the student's understanding of basic concepts and principles is accurate, transfer of that knowledge will occur more readily.

## Observer Ratings of Students

The coder ratings of students consisted of 26 variables. Only one variable from this scale was significant (i.e., student is usually unhappy). Before the findings on this variable are discussed, some of the suggested reasons for lack of additional significant findings on this scale will be mentioned. Some of these variables were expected to remain constant (stable) across situations (e.g., shoddy appearance) and would not be expected to be changed as a result of environmental changes. Assuming randomization of students within classes, it was also expected that other differences among students would be balanced out and therefore, not significant. This should be the case for such variables as emotional maturity, achievement motivation, physical maturity, etc., so the lack of significant findings for ratings of students is expected.

Insert Table 11 about here

Students were rated as more unhappy in math classes. However, this did not reflect extreme unhappiness. Rather it probably represented a change toward a more sober mood required for independent thinking and problem solving.

Student Ratings of Teachers

Only one of the nine variables on these scales reflected significant differences across subject areas: "student feels comfortable going to the teacher with a problem." This finding raised the question of whether English teachers were more student oriented than math teachers, or whether the differences in student perceptions of teachers were due to the structuring of teacher behavior by the curriculum.

Insert Table 12 about here

Observer Ratings of Teachers

There were several significant differences by subject areas. These were often related and could be grouped into the following general categories:

1. Differences in manner of presentation of context:
   Math teachers lectured more, used blackboards more, went to students during seatwork, and assigned homework more frequently.
   English teachers, on the other hand, used oral readings, drama, and various audio-visual materials in their presentations.
2. English teachers tended to give more attention to the attractiveness of the room, as if setting the stage for relaxed student participation in class. Also, English teachers had greater flexibility in the materials they used to decorate their rooms.
3. English teachers exhibited a democratic leadership style and tended to nurture students more; a more authoritarian style was inferred for math teachers. Again, this was possibly demanded by the nature of the material to be taught.

Insert Table 13 about here

## Summary of Subject Matter Differences

The differences found in math and English classes generally fit into specific patterns which reflected the content of the subject (e.g., development of problem solving skills in math and facilitation of communication skills in English) and the teaching methods usually used in the two subject areas (e.g., lecturing and demonstration on the blackboard in math classes and the use of oral readings and audio-visual materials in English classes).

The differences have some implications for research controls in situations where process data from different subject matter areas are going to be compared. The pacing and methods used in these two types of classes appeared to be very different. It is important to recognize that these differences were probably due to the subject matter and not to the individual characteristics of the teachers.

Generally, there were more similarities than differences found between math and English classes. Where significant differences were found they seldom reflected mean differences of great magnitude, except where a given variable was observed in only one subject area (e.g., the use of drama in English classes) and not at all in the other subject area.

Differences for observed sections showed no meaningful patterns, although data from the Classroom Observation Scales (COS) showed significant differences for the second observed section. Again, as previously mentioned, there was no reason to believe that these findings are anything but chance since most second observed sections followed closely the first observed sections. Also, what interactions appeared between subject matter and observed section revealed no interpretable patterns.

### III. Consistency of Behavior of Same Student Observed in Junior High School Math and English Classes

The purpose of these analyses was to examine the stability of the measures collected for the subsample of 199 students observed in both the math and English classes. These students are referred to as the "overlap" subsample. The results reported here come from correlational analyses in which each student's paired scores were compared for each variable for which there was individual student data to determine the stability of measures across the two classes. Significant correlations indicate stability, which does not necessarily mean that students had the same score in each class, but that a student's standing relative to the rest of the students was about the same in either class.

Another purpose of these analyses was to determine to what extent the individual student may affect the stability of classroom measures. Variables which show high stability across classes can be said to be subject to a student effect. Such variables are certainly not out of the teacher's control or influence, but they do reflect classroom processes in which individual differences in students will strongly dictate what happens.

The measures reported here have been discussed in previous sections of this report: high-inference ratings and low inference observational coding measures. Some of the data were collected for individual students and some were collected only on teachers. The subsets which contain individual student scores are those which will be reported here.

Variables are reported as "stable" when they were correlated highly enough to be significant at $p \leq .05$.

## Results

Before presenting those variables which were significantly stable, the unstable and nonsignificant findings will be briefly discussed.

The only variables which were significantly negatively correlated across two classes were those examining the use of preselected patterned turn selection for public response opportunities. As was discussed in the previous presentation, this variable showed strong subject-matter differences which probably account for the negative correlations for students in different classes. It is unlikely that any student factor would account for vastly different amounts of this type of selection in two different classes, since it involved the teacher treating the entire group in the same way.

Insert Tables 14-18 about here

Nonsignificant variables were, in general, those for which strong subject matter influences were found, although the influence was not strong enough to yield significant negative correlations. These were variables measuring the type of questions asked (whether process, product, choice, or opinion) and the difficulty level of the questions (whether correct or incorrect); for these variables, the math teachers asked more process questions and students gave more incorrect answers in math classes. The type of feedback given by the teacher also was not stable for overlap students with the exception of some instances of integration feedback and process feedback.

The types of misbehaviors for which students were corrected were not stable with the exception of two types of misbehaviors related to disrespect for the teacher. The more severe types of teacher reactions were not stable, although the use of milder corrections was stable. This may reflect consistent teacher treatment of students who do not pose serious behavior problems.

Four ways of classifying the stable variables will be presented. First, the extent to which a student functioned as an <u>independent, task-oriented worker</u> was a highly stable characteristic. This is supported by several general ratings of the students, such as achievement motivation, academic performance, and record of turning in homework on time. Good students in one class tended to be good students in the other.

Second, the extent to which the <u>student initiated his or her involvement in interactions</u> was highly stable. For example, the types of selection for public response opportunities which were stable were student volunteering to answer and student calling out the answer. The rate of student initiated questions and comments during a discussion was highly stable across classes, as well as the rate of a student's initiating a private contact with the teacher (such as calling the teacher over during seatwork, or going to the teacher's desk). Reflecting this same characteristic are the kinds of teacher initiations with the student. Being selected for a public response opportunity as a non-volunteer and being approached by the teacher for private interactions were measures which showed high stability. Although measures of teacher behaviors, these variables probably reflect teacher responses to student differences: if the student needs contact with the teacher (i.e. is not on task, is not getting practice by answering questions) and is not going to initiate that contact, then the teacher must make the effort.

Another indication of this characteristic is the proportion of public contacts to private ones, which was also stable. The same students in both classes are heard most often by the rest of the class.

The high-inference ratings of the overlap students are consistent with this pattern of results. Classroom observers' ratings of the students in their two classes on the factor of "outgoing, sociable, and happy with peers and teacher" was highly stable. All of these results considered together indicate that student willingness (and/or capacity) to initiate his or her own interactions is a stable characteristic, not strongly affected by subject matter differences.

A third pattern notable in the results is the consistency of the quantity and quality of teacher-student contacts. The papers on subject-matter differences suggested several ways in which the types of questions and activities are influenced by the demands of the subject matter, but the overlap analyses presented here point out that student differences are also quite important in determining the nature of teacher-student interactions.

Overall, the rate of any contact with the teacher, rates of public academic contacts, behavioral contacts, student created work contacts, procedural contacts, and social contacts were all stable. When proportions of types of contacts are examined, those which were work-related, non-work related, or behavior-related were stable. Looking just at student-created contacts (student initiated private contacts with the teacher), the proportions of these which were content-related and which were procedure-related were stable, although there were also subject matter differences between content related and procedure related contacts by students. (There were more of the former in math classes, and more of the latter in English classes.)

These findings suggest that a student who stays on-task and does not misbehave in one class is likely to be about the same in another. Likewise, a student who often needs to question the teacher on the page number of an assignment is as likely to need guidance in a math class as in an English class, or at least his or her standing relative to the rest of the sample will be the same. The content of the lesson changes, but the student's concerns (i.e. work, procedures, or misbehaving) stay the same.

A fourth way of classifying the stable variables is to consider the tone of the interactions described by them. This can be measured by looking at both student-controlled variables and at teacher-controlled variables which probably reflect reactions to student differences.

Teacher feedback to answers or requests is an example of the latter. The proportion of the time that teachers offered integrative feedback or process feedback rather than perfunctory feedback to a student's answer was stable for several variables, although not in all instances. This is interesting because subject matter differences were also noted for these measures. For example, even though integration of a student's answer is less likely to happen in English class, students who receive the greatest amount of it in English are also likely to receive the greatest amount of it in math, compared to other students. On an absolute scale, they will receive more in math than in English, due to subject matter influences.

Providing more elaborate feedback to some students may represent teacher willingness to take some students' answers more seriously than others, but it is also likely that this is a reflection of the quality of the answer itself, in that some students may consistently give better, more appropriate answers.

The rate of academic criticism and the proportion of teacher-afforded work contacts given criticism were also stable evaluative feedback variables, as was the proportion of behavior contacts in which the teacher delivered a mild correction (coded as a "management" behavior). Again, these results can be interpreted either as teacher attitudes toward students or as reactions to the student behaviors (or a combination of the two), but the importance of this finding for this paper is that the behaviors were stable. The students tended to receive elaborate or perfunctory feedback, criticism, and mild rather than more severe behavioral corrections to about the same relative degree in each class. Again, however, the absolute amount for any student might be affected by the subject matter.

The student-controlled behaviors which were stable and which reflect the tonal quality of interactions with the teacher are primarily reflected in the types of misbehaviors occurring. The proportions of all misbehaviors which were "sassing and defying the teacher" or "baiting the teacher" were stable. The students exhibiting these behaviors in one class also did so in the other. Overall, the rate of "aversive" dyadic contacts was stable, and the rate of "reinforcing" dyadic contacts approached significance ($p$ = .06), indicating that the extent to which a student had pleasant, neutral, or unpleasant contacts was stable from class to class.

High-inference ratings which are relevant to the tone of interactions and which were stable were observers' ratings of "antisocial tendencies, emotional, or behavioral problems" and teacher ratings of the students as "would want student in class again" and "student's behavior in class." These suggest that the student strongly influences the tone of his or her interactions.

The picture that emerges, then, is one of students being treated with relatively the same amount of warmth, acceptance, and respect in each class, and affording the same relatively to each of the teachers he or she has. One might expect, then, that the student ratings of teachers would reflect this and also be stable, but that was not the case. Only two of nine scales were stable: "Student feels comfortable going to the teacher with a personal problem" and "Student learned a great deal in this class". Ratings of the teacher's competence, interest in the students, and student's desire to have the teacher again were not stable.

Another study conducted by the Correlates of Effective Teaching Project, the Student Attribute Study, yielded results which are very similar to these (Brophy, Evertson, Anderson, Baum, and Crawford, Note 9). That study focused on behavioral correlates of students who were ranked by their teachers as being consistently high or low on several scales. It was generally found that students who were seen positively were seen that way on almost every measure, and likewise for the student ranked low on such scales as achievement potential, persistence, cooperation, etc. Even though this study was done with elementary students, many of the same patterns of behavior which distinguished the "top" from the "bottom" students are those same types of behaviors which were stable for the overlap students: public vs. private contacts, and general tone of teacher-student interactions.

In summary, several student characteristics and classroom processes are seen to be stable across two classes of different subject matter. In any specific situation, these characteristics may be moderated by the demands of the subject or individual teacher influence. On the whole, however, certain kinds of student behavior and student characteristics were stable across classes, meaning that the student's relative standing was the same, regardless of teacher or subject matter.

## Discussion

Using a box score approach for categorizing across the studies surveyed, Shavelson and Dempsey-Atwood concluded that teacher presentation, positive and neutral feedback, probing, and classroom management were moderately stable; that the stability of content presentation, motivational skills, expressive teaching style, affective style, classroom administration, and teacher individualization was unclear because some variables showed good stability and others did not; and that the stability of teacher questioning, negative feedback, student-centered teaching style, interpersonal behavior, the degree to which the teacher followed prescribed procedures, and indirect teacher control of the classroom was very low.

These are interesting suggestions that will be considered, but we do not believe that the data upon which they are based were strong enough to justify considering them as hypotheses. In many studies, the length of the observations used to generate the raw data was so limited as to call into question any attempt to assess stability, and in others, known differences in the contexts in which different measurements were taken call into question the very expectation of stability. Also, the research settings varied widely in general level, subject matter, number and type of teachers included, types of behavior measured, and types of scores used.

Among the variables found to be least stable in this study were the difficulty level of questions, the types of feedback following wrong answers, praise to students in private contacts, and the percentage of total time devoted to student response opportunities in public settings. This includes the variable of questioning mentioned by Shavelson and Dempsey-Atwood, and it includes elements of student-centered teaching style and indirect teacher control as well. However, the other variables included in this report do not appear on this list; and, in general, there is not much correspondence between the two lists.

In general, the stability coefficients presented here are much higher than would be expected on the basis of previous research (Shavelson and Dempsey-Atwood, 1976), and higher than those obtained in our own earlier work using similar observation instruments in second and third grade classrooms (Brophy, Coulter, Crawford, Evertson, and King, 1975; Brophy, Evertson, Crawford, King, and Senior, Note 2; Crawford, Brophy, and Evertson, Note 3). This seems attributable to the fact the two class sections observed for each teacher were taught to students at the same grade level in the same school taking the same course, and to the fact that a great deal of data were collected in each classroom (an average of 20 hours). The high comparability of class sections had the effect of matching classes on a great many context variables, leaving only random differences in student composition. Even here, the potential for such differences was minimized, because the students were in the same grade in the same school. Many of the studies reviewed by Shavelson and Dempsey-Atwood

(1976) used class sections that were known to be different (often even deliberately structured to be different) in one or more fundamental ways. This may be the primary reason for the generally low stability reported in these studies.

The present study shows that more thorough sampling reveals many low inference measures to be quite stable across class sections, but it also shows that the problem of inadequate sampling does not go away for variables that appear with low frequency. The frequency with which particular process behaviors occurred was one of the strongest single determinants of stability coefficients, although there were some exceptions. Even in this study, a great many process behaviors did not appear often enough to allow reliable sampling. Many of these variables probably are not important enough to warrant serious and extended study. Those that are will have to be studied with methods that artifically produce the behaviors more frequently and perhaps predictably, so that they can be observed often enough to allow statistical assessment.

One way to do this is to assemble "case studies" that could be analyzed later as part of a single sample. This method would preserve the naturalistic character of the interaction samples, although doing it would require a good deal of advance information about what aspects of situations should be recorded for preservation. An alternative method would be to produce situations experimentally by manipulating teacher behavior to see its effects on students, or manipulating student behavior to observe its effects on teachers. Here, it would be important to see that the subjects did not know the hypotheses (or, ideally, even the variables of interest). These methods would produce a great gain in efficiency or control, but at the cost of naturalistic realism. This might not be a problem for variables dealing with instructional techniques (what should the teacher do if the student originally said "I don't know," and a prompt has failed to elicit a response?), but the loss in realism might be too serious to overcome in investigations of variables having to do with classroom management techniques (what should the teacher do if two students who are fooling around have not responded to instructions telling them to get to work?)

The present data confirm previous findings that high inference ratings yield higher stability coefficients than scores from low inference coding. This should not be taken to imply that high inference ratings are preferable, however, for several reasons. First, high inference ratings generally deal with broad and often covert aspects of classroom process, in contrast to the more specific and overtly behavioral aspects included in low inference coding. One implication of this is that high inference ratings <u>should</u> be more stable. For certain variables, they may be the method of choice, but other variables (feedback to student answers) cannot be rated validly with high inference scales, although they can be counted accurately with low inference methods. Also, high inference ratings implicitly assume that certain teacher characteristics are or should be generic, but as knowledge about context effects increases, it is becoming clear that few process behaviors are truly generic. Most vary (probably appropriately) with context (Brophy and Evertson, Note 10).

In addition to this conceptual problem, there is also the question of validity. High inference ratings are frequently distorted by halo effects, personal biases, instructional set, and many other influences that inflate measures of reliability but erode validity. Aspects of this were seen in the present study: observer ratings on 64 scales covering a great variety of aspects of teaching were more stable across class sections than student ratings of nine general teacher characteristics. Students saw the teachers only within one class section, but observers often saw them in both class sections, so that the stability in observer ratings probably was inflated by halo effects somewhat. This will be checked further by examining the stability of the ratings done on a given teacher by only two observers versus those done by three or more observers.

In general, though, the stability seen in this study was quite impressive. Among other things, it implies that the use of parallel class sections taught by the same teacher would allow a great deal of control over extraneous variables in studies which compared treatments. There would be serious contamination problems, here, of course, because the same teacher would be asked to do one thing in one section and another thing in another section. However, if two positive treatments (rather than one treatment and a control procedure) were involved, so that the teacher could concentrate on doing one set of things in one class and a different set of things in the other class, the result could be an excellent opportunity to observe the specific effects of each treatment.

The contrast between the relatively high stability seen here vs. other studies shows that stability in process measures can be achieved with enough observations and enough control over context variables, but it also illustrates the futility of expecting <u>all</u> process measures to be stable. This will happen only if investigators confine themselves to the most frequent and typical (and usually uninteresting) behaviors.

As we have noted elsewhere (Brophy and Evertson, Note 10), ultimately the solution to stability/generalizability concerns lies in learning more about context effects on process measures and process-outcome relationships, and about how to accommodate such effects in improved research designs. If this is accomplished, the stability/generalizability problem could disappear.

One issue which has not been addressed in this report is that of the role of stability in individual teacher effectiveness. Most researchers recognize and agree that flexibility is likely to be a vital component in teacher behavior and that tailoring teaching methods to the demands of the classroom is appropriate behavior. If so, one should expect certain effective teaching behaviors to be unstable. A future report from this study will examine the stability scores of individual teachers from clusters of empirically preselected behaviors and relate these to student outcomes in order to determine the conditions under which consistency is effective and under what conditions consistency fails to meet individual needs and may have a detrimental effect on pupil outcomes.

## Appendix A. Description of Data Subsets

The data presented in this report are derived from several subsets of the Junior High Study. The following is a list of the subsets used, a brief description of each, and an indication of the report sections where they will be discussed.

1. Classroom Observation Scales (COS): a set of twelve high-inference five-point scales of teacher and student classroom behaviors. Included also are 3 types of questions and 4 factor scores from the factor analyses. Results from this subset are discussed in Sections I and II.

2. Observer Ratings of Teachers: a subset of 100 high-inference five-point scales on which teachers were rated at the end of the year by the two observers who had seen the teacher throughout the year. The two sets of ratios per teacher were combined after unreliable variables were dropped. Results from this subset are discussed in Sections I and II.

3. Observer Ratings of Students: a subset of high-inference data consisting of twenty-five five-point scales; each of the two observers collecting data in a particular class rated target students at the end of the year. One variable was dropped for lack of reliability and the rest, which were highly reliable, were combined to give one score per student. Results from this subset are discussed in Sections I, II, and III.

4. Student Ratings of Teachers: a subset of high-inference data consisting of all students in each observed class rating their teacher on nine five-point scales. Results from this subset are discussed in Sections I and II.

5. Time Utilization: as a portion of the low-inference coding system, classroom observers kept an account of the number of minutes teachers utilized various teaching formats. These were calculated as proportions of total teacher controlled time. Results from this subset of data are discussed in Section II.

6. Teacher Ratings of Students: a subset of high-inference data consisting of five ratings of each target student. These were done on five point scales from (1) low on the behavior to (5) high on the behavior.

7. Low Inference Observational Coding System Proportions and Rates: each behavior coded in the low-inference coding system was individually tallied and summed and these frequencies yielded two types of scores: (1) rate scores, for which frequencies were divided by number of minutes of observation, thus giving an index of the absolute rate at which certain behaviors occurred (such as correct answers per 50 minute class period, and (2) proportion scores for which raw frequencies were used to indicate the relative amounts of various behaviors (such as the proportions of correct answers of all answers given). Results from these subsets are discussed in Sections I, II, and III.

APPENDIX B

School ________ Date __/__/__ Start ______ Page # ______

Teacher ______ M __ F __ Observer ______ Stop ______ Of ______

Gen'l Class ______ Sm Grp ______ *Sm Grp Mem # ______

Total Teacher Control Time ______ Absences ______

## ACADEMIC RESPONSE OPPORTUNITIES

| CHLD# | | QUEST | | | | SELECTION | | | | | ANSWER | | | | | | | SUS FDBK | | | | | TERM FDBK | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | F | PRCS | PROD | CHOIS | OPIN | PREPAT | PRENPAT | NVOL | VOL | CALL | + | - | DK | NR | + - | + - | | REPT | SIMP | NQSUS | NONAC | INTEG | OS | PRCS | GIVANS | ASKOTH | CALL |

SECTION 1

# CONTENT FORMATS

**English**

Spelling
- test ______
- activities ______

Grammar
- punct-cap ______
- sent. stuc. ______
- paragraph ______
- parts of sp. ______

Literature
- read stories ______
- other ______

Composition ______

Drama ______
(Plays, skits, mime)

Vocabulary ______

Other ______
(Specify

**Math**

4 Functions w/
- whole #'s ______
- fractions ______
- decimals ______

Percentage ______

Geometry ______

Algebra ______

Other ______
(Specify)

SECTION 2

## STUDENT-INITIATED QUESTIONS & COMMENTS

| CHLD # | | QUES | COMM | CALL | REL | IRREL | + - | + - | IGNORT | NACPT | FDBK | PRCS | RDRCT | INTEG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | F | | | | | | | | | | | | | |

SECTION 3

## CLASSROOM FORMAT

PEER TUTOR ______

*SM GRP/TC ______

SM GRP/NTC ______

BOARD ______

IND SEAT ______

TRANSITIONS ______

BS ______

GROUP DISCIP ______

LEC/DEMO ______

*DISCUSS ______

DRILL ______

SPECIAL ______

ORGANIZERS ______

LOST TIME ______

IND SELF-PACD ______

OUT ______

TEST ______

OTHER ______

SECTION 4

## PEER TUTOR IDENT.

__/__ __/__ __/__

__/__ __/__ __/__

__/__ __/__ __/__

__/__ __/__ __/__

__/__ __/__ __/__

__/__ __/__ __/__

__/__ __/__ __/__

SECTION 5

APPENDIX C

SCHOOL ______ DATE: ___/___/___ START ______ PAGE ______

TEACHER ______ M ___ F ___ OBSERVER ______ STOP ______ OF ______

GEN'L CLASS ______ SMALL # GRP. ______ MEMBER #'s ______

**Behavior List**

0 - Not observed
1 - Ind. Typ. Inap
2 - Socializing
3 - Late
4 - Disrupt*
5 - Sass/Defy*
6 - Vagg*
7 - Pagg*
8 - Leave*
9 - Contraband*
10 - Bait*
11 - Sleep*
12 - ______ (other)

(* indicates a critical behavior)

STUDENT CREATED CONTACTS

SECTION 1

| CHILD # M | CHILD # F | WORK: CONT | WORK: PRCD | WORK: + + | WORK: - | Inaud: BRIEF | Inaud: LONG | Aud: DELAY | Aud: FDBK | Aud: PCSS | PERSONAL: GRANT | PERSONAL: DELAY | PERSONAL: NGRNT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

TEACHER INITATED CONTACTS

SECTION 2

| CHILD # M | CHILD # F | WORK: + + | WORK: - | Inaud: BRIEF | Inaud: LONG | Aud: OBSV | Aud: FDBK | Aud: PCSS | PRCD |
|---|---|---|---|---|---|---|---|---|---|

BEHAVIOR RELATED CONTACTS

SECTION 3

| CHILD # M | CHILD # F | BEH # | NTSN | IGNOR | NVIT | MGMT | - | THRT | NOERRR | TARG | TIM ?? | OVRCT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

SOCIAL

SECTION 4

| CHLD M | CHLD F | TA | CC | F B: AC | F B: NA |
|---|---|---|---|---|---|

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Table I. Time Differences between the Two Observed Sections of Math and English Teachers' Classes

| | Math | English |
|---|---|---|
| Both observed sections in the morning | 14 | 19 |
| One morning section; one afternoon section | 1 | 16 |
| Both observed sections in the afternoon | 14 | 4 |
| Intervening classes between the two observed sections: | | |
| None | 7 | 16 |
| 1 | 10 | 10 |
| 2 | 5 | 10 |
| 3 | 6 | 2 |
| 4 | 1 | 1 |

Table 2. Correlations across Class Sections for Content Formats During Math and English Classes[1]

| | |
|---|---|
| **Math** | |
| 1. Four functions: whole numbers | .88** |
| 2. Four functions: fractions | .90** |
| 3. Four functions: decimals | .88** |
| 4. /Percentages | .66** |
| 5. Geometry | .87** |
| 6. Algebra | .75** |
| 7. Other | .93** |
| **English** | |
| 8. Spelling tests | .79** |
| 9. Spelling activities | .80** |
| 10. Grammar: punctuation, capitalization | .72** |
| 11. Grammar: sentence structure | .66** |
| 12. Grammar: paragraph study | .74** |
| 13. Grammar: parts of speech | .88** |
| 14. Story reading | .82** |
| 15. Other literature exercises | .76** |
| 16. Composition exercises | .78** |
| 17. Drama exercises | .41** |
| 18. Vocubulary exercises | .77** |
| 19. Other | .85** |

[1] $N = 29$ (Math)
$N = 39$ (English)
$^{**}p \leq .01$

Table 3: Correlations across Class Sections for Rate Measures from the Low Inference Observational Coding System[1]

Rate of:

| | | |
|---|---|---|
| 1. | Public Response opportunities | .83** |
| 2. | Process questions | .85** |
| 3. | Product questions | .81** |
| 4. | Choice questions | .09 |
| 5. | Opinion questions | .51** |
| 6. | Preselect-patterned type of selection | .56** |
| 7. | Preselect non-patterned type of selection | .54** |
| 8. | Non-volunteer type of selection | .83** |
| 9. | Volunteer type of selection | .69** |
| 10. | Call-out type of selection | .76** |
| 11. | Correct answers | .83** |
| 12. | Incorrect answers | .83** |
| 13. | "Don't know" answers | .76** |
| 14. | No responses | .56** |
| 15. | Student-initiated questions | .36** |
| 16. | Student-initiated comments | .44** |
| 17. | Academic praise | .58** |
| 18. | Academic criticism | .73** |
| 19. | Student initiations evoking a negative teacher response | .37** |
| 20. | Total sustaining feedback | .81** |
| 21. | Sustaining feedback given wrong answers in academic response opportunities context | .82** |

Table 3 (cont.)

| | | |
|---|---|---|
| 22. | Sustaining feedback given "don't know" or no response in academic response opportunities context | .56** |
| 23. | Total dyadic contacts | .49** |
| 24. | Public and private work contacts sought by student | .54** |
| 25. | Student initiated work contacts which are content related | .63** |
| 26. | Teacher initiated work contacts | .64** |
| 27. | Student initiated work contacts which are procedure related | .66** |
| 28. | Teacher initiated contacts which are procedure related | .72** |
| 29. | Student initiated contacts ~~that~~ are personal | .59** |
| 30. | Social contacts that are student initiated | .71** |
| 31. | Social contacts that are teacher initiated | .59** |
| 32. | Private student-initiated contacts | .65** |
| 33. | Private teacher initiated contacts | .66** |
| 34. | Total behavioral contacts | .73** |
| 35. | Behavioral criticism and threat | .55** |
| 36. | Mild misbehaviors | .74** |
| 37. | Serious misbehaviors | .59** |
| 38. | Total reinforcing dyadic contacts | .50** |
| 39. | Total aversive dyadic contacts | .68** |

[1]$\underline{N} = 68$

$^{*}p \leq .05$

$^{**}p \leq .01$

Table 4: Correlations across Class Sections for Proportion Measures from the Low Inference Observational Coding System[1]

| Proportion of: | |
|---|---|
| 1. response opportunities generated by process questions | .47** |
| 2. response opportunities generated by product questions | .35** |
| 3. response opportunities generated by choice questions | -.05 |
| 4. response opportunities generated by opinion questions | .20 |
| 5. process questions which students answered correctly | -.21 |
| 6. product questions which students answered correctly | .48** |
| 7. choice questions which students answered correctly | -.02 |
| 8. opinion questions which students answered with "don't know" or no response | .22 |
| 9. response opportunities given to students who were preselected in patterned turns | .29* |
| 10. response opportunities given to students who were preselected in non-patterned turns | .41** |
| 11. response opportunities which the teacher gave to non-volunteers | .58** |
| 12. response opportunities which teacher gave to volunteers | .61** |
| 13. response opportunities which students answered by calling out | .54** |
| 14. preselected, patterned turn students who answered correctly | .61** |
| 15. preselected, non-patterned turn students who answered correctly | .21 |

Table 4 (cont.)

| | | |
|---|---|---|
| 16. | non-volunteers who answered correctly | .26** |
| 17. | volunteers who answered correctly | .08 |
| 18. | call-out students who answered correctly | .01 |
| 19. | correct answers | .50** |
| 20. | incorrect answers | .29* |
| 21. | answers which were "don't know" | .07 |
| 22. | answers which were no response | .61** |
| 23. | correct answers which teachers praised | .61** |
| 24. | correct answers after which teacher asked new question | .43** |
| 25. | correct answers after which teacher asked non-academic question | .01 |
| 26. | correct answers which teacher integrated into the class discussion | .68** |
| 27. | correct answers which teacher gave no feedback | .61** |
| 28. | correct answers after which teacher gave process feedback | .82** |
| 29. | incorrect answers which teacher criticized | .71** |
| 30. | incorrect answers after which teacher repeated the question | -.09 |
| 31. | incorrect answers after which teacher simplified the question | .11 |
| 32. | incorrect answers after which teacher asked a new question | .56** |
| 33. | incorrect answers after which teacher asked a non-academic question | .10 |

Table 4 (cont.)

| | | |
|---|---|---|
| 34. | incorrect answers which teacher integrated into the class discussion | .19 |
| 35. | incorrect answers after which teacher gave no feedback | .04 |
| 36. | incorrect answers after which teacher gave process feedback | .30** |
| 37. | incorrect answers after which teacher gave the answer | .16 |
| 38. | incorrect answers after which teacher asked another student | .04 |
| 39. | incorrect answers after which another student called out the answer | .09 |
| 40. | "don't know" and no response answers which teacher criticized | .11 |
| 41. | "don't know" and no response answers after which teacher repeated the question | .37** |
| 42. | "don't know" and no response answers after which teacher simplified | .16 |
| 43. | "don't know" and no response answers after which teacher asked a new question | .54** |
| 44. | "don't know" and no response answers after which teacher asked a non-academic question | no data |
| 45. | "don't know" and no response answers after which teacher gave process feedback | .09 |
| 46. | "don't know" and no response answers after which teacher gave the answer | .06 |
| 47. | "don't know" and no response answers after which teacher asked another student | .30* |
| 48. | "don't know" and no response answers after which another student called out the answer | .04 |
| 49. | process questions which students answered incorrectly | .12 |

Table 4 (cont.)

| | | |
|---|---|---|
| 50. | product questions which students answered incorrectly | .23 |
| 51. | choice questions which students answered incorrectly | .09 |
| 52. | process questions which students answered with "don't know" | -.09 |
| 53. | product questions which students answered with "don't know" | .17 |
| 54. | choice questions which students answered with "don't know" | .10 |
| 55. | process questions to which students gave no response answers | .42** |
| 56. | product questions to which students gave no response answers | .44** |
| 57. | choice questions to which students gave no response answers | -.10 |
| 58. | preselected, patterned turn students who were asked product questions | .32** |
| 59. | preselected, non-patterned turn students who were asked process questions | .42** |
| 60. | preselected, non-patterned turn students who were asked product questions | .34** |
| 61. | preselected, non-patterned turn students who were asked choice questions | .49** |
| 62. | process questions directed to non-volunteers | .25* |
| 63. | product questions directed to non-volunteers | .54** |
| 64. | choice questions directed to non-volunteers | .48** |
| 65. | opinion questions directed to non-volunteers | -.42* |
| 66. | process questions directed to volunteers | .22 |
| 67. | product questions directed to volunteers | .53** |

Table 4 (cont.)

| | | |
|---|---|---|
| 68. | choice questions directed to volunteers | .09 |
| 69. | opinion questions directed to volunteers | .28 |
| 70. | process questions answered by a student calling out | .19 |
| 71. | product questions answered by a student calling out | .51** |
| 72. | choice questions answered by a student calling out | .36* |
| 73. | opinion questions answered by a student calling out | .06 |
| 74. | answers to process questions which teacher praised | .54** |
| 75. | answers to product questions which teacher praised | .60** |
| 76. | answers to choice questions which teacher praised | .44* |
| 77. | answers to opinion questions which teacher praised | .32 |
| 78. | answers to process questions which teacher criticized | .02 |
| 79. | answers to product questions which teacher criticized | .63** |
| 80. | process questions after which teacher repeated the question | -.08 |
| 81 | product questions after which teacher repeated the question | .22 |
| 82. | choice questions after which teacher repeated the question | .62** |
| 83. | process questions after which teacher simplified the question | .06 |

Table 4 (cont.)

| | | |
|---|---|---|
| 84. | product questions after which teacher simplified the question | .29* |
| 85. | choice questions after which teacher simplified the question | -.12 |
| 86. | process questions after which teacher asked a new question | .12 |
| 87. | product questions after which teacher asked a new question | .47** |
| 88. | choice questions after which teacher asked a new question | .20 |
| 89. | opinion questions after which teacher asked a new question | .11 |
| 90. | process questions after which teacher asked a non-academic question | .01 |
| 91. | product questions after which teacher asked a non-academic question | .01 |
| 92. | answers to process questions which teacher integrated into the class discussion | .48** |
| 93. | answers to product questions which teacher integrated into the class discussion | .58** |
| 94. | answers to choice questions which teacher integrated into the class discussion | .20 |
| 95. | answers to opinion questions which teacher integrated into the class discussion | .12 |
| 96. | process questions after which teacher gave no feedback | .06 |
| 97. | product questions after which teacher gave no feedback | .58** |
| 98. | process questions after which teacher gave process feedback | .36** |
| 99. | product questions after which teacher gave process feedback | .69** |

Table 4 (cont.)

| | |
|---|---|
| 100. choice questions after which teacher gave process feedback | -.05 |
| 101. opinion questions after which teacher gave process feedback | -.19 |
| 102. process questions after which teacher gave the answer | .09 |
| 103. product questions after which teacher gave the answer | .47** |
| 104. choice questions after which teacher gave the answer | -.01 |
| 105. process questions after which teacher asked another student | .13 |
| 106. product questions after which teacher asked another student | .25* |
| 107. choice questions after which teacher asked another student | .25 |
| 108. process questions after which another student called out the answer | .34* |
| 109. product questions after which another student called out the answer | .11 |
| 110. choice questions after which another student called out the answer | .48** |
| 111. preselected, patterned turn students who answered incorrectly | .76** |
| 112. preselected, non-patterned turn students who answered incorrectly | .05 |
| 113. non-volunteers who answered incorrectly | .42** |
| 114. volunteers who answered incorrectly | .05 |
| 115. call-out students who answered incorrectly | .07 |
| 116. preselected, patterned turn students who answered with "don't know" | -.10 |

Table 4 (cont.)

| | | |
|---|---|---|
| 117. | preselected, non-patterned turn students who answered with "don't know" | -.04 |
| 118. | non-volunteers who answered with "don't know" | -.10 |
| 119. | volunteers who answered with "don't know" | -.03 |
| 120. | preselected, patterned turn students who gave no response answers | .00 |
| 121. | preselected, non-patterned turn students who gave no response answers | .22 |
| 122. | non-volunteers who gave no response answers | .53** |
| 123. | preselected, patterned turn students whom teacher praised | .01 |
| 124. | preselected, non-patterned turn students whom teacher praised | .12 |
| 125. | non-volunteers whom teacher praised | .54** |
| 126. | volunteers whom teacher praised | .55** |
| 127. | call-out students whom teacher praised | .65** |
| 128. | non-volunteers whom teacher criticized | .34* |
| 129. | call-out students whom teacher criticized | -.00 |
| 130. | preselected, patterned turn students for whom teacher repeated the question | .40 |
| 131. | preselected, non-patterned turn students for whom teacher repeated the question | .06 |
| 132. | non-volunteers for whom teacher repeated the question | .14 |
| 133. | volunteers for whom teacher repeated the question | .06 |
| 134. | call-out students for whom teacher repeated the question | -.01 |
| 135. | preselected, patterned turn students for whom teacher simplified the question | .45 |

Table 4 (cont.)

| | | |
|---|---|---|
| 136. | preselected, non-patterned turn students for whom teacher simplified the question | -.14 |
| 137. | non-volunteers for whom teacher simplified the question | .37** |
| 138. | volunteers for whom teacher simplified the question | .05 |
| 139. | call-out students for whom teacher simplified the question | -.05 |
| 140. | preselected, patterned turn students whom teacher asked new questions | .15 |
| 141. | preselected, non-patterned turn students whom teacher asked new questions | .23 |
| 142. | non-volunteers whom teacher asked new questions | .34* |
| 143. | volunteers whom teacher asked new questions | .23 |
| 144. | call-out students whom teacher asked new questions | .39** |
| 145. | preselected, patterned turn students whom teacher gave non-academic feedback | -.01 |
| 146. | non-volunteers whom teacher gave non-academic feedback | .08 |
| 147. | volunteers whom teacher gave non-academic feedback | .01 |
| 148. | call-out students whom teacher gave non-academic feedback | -.02 |
| 149. | preselected, patterned turn students whose answers teacher integrated into the class discussion | -.15 |
| 150. | preselected, non-patterned turn students whose answers teacher integrated into the class discussion | .36* |
| 151. | non-volunteers whose answers teacher integrated into the class discussion | .78** |

Table 4 (cont.)

| | | |
|---|---|---|
| 152. | volunteers whose answers teacher integrated into the class discussion | .59** |
| 153. | call-out students whose answers teacher integrated into the class discussion | .44** |
| 154. | non-volunteers whom teacher gave no feedback | .25* |
| 155. | volunteers whom teacher gave no feedback | .39** |
| 156. | call-out students whom teacher gave no feedback | .30* |
| 157. | preselected, patterned turn students whom teacher gave process feedback | .17 |
| 158. | preselected, non-patterned turn students whom teacher gave process feedback | .11 |
| 159. | non-volunteers whom teacher gave process feedback | .40** |
| 160. | volunteers whom teacher gave process feedback | .58** |
| 161. | call-out students whom teacher gave process feedback | .53** |
| 162. | preselected, patterned turn students whom teacher gave the answer | -.10 |
| 163. | preselected, non-patterned turn students whom teacher gave the answer | .05 |
| 164. | non-volunteers whom teacher gave the answer | .47** |
| 165. | volunteers whom teacher gave the answer | .13 |
| 166. | call-out students whom teacher gave the answer | .30* |
| 167. | preselected, patterned turn students whose turns teacher terminated by asking another student | .19 |
| 168. | preselected, non-patterned turn students whose turns teacher terminated by asking another student | .06 |
| 169. | non-volunteers whose turns teacher terminated by asking another student | .26* |
| 170. | volunteers whose turns teacher terminated by asking another student | .30* |

Table 4 (cont.)

| | | |
|---|---|---|
| 171. | call-out students whose turns teacher terminated by asking another student | -.03 |
| 172. | non-volunteers whose turns another student terminated by calling out | .15 |
| 173. | volunteers whose turns another student terminated by calling out | .13 |
| 174. | call-out students whose turns another student terminated by calling out | .10 |
| 175. | correct answers given by preselected, patterned turn students | .30** |
| 176. | correct answers given by preselected, non-patterned turn students | .32** |
| 177. | correct answers given by non-volunteers | .60** |
| 178. | correct answers given by volunteers | .60** |
| 179. | correct answers given by students who called out | .62** |
| 180. | incorrect answers given by preselected, patterned turn students | .25* |
| 181. | incorrect answers given by preselected, non-patterned turn students | .46** |
| 182. | incorrect answers given by non-volunteers | .39** |
| 183. | incorrect answers given by volunteers | .23 |
| 184. | incorrect answers given by students who call out | .10 |
| 185. | "don't know" or no response answers given by preselected, patterned turn students | .21 |
| 186. | "don't know" or no response answers given by preselected, non-patterned turn students | .27* |
| 187. | "don't know" and no response answers given by non-volunteers | .31** |

Table 4 (cont.)

| | | |
|---|---|---|
| 188. | incorrect answers after which teacher gave sustaining feedback | .09 |
| 189. | "don't know" and no response answers after which teacher gave sustaining feedback | .18 |
| 190. | all response opportunities after which teacher gave sustaining feedback | .40** |
| | <u>Student Initiated:</u> | |
| 191. | questions and comments which were questions | .60** |
| 192. | questions and comments which were comments | .60** |
| 193. | questions which were called-out | .77** |
| 194. | called-out questions which were relevant | .74** |
| 195. | relevant questions which were called-out and criticized | .39** |
| 196. | relevant questions which were called-out and ignored | .15 |
| 197. | relevant questions which were called-out and not accepted | .01 |
| 198. | relevant questions which were called-out and given feedback | .70** |
| 199. | relevant questions which were called-out and given process feedback | .76** |
| 200. | relevant questions which were called-out and integrated into the class discussion | .73** |
| 201. | called-out questions which were irrelevant | .57** |
| 202. | irrelevant questions which were called-out and given feedback | .42** |
| 203. | irrelevant questions which were called-out and not accepted | .12 |
| 204. | irrelevant questions which were called-out and given feedback | .56** |

Table 4 (cont.)

| | | |
|---|---|---|
| 205. | questions which were not called-out | .77** |
| 206. | questions which were relevant | .76** |
| 207. | relevant questions which were not accepted | .03 |
| 208. | relevant questions which were given feedback | .78** |
| 209. | relevant questions which were given process feedback | .59** |
| 210. | relevant questions which were redirected | .42** |
| 211. | relevant questions integrated into the class discussion | .57** |
| 212. | questions which were irrelevant | .23 |
| 213. | irrelevant questions which were given feedback | .28* |
| 214. | comments which were called-out | .63** |
| 215. | relevant comments which were called-out | .56** |
| 216. | relevant comments which were called-out and given praise | .13 |
| 217. | relevant comments which were called-out and given criticism | -.07 |
| 218. | relevant comments which were called-out and ignored | .27* |
| 219. | relevant comments which were called-out and not accepted | -.01 |
| 220. | relevant comments which were called-out and given feedback | .58** |
| 221. | relevant comments which were called-out and given process feedback | .30* |
| 222. | relevant comments which were called-out and integrated into the class discussion | .23 |
| 223. | irrelevant comments which were called-out | .66** |
| 224. | irrelevant comments which were called-out and criticized | .03 |

Table 4 (cont.)

| | | |
|---|---|---|
| 225. | irrelevant comments which were called-out and ignored | .54** |
| 226. | irrelevant comments which were called-out and not accepted | .08 |
| 227. | irrelevant comments which were called-out and given feedback | .37** |
| 228. | relevant comments which were not called-out | .53** |
| 229. | relevant comments which were not called-out and were given praise | .01 |
| 230. | relevant comments which were not called-out and were given feedback | .48** |
| 231. | relevant comments which were not called-out and were given process feedback | .60** |
| 232. | relevant comments which were not called-out and which were integrated into the class discussion | .56** |
| 233. | irrelevant comments which were not called-out and were ignored | .13 |
| 234. | irrelevant comments which were not called-out and were not accepted | -.02 |
| 235. | irrelevant comments which were not called-out and were given feedback | .35** |
| 236. | questions and comments which were praised | no data |
| 237. | questions and comments which were criticized | no data |
| Student Created: | | |
| 238. | contacts which related to academic content | .57** |
| 239. | contacts which related to classroom procedure | .50** |
| 240. | academic related contacts which were given praise | .54** |
| 241. | academic related contacts which were given criticism | .40** |

Table 4 (cont.)

| | | |
|---|---|---|
| 242. | academic related contacts which involved brief teacher contact | .66** |
| 243. | academic related contacts which involved long teacher contact | .63** |
| 244. | academic related contacts in which teacher delayed contact | .38** |
| 245. | academic related contacts which were given feedback | .58** |
| 246. | academic related contacts which were given process feedback | .60** |
| 247. | contacts which involved personal requests | .54** |
| 248. | personal contacts which teacher granted | .26* |
| 249. | personal contacts which teacher delayed | -.02 |
| 250. | personal contacts which teacher did not grant | .25* |
| 251. | academic related contacts given brief feedback | .57** |
| 252. | academic related contacts given brief process feedback | .81** |
| 253. | academic related contacts given long feedback | .45** |
| Teacher Initiated: | | |
| 255. | contacts which related to academic content | .61** |
| 256. | academic related contacts which involved praise | .38** |
| 257. | academic related contacts which involved criticism | .59** |
| 258. | academic related contacts which were brief | .33** |
| 259. | academic related contacts which were long | .38** |
| 260. | academic related contacts in which teacher observed student | .51** |

Table 4 (cont.)

| | | |
|---|---|---|
| 261. | academic related contacts which involved feedback | .46** |
| 262. | academic related contacts which involved process feedback | .32** |
| 263. | academic related contacts which involved brief feedback | .38** |
| 264. | academic related contacts which involved brief process feedback | .41** |
| 265. | academic related contacts which involved long feedback | .25* |
| 266. | academic related contacts which involved long process feedback | .35** |
| 267. | contacts which related to classroom procedure | .63** |
| Behavior Related Contacts: | | |
| 268. | misbehaviors to which teacher responded but which coder did not observe | .22 |
| 269. | nondisruptive misbehaviors (daydreaming, wasting time) | .37** |
| 270. | misbehaviors in which student socialized with others | .32** |
| 271. | misbehaviors which involved being late to class | .09 |
| 272. | disruptive misbehaviors | .55** |
| 273. | misbehaviors in which student sassed or defied teacher | .21 |
| 274. | misbehaviors in which student was verbally aggressive toward teacher or peers | -.01 |
| 275. | misbehaviors in which student was physically aggressive toward teacher or peers | .20 |
| 276. | misbehaviors in which student left class without permission | -.06 |

Table 4 (cont.)

| | |
|---|---|
| 277. misbehaviors which involved contraband items (knives, radios, toys, etc.) | .41** |
| 278. misbehaviors in which student baited teacher | .48** |
| 279. misbehaviors in which student slept in class | .06 |
| 280. misbehaviors which could not be classified in the above | .32** |
| 281. misbehaviors in which teacher intervened nonverbally | .31** |
| 282. misbehaviors which involved management request from teacher | .29* |
| 283. misbehaviors which involved management request but which teacher directed to wrong student (target error) | .35** |
| 284. misbehaviors which involved management request but in which teacher delayed acting (timing error) | .44** |
| 285. misbehaviors which involved management request and in which teacher overreacted | .31* |
| 286. misbehaviors which teacher criticized | .18 |
| 287. misbehaviors in which teacher criticized wrong student (target error) | .86** |
| 288. misbehaviors in which teacher delayed criticizing (timing error) | .46** |
| 289. misbehaviors in which teacher overreacted with criticism | .05 |
| 290. misbehaviors in which teacher threatened student | .52** |
| 291. misbehaviors in which teacher delayed threatening (timing error) | .17 |
| 292. misbehaviors in which teacher overreacted with threats | .13 |
| 293. misbehaviors which involved management request but which coder did not observe | .19 |

Table 4 (cont.)

| | |
|---|---|
| 294. misbehaviors which teacher criticized but which coder did not observe | .22 |
| 295. mild misbehaviors in which teacher intervened nonverbally. | .12 |
| 296. mild misbehaviors which involved management request from teacher | .28* |
| 297. mild misbehaviors which teacher criticized | .22 |
| 298. mild misbehaviors in which teacher threatened student | .41** |
| 299. misbehaviors in which student socialized with others and in which teacher intervened nonverbally | .15 |
| 300. misbehaviors in which student socialized with others and which involved management request | .11 |
| 301. misbehaviors in which student socialized with others ~~and which teacher~~ criticized | .08 |
| 302. misbehaviors in which student socialized with others and in which teacher threatened student | .21 |
| 303. tardiness which involved management request | .51* |
| 304. tardiness which teacher criticized | .42 |
| 305. disruptive misbehaviors in which teacher intervened nonverbally | .11 |
| 306. disruptive misbehaviors which involved management request | .19 |
| 307. disruptive misbehaviors which teacher criticized | .29* |
| 308. disruptive misbehaviors in which teacher threatened student | .08 |
| 309. misbehaviors in which student sassed or defied teacher and which involved management request | .13 |
| 310. misbehaviors in which student sassed or defied teacher and which teacher criticized | .07 |

Table 4 (cont.)

| | | |
|---|---|---|
| 311. | misbehaviors in which student sassed or defied teacher and in which teacher threatened student | .12 |
| 312. | misbehaviors in which student was verbally aggressive and which involved management request | .04 |
| 313. | misbehaviors in which student was physically aggressive and which involved management request | -.02 |
| 314. | misbehaviors in which student was physically aggressive and which teacher criticized | -.06 |
| 315. | misbehaviors in which student left class without permission and which involved management request | -.60 |
| 316. | misbehaviors which involved contraband items and which involved management request | -.29 |
| 317. | misbehaviors which involved contraband items and in which teacher threatened student | -.07 |
| 318. | misbehaviors in which student baited teacher and which involved management request | .05 |
| 319. | miscellaneous misbehaviors (not in the above categories) which involved management requests | .06 |
| 320. | miscellaneous misbehaviors (not in the above categories) which teacher criticized | .36 |
| 321. | misbehaviors which involved management requests | .18 |
| 322. | misbehaviors which teacher criticized | .15 |
| 323. | misbehaviors in which teacher threatened student | .44** |
| 324. | misbehaviors in which teacher acted without target or timing error | .51** |
| 325. | misbehaviors in which teacher acted with target error | .61** |
| 326. | misbehaviors in which teacher acted with timing error | .44** |

Table 4 (cont.)

| | | |
|---|---|---|
| 327. | misbehaviors in which teacher overreacted | .73** |
| 328. | mild misbehaviors which involved management requests. | .18 |
| 329. | mild misbehaviors which teacher criticized | .13 |
| 330. | serious misbehaviors which involved management request | .14 |
| 331. | serious misbehaviors which teacher criticized | .26* |
| 332. | mild misbehaviors in which teacher acted without target or timing error | .39** |
| 333. | mild misbehaviors in which teacher acted with target error | .55** |
| 334. | mild misbehaviors in which teacher acted with timing error | .20 |
| 335. | mild misbehaviors in which teacher overreacted | .74** |
| 336. | serious misbehaviors in which teacher acted without target or timing error | .09 |
| 337. | serious misbehaviors in which teacher acted with target error | .25* |
| 338. | serious misbehaviors in which teacher acted with timing error | .30* |
| 339. | serious misbehaviors in which teacher overreacted | -.02 |

Social Contacts

| | | |
|---|---|---|
| 340. | teacher-initiated contacts which were social | .47** |
| 341. | student-created contacts which were social | .47** |
| 342. | student-created contacts which were social and which teacher accepted | .07 |
| 343. | student-created contacts which were social and which teacher did not accept | .07 |

General Categories

| | | |
|---|---|---|
| 344. | response opportunities in which teacher praised | .63** |
| 345. | response opportunities in which teacher criticized | .58** |

Table 4 (cont.)

| | | |
|---|---|---|
| 346. | dyadic contacts which were response opportunities | .82** |
| 347. | dyadic contacts which were student-initiated questions | .39** |
| 348. | dyadic contacts which were student-initiated comments | .55** |
| 349. | dyadic contacts which were student-created (private) | .78** |
| 350. | dyadic contacts which were teacher-initiated (private) | .67** |
| 351. | dyadic contacts which were behavior related | .63** |
| 352. | dyadic contacts which were social | .74** |
| 353. | dyadic contacts which were private (not public) | .75** |
| 354. | dyadic contacts which were private and which were student-created (excluding social) | .68** |
| 355. | contacts involving academic content which were private and which teacher praised | .49** |
| 356 | contacts involving academic content which were private and which teacher criticized | .59** |
| 357. | contacts which were private and which involved academic content | .63** |
| 358. | contacts which were private and which did not involve academic content | .63** |
| 359. | student-created contacts which were public | .60** |
| 360. | teacher-initiated contacts which were public (excluding behavioral contacts) | .73** |
| 361. | student-created contacts which were private and which related to academic content | .57** |
| 362. | student-created contacts which were private and which related to classroom procedure | .50** |
| 363. | contacts involving academic content in which teacher gave process feedback | .79** |
| 364. | teacher-initiated contacts which were behavior related. | .69** |

[1]$N = 68$
*$p$ .05
**$p \leq .01$

Table 5. Correlations across Class Sections for Classroom Observation Scales Made on Each Visit[1]

| | | |
|---|---|---|
| 1. | High level of student attention | .73** |
| 2. | Teacher initiated problem solving | .83** |
| 3. | Pupil-to-pupil interaction | .77** |
| 4. | Teacher presentation | .80** |
| 5. | Negative affect (teacher and students) | .77** |
| 6. | Positive affect (teacher) | .83** |
| 7. | Higher cognitive level student behavior | .75** |
| 8. | Passive pupil behavior | .81** |
| 9. | Convergent evaluative interactions (teacher probes for right answer) | .86** |
| 10. | Teacher task orientation | .84** |
| 11. | Clarity of teacher presentations | .82** |
| 12. | Teacher enthusiasm | .79** |
| 13. | Random questioning; memory questions; fact related | .80** |
| 14. | Higher cognitive level questions: synthesis, "why" questions | .76** |
| 15. | Questions with application to students' personal lives; personal questions | .48** |

[1] $N = 68$

$^{**}p \leq .01$

Table 6. Correlations across Class Sections for High Inference Observer Ratings Made at the End of the Year[1]

| | | |
|---|---|---|
| 1. | Patience of teacher in correcting errors | .87** |
| 2. | Attractiveness of room | .85** |
| 3. | Effectiveness of teacher's management methods | .83** |
| 4. | Crowdedness of classroom | .64** |
| 5. | Democratic leadership style of teacher | .90** |
| 6. | Talk among students | .88** |
| 7. | Teacher stress on form of responses | .83** |
| 8. | Student obedience to teacher | .85** |
| 9. | Quantity of directions; overly explicit and repetitive | .65** |
| 10. | Classroom interruptions | .87** |
| 11. | Teacher use of students in performing certain classroom functions | .68** |
| 12. | Teacher has seating arrangement | .77** |
| 13. | Frequency of seating arrangement changes | .89** |
| 14. | Consistency of enforcement of rules | .89** |
| 15. | Teacher grants requests to go to restroom or water fountain | .76** |
| 16. | Length of time after bell for class to begin | .89** |
| 17. | Teacher uses "explanations" to solve behavior problems | .83** |
| 18. | Amount of disturbance teacher accepts | .90** |
| 19. | Amount of teacher confusion, fluster | .79** |
| 20. | Correction of minor misbehaviors | .77** |
| 21. | Monitoring of class | .89** |

Table 6 (cont.)

| | | |
|---|---|---|
| 22. | Efficiency of transitions during the class period | .86** |
| 23. | High level of teacher affection | .83** |
| 24. | Teacher range of affection: low end | .77** |
| 25. | Teacher range of affection: high end | .81** |
| 26. | Teacher solidarity with group | .84** |
| 27. | Teacher anxiety | .79** |
| 28. | Teacher confidence level | .94** |
| 29. | Teacher enthusiasm | .85** |
| 30. | Student respect for teacher | .85** |
| 31. | Teacher deals effectively with student personal problems | .83** |
| 32. | Teacher socializing with students | .88** |
| 33. | Teacher awareness of coder | .91** |
| 34. | Teacher credibility | .81** |
| 35. | Teacher showmanship | .83** |
| 36. | Academic encouragement given by teacher | .84** |
| 37. | Receptiveness to student input | .84** |
| 38. | Nurturance of student affective skills | .91** |
| 39. | Variety and choice in assignments | .66** |
| 40. | Teacher use of self-paced work | .88** |
| 41. | Teacher use of blackboard for lectures and discussions | .89** |
| 42. | Teacher use of audio-visual aids | .78** |
| 43. | Teacher use of oral reading | .84** |
| 44. | Teacher use of drama; students read parts in plays or stories | .81** |

Table 6 (cont.)

| | | |
|---|---|---|
| 45. | Teacher's productive use of own mistakes | .79** |
| 46. | Teacher goes to students during seatwork | .91** |
| 47. | Student eagerness for response opportunities | .76** |
| 48. | Time allotted for class discussion | .81** |
| 49. | Task-oriented seatwork | .82** |
| 50. | Amount of teacher preparation | .89** |
| 51. | Teacher attention to "learning disability" children or slow learners (N = 56) | .85** |
| 52. | Teacher academic effectiveness | .91** |
| 53. | Frequency of homework | .88** |
| 54. | Amount of class time spent in productive work | .84** |
| 55. | Teacher emphasis on grades | .76** |
| 56. | Teacher concern for academic achievement, grades | .81** |
| 57. | Teacher primarily lectures | .84** |
| 58. | Teacher primarily assigns seatwork | .89** |
| 59. | Teacher primarily uses class discussions | .85** |
| 60. | Teacher command of subject matter | .86** |
| 61. | Difficulty level of teacher's questions | .70** |
| 62. | Teacher consistently plans sufficient work for class | .81** |
| 63. | Teacher consistently gives feedback on assigned work | .64** |
| 64. | Coder, if 7th or 8th grader, would choose this teacher | .93** |

[1] N = 68 except where noted.

** $p \leq .01$

Table 7. Correlations across Class Sections for Student's Ratings of Teachers[1]

| Student: | |
|---|---|
| 1. Thinks the teacher knows the subject well | .56** |
| 2. Thinks the teacher is always well prepared and organized | .70** |
| 3. Thinks the teacher enjoys teaching | .63** |
| 4. Thinks the teacher is interested in knowing students as well as teaching them | .64** |
| 5. Feels comfortable asking questions or asking for help | .61** |
| 6. Feels comfortable about going to the teacher with a personal problem | .69** |
| 7. Feels he/she has learned a great deal in the class | .66** |
| 8. Has enjoyed the class | .66** |
| 9. Would ask for this teacher again next year | .75** |

[1] N = 68

**$p \leq .01$

Table 8. Two-way Analyses of Variance between Subject Matter and Class Section Using Means from the Major Low Inference Observational Coding System.

| Variable | Subject Matter: Math Means | Subject Matter: English Means | p | Observed Section: First Means | Observed Section: Second Means | p | A x B p |
|---|---|---|---|---|---|---|---|
| RATE OF: | | | | | | | |
| 1. public response opportunities | 13.06 | 11.92 | | 12.52 | 12.46 | | |
| 2. process questions | 2.66 | 1.49 | .01 | 2.17 | 1.98 | | |
| 3. product questions | 9.86 | 9.60 | | 9.90 | 9.56 | | |
| 4. choice questions | .34 | .31 | | .41 | .25 | | .04 |
| 5. opinion questions | .10 | .55 | .00 | .41 | .25 | .05 | |
| 6. preselect-patterned type of selection | .39 | 1.20 | .01 | .90 | .69 | | |
| 7. preselect non-patterned type of selection | .40 | .54 | | .52 | .42 | | |
| 8. non-volunteer type of selection | 7.02 | 5.16 | | 6.05 | 6.14 | | |
| 9. volunteer type of selection | 2.70 | 2.99 | | 3.18 | 2.51 | | |
| 10. call-out type of selection | 2.47 | 2.06 | | 2.25 | 2.27 | | |
| 11. correct answers | 9.94 | 9.24 | | 9.90 | 9.28 | | |
| 12. incorrect answers | 2.03 | 1.47 | .05 | 1.79 | 1.71 | | |
| 13. "don't know" answers | .43 | .37 | | .39 | .41 | | |
| 14. no responses | .46 | .36 | | .42 | .40 | | |
| 15. student-initiated questions | 3.78 | 2.91 | .03 | 3.57 | 3.11 | | |

Table 8 (cont.)

| Variable | Subject Matter: Math Means | Subject Matter: English Means | p | Observed Section: First Means | Observed Section: Second Means | p | A x B p |
|---|---|---|---|---|---|---|---|
| 16. student-initiated comments | 1.36 | 1.77 | | 1.66 | 1.47 | | |
| 17. student-created work contacts which are content related | 10.40 | 7.64 | .01 | 9.55 | 8.49 | | |
| 18. student-created work contacts which are procedure related | 3.59 | 4.66 | .01 | 4.21 | 4.04 | | |
| 19. student-created contacts that are personal | 1.16 | 1.08 | | 1.22 | 1.02 | | |
| 20. teacher-initiated work contacts | 3.40 | 3.51 | | 3.64 | 3.27 | | |
| 21. teacher-initiated contacts which are procedure related | 1.80 | 2.34 | .01 | 2.06 | 2.08 | | |
| 22. social contacts that are teacher-initiated | .30 | .35 | | .34 | .32 | | |
| 23. social contacts that are student-created | .92 | 1.09 | | 1.05 | .96 | | |
| 24. dyadic contacts | 44.93 | 41.41 | | 46.00 | 40.34 | .01 | |
| 25. behavioral contacts | 5.26 | 5.26 | | 5.80 | 4.72 | | |
| 26. academic praise | 1.85 | 1.82 | | 1.83 | 1.84 | | |
| 27. academic criticism | .57 | .44 | | .50 | .50 | | |
| 28. sustaining feedback given wrong answers in academic response opportunities context | .61 | .41 | | .50 | .52 | | |
| 29. sustaining feedback given "don't know" or no response in academic response opportunities context | .21 | .13 | .04 | .14 | .20 | | |

Table 8 (cont.)

| Variable | Subject Matter Math Means | Subject Matter English Means | p | Observed Section First Means | Observed Section Second Means | p | A x B p |
|---|---|---|---|---|---|---|---|
| 30. total sustaining feedback | 1.94 | 1.26 | | 1.61 | 1.59 | | |
| 31. public and private work contacts sought by student | 20.70 | 17.36 | .02 | 20.22 | 17.84 | .05 | |
| 32. student initiations evoking negative teacher response | .61 | .52 | | .65 | .48 | .02 | |
| 33. behavioral criticism and threat | 1.11 | .97 | | 1.04 | 1.04 | | |
| 34. mild misbehaviors | 3.52 | 3.86 | | 4.00 | 3.38 | | |
| 35. serious misbehaviors | 1.07 | .98 | | 1.12 | .89 | | |
| 36. reinforcing dyadic contacts (e.g. in response opportunities praise; SIC praise; CCC work praise; personal grant; TAC work praise) | 2.69 | 2.66 | | 2.71 | 2.64 | | |
| 37. aversive dyadic contact (e.g. academic criticism response opportunities; "asks other", personal not grants; SIC-SIQ ignore not accept, criticism; behavioral contacts, CCC criticism; TAC criticism; social teacher not accept) | 7.64 | 7.12 | | 8.08 | 6.68 | | |
| 38. private student-created contacts | 16.06 | 14.48 | | 16.03 | 14.51 | | |
| 39. private teacher-initiated contacts | 5.51 | 6.20 | | 6.04 | 5.67 | | |

Table 8 (cont.)

| Variable | Subject Matter: Math Means | English Means | p | Observed Section: First Means | Second Means | p | A x B p |
|---|---|---|---|---|---|---|---|
| TIME UTILIZATION Rate of minutes in: | | | | | | | |
| 40. peer tutoring | .12 | .10 | | .11 | .11 | | |
| 41. teacher controlled small group settings | .27 | .17 | | .23 | .20 | | |
| 42. non-teacher controlled small group settings | .31 | .38 | | .33 | .35 | | |
| 43. at blackboard | 1.63 | .25 | .00 | 1.08 | .80 | | |
| 44. individual seatwork | 22.37 | 22.01 | | 22.81 | 22.58 | | |
| 45. transitions | 1.06 | 1.18 | | 1.13 | 1.12 | | |
| 46. BS (off task chit-chat) | .74 | .85 | | .80 | .80 | | |
| 47. group discipline | .69 | .70 | | .75 | .64 | | |
| 48. lecture demonstration | 9.73 | 4.75 | .00 | 6.91 | 7.56 | | |
| 49. class discussion | 5.78 | 6.88 | | 6.72 | 5.94 | | |
| 50. drill | .59 | .57 | | .65 | .51 | | |
| 51. special activities | 1.03 | 3.19 | .00 | 1.94 | 2.28 | | |
| 52. advance organizers | 2.49 | 3.45 | .00 | 2.96 | 2.98 | | |
| 53. lost time | 1.43 | 1.43 | | 1.45 | 1.41 | | |
| 54. individual self-paced work | 1.20 | 1.52 | | 1.45 | 1.27 | | |
| 55. Teacher being out of the room | .53 | .70 | | .60 | .64 | | |
| 56. testing time | 2.22 | 2.93 | .04 | 2.32 | 2.82 | | |
| 57. other (unspecified) | 1.81 | 3.95 | .00 | 2.82 | 2.94 | | |
| 58. total teacher controlled time | 11.01 | 10.99 | | 10.99 | 11.00 | | |

Table 9. Two-Way Analyses of Variance between Subject Matter and Class Section using Mean Proportions from the Low Inference Observational Coding System[1]

| Variable | Subject Matter Math Means | Subject Matter English Means | Subject Matter p | Observed Section First Means | Observed Section Second Means | Observed Section p | A x B p |
|---|---|---|---|---|---|---|---|
| Proportion of: | | | | | | | |
| 1. response opportunities generated by process questions | .17 | .14 | | .15 | .16 | | |
| 2. response opportunities generated by product questions | .79 | .78 | | .81 | .77 | .02 | |
| 3. response opportunities generated by choice questions | .03 | .03 | | .02 | .03 | | |
| 4. response opportunities generated by opinion questions | .01 | .05 | .00 | .02 | .05 | .02 | |
| 5. process questions which students answered correctly | .75 | .81 | .01 | .78 | .78 | | |
| 6. product questions which students answered correctly | .78 | .82 | .02 | .80 | .80 | | |
| 7. choice questions which sutdents answered correctly | .85 | .85 | | .88 | .82 | | |
| 8. opinion questions which students answered with "don't know" or no response | .03 | .05 | | .03 | .05 | | |
| 9. response opportunities given to students who were preselected in patterned turns | .03 | .08 | .01 | .05 | .06 | | |
| 10. response opportunities given to students who were preselected in non-patterned turns | .03 | .04 | | .03 | .04 | | |
| 11. response opportunities which teacher gave to non-volunteers | .46 | .42 | | .46 | .42 | | |

Table 9 (cont.)

| Variable | Subject Matter Math Means | Subject Matter English Means | p | Observed Section First Means | Observed Section Second Means | p | A x B p |
|---|---|---|---|---|---|---|---|
| 12. response opportunities which teacher gave to volunteers | .21 | .25 | | .23 | .23 | | |
| 13. response opportunities which students answered by calling out | .27 | .21 | | .22 | .25 | | |
| 14. preselected, patterned turn students who answered correctly | .78 | 80 | | .82 | .76 | | |
| 15. preselected, non-patterned turn students who answered correctly | .74 | .77 | | .74 | .76 | | |
| 16. non-volunteers who answered correctly | .70 | .72 | | .70 | .72 | | |
| 17. volunteers who answered correctly | .83 | .84 | | .85 | .82 | | |
| 18. call-out students who answered correctly | .84 | .80 | | .85 | .79 | .01 | |
| 19. correct answers | .77 | .82 | .00 | .79 | .79 | | |
| 20. incorrect answers | .16 | .12 | .00 | .13 | .14 | | |
| 21. answers which were "don't know" | .03 | .03 | | .04 | .03 | .02 | |
| 22. answers which were no response | .04 | .03 | | .03 | .03 | | |
| 23. correct answers which teacher praised | .12 | .13 | | .12 | .12 | | |
| 24. correct answers after which teacher asked new question | .07 | .07 | | .07 | .07 | | |
| 25. correct answers after which teacher asked non-academic question | .01 | .00 | | .00 | .01 | | |
| 26. correct answers which teacher integrated into the class discussion | .16 | .11 | | .12 | .16 | .01 | |

Table 9 (cont.).

| Variable | Subject Matter: Math Means | Subject Matter: English Means | p | Observed Section: First Means | Observed Section: Second Means | p | A x B p |
|---|---|---|---|---|---|---|---|
| 27. correct answers after which teacher gave no feedback | .01 | .02 | | .02 | .01 | .04 | |
| 28. correct answers after which teacher gave process feedback | .04 | .04 | | .04 | .04 | | |
| 29. incorrect answers which teacher criticized | .02 | .02 | | .02 | .01 | | |
| 30. incorrect answers after which teacher repeated the question | .11 | .08 | | .10 | .09 | | |
| 31. incorrect answers after which teacher simplified the question | .12 | .11 | | .12 | .11 | | |
| 32. incorrect answers after which teacher asked a new question | .05 | .05 | | .05 | .05 | | |
| 33. incorrect answers after which teacher asked a non-academic question | .02 | .03 | | .02 | .03 | | |
| 34. incorrect answers which teacher integrated into the class discussion | .02 | .02 | | .02 | .01 | | |
| 35. incorrect answers after which teacher gave no feedback | .01 | .02 | | .02 | .01 | | |
| 36. incorrect answers after which teacher gave process feedback | .11 | .10 | | .10 | .10 | | |
| 37. incorrect answers after which teacher gave the answer | .18 | .18 | | .18 | .18 | | |
| 38. incorrect answers after which teacher asked another student | .25 | .22 | | .27 | .21 | | |
| 39. incorrect answers after which another student called out the answer | .05 | .08 | | .06 | .07 | | |

Table 9 (cont.)

| Variable | Subject Matter Math Means | English Means | p | Observed Section First Means | Second Means | p | A x B p |
|---|---|---|---|---|---|---|---|
| 40. "don't know" and no response answers which teacher criticized | .03 | .03 | | .04 | .02 | | |
| 41. "don't know" and no response answers after which teacher repeated the question | .07 | .08 | | .08 | .07 | | |
| 42. "don't know" and no resposne answers after which teacher simplified the question | .10 | .08 | | .10 | .09 | | |
| 43. "don't know" and no response answers after which teacher asked a new question | .04 | .02 | | .04 | .03 | | |
| 44. "don't know" and no response answers after which teacher asked a non-academic question | .02 | .03 | | .03 | .02 | | |
| 45. "don't know" and no response answers after which teacher gave process feedback | .04 | .02 | .04 | .03 | .03 | | |
| 46. "don't know" and no response answers after which teacher gave the answer | .09 | .09 | | .09 | .09 | | |
| 47. "don't know" and no response answers after which teacher asked another student | .47 | .47 | | .44 | .49 | | |
| 48. "don't know" and no response answers after which another student called out the answer | .09 | .09 | | .09 | .09 | | |
| 49. process questions which students answered incorrectly | .17 | .12 | .02 | .14 | .15 | | |
| 50. product questions which students answered incorrectly | .15 | .12 | .02 | .13 | .14 | | |
| 51. choice questions which students answered incorrectly | .13 | .10 | | .10 | .12 | | |

Table 9 (cont.)

| Variable | Subject Matter: Math Means | English Means | p | Observed Section: First Means | Second Means | p | A x B p |
|---|---|---|---|---|---|---|---|
| 52. process questions which students answered with "don't know" | .04 | .04 | | .04 | .03 | | |
| 53. product questions which students answered with "don't know" | .03 | .03 | | .04 | .03 | .01 | |
| 54. choice questions which students answered with "don't know" | .00 | .03 | | .01 | .02 | | |
| 55. process questions to which students gave no response answers | .04 | .03 | | .04 | .04 | | |
| 56. product questions to which students gave no response answers | .04 | .03 | | .03 | .04 | | |
| 57. choice questions to which students gave no response answers | .02 | .03 | | .01 | .03 | .04 | |
| 58. preselected, patterned turn students who were asked product questions | .02 | .09 | .00 | .05 | .06 | | |
| 59. preselected, non-patterned turn students who were asked process questions | .04 | .03 | | .03 | .04 | | |
| 60. preselected, non-patterned turn students who were asked product questions | .03 | .04 | | .04 | .03 | | |
| 61. preselected, non-patterned turn students who were asked choice questions | .06 | .05 | | .06 | .05 | | |
| 62. process questions directed to non-volunteers | .43 | .43 | | .45 | .42 | | |
| 63. product questions directed to non-volunteers | .48 | .42 | | .46 | .43 | | |
| 64. choice questions directed to non-volunteers | .45 | .49 | | .50 | .45 | | |

Table 9 (cont.)

| Variable | Subject Matter Math Means | Subject Matter English Means | p | Observed Section First Means | Observed Section Second Means | p | A x B p |
|---|---|---|---|---|---|---|---|
| 65. opinion questions directed to non-volunteers | .47 | .28 | .02 | .43 | .32 | | |
| 66. process questions directed to volunteers | .32 | .32 | | .32 | .32 | | |
| 67. product questions directed to volunteers | .19 | .25 | | .22 | .22 | | |
| 68. choice questions directed to volunteers | .14 | .17 | | .14 | .17 | | |
| 69. opinion questions directed to volunteers | .29 | .28 | | .22 | .35 | | |
| 70. process questions answered by a student calling out | .19 | .18 | | .18 | .19 | | |
| 71. product questions answered by a student calling out | .28 | .21 | | .24 | .25 | | |
| 72. choice questions answered by a student calling out | .35 | .20 | | .28 | .27 | | |
| 73. opinion questions answered by a student calling out | .24 | .39 | | .34 | .29 | | |
| 74. answers to process questions which teacher praised | .15 | .16 | | .16 | .15 | | |
| 75. answers to product questions which teacher praised | .09 | .10 | | .10 | .09 | | |
| 76. answers to choice questions which teacher praised | .04 | .08 | | .05 | .07 | | |
| 77. answers to opinion questions which teacher praised | .03 | .14 | | .07 | .10 | | |

Table 9 (cont.)

| Variable | Subject Matter Math Means | English Means | p | Observed Section First Means | Second Means | p | A x B p |
|---|---|---|---|---|---|---|---|
| 78. answers to process questions which teacher criticized | .01 | .00 | | .01 | .00 | | |
| 79. answers to product questions which teacher criticized | .01 | .00 | | .01 | .00 | | |
| 80. process questions after which teacher repeated the question | .02 | .01 | | .01 | .02 | | |
| 81. product questions after which teacher repeated the question | .02 | .02 | .01 | .02 | .02 | | |
| 82. choice questions after which teacher repeated the question | .01 | .01 | | .01 | .01 | | |
| 83. process questions after which teacher simplified the question | .03 | .01 | .02 | .02 | .02 | | |
| 84. product questions after which teacher simplified the question | .03 | .02 | | .03 | .02 | | |
| 85. choice questions after which teacher simplified the question | .01 | .03 | | .02 | .02 | | |
| 86. process questions after which teacher asked a new question | .09 | .07 | | .08 | .08 | | |
| 87. product questions after which teacher asked a new question | .06 | .06 | | .06 | .06 | | |
| 88. choice questions after which teacher asked a new question | .11 | .05 | | .07 | .09 | | |
| 89. opinion questions after which teacher asked a new question | .04 | .06 | | .04 | .05 | | |

Table 9 (cont.)

| Variable | Subject Matter Math Means | English Means | p | Observed Section First Means | Second Means | p | A x B p |
|---|---|---|---|---|---|---|---|
| 90. process questions after which teacher asked a non-academic question | .01 | .01 | | .01 | .01 | | |
| 91. product questions after which teacher asked a non-academic question | .01 | .01 | | .01 | .01 | | |
| 92. answers to process questions which teacher integrated into the class discussion | .13 | .15 | | .15 | .13 | | |
| 93. answers to product questions which teacher integrated into the class discussion | .12 | .08 | | .08 | .12 | .01 | |
| 94. answers to choice questions which teacher integrated into the class discussion | .25 | .14 | | .20 | .18 | | |
| 95. answers to opinion questions which teacher integrated into the class discussion | .11 | .08 | | .10 | .09 | | |
| 96. process questions after which teacher gave no feedback | .01 | .02 | | .02 | .01 | | |
| 97. product questions after which teacher gave no feedback | .01 | .02 | | .02 | .01 | | |
| 98. process question after which teacher gave process feedback | .09 | .10 | | .11 | .08 | | |
| 99. product questions after which teacher gave process feedback | .04 | .04 | | .04 | .04 | | |
| 100. choice questions after which teacher gave process feedback | .08 | .05 | | .06 | .07 | | |

Table 9 (cont.)

| Variable | Subject Matter Math Means | English Means | p | Observed Section First Means | Second Means | p | A x B p |
|---|---|---|---|---|---|---|---|
| 101. opinion questions after which teacher gave process feedback | .08 | .06 | | .10 | .03 | | |
| 102. process questions after which teacher gave the answer | .03 | .02 | | .03 | .02 | | |
| 103. product questions after which teacher gave the answer | .03 | .03 | | .03 | .03 | | |
| 104. choice questions after which teacher gave the answer | .04 | .04 | | .04 | .04 | | |
| 105. process questions after which teacher asked another student | .09 | .07 | | .08 | .08 | | |
| 106. product questions after which teacher asked another student | .08 | .06 | .03 | .07 | .07 | | |
| 107. choice questions after which teacher asked another student | .03 | .05 | | .03 | .04 | | |
| 108. process questions after which another student called out the answer | .01 | .01 | | .01 | .01 | | |
| 109. product questions after which another student called out the answer | .02 | .01 | | .01 | .02 | | |
| 110. choice questions after which another student called out the answer | .00 | .02 | | .01 | .01 | | |
| 111. preselected, patterned turn students who answered incorrectly | .18 | .15 | | .14 | .19 | | |
| 112. preselected, non-patterned turn students who answered incorrectly | .16 | .11 | | .14 | .12 | | |

Table 9 (cont.)

| Variable | Subject Matter Math Means | Subject Matter English Means | p | Observed Section First Means | Observed Section Second Means | p | A x B p |
|---|---|---|---|---|---|---|---|
| 113. non-volunteers who answered incorrectly | .15 | .12 | .02 | .13 | .14 | | |
| 114. volunteers who answered incorrectly | .16 | .10 | | .12 | .13 | | |
| 115. call-out students who answered incorrectly | .14 | .11 | | .12 | .14 | | .03 |
| 116. preselected, patterned turn students who answered with "don't know" | .03 | .02 | | .02 | .03 | | |
| 117. preselected, non-patterned turn students who answered with "don't know" | .06 | .05 | | .07 | .05 | | |
| 118. non-volunteers who answered with "don't know" | .07 | .06 | | .08 | .05 | .00 | |
| 119. volunteers who answered with "don't know" | .00 | .00 | | .00 | .01 | | |
| 120. preselected, patterned turn students who gave no response answers | .01 | .01 | | .01 | .01 | | |
| 121. preselected, non-patterned turn students who gave no response answers | .05 | .04 | | .04 | .04 | | .03 |
| 122. non-volunteers who gave no response answers | .07 | .07 | | .07 | .07 | | |
| 123. preselected, patterned turn students whom teacher praised | .15 | .14 | | .20 | .10 | | |
| 124. preselected, non-patterned turn students whom teacher praised | .18 | .15 | | .14 | .19 | | |
| 125. non-volunteers whom teacher praised | .08 | .09 | | .08 | .09 | | |
| 126. volunteers whom teacher praised | .11 | .13 | | .12 | .12 | | |

Table 9 (cont.)

| Variable | Subject Matter: Math Means | English Means | p | Observed Section: First Means | Second Means | p | A x B p |
|---|---|---|---|---|---|---|---|
| 127. call-out students whom teacher praised | .09 | .11 | | .11 | .09 | | |
| 128. non-volunteers whom teacher criticized | .01 | .01 | | .01 | .01 | | |
| 129. call-out students whom teacher criticized | .01 | .01 | | .01 | .01 | | |
| 130. preselected, patterned turn students for whom teacher repeated the question | .01 | .02 | | .01 | .02 | | |
| 131. preselected, non-patterned turn students for whom teacher repeated the question | .02 | .02 | | .02 | .02 | | |
| 132. non-volunteers for whom teacher repeated the question | .03 | .02 | | .02 | .02 | | |
| 133. volunteers for whom teacher repeated the question | .02 | .01 | .03 | .01 | .02 | | |
| 134. call-out students for whom teacher repeated the question | .02 | .01 | .05 | .01 | .02 | | |
| 135. preselected, patterned turn students for whom teacher simplified the question | .04 | .01 | | .01 | .04 | .05 | |
| 136. preselected, non-patterned turn student for whom teacher simplified the question | .03 | .03 | | .03 | .03 | | |
| 137. non-volunteers for whom teacher simplified the question | .04 | .03 | | .03 | .03 | | |
| 138. volunteers for whom teacher simplified the question | .02 | .01 | .05 | .01 | .01 | | |

Table 9 (cont.)

| Variable | Subject Matter Math Means | English Means | p | Observed Section First Means | Second Means | p | A x B p |
|---|---|---|---|---|---|---|---|
| 139. call-out students for whom teacher simplified the question | .01 | .01 | | .01 | .01 | | |
| 140. preselected, patterned turn students whom teacher asked new questions | .07 | .05 | | .03 | .09 | | |
| 141. preselected, non-patterned turn students whom teacher asked new questions | .11 | .10 | | .07 | .14 | | |
| 142. non-volunteers whom teacher asked new questions | .08 | .08 | | .08 | .08 | | |
| 143. volunteers whom teacher asked new question | .07 | .06 | | .06 | .06 | | |
| 144. call-out students whom teacher asked new questions | .04 | .04 | | .04 | .04 | | |
| 145. preselected, patterned-turn students whom teacher gave non-academic feedback | .01 | .01 | | .01 | .01 | | |
| 146. non-volunteers whom teacher gave non-academic feedback | .01 | .01 | | .01 | .01 | | |
| 147. volunteers whom teacher gave non-academic feedback | .01 | .01 | | .01 | .01 | | |
| 148. call-out students whom teacher gave non-academic feedback | .01 | .00 | | .00 | .01 | | |
| 149. preselected, patterned turn students whose answers teacher integrated into the class discussion | .02 | .05 | | .02 | .06 | | |

Table 9 (cont.)

| Variable | Subject Matter Math Means | English Means | p | Observed Section First Means | Second Means | p | A x B p |
|---|---|---|---|---|---|---|---|
| 150. preselected, non-patterned turn students whose answers teacher integrated into the class discussion | .13 | .16 | | .14 | .15 | | |
| 151. non-volunteers whose answers teacher integrated into the class discussion | .09 | .09 | | .08 | .11 | .02 | |
| 152. volunteers whose answers teacher integrated into the class discussion | .14 | .12 | | .10 | .16 | .01 | |
| 153. call-out students whose answers teacher integrated into the class discussion | .17 | .14 | | .14 | .17 | | |
| 154. non-volunteers whom teacher gave no feedback | .01 | .02 | | .02 | .01 | | |
| 155. volunteers whom teacher gave no feedback | .01 | .01 | | .01 | .01 | | |
| 156. call-out students whom teacher gave no feedback | .01 | .01 | | .01 | .02 | | |
| 157. preselected, patterned turn students whom teacher gave process feedback | .02 | .01 | | .02 | .01 | | |
| 158. preselected, non-patterned turn students whom teacher gave process feedback | .05 | .03 | | .05 | .04 | | |
| 159. non-volunteers whom teacher gave process feedback | .05 | .05 | | .05 | .05 | | |
| 160. volunteers whom teacher gave process feedback | .06 | .06 | | .07 | .05 | .01 | .03 |
| 161. call-out students whom teacher gave process feedback | .06 | .05 | | .05 | .06 | | |
| 162. preselected, patterned turn students whom teacher gave the answer | .03 | .03 | | .04 | .03 | | |

Table 9 (cont.)

| Variable | Subject Matter Math Means | Subject Matter English Means | p | Observed Section First Means | Observed Section Second Means | p | A x B p |
|---|---|---|---|---|---|---|---|
| 163. preselected, non-patterned turn students whom teacher gave the answer | .04 | .03 | | .03 | .04 | | |
| 164. non-volunteers whom teacher gave the answer | .04 | .03 | | .04 | .04 | | |
| 165. volunteers whom teacher gave the answer | .03 | .02 | | .02 | .03 | | |
| 166. call-out students whom teacher gave the answer | .03 | .03 | | .03 | .03 | | |
| 167. preselected, patterned turn students whose turns teacher terminated by asking another student | .11 | .05 | | .09 | .08 | | |
| 168. preselected, non-patterned turn students whose turns teacher terminated by asking another student | .11 | .04 | .00 | .07 | .07 | | |
| 169. non-volunteers whose turns teacher terminated by asking another student | .12 | .09 | .02 | .11 | .10 | | |
| 170. volunteers whose turns teacher terminated by asking another student | .05 | .03 | | .04 | .04 | | |
| 171. call-out students whose turns teacher terminated by asking another student | .02 | .01 | .04 | .01 | .02 | | |
| 172. non-volunteers whose turns another student terminated by calling out | .02 | .02 | | .02 | .02 | | |
| 173. volunteers whose turns another student terminated by calling out | .01 | .01 | | .01 | .01 | | |
| 174. call-out students whose turns another student terminated by calling out | .02 | .02 | | .01 | .02 | | |

Table 9 (cont.)

| Variable | Subject Matter: Math Means | Subject Matter: English Means | p | Observed Section: First Means | Observed Section: Second Means | p | A x B p |
|---|---|---|---|---|---|---|---|
| 175. correct answers given by preselected, patterned turn students | .02 | .09 | .00 | .05 | .06 | | |
| 176. correct answers given by preselected, non-patterned turn students | .03 | .04 | | .03 | .03 | | |
| 177. correct answers given by non-volunteers | .43 | .39 | | .42 | .40 | | |
| 178. correct answers given by volunteers | .23 | .27 | | .25 | .25 | | |
| 179. correct answers given by students who called out | .29 | .21 | .04 | .24 | .26 | | |
| 180. incorrect answers given by preselected, patterned turn students | .03 | .08 | .02 | .04 | .06 | | |
| 181. incorrect answers given by preselected, non-patterned turn students | .03 | .04 | | .04 | .03 | | |
| 182. incorrect answers given by non-volunteers | .49 | .45 | | .50 | .43 | | |
| 183. incorrect answers given by volunteers | .21 | .22 | | .21 | .22 | | |
| 184. incorrect answers given by students who called out | .25 | .22 | | .22 | .25 | | |
| 185. "don't know" and no response answers given by preselected, patterned turn students | .03 | .06 | | .02 | .06 | .03 | |
| 186. "don't know" and no response answers given by preselected, non-patterned turn students | .06 | .05 | | .06 | .05 | | |
| 187. "don't know" and no response answers given by non-volunteers | .89 | .86 | | .89 | .85 | | |

Table 9 (cont.)

| Variable | Subject Matter Math Means | English Means | p | Observed Section First Means | Second Means | p | A x B p |
|---|---|---|---|---|---|---|---|
| 188. incorrect answers after which teacher gave sustaining feedback | .28 | .24 | | .27 | .25 | | |
| 189. "don't know" and no response answers after which teacher gave sustaining feedback | .22 | .18 | | .22 | .18 | | |
| 190. all response opportunities after which teacher gave sustaining feedback | .12 | .10 | | .11 | .11 | | |
| Student Initiated: | | | | | | | |
| 191. questions and comments which were questions | .74 | .63 | .00 | .68 | .69 | | |
| 192. questions and comments which were comments | .26 | .37 | .00 | .32 | .31 | | |
| 193. questions which were called-out | .60 | .67 | | .62 | .65 | | |
| 194. called-out questions which were relevant | .56 | .62 | | .58 | .59 | | |
| 195. relevant questions which were called-out and criticized | .01 | .01 | | .01 | .01 | | |
| 196. relevant questions which were called-out and ignored | .01 | .02 | | .01 | .02 | | |
| 197. relevant questions which were called-out and not accepted | .01 | .01 | | .01 | .01 | | |
| 198. relevant questions which were called-out and given feedback | .40 | .52 | .01 | .45 | .47 | | |
| 199. relevant questions which were called-out and given process feedback | .13 | .06 | .00 | .10 | .09 | | |

Table 9 (cont.)

| Variable | Subject Matter Math Means | Subject Matter English Means | p | Observed Section First Means | Observed Section Second Means | p | A x B p |
|---|---|---|---|---|---|---|---|
| 200. relevant questions which were called-out and integrated into the class discussion | .03 | .01 | .02 | .02 | .02 | .04 | |
| 201. called-out questions which were irrelevant | .05 | .05 | | .04 | .05 | | .03 |
| 202. irrelevant questions which were called-out and ignored | .01 | .01 | | .01 | .01 | | |
| 203. irrelevant questions which were called-out and not accepted | .01 | .01 | | .01 | .01 | | .01 |
| 204. irrelevant questions which were called-out and given feedback | .03 | .03 | | .02 | .03 | | |
| 205. questions which were not called-out | .40 | .33 | | .38 | .35 | | |
| 206. questions which were relevant | .39 | .32 | | .36 | .34 | | |
| 207. relevant questions which were not accepted | .01 | .00 | .01 | .00 | .00 | | |
| 208. relevant questions which were given feedback | .25 | .26 | | .26 | .25 | | |
| 209. relevant questions which were given process feedback | .13 | .05 | .00 | .10 | .08 | | |
| 210. relevant questions which were redirected | .00 | .01 | | .01 | .01 | | .05 |
| 211. relevant questions integrated into the class discussion | .02 | .01 | .01 | .01 | .01 | | |
| 212. questions which were irrelevant | .01 | .02 | | .01 | .01 | | |
| 213. irrelevant questions which were given feedback | .01 | .01 | | .01 | .01 | | |

Table 9 (cont.)

| Variable | Subject Matter Math Means | English Means | p | Observed Section First Means | Second Means | p | A x B p |
|---|---|---|---|---|---|---|---|
| 214. comments which were called-out | .73 | .72 | | .74 | .71 | | |
| 215. relevant comments which were called-out | .53 | .54 | | .56 | .52 | | |
| 216. relevant comments which were called-out and given praise | .02 | .02 | | .02 | .02 | | |
| 217. relevant comments which were called-out and given criticism | .01 | .01 | | .01 | .01 | | |
| 218. relevant comments which were called-out and ignored | .05 | .03 | | .03 | .05 | | .02 |
| 219. relevant comments which were called-out and not accepted | .02 | .02 | | .02 | .02 | | |
| 220. relevant comments which were called-out and given feedback | .37 | .45 | | .42 | .40 | | |
| 221. relevant comments which were called-out and given process feedback | .08 | .04 | .01 | .07 | .04 | .02 | .03 |
| 222. relevant comments which were called-out and integrated into the class discussion | .02 | .02 | | .03 | .02 | | |
| 223. irrelevant comments which were called-out | .20 | .18 | | .18 | .20 | | |
| 224. irrelevant comments which were called-out and criticized | .01 | .01 | | .01 | .01 | | |
| 225. irrelevant comments which were called-out and ignored | .09 | .08 | | .07 | .09 | | |

Table 9 (cont.)

| Variable | Subject Matter<br>Math Means | <br>English Means | <br>p | Observed Section<br>First Means | <br>Second Means | <br>p | A x B<br>p |
|---|---|---|---|---|---|---|---|
| 226. irrelevant comments which were called-out and not accepted | .03 | .03 | | .03 | .03 | | |
| 227. irrelevant comments which were called-out and given feedback | .08 | .06 | | .07 | .07 | | |
| 228. relevant comments which were not called-out | .22 | .25 | | .23 | .24 | | |
| 229. relevant comments which were not called-out and were given praise | .03 | .02 | | .02 | .02 | | |
| 230. relevant comments which were not called-out and were given feedback | .17 | .20 | | .18 | .19 | | .05 |
| 231. relevant comments which were not called-out and were given process feedback | .03 | .04 | | .03 | .04 | | |
| 232. relevant comments which were not called-out and which were integrated into the class discussion | .01 | .03 | | .02 | .02 | | |
| 233. irrelevant comments which were not called-out and were ignored | .02 | .01 | | .02 | .01 | | |
| 234. irrelevant comments which were not called-out and were not accepted | .02 | .01 | | .01 | .02 | | |
| 235. irrelevant comments which were not called-out and were given feedback | .02 | .02 | | .01 | .02 | | |
| 236. questions and comments which were praised | .01 | .01 | | .01 | .01 | | |
| 237. questions and comments which were criticized | .01 | .01 | | .01 | .01 | | |

Table 9 (cont.)

| Variable | Subject Matter Math Means | English Means | p | Observed Section First Means | Second Means | p | A x B p |
|---|---|---|---|---|---|---|---|
| Student Created: | | | | | | | |
| 238. contacts which related to academic content | .64 | .51 | .00 | .57 | .59 | | |
| 239. contacts which related to classroom procedure | .23 | .33 | .00 | .29 | .27 | | |
| 240. academic related contacts which were given praise | .02 | .03 | | .02 | .02 | | |
| 241. academic related contacts which were given criticism | .01 | .01 | | .01 | .01 | | |
| 242. academic related contacts which involved brief teacher contact | .55 | .65 | .01 | .58 | .62 | .03 | .02 |
| 243. academic related contacts which involved long teacher contact | .44 | .33 | .01 | .41 | .36 | .02 | .02 |
| 244. academic related contacts in which teacher delayed contact | .02 | .01 | | .01 | .02 | | |
| 245. academic related contacts which were given feedback | .47 | .63 | .00 | .53 | .57 | .04 | |
| 246. academic related contacts which were given process feedback | .47 | .30 | .00 | .39 | .38 | | .02 |
| 247. contacts which involved personal requests | .07 | .08 | | .07 | .08 | | |
| 248. personal contacts which teacher granted | .69 | .75 | | .76 | .68 | .00 | .02 |
| 249. personal contacts which teacher delayed | .06 | .07 | | .06 | .07 | | |
| 250. personal contacts which teacher did not grant | .25 | .18 | .02 | .17 | .25 | .00 | .01 |

Table 9 (cont.)

| Variable | Subject Matter Math Means | English Means | p | Observed Section First Means | Second Means | p | A x B p |
|---|---|---|---|---|---|---|---|
| 251. academic related contacts given brief feedback | .45 | .59 | .00 | .50 | .54 | .03 | |
| 252. academic related contacts given brief process feedback | .08 | .03 | .00 | .05 | .06 | | |
| 253. academic related contacts given long feedback | .02 | .03 | | .03 | .03 | | |
| 254. academic related contacts given long process feedback | .39 | .27 | .00 | .34 | .32 | | .01 |
| <u>Teacher Initiated:</u> | | | | | | | |
| 255. contacts which related to academic content | .60 | .51 | .03 | .55 | .55 | | |
| 256. academic related contacts which involved praise | .03 | .06 | .03 | .05 | .04 | | |
| 257. academic related contacts which involved criticism | .07 | .08 | | .08 | .07 | | |
| 258. academic related contacts which were brief | .53 | .58 | | .56 | .55 | | |
| 259. academic related contacts which were long | .31 | .28 | | .30 | .29 | | |
| 260. academic related contacts in which teacher observed student | .16 | .14 | | .14 | .16 | | |
| 261. academic related contacts which involved feedback | .51 | .59 | | .56 | .54 | | |
| 262. academic related contacts which involved process feedback | .27 | .22 | | .23 | .26 | | |

Table 9 (cont.)

| Variable | Subject Matter Math Means | English Means | p | Observed Section First Means | Second Means | p | A x B p |
|---|---|---|---|---|---|---|---|
| 263. academic related contacts which involved brief feedback | .47 | .54 | | .51 | .51 | | |
| 264. academic related contacts which involved brief process feedback | .03 | .01 | .03 | .02 | .02 | | |
| 265. academic related contacts which involved long feedback | .04 | .05 | | .05 | .04 | | |
| 266. academic related contacts which involved long process feedback | .24 | .20 | | .21 | .23 | | |
| 267. contacts which related to classroom procedure | .34 | .42 | .03 | .39 | .38 | | |
| Behavior Related Contacts | | | | | | | |
| 268. misbehaviors to which teacher responded but which coder did not observe | .01 | .01 | | .01 | .01 | | |
| 269. nondisruptive misbehaviors (daydreaming, wasting time) | .42 | .40 | | .39 | .43 | | |
| 270. misbehaviors in which student socialized with others | .34 | .39 | | .39 | .33 | .00 | |
| 271. misbehaviors which involved being late to class | .01 | .01 | | .01 | .01 | | |
| 272. disruptive misbehaviors | .10 | .11 | | .09 | .12 | .01 | |
| 273. misbehaviors in which student sassed or defied teacher | .03 | .02 | | .02 | .03 | | |

Table 9 (cont.)

| Variable | Subject Matter Math Means | English Means | p | Observed Section First Means | Second Means | p | A x B p |
|---|---|---|---|---|---|---|---|
| 274. misbehaviors in which student was verbally aggressive toward teacher or peers | .01 | .01 | | .01 | .01 | | |
| 275. misbehaviors in which student was physically aggressive toward teacher or peers | .01 | .01 | | .01 | .01 | | |
| 276. misbehaviors in which student left class without permission | .01 | .00 | .04 | .00 | .01 | .04 | |
| 277. misbehaviors which involved contraband items (knives, radios, toys, etc) | .01 | .01 | | .01 | .01 | .02 | |
| 278. misbehaviors in which student baited teacher | .01 | .01 | | .01 | .01 | | |
| 279. misbehaviors in which student slept in class | .02 | .01 | | .02 | .01 | | |
| 280. misbehaviors which could not be classified in the above | .02 | .01 | | .01 | .02 | | .05 |
| 281. misbehaviors in which teacher intervened nonverbally | .03 | .04 | .02 | .04 | .03 | | |
| 282. misbehaviors which involved management request from teacher | .63 | .66 | | .64 | .65 | | |
| 283. misbehaviors which involved management request but which teacher directed to wrong student (target error) | .02 | .01 | | .01 | .02 | | |
| 284. misbehaviors which involved management request but in which teacher delayed acting (timing error) | .03 | .03 | | .03 | .04 | | |

Table 9 (cont.)

| Variable | Subject Matter Math Means | English Means | p | Observed Section First Means | Second Means | p | A x B p |
|---|---|---|---|---|---|---|---|
| 285. misbehaviors which involved management request and in which teacher overreacted | .01 | .00 | | .00 | .01 | | |
| 286. misbehaviors which teacher criticized | .13 | .13 | | .15 | .11 | .01 | |
| 287. misbehaviors in which teacher criticized wrong student (target error) | .01 | .00 | | .00 | .00 | | |
| 288. misbehaviors in which teacher delayed criticizing (timing error) | .01 | .01 | | .01 | .01 | | |
| 289. misbehaviors in which teacher overreacted with criticism | .01 | .01 | | .01 | .01 | | |
| 290. misbehaviors in which teacher threatened student | .05 | .05 | | .05 | .05 | | |
| 291. misbehaviors in which teacher delayed threatening (timing error) | .00 | .00 | | .00 | .01 | | |
| 292. misbehaviors in which teacher overreacted with threats | .00 | .01 | | .00 | .00 | | |
| 293. misbehaviors which involved management request but which coder did not observe | .32 | .73 | .01 | .50 | .55 | | |
| 294. misbehaviors which teacher criticized but which coder did not observe | .48 | .19 | .02 | .45 | .22 | .05 | |
| 295. mild misbehaviors in which teacher intervened nonverbally | .02 | .04 | | .04 | .03 | | |

Table 9 (cont.)

| Variable | Subject Matter Math Means | Subject Matter English Means | p | Observed Section First Means | Observed Section Second Means | p | A x B p |
|---|---|---|---|---|---|---|---|
| 296. mild misbehaviors which involved management request from teacher | .79 | .79 | | .77 | .82 | .01 | |
| 297. mild misbehaviors which teacher criticized | .14 | .13 | | .16 | .11 | .00 | |
| 298. mild misbehaviors in which teacher threatened student | .03 | .04 | | .03 | .04 | | |
| 299. misbehaviors in which student socialized with others and in which teacher intervened nonverbally | .04 | .05 | | .05 | .05 | | .01 |
| 300. misbehaviors in which student socialized with others and which involved management request | .73 | .74 | | .71 | .76 | | |
| 301. misbehaviors in which student socialized with others and which teacher criticized | .15 | .14 | | .17 | .11 | .02 | |
| 302. misbehaviors in which student socialized with others and in which teacher threatened student | .07 | .07 | | .07 | .07 | | |
| 303. tardiness which involved management request | .68 | .75 | | .80 | .63 | | |
| 304. tardiness which teacher circiticized | .13 | .24 | | .18 | .20 | | .04 |
| 305. disruptive misbehaviors in which teacher intervened nonverbally | .05 | .04 | | .06 | .03 | | |
| 306. disruptive misbehaviors which involved management request | .53 | .55 | | .55 | .54 | | |
| 307. disruptive misbheaviors which teacher criticized | .25 | .24 | | .28 | .21 | | |

Table 9 (cont.)

| Variable | Subject Matter Math Means | English Means | p | Observed Section First Means | Second Means | p | A x B p |
|---|---|---|---|---|---|---|---|
| 308. disruptive misbehaviors in which teacher threstened student. | .06 | .08 | | .07 | .08 | | |
| 309. misbehaviors in which student sassed or defied teacher and which involved management request | .42 | .55 | | .51 | .46 | | |
| 310. misbehaviors in which student sasses or defied teacher and which teacher criticized | .22 | .13 | | .23 | .13 | | |
| 311. misbehaviors in which student sassed or defied teacher and in which teacher threatened student | .10 | .10 | | .08 | .12 | | |
| 312. misbehaviors in which student was verbally aggressive and which involved management request | .39 | .53 | | .41 | .50 | | |
| 313. misbehaviors in which student was physically aggressive and which involved management request | .52 | .47 | | .41 | .58 | | |
| 314. misbehaviors in which student was physically aggressive and which teacher criticized | .20 | .11 | | .22 | .09 | | |
| 315. misbehaviors in which student left class without permission and which involved management request | .58 | .57 | | .70 | .46 | | |
| 316. misbehaviors which involved contraband items and which involved management request | .66 | .75 | | .70 | .71 | | |
| 317. misbehaviors which involved contraband items and in which teacher threatened student | .12 | .07 | | .15 | .04 | | |

Table 9 (cont.)

| Variable | Subject Matter Math Means | English Means | p | Observed Section First Means | Second Means | p | A x B p |
|---|---|---|---|---|---|---|---|
| 318. misbehaviors in which student baited teacher and which involved management request | .43 | .48 | | .32 | .60 | .03 | |
| 319. miscellaneous misbehaviors (not in the above categories) which involved management requests | .59 | .34 | | .39 | .53 | | |
| 320. miscellaneous misbehaviors (not in the above categories) which teacher criticized | .22 | .46 | | .37 | .31 | | |
| 321. misbehaviors which involved management requests | .69 | .71 | | .68 | .71 | | |
| 322. misbehaviors which teacher criticized | .16 | .15 | | .17 | .13 | .02 | |
| 323. misbehaviors in which teacher threatened student | .06 | .06 | | .06 | .06 | | |
| 324. misbehaviors in which teacher acted without target or timing error | .84 | .88 | | .87 | .84 | .02 | |
| 325. misbehaviors in which teacher acted with target error | .02 | .02 | | .02 | .02 | | |
| 326. misbehaviors in which teacher acted with timing error | .05 | .04 | | .04 | .05 | | |
| 327. misbehaviors in which teacher overreacted | .02 | .02 | | .01 | .02 | | |
| 328. mild misbehaviors which involved management requests | .76 | .76 | | .74 | .78 | .03 | |
| 329. mild misbehaviors which teacher criticized | .20 | .19 | | .22 | .17 | .02 | |
| 330. serious misbehaviors which involved management requests | .50 | .50 | | .51 | .50 | | |

Table 9 (cont.)

| Variable | Subject Matter: Math Means | Subject Matter: English Means | p | Observed Section: First Means | Observed Section: Second Means | p | A x B p |
|---|---|---|---|---|---|---|---|
| 331. serious misbehaviors which teacher criticized | .28 | .28 | | .30 | .27 | | |
| 332. mild misbehaviors in which teacher acted without target or timing error | .90 | .92 | | .93 | .89 | .00 | |
| 333. mild misbehaviors in which teacher acted with target error | .03 | .02 | | .02 | .02 | | |
| 334. mild misbehaviors in which teacher acted with timing error | .04 | .04 | | .03 | .05 | | |
| 335. mild misbehaviors in which teacher overreacted | .02 | .02 | | .01 | .02 | | |
| 336. serious misbehaviors in which teacher acted without target or timing error | .68 | .77 | .04 | .75 | .70 | | |
| 337. serious misbehaviors in which teacher acted with target error | .03 | .02 | | .03 | .02 | | .00 |
| 338. serious misbehaviors in which teacher acted with timing error | .11 | .06 | | .10 | .07 | | .03 |
| 339. serious misbehaviors in which teacher overreacted | .03 | .00 | | .00 | .03 | | |
| <u>Social Contacts:</u> | | | | | | | |
| 340. teacher-initiated contacts which were social | .26 | .25 | | .25 | .27 | | |
| 341. student-created contacts which were social | .74 | .75 | | .75 | .73 | | |
| 342. student-created contacts which were social and which teacher accepted | .92 | .94 | | .93 | .93 | | |

Table 9 (cont.)

| Variable | Subject Matter Math Means | Subject Matter English Means | p | Observed Section First Means | Observed Section Second Means | p | A x B p |
|---|---|---|---|---|---|---|---|
| 343. student-created contacts which were social and which teacher did not accept | .08 | .06 | | .07 | .07 | | |
| General Categories | | | | | | | |
| 344. response opportunities in which teacher praised | .09 | .11 | | .10 | .10 | | |
| 345. response opportunities in which teacher criticized | .01 | .00 | | .01 | .01 | | |
| 346. dyadic contacts which were response opportunities | .28 | .29 | | .29 | .28 | | |
| 347. dyadic contacts which were student-initiated questions | .08 | .07 | | .07 | .08 | | |
| 348. dyadic contacts which were student-initiated comments | .03 | .04 | .04 | .04 | .04 | | |
| 349. dyadic contacts which were student-created (private) | .37 | .34 | | .36 | .36 | | |
| 350. dyadic contacts which were teacher-initiated (private) | .13 | .15 | | .14 | .13 | | |
| 351. dyadic contacts which were behavior related | .11 | .12 | | .11 | .12 | .03 | |
| 352. dyadic contacts which were social | .03 | .04 | | .03 | .03 | | |
| 353. dyadic contacts which were private (not public) | .50 | .49 | | .50 | .49 | | |
| 354. dyadic contacts which were private and which were student-created (excluding social) | .73 | .69 | | .70 | .72 | | |
| 355. contacts involving academic content which were private and which teacher praised | .02 | .03 | | .03 | .03 | | |

Table 9 (cont.)

| Variable | Subject Matter Math Means | English Means | p | Observed Section First Means | Second Means | p | A x B p |
|---|---|---|---|---|---|---|---|
| 356. contacts involving academic content which were private and which teacher criticized | .03 | .03 | | .03 | .03 | | |
| 357. contacts which were private and which involved academic content | .64 | .52 | .00 | .57 | .59 | | |
| 358. contacts which were private and which did not involve academic content | .36 | .48 | .00 | .43 | .41 | | |
| 359. student-created contacts which were public | .24 | .25 | | .24 | .25 | | |
| 360. teacher-initiated contacts which were public (excluding behavioral contacts) | .63 | .62 | | .62 | .63 | | |
| 361. student-created contacts which were private and which related to academic content | .64 | .51 | .00 | .57 | .59 | | |
| 362. student-created contacts which were private and which related to classroom procedure | .66 | .65 | | .65 | .66 | | |
| 363. contacts involving academic content in which teacher gave process feedback | .25 | .14 | .00 | .20 | .20 | .01 | |
| 364. teacher-initiated contacts which were behavior related | .44 | .44 | | .41 | .47 | .00 | |

Table 10. Two-Way Analyses of Variance between Subject Matter and Observed Section using Means from Classroom Observation Scales (COS)[1]

| Variable | Subject Matter: Math Means | Subject Matter: English Means | *p* | Observed Section: First Means | Observed Section: Second Means | *p* | A x B *p* |
|---|---|---|---|---|---|---|---|
| 1. High level of Student attention | 2.70 | 3.05 | .03 | 2.91 | 2.84 | | |
| 2. Teacher initiated problem solving | 1.01 | .90 | | .88 | 1.02 | .01 | |
| 3. Pupil-to-pupil interaction | 2.12 | 2.01 | | 2.00 | 2.14 | .03 | |
| 4. Teacher presentation of academic information | 1.06 | .66 | .01 | .80 | .92 | .01 | .01 |
| 5. Negative affect (teacher and students) | 1.10 | .99 | | .95 | 1.15 | .01 | |
| 6. Positive affect (teacher) | 1.64 | 1.92 | | 1.73 | 1.83 | | |
| 7. Higher cognitive level student behavior | 1.19 | 1.03 | | 1.04 | 1.18 | .03 | |
| 8. Passive pupil behavior | .86 | .65 | | .72 | .79 | | |
| 9. Convergent evaluative interactions (teacher probes for right answer) | 1.51 | 1.20 | .04 | 1.35 | 1.36 | | |
| 10. Teacher task orientation | 2.67 | 2.74 | | 2.71 | 2.70 | | |
| 11. Clarity of teacher presentations | 2.72 | 2.92 | | 2.84 | 2.80 | | .05 |
| 12. Teacher enthusiasm | 2.03 | 2.26 | | 2.12 | 2.17 | | |
| 13. Random questioning; memory questions; fact related | .83 | .80 | | .82 | .81 | | |

Table 10 (cont.)

| Variable | Subject Matter Math Means | Subject Matter English Means | p | Observed Section First Means | Observed Section Second Means | p | A x B p |
|---|---|---|---|---|---|---|---|
| 14. Higher cognitive level questions: synthesis, 'why' questions | .59 | .55 | | .55 | .59 | .04 | .03 |
| 15. Questions with application to students' personal lives; personal questions | .20 | .40 | .01 | .27 | .33 | .04 | |
| 16. Teacher positive affect; teacher involvement | 48.91 | 50.77 | | 49.60 | 50.09 | | |
| 17. Poor classroom control | 51.62 | 48.78 | | 48.26 | 52.15 | .01 | |
| 18. High level of teacher questioning | 52.10 | 48.38 | | 50.77 | 49.72 | | |
| 19. Structured teaching; directed activity | 56.12 | 45.51 | .01 | 50.63 | 51.01 | | |

[1] N = 68 (total)
N = 29 (math)
N = 39 (English)

Table 11. Two-Way Analyses of Variance between Subject Matter and Observed Section using Means from Observer Ratings of Students Scale[1]

| Variable | Subject Matter Math Means | Subject Matter English Means | p | Observed Section First Means | Observed Section Second Means | p | A x B p |
|---|---|---|---|---|---|---|---|
| Student : | | | | | | | |
| 1. is very outgoing or extroverted | 4.60 | 4.57 | | 4.52 | 4.64 | | |
| 2. is obedient, does not defy the teacher | 5.72 | 5.80 | | 5.75 | 5.77 | | |
| 3. is highly confident in academic work | 4.69 | 4.83 | | 4.73 | 4.78 | | |
| 4. has bad work habits, short attention span, is unprepared to respond | 2.74 | 2.53 | | 2.63 | 2.63 | | |
| 5. is constantly being attended to by the teacher | 3.93 | 3.87 | | 3.89 | 3.90 | | |
| 6. has sloppy appearance, is mussed with rumpled or soiled clothes | 2.14 | 1.89 | | 2.00 | 2.03 | | |
| 7. is unnecessarily academically dependent on the teacher | 2.92 | 2.77 | | 2.83 | 2.87 | | |
| 8. emotionally mature, accepts responsibility is self-reliant | 5.57 | 5.62 | | 5.60 | 5.59 | | |
| 9. is highly motivated, eager | 4.88 | 4.91 | | 4.92 | 4.87 | | |
| 10. is calm, relaxed, doesn't fidget | 5.24 | 5.36 | | 5.28 | 5.33 | | |
| 11. is usually unhappy, appears depressed, rarely smiles or laughs | 3.17 | 2.83 | .02 | 3.08 | 2.92 | .04 | |

Table 11 (cont.)

| Variable | Subject Matter Math Means | English Means | p | Observed Section First Means | Second Means | p | A x B p |
|---|---|---|---|---|---|---|---|
| 12. is a good student, does the work and gets good grades | 4.81 | 4.86 | | 4.85 | 4.81 | | |
| 13. is physically mature, evidences obvious secondary sex characteristics | 4.64 | 4.88 | | 4.73 | 4.79 | | |
| 14. lacks persistence, tends to give up on work | 3.08 | 2.97 | | 3.01 | 3.04 | | |
| 15. participates in academic and non-academic class activities | 3.57 | 3.80 | | 3.62 | 3.75 | | |
| 16. gets along well with peers, seems popular | 4.60 | 4.66 | | 4.63 | 4.63 | | |
| 17. gets along well with teacher, has positive affective interactions | 5.77 | 5.82 | | 5.76 | 5.83 | | |
| 18. is aggressive, has "chip on his shoulder" engages in physical or verbal abuse of others | 2.82 | 2.84 | | 2.84 | 2.82 | | |
| 19. is irresponsible, doesn't turn in work on time, comes without supplies | 2.11 | 2.03 | | 2.11 | 2.04 | | |
| 20. continually talks to neighbors, turns around in chair to talk | 3.61 | 3.57 | | 3.56 | 3.62 | | |
| 21. lacks cooperativeness, shows no desire to work with others, disagrees frequently | 2.09 | 2.09 | | 2.05 | 2.13 | | |
| 22. is a behavior problem, disrupts class frequently, is often reprimanded, criticized, etc. | 2.35 | 2.22 | | 2.28 | 2.29 | | |
| 23. has athletic ability, is well coordinated, muscular, etc. | 4.83 | 4.93 | | 4.88 | 4.88 | | |

Table 11 (cont.)

| Variable | Subject Matter Math Means | English Means | p | Observed Section First Means | Second Means | p | A x B p |
|---|---|---|---|---|---|---|---|
| 24. uses profanity often--at least every few sentences | .69 | .50 | | .62 | .57 | | |
| 25. displays academic peer leadership; peers see the student as bright | 3.57 | 3.50 | | 3.45 | 3.61 | | |
| FACTOR I is not motivated or interested and has bad work habits | 50.47 | 49.78 | | 50.15 | 50.10 | | |
| FACTOR II is outgoing sociable, happy; interacts with both teachers and peers | 49.67 | 50.30 | | 49.71 | 50.25 | | |
| FACTOR III is physically mature and well coordinated | 49.56 | 50.32 | | 49.91 | 49.96 | | |
| FACTOR IV has antisocial tendencies | 50.44 | 49.58 | | 50.16 | 49.86 | | |

[1] $\underline{N}$ = 68 (total)
$\underline{N}$ = 29 (math)
$\underline{N}$ = 39 (English)

Table 12. Two-Way Analyses of Variance between Subject Matter and Observed Section using Means from Student Ratings of Teachers[1]

| Variable | Subject Matter: Math Means | Subject Matter: English Means | p | Observed Section: First Means | Observed Section: Second Means | p | A x B p |
|---|---|---|---|---|---|---|---|
| Student: | | | | | | | |
| 1. thinks the teacher knows the subject well | 3.54 | 3.55 | | 3.56 | 3.53 | | |
| 2. thinks the teacher is always well prepared and organized | 2.93 | 3.06 | | 2.98 | 3.01 | | |
| 3. thinks the teacher enjoys teaching | 2.98 | 3.11 | | 3.10 | 2.98 | .01 | |
| 4. thinks the teacher is interested in knowing students as well as teaching them | 2.75 | 2.91 | | 2.90 | 2.76 | .03 | |
| 5. feels comfortable asking questions or asking for help | 2.76 | 2.85 | | 2.87 | 2.74 | .05 | |
| 6. feels comfortable about going to the teacher with a personal problem | 1.37 | 1.70 | .03 | 1.53 | 1.54 | | |
| 7. feels he/she has learned a great deal in the class | 3.03 | 3.06 | | 3.07 | 3.03 | | |
| 8. has enjoyed the class | 2.74 | 2.77 | | 2.80 | 2.71 | | |
| 9. would ask for this teacher again next year | 2.45 | 2.66 | | 2.59 | 2.52 | | |
| FACTOR I Generalized liking of teacher | 49.06 | 50.73 | | 50.32 | 49.47 | | |

Table 12 (cont.)

| Variable | Subject Matter Math Means | English Means | p | Observed Section First Means | Second Means | p | A x B p |
|---|---|---|---|---|---|---|---|
| FACTOR II Student view of teacher's competency (females only) | 49.24 | 50.09 | | 49.84 | 49.49 | | |
| FACTOR III Student view of teacher's competency (males only) | 49.61 | 50.20 | | 49.94 | 49.86 | | |
| FACTOR IV Favorable teacher/student relationship (females only) | 49.14 | 50.58 | | 50.23 | 49.49 | | |
| FACTOR V Favorable teacher/student relationship (males only) | 49.08 | 50.85 | | 50.62 | 49.31 | | |

[1] N = 68 (total)
N = 29 (math)
N = 39 (English)

Table 13. Two-Way Analyses of Variance between Subject Matter and Observed Section using Means from Observer Ratings of Teachers Scales[1]

| Variable | Subject Matter Math Means | Subject Matter English Means | p | Observed Section First Means | Observed Section Second Means | p | A x B p |
|---|---|---|---|---|---|---|---|
| 1. Patience of teacher in correcting errors | 5.62 | 5.65 | | 5.72 | 5.56 | | |
| 2. Attractiveness of room | 4.12 | 5.43 | .01 | 4.81 | 4.74 | | |
| 3. Effectiveness of teacher's management methods | 4.93 | 5.19 | | 5.07 | 5.06 | | |
| 4. Crowdedness of classroom | 3.05 | 2.40 | | 2.71 | 2.74 | | |
| 5. Democratic leadership style of teacher | 2.02 | 3.31 | .01 | 2.65 | 2.67 | | |
| 6. Talk among students | 5.05 | 5.04 | | 5.06 | 5.03 | | |
| 7. Teacher stress on form of responses | 3.33 | 2.90 | | 3.20 | 3.02 | | |
| 8. Student obedience to teacher | 4.45 | 5.06 | | 4.97 | 4.54 | .01 | |
| 9. Quantity of directions: overly explicit and repetitive | 3.78 | 3.71 | | 3.67 | 3.81 | | |
| 10. Classroom interruptions | 3.62 | 3.74 | | 3.58 | 3.79 | | |
| 11. Teacher use of students in performing certain classroom functions | 5.58 | 6.32 | | 5.90 | 6.00 | | |
| 12. Teacher has seating arrangement | 1.57 | 1.78 | | 1.67 | 1.68 | | |
| 13. Frequency of seating arrangement changes | 2.89 | 3.12 | | 2.98 | 3.04 | | |

Table 13 (cont.)

| Variable | Subject Matter: Math Means | Subject Matter: English Means | p | Observed Section: First Means | Observed Section: Second Means | p | A x B p |
|---|---|---|---|---|---|---|---|
| 14. Consistency of enforcement of rules | 4.22 | 4.10 | | 4.18 | 4.15 | | |
| 15. Teacher grants requests to go to restroom or water fountain | 2.29 | 2.29 | | 2.32 | 2.27 | .01 | |
| 16. Length of time after bell for class to begin | 2.10 | 2.50 | | 2.33 | 2.27 | | |
| 17. Teacher uses 'explanations' to solve behavior problems | 2.57 | 2.78 | | 2.65 | 2.70 | | |
| 18. Amount of disturbance teacher accepts | 4.17 | 3.99 | | 4.04 | 4.12 | | |
| 19. Amount of teacher confusion, fluster | 1.78 | 1.64 | | 1.64 | 1.77 | | |
| 20. Correction of minor misbehaviors | 2.98 | 3.49 | | 3.28 | 3.19 | | |
| 21. Monitoring of class | 4.86 | 5.04 | | 4.92 | 4.98 | | |
| 22. Efficiency of transitions during the class period | 4.60 | 4.35 | | 4.32 | 4.63 | .03 | |
| 23. High level of teacher affection | 4.45 | 4.87 | | 4.73 | 4.59 | | |
| 24. Range of affection: low end | 2.72 | 3.08 | | 2.98 | 2.82 | | |
| 25. Range of affection: high end | 5.43 | 5.88 | | 5.69 | 5.63 | | |
| 26. Teacher solidarity with group | 3.36 | 3.67 | | 3.57 | 3.46 | | |
| 27. Teacher anxiety | 2.69 | 2.51 | | 2.59 | 2.61 | | |
| 28. Teacher confidence level | 5.74 | 6.18 | | 5.91 | 6.01 | | |
| 29. Teacher enthusiasm | 4.71 | 4.97 | | 4.93 | 4.75 | | |

Table 13 (cont.)

| Variable | Subject Matter Math Means | Subject Matter English Means | p | Observed Section First Means | Observed Section Second Means | p | A x B p |
|---|---|---|---|---|---|---|---|
| 30. Student respect for teacher | 4.78 | 5.03 | | 4.91 | 4.89 | | |
| 31. Teacher deals effectively with student personal problems | 2.78 | 3.38 | | 2.97 | 3.19 | | |
| 32. Teacher socializing with students | 3.71 | 4.14 | | 3.91 | 3.94 | | |
| 33. Teacher awareness of coder | 1.88 | 1.95 | | 1.98 | 1.84 | | .03 |
| 34. Teacher credibility | 5.41 | 5.74 | | 5.60 | 5.56 | | |
| 35. Teacher showmanship | 1.28 | 2.40 | .01 | 1.82 | 1.85 | | .02 |
| 36. Academic encouragement given by teacher | 4.26 | 4.45 | | 4.34 | 4.37 | | |
| 37. Receptiveness to student input | 5.72 | 6.18 | | 5.90 | 6.00 | | |
| 38. Nurturance of student affective skills | 3.66 | 4.90 | .01 | 4.27 | 4.28 | | |
| 39. Variety and choice in assignments | 1.02 | 1.73 | .05 | 1.31 | 1.44 | | |
| 40. Teacher use of self-paced work | 1.28 | 1.55 | | 1.40 | 1.43 | | |
| 41, Teacher use of blackboard for lectures and discussions | 4.93 | 2.19 | .01 | 3.53 | 3.60 | | |
| 42. Teacher use of audio-visual aids | .67 | 1.49 | .01 | .99 | 1.17 | .03 | |
| 43. Teacher use of oral reading | .19 | 1.71 | .01 | .89 | 1.00 | | |
| 44. Teacher use of drama; students read parts in plays or stories | .02 | 1.04 | .01 | .53 | .53 | | |

Table 13 (cont.)

| Variable | Subject Matter Math Means | English Means | p | Observed Section First Means | Second Means | p | A x B p |
|---|---|---|---|---|---|---|---|
| 45. Teacher's productive use of own mistakes | 5.45 | 5.25 | | 5.36 | 5.34 | | |
| 46. Teacher goes to students during seatwork | 2.84 | 1.72 | .01 | 2.25 | 2.32 | | |
| 47. Student eagerness for response opportunities | 4.98 | 5.26 | | 5.07 | 5.17 | | |
| 48. Time allotted for class discussion | 2.69 | 2.97 | | 2.77 | 2.90 | | |
| 49. Task-oriented seatwork | 5.10 | 5.17 | | 5.09 | 5.18 | | |
| 50. Amount of teacher preparation | 5.91 | 5.47 | | 5.59 | 5.80 | | |
| 51. Teacher attention to 'learning disability' children or slow learners | 5.28 | 4.85 | | 4.93 | 5.21 | | |
| 52. Teacher academic effectiveness | 4.50 | 4.53 | | 4.47 | 4.56 | | |
| 53. Frequency of homework | 5.38 | 3.65 | .01 | 4.48 | 4.55 | | .04 |
| 54. Amount of class time spent in productive work | 5.53 | 5.40 | | 5.49 | 5.45 | | |
| 55. Teacher emphasis on grades | 5.05 | 4.58 | | 4.82 | 4.80 | | |
| 56. Teacher concern for academic achievement, grades | 5.43 | 5.12 | | 5.30 | 5.25 | | |
| 57. Teacher primarily lectures | 2.62 | 1.77 | .01 | 2.26 | 2.13 | | |
| 58. Teacher primarily assigns seatwork | 5.02 | 5.13 | | 5.08 | 5.07 | | |
| 59. Teacher primarily uses class discussions | 1.97 | 2.44 | | 2.10 | 2.30 | .05 | |
| 60. Teacher command of subject matter | 6.50 | 6.14 | | 6.22 | 6.42 | | |

Table 13 (cont'.)

| Variable | Subject Matter Math Means | English Means | p | Observed Section First Means | Second Means | p | A x B p |
|---|---|---|---|---|---|---|---|
| 61. Difficulty level of teacher's questions | 3.31 | 3.33 | | 3.30 | 3.34 | | |
| 62. Teacher consistently plans sufficient work for class | 1.34 | 1.35 | | 1.38 | 1.31 | | |
| 63. Teacher consistently gives feedback on assigned work | 1.66 | 1.60 | | 1.59 | 1.67 | | |
| 64. Coder, if 7th or 8th grader, would choose this teacher | 4.22 | 4.55 | | 4.32 | 4.46 | | |
| FACTOR I Effectiveness of teacher organization, control | 49.97 | 49.99 | | 50.03 | 49.92 | | |
| FACTOR II Orientation of teacher to student personal, affective needs | 48.03 | 51.46 | | 49.83 | 49.66 | | |
| FACTOR III Classwork usually takes the form of seatwork rather than discussion | 49.28 | 50.44 | | 49.61 | 50.10 | | |
| FACTOR IV Use of oral reading and drama | 42.86 | 54.88 | .01 | 48.65 | 49.09 | | |
| FACTOR V Teacher competence, confidence | 49.95 | 49.97 | | 49.76 | 50.16 | | |

[1] $N$ = 68 (total)
$N$ = 29 (math)
$N$ = 39 (English)

Table 14. Correlations Between Student's Scores for their Math and English Classes on Ratings of their Teachers[1]

| VARIABLE | N | r |
|---|---|---|
| STUDENT RATINGS OF TEACHER | | |
| Student: | | |
| 1. thinks the teacher knows the subject well | 198 | -.10 |
| 2. thinks the teacher is always well prepared and organized | 197 | -.04 |
| 3. thinks the teacher enjoys teaching | 198 | .09 |
| 4. thinks the teacher is interested in knowing students as well as teaching them | 198 | -.01 |
| 5. feels comfortable asking questions or asking for help | 198 | .06 |
| 6. feels comfortable about going to the teacher with a personal problem | 195 | .16* |
| 7. feels he/she has learned a great deal in the class | 196 | .14* |
| 8. has enjoyed the class | 197 | -.08 |
| 9. would ask for this teacher again next year | 197 | -.06 |
| FACTOR I Generalized liking of teacher | 198 | .02 |
| FACTOR II Student view of teacher's competency (females only) | 112 | .02 |
| FACTOR III Student view of teacher's competency (males only) | 83 | -.18 |
| FACTOR IV Favorable teacher/student relationship (females only) | 112 | .06 |
| FACTOR V Favorable teacher/student relationship (males only) | 83 | -.04 |

**p ≤ .01
*p ≤ .05

Table 15 (cont.)

| | | |
|---|---|---|
| 17. gets along well with teacher, has positive affective interactions | 198 | .53** |
| 18. is aggressive, has "chip on his shoulder", engages in physical or verbal abuse of others | 198 | .64** |
| 19. is irresponsible, doesn't turn in work on time, comes without supplies | 198 | .63** |
| 20. continually talks to neighbors, turns around in chair to talk | 198 | 60** |
| 21. lacks cooperativeness, shows no desire to work with others, disagrees frequently | 192 | .54** |
| 22. is a behavior problem; disrupts class frequently, is often reprimanded, criticized, etc. | 198 | .63** |
| 23. has athletic ability, is well coordinated, muscular, etc. | 199 | .60** |
| 24. uses profanity often--at least every few sentences | 197 | .51** |
| 25. displays academic peer leadership peers see the student as bright | 198 | .65** |
| FACTOR I | | |
| is not motivated or interested and has bad work habits | 199 | .74** |
| FACTOR II | | |
| is outgoing, sociable, happy - interacts positively with both teacher and peers | 199 | .78** |
| FACTOR III | | |
| is physically mature and well coordinated | 199 | .72** |
| FACTOR IV | | |
| has antisocial tendencies | 199 | .58** |

$^{**}p \leq .01$
$^{*}p \leq .05$

Table 15 (cont.)

| | | |
|---|---|---|
| 17. gets along well with teacher, has positive affective interactions | 198 | .53** |
| 18. is aggressive, has "chip on his shoulder", engages in physical or verbal abuse of others | 198 | .64** |
| 19. is irresponsible, doesn't turn in work on time, comes without supplies | 198 | .63** |
| 20. continually talks to neighbors, turns around in chair to talk | 198 | 60** |
| 21. lacks cooperativeness, shows no desire to work with others, disagrees frequently | 192 | .54** |
| 22. is a behavior problem; disrupts class frequently, is often reprimanded, criticized, etc. | 198 | .63** |
| 23. has athletic ability, is well coordinated, muscular, etc. | 199 | .60** |
| 24. uses profanity often--at least every few sentences | 197 | .51** |
| 25. displays academic peer leadership peers see the student as bright | 198 | .65** |
| FACTOR I<br>is not motivated or interested and has bad work habits | 199 | .74** |
| FACTOR II<br>is outgoing, sociable, happy - interacts positively with both teacher and peers | 199 | .78** |
| FACTOR III<br>is physically mature and well coordinated | 199 | .72** |
| FACTOR IV<br>has antisocial tendencies | 199 | .58** |

$^{**}p \leq .01$
$^{*}p \leq .05$

Table 16. Correlations Between Teachers' Ratings of the Same Students in Math and English Classes[1]

| VARIABLE | N | r |
|---|---|---|
| 1. Student's motivation, compared to the rest of the class | 198 | .61** |
| 2. Teacher would want the student in his/her class again | 193 | .40** |
| 3. Student's academic performance, compared to the rest of the class | 199 | .60** |
| 4. Student's record for turning in homework on time | 182 | .58** |
| 5. Student's behavior in class | 199 | .54** |

**$p \leq .01$
*$p \leq .05$

Table 17. Correlations between the Same Students' Mean Scores per Class Period for their Math and English Classes' from the Low Inference Observational Coding System[1]

| VARIABLE | N | r |
|---|---|---|
| Rate of: | | |
| 1. public response opportunities | 194 | .28** |
| 2. process questions | 194 | .33** |
| 3. product questions | 194 | .21** |
| 4. choice questions | 194 | -.09 |
| 5. opinion questions | 194 | -.03 |
| 6. preselect-patterned type of selection | 194 | -.21** |
| 7. preselect non-patterned type of selection | 194 | -.04 |
| 8. non-volunteer type of selection | 194 | .41** |
| 9. volunteer type of selection | 194 | .42** |
| 10. call-out type of selection | 194 | .24** |
| 11. correct answers | 194 | .25** |
| 12. incorrect answers | 194 | .10 |
| 13. "don't know" answers | 194 | -.04 |
| 14. no responses | 194 | .10* |
| 15. student-initiated questions | 194 | .52** |
| 16. student-initiated comments | 194 | .42** |
| 17. academic praise | 194 | .1[illegible] |
| 18. academic criticism | 194 | 19** |
| 19. student initiations evoking a negative teacher response | 194 | 21** |
| 20. total sustaining feedback | 194 | .13 |

Table 17 (cont.)

| VARIABLE | N | r |
|---|---|---|
| Rate of: | | |
| 21. sustaining feedback given wrong answers in academic response opportunities context | 194 | .16** |
| 22. sustaining feedback given "don't know" or no response in academic response opportunities context | 194 | -.03 |
| 23. total dyadic contacts | 194 | .51** |
| 24. public and private work contacts sought by student | 194 | .44** |
| 25. student initiated work contacts which are content related | 194 | .35** |
| 26. teacher initiated work contacts | 194 | .12 |
| 27. student initiated work contacts which are procedure related | 194 | .40** |
| 28. teacher initiated contacts which are procedure related | 194 | .17* |
| 29. student initiated contacts that are personal | 194 | .34** |
| 30. social contacts that are student initiated | 194 | .26** |
| 31. social contacts that are teacher initiated | 194 | .13 |
| 32. private student-initiated contacts | 194 | .47** |
| 33. private teacher initiated contacts | 194 | .11 |
| 34. total behavioral contacts | 194 | .31** |
| 35. behavioral criticism and threat | 194 | .04 |
| 36. mild misbehaviors | 194 | .32** |
| 37. serious misbehaviors | 194 | .33** |

Table 17 (cont.)

| VARIABLE | N | r |
|---|---|---|
| Rate of: | | |
| 38. total reinforcing dyadic contacts | 194 | .13 |
| 39. total aversive dyadic contacts | 194 | .39** |

**$p \leq .01$
*$p \leq .05$

Table 18. Correlations Between Proportion Scores for the Same Students in Their Math and English Classes from the Low Inference Observational Coding System[1]

| Proportion of: | |
|---|---|
| 1. response opportunities generated by process question | .10 |
| 2. response opportunities generated by product question | .07 |
| 3. response opportunities generated by choice question | -.05 |
| 4. response opportunities generated by opinion question | -.03 |
| 5. process questions which students answered correctly | -.01 |
| 6. product questions which students answered correctly | .04 |
| 7. choice questions which students answered correctly | no data |
| 8. opinion questions which students answered with "don't know" or no response | no data |
| 9. response opportunities given to students who were preselected in patterned turns | -.20** |
| 10. response opportunities given to students who were preselected in non-patterned turns | -.04 |
| 11. response opportunities which teacher gave to non-volunteers | .37** |
| 12. response opportunities which teacher gave to volunteers | .34** |
| 13. response opportunities which students answered by calling out | .34** |
| 14. preselected, patterned turn students who answered correctly | -.26 |
| 15. preselected, non-patterned turn students who answered correctly | -.24 |
| 16. non-volunteers who answered correctly | .15 |
| 17. volunteers who answered correctly | -.11 |
| 18. call-out students who answered correctly | .16 |
| 19. correct answers | .02 |

Table 18 (cont.)

| | | |
|---|---|---|
| 20. | incorrect answers | -.04 |
| 21. | answers which were "don't know" | .00 |
| 22. | answers which were no response | .10 |
| 23. | correct answers which teacher praised | .07 |
| 24. | correct answers after which teacher asked new question | -.01 |
| 25. | correct answers after which teacher asked non-academic question | .17* |
| 26. | correct answers which teacher integrated into the class discussion | .25** |
| 27. | correct answers after which teacher gave no feedback | -.02 |
| 28. | correct answers after which teacher gave process feedback | .20** |
| 29. | incorrect answers which teacher criticized | -.05 |
| 30. | incorrect answers after which teacher repeated the question | .10 |
| 31. | incorrect answers after which teacher simplified the question | .03 |
| 32. | incorrect answers after which teacher asked a new question | .04 |
| 33. | incorrect answers after which teacher asked a non-academic question | -.05 |
| 34. | incorrect answers which teacher integrated into the class discussion | -.04 |
| 35. | incorrect answers after which teacher gave no feedback | no data |
| 36. | incorrect answers after which teacher gave process feedback | -.06 |

Table 18 (cont.)

| | | |
|---|---|---|
| 37. | incorrect answers after which teacher gave the answer | .23 |
| 38. | incorrect answers after which teacher asked another student | -.15 |
| 39. | incorrect answers after which another student called out the answer | -.07 |
| 40. | "don't know" and no response answers after which teacher criticized | -.04 |
| 41. | "don't know" and no response answers after which teacher repeated the question | -.08 |
| 42. | "don't know" and no response answers after which teacher simplified the question | .07 |
| 43. | "don't know" and no response answers after which teacher asked a new question | no data |
| 44. | "don't know" and no response answers after which teacher asked a non-academic question | -.03 |
| 45. | "don't know" and no response ~~answers after~~ which teacher gave process feedback | .09 |
| 46. | "don't know" and no response answers after which teacher gave the answer | -.12 |
| 47. | "don't know" and no response answers after which teacher asked another student | -.24 |
| 48. | "don't know" and no response answers after which another student called out the answer | .10 |
| 49. | process questions which students answered incorrectly | .13 |
| 50. | product questions which students answered incorrectly | -.03 |
| 51. | choice questions which students answered incorrectly | no data |

Table 18 (cont.)

| | | |
|---|---|---|
| 52. | process questions which students answered with "don't know" | -.03 |
| 53. | product questions which student answered with "don't know" | .05 |
| 54. | choice questions which students answered with "don't know" | no data |
| 55. | process questions to which students gave no response answers | -.04 |
| 56. | product questions to which students gave no response answers | .15 |
| 57. | choice questions to which students gave no response answers | no data |
| 58. | preselected, patterned turn students who were asked product questions | -.21** |
| 59. | preselected, non-patterned turn students who were asked process questions | -.03 |
| 60. | preselected, non-patterned turn students who were asked product questions | -.03 |
| 61. | preselected, non-patterned turn students who were asked choice questions | no data |
| 62. | process questions directed to non-colunteers | .32** |
| 63. | product questions directed to non-volunteers | .37** |
| 64. | choice questions directed to non-volunteers | .65 |
| 65. | opinion questions directed to non-volunteers | no data |
| 66. | process questions directed to volunteers | .16 |
| 67. | product questions directed to volunteers | .20* |
| 68. | choice questions directed to volunteers | -.25 |
| 69. | opinion questions directed to volunteers | no data |
| 70. | process questions answered by a student calling out | .12 |

Table 18 (cont.)

| | | |
|---|---|---|
| 71. | product questions answered by a student calling out | .25** |
| 72. | choice questions answered by a student calling out | .61 |
| 73. | opinion questions answered by a student calling out | no data |
| 74. | answers to process questions which teacher praised | .24 |
| 75. | answers to product questions which teacher praised | .03 |
| 76. | answers to choice questions which teacher praised | no data |
| 77. | answers to opinion questions which teacher praised | no data |
| 78. | answers to process questions which teacher criticized | no data |
| 79. | answers to product questions which teacher criticized | -.04 |
| 80. | process questions after which teacher repeated the question | no data |
| 81. | product questions after which teacher repeated the question | .01 |
| 82. | choice questions after which teacher repeated the question | no data |
| 83. | process questions after which teacher simplified the question | .16 |
| 84. | product questions after which teacher simplified the question | .05 |
| 85. | choice questions after which teacher simplified the question | -.08 |
| 86. | process questions after which teacher asked a new question | -.08 |
| 87. | product questions after which teacher asked a new question | -.04 |
| 88. | choice questions after which teacher asked a new question | -.38 |

Table 18 (cont.)

| | | |
|---|---|---|
| 89. | opinion questions which teacher asked a new question | no data |
| 90. | process questions after which teacher asked a non-academic question | no data |
| 91. | product questions after which teacher asked a non-academic question | .00 |
| 92. | answers to process questions which teacher integrated into the class discussion | .22 |
| 93. | answers to product questions which teacher integrated into the class discussion | .28** |
| 94. | answers to choice questions which teacher integrated into the class discussion | -.41 |
| 95. | answers to opinion questions which teacher integrated into the class discussion | no data |
| 96. | process questions after which teacher gave no feedback | -.02 |
| 97. | product questions after which teacher gave no feedback | -.03 |
| 98. | process questions after which teacher gave process feedback | .12 |
| 99. | product questions after which teacher gave process feedback | .17* |
| 100. | choice questions after which teacher gave process feedback | no data |
| 101. | opinion questions after which teacher gave process feedback | no data |
| 102. | process questions after which teacher gave the answer | .18 |
| 103. | product questions after which teacher gave the answer | .11 |
| 104. | choice questions after which teacher gave the answer | no data |

Table 18 (cont.)

| | | |
|---|---|---|
| 105. | process questions after which teacher asked another student | -.12 |
| 106. | product questions after which teacher asked another student | -.03 |
| 107. | choice questions after which teacher asked another student | no data |
| 108. | process questions after which another student called out the answer | -.02 |
| 109. | product questions after which another student called out the answer | -.06 |
| 110. | choice questions after which another student called out the answer | no data |
| 111. | preselected, patterned turn students who answered incorrectly | -.21 |
| 112. | preselected, non-patterned turn students who answered incorrectly | -.17 |
| 113. | non-volunteers who answered incorrectly | .01 |
| 114. | volunteers who answered incorrectly | -.01 |
| 115. | call-out students who answered incorrectly | .22 |
| 116. | preselected, patterned turn students who answered with "don't know" | no data |
| 117. | preselected, non-patterned turn students who answered with "don't know" | no data |
| 118. | non-volunteers who answered with "don't know" | .13 |
| 119. | volunteers who answered with "don't know" | -.02 |
| 120. | preselected, patterned turn students who gave no response answers | no data |
| 121. | preselected, non-patterned turn students who gave no response answers | no data |
| 122. | non-volunteers who gave no response answers | .07 |

Table 18 (cont.)

| | | |
|---|---|---|
| 123. | preselected, patterned turn students whom teacher praised | .74 |
| 124. | preselected, non-patterned turn students whom teacher praised | no data |
| 125. | non-volunteers whom teacher praised | -.00 |
| 126. | volunteers whom teacher praised | -.03 |
| 127. | call-out students whom teacher praised | .28* |
| 128. | non-volunteers whom teacher criticized | -.02 |
| 129. | call-out students whom teacher criticized | -.03 |
| 130. | preselected, patterned turn students for whom teacher repeated the question | no data |
| 131. | preselected, patterned turn students for whom teacher repeated the question | no data |
| 132. | non-volunteers for whom teacher repeated the question | -.01 |
| 133. | volunteers for whom teacher repeated the question | -.03 |
| 134. | call-out students for whom teacher repeated the question | -.03 |
| 135. | preselected, patterned turn students for whom teacher simplified the question | no data |
| 136. | preselected, non-patterned turn students for whom teacher simplified the question | -.17 |
| 137. | non-volunteers for whom teacher simplified the question | -.04 |
| 138. | volunteers for whom teacher simplified the question | -.03 |
| 139. | call-out students for whom teacher simplified the question | no data |
| 140. | preselected, patterned turn students whom teacher asked new questions | no data |

Table 18 (cont.)

| | | |
|---|---|---|
| 141. | preselected, non-patterned turn students whom teacher asked new questions | -.26 |
| 142. | non-volunteers whom teacher asked new questions | -.03 |
| 143. | volunteers whom teacher asked new questions | -.05 |
| 144. | call-out students whom teacher asked new questions | .07 |
| 145. | preselected, patterned turn students whom teacher gave non-academic feedback | no data |
| 146. | non-volunteers whom teacher gave non-academic feedback | -.02 |
| 147. | volunteers whom teacher gave non-academic feedback | -.02 |
| 148. | call-out students whom teacher gave non-academic feedback | -.02 |
| 149. | preselected, patterned turn students whose answers teacher integrated into the class discussion | no data |
| 150. | preselected, non-patterned turn students whose answers teacher integrated into the class discussion | .86** |
| 151. | non-volunteers whose answers teacher integrated into the class discussion | .34** |
| 152. | volunteers whose answers teacher integrated into the class discussion | .27** |
| 153. | call-out students whose answers teacher integrated into the class discussion | .32* |
| 154. | non-volunteers whom teacher gave no feedback | -.02 |
| 155. | volunteers whom teacher gave no feedback | -.02 |
| 156. | call-out students whom teacher gave no feedback | -.03 |
| 157. | preselected, patterned turn students whom teacher gave process feedback | no data |
| 158. | preselected, non-patterned turn students whom teacher gave process feedback | no data |

Table 18 (cont.)

| | | |
|---|---|---|
| 159. | non-volunteers whom teacher gave process feedback | .12 |
| 160. | volunteers whom teacher gave process feedback | .20 |
| 161. | call-out students whom teacher gave process feedback | -.02 |
| 162. | preselected, patterned turn students whom teacher gave the answer | -.17 |
| 163. | preselected, non-patterned turn students whom teacher gave the answer | no data |
| 164. | non-volunteers whom teacher gave the answer | .14 |
| 165. | volunteers whom teacher gave the answer | -.03 |
| 166. | call-out students whom teacher gave the answer | .04 |
| 167. | preselected, patterned turn students whose turns teacher terminated by asking another student | no data |
| 168. | preselected, non-patterned turn students whose turns teacher terminated by asking another student | no data |
| 169. | non-volunteers whose turns teacher terminated by asking another student | -.06 |
| 170. | volunteers whose turns teacher terminated by asking another student | -.08 |
| 171. | call-out students whose turns teacher terminated by asking another student | .06 |
| 172. | non-volunteers whose turns another student terminated by calling out | -.01 |
| 173. | volunteers whose turns another student terminated by calling out | -.03 |
| 174. | call-out students whose turns another student terminated by calling out | -.02 |
| 175. | correct answers given by preselected, patterned turn students | -.19* |
| 176. | correct answers given by preselected, non-patterned turn students | -.02 |

Table 18 (cont.)

| | | |
|---|---|---|
| 177. | correct answers given by non-volunteers | .35** |
| 178. | correct answers given by volunteers | .26** |
| 179. | correct answers given by students who called out | .37** |
| 180. | incorrect answers given by preselected, patterned turn students | -.11 |
| 181. | incorrect answers given by preselected, non-patterned turn students | -.05 |
| 182. | incorrect answers given by non-volunteers | .21 |
| 183. | incorrect answers given by volunteers | .16 |
| 184. | incorrect answers given by students who called out | .25* |
| 185. | "don't know" or no response answers given by preselected, patterned turn students | -.04 |
| 186. | "don't know" and no response answers given by preselected, non-patterned turn students | -.10 |
| 187. | "don't know" and no response answers given by non-volunteers | -.05 |
| 188. | incorrect answers after which teacher gave sustaining feedback | -.00 |
| 189. | "don't know" and no response answers after which teacher gave sustaining feedback | -.11 |
| 190. | all response opportunities after which teacher gave sustaining feedback | .06 |
| Student Initiated: | | |
| 191. | questions and comments which were questions | .07 |
| 192. | questions and comments which were comments | .07 |
| 193. | questions which were called-out | .22* |
| 194. | called-out questions which were relevant | .17 |
| 195. | relevant questions which were called-out and criticized | -.02 |

Table 18 (cont.)

| | | |
|---|---|---|
| 196. | relevant questions which were called-out and ignored | -.04 |
| 197. | relevant questions which were called-out and not accepted | .04 |
| 198. | relevant questions which were called-out and given feedback | .06 |
| 199. | relevant questions which were called-out and given process feedback | .13 |
| 200. | relevant questions which were called-out and integrated into the class discussion | .45** |
| 201. | called-out questions which were irrelevant | -.01 |
| 202. | irrelevant questions which were called-out and ignored | -.02 |
| 203. | irrelevant questions which were called-out and not accepted | -.02 |
| 204. | irrelevant questions which were called-out and given feedback | .00 |
| 205. | questions which were not called-out | .22* |
| 206. | questions which were relevant | .21* |
| 207. | relevant questions which were not accepted | -.03 |
| 208. | relevant questions which were given feedback | .10 |
| 209. | relevant questions which were given process feedback | .30** |
| 210. | relevant questions which were redirected | -.03 |
| 211. | relevant questions integrated into the class discussion | -.06 |
| 212. | questions which were irrelevant | .32** |
| 213. | irrelevant questions which were given feedback | .25* |
| 214. | comments which were called-out | .01 |

Table 18 (cont.)

| | | |
|---|---|---|
| 215. | relevant comments which were called-out | -.13 |
| 216. | relevant comments which were called-out and given praise | -.04 |
| 217. | relevant comments which were called-out and given criticism | .29* |
| 218. | relevant comments which were called-out and ignored | .04 |
| 219. | relevant comments which were called-out and not accepted | -.05 |
| 220. | relevant comments which were called-out and given feedback | -.22 |
| 221. | relevant comments which were called-out and given process feedback | -.06 |
| 222. | relevant comments which were called-out and integrated into the class discussion | -.04 |
| 223. | irrelevant comments which were called-out | .14 |
| 224. | irrelevant comments which were called-out and criticized | -.04 |
| 225. | irrelevant comments which were called-out and ignored | .11 |
| 226. | irrelevant comments which were called-out and not accepted | .13 |
| 227. | irrelevant comments which were called-out and given feedback | -.09 |
| 228. | relevant comments which were not called-out | .01 |
| 229. | relevant comments which were not called-out and were given praise | -.07 |
| 230. | relevant comments which were not called-out and were given feedback | .08 |
| 231. | relevant comments which were not called-out and were given process feedback | .16 |

Table 18 (cont.)

| | | |
|---|---|---|
| 232. | relevant comments which were not called-out and which were integrated into the class discussion | -.06 |
| 233. | irrelevant comments which were not called-out and were ignored | -.03 |
| 234. | irrelevant comments which were not called-out and were not accepted | no data |
| 235. | irrelevant comments which were not called-out and were given feedback | -.00 |
| 236. | questions and comments which were praised | no data |
| 237. | questions and comments which were criticized | no data |
| Student Created: | | |
| 238. | contacts which related to academic content | .25** |
| 239. | contacts which related to classroom procedure | .17* |
| 240. | academic related contacts which were given praise | .03 |
| 241. | academic related contacts which were given criticism | -.05 |
| 242. | academic related contacts which involved brief teacher contact | .13 |
| 243. | academic related contacts which involved long teacher contact | .13 |
| 244. | academic related contacts in which teacher delayed contact | -.02 |
| 245. | academic related contacts which were given feedback | .10 |
| 246. | academic related contacts which were given process feedback | .12 |
| 247. | contacts which involved personal requests | .26** |
| 248. | personal contacts which teacher granted | .07 |
| 249. | personal contacts which teacher delayed | -.11 |
| 250. | personal contacts which teacher did not grant | .29* |

Table 18 (cont.)

| | | |
|---|---|---|
| 251. | academic related contacts given grief feedback | .01 |
| 252. | academic related contacts given brief process feedback | .16* |
| 253. | academic related contacts given long feedback | -.01 |
| 254. | academic related contacts given long process feedback | .20** |
| Teacher Initiated: | | |
| 255. | contacts which related to academic content | .12 |
| 256. | academic related contacts which involved praise | -.08 |
| 257. | academic related contacts which involved criticism | .26** |
| 258. | academic related contacts which were brief | -.03 |
| 259. | academic related contacts which were long | -.02 |
| 260. | academic related contacts in which teacher observed student | .04 |
| 261. | academic related contacts which involved feedback | .01 |
| 262. | academic related contacts which involved process feedback | .08 |
| 263. | academic related contacts which involved brief feedback | -.05 |
| 264. | academic related contacts which involved brief process feedback | -.04 |
| 265. | academic related contacts which involved long feedback | .14 |
| 266. | academic related contacts which involved long process feedback | .09 |
| 267. | contacts which related to classroom procedure | .26** |

Table 18 (cont.)

Behavior Related Contacts:

| | | |
|---|---|---|
| 268. | misbehaviors to which teacher responded but which coder did not observe | .03 |
| 269. | nondisruptive misbehaviors (daydreaming, wasting time) | .07 |
| 270. | misbehaviors in which student socialized with others | .20 |
| 271. | misbehaviors which involved being late to class | -.02 |
| 272. | disruptive misbehaviors | -.11 |
| 273. | misbehaviors in which student sassed or defied teacher | .28** |
| 274. | misbehaviors in which student was verbally aggressive toward teacher or peers | .02 |
| 275. | misbehaviors in which student was physically aggressive toward teacher or peers | -.05 |
| 276. | misbehaviors in which student left class without permission | -.02 |
| 277. | misbehaviors which involved contraband items (knives, radios, toys, etc.) | .15 |
| 278. | misbehaviors in which student baited teacher | .21* |
| 279. | misbehaviors in which student slept in class | .14 |
| 280. | misbehaviors which could not be classified in the above | .03 |
| 281. | misbehaviors in which teacher intervened non-verbally | .18 |
| 282. | misbehaviors which involved management request from teacher | .30** |
| 283. | misbehaviors which involved management request but which teacher directed to wrong student (target error) | .01 |

Table 18 (cont.)

| | | |
|---|---|---|
| 284. | misbehaviors which involved management request but in which teacher delayed acting (timing error) | .06 |
| 285. | misbehaviors which involved management request and in which teacher overreacted | -.02 |
| 286. | misbehaviors which teacher criticized | -.05 |
| 287. | misbehaviors in which teacher criticized wrong student (target error) | no data |
| 288. | misbehaviors in which teacher delayed criticizing (timing error) | -.06 |
| 289. | misbehaviors in which teacher overracted with criticism | -.02 |
| 290. | misbehaviors in which teacher threatened student | .04 |
| 291. | misbehaviors in which teacher delayed threatening (timing error) | -.02 |
| 292. | misbehaviors in which teacher overreacted with threats | no data |
| 293. | misbehaviors which involved management request but which coder did not observe | no data |
| 294. | misbehaviors which teacher criticized but which coder did not observe | no data |
| 295. | mild misbehaviors in which teacher intervened nonverbally | -.07 |
| 296. | mild misbehaviors which involved management request from teacher | -.08 |
| 297. | mild misbehaviors which teacher criticized | -.20 |
| 298. | mild misbehaviors in which teacher threatened student | -.09 |
| 299. | misbehaviors in which student socialized with others and in which teacher intervened nonverbally | -.04 |
| 300. | misbehaviors in which student socialized with others and which involved management request | -.07 |

Table 18 (cont.)

| | | |
|---|---|---|
| 301. | misbehaviors in which student socialized with others and teacher criticized | -.11 |
| 302. | misbehaviors in which student socialized with others and in which teacher threatened student | .21 |
| 303. | tardiness which involved management request | no data |
| 304. | tardiness which teacher criticized | no data |
| 305. | disruptive misbehaviors in which teacher intervened nonverbally | .39 |
| 306. | disruptive misbehaviors which involved management request | -.13 |
| 307. | disruptive misbehaviors which teacher criticized | .21 |
| 308. | disruptive misbehaviors in which teacher threatened student | -.10 |
| 309. | misbehaviors in which student sassed or defied teacher and which involved management request | no data |
| 310. | misbehaviors in which student sassed or defied teacher and which teacher criticized | no data |
| 311. | misbehaviors in which student sassed or defied teacher and in which teacher threatened student | no data |
| 312. | misbehaviors in which student was verbally aggressive and which involved management request | no data |
| 313. | misbehaviors in which student was physically aggressive and which involved management request | no data |
| 314. | misbehaviors in which student was physically aggressive and which teacher criticized | no data |
| 315. | misbehaviors in which student left class without permission and which involved management request | no data |
| 316. | misbehaviors which involved contraband items and which involved management request | no data |
| 317. | misbehaviors which involved contraband items and in which teacher threatened student | no data |

Table 18 (cont.)

| | | |
|---|---|---|
| 318. | misbehaviors in which student baited teacher and which involved management request | no data |
| 319. | miscellaneous misbehaviors (not in the above categories) which involved management request | no data |
| 320. | miscellaneous misbehaviors (not in the above categories) which teacher criticized | no data |
| 321. | misbehaviors which involved management requests | .24* |
| 322. | misbehaviors which teacher criticized | -.01 |
| 323 | misbehaviors in which teacher threatened student | .11 |
| 324. | misbehaviors in which teacher acted without target or timing error | .24* |
| 325. | misbehaviors in which teacher acted with target error | .01 |
| 326. | misbehaviors in which teacher acted with timing error | .26** |
| 327. | misbehaviors in which teacher overreacted | -.04 |
| 328. | mild misbehaviors which involved management requests | .02 |
| 329. | mild misbehaviors which teacher criticized | .06 |
| 330. | serious misbehaviors which involved management requests | -.09 |
| 331. | serious misbehaviors which teacher criticized | -.32 |
| 332. | mild misbehaviors in which teacher acted without target or timing error | .06 |
| 333. | mild misbehaviors in which teacher acted with target error | .08 |
| 334. | mild misbehaviors in which teacher acted with timing error | -.03 |

Table 18 (cont.)

| | | |
|---|---|---|
| 335. | mild misbehaviors in which teacher overreacted | -.04 |
| 336. | serious misbehaviors in which teacher acted without target or timing error | .17 |
| 337. | serious misbehaviors in which teacher acted with target error | no data |
| 338. | serious misbehaviors in which teacher acted with timing error | .12 |
| 339. | serious misbehaviors in which teacher overreacted | no data |
| 340. | teacher-initiated contacts which were social | .20 |
| 341. | student-created contacts which were social | .20 |
| 342. | student-created contacts which were social and which teacher accepted | .13 |
| 343. | student-created contacts which were social and which teacher did not accept | .13 |
| 344. | response opportunities in which teacher praised | .06 |
| 345. | response opportunities in which teacher criticized | -.03 |
| 346. | dyadic contacts which were response opportunities | .08 |
| 347. | dyadic contacts which were student-initiated questions | .40** |
| 348. | dyadic contacts which were student-initiated comments | .33** |
| 349. | dyadic contacts which were student-created (private) | .34** |
| 350. | dyadic contacts which were teacher-initiated (private) | .14* |
| 351. | dyadic contacts which were behavior-related | .31** |
| 352. | dyadic contacts which were social | .04 |
| 353. | dyadic contacts which were private (not public) | .20* |

Table 18 (cont.)

| | | |
|---|---|---|
| 354. | dyadic contacts which were private and which were student-created (excluding social) | .27** |
| 355. | contacts involving academic content which were private and which teacher praised | -.08 |
| 356. | contacts involving academic content which were private and which teacher criticized | .16* |
| 357. | contacts which were private and which involved academic content | .25** |
| 358. | contacts which were private and which did not involve academic content | .25** |
| 359. | student-created contacts which were public | .51** |
| 360. | teacher-initiated contacts which were public (excluding behavioral contacts) | .03 |
| 361. | student-created contacts which were private and which related to academic content | .25** |
| 362. | student-created contacts which were private and which related to classroom procedure | .14 |
| 363. | contacts involving academic content in which teacher gave process feedback | .13 |
| 364. | teacher-initiated contacts which were behavior related | .19* |