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ABSTRACT

The paper describes the instruments and procedures for collecting process information (information describing components of the planned educational process) for the Management Information System for Occupational Education (MISOE). The selection of variables and the decision to assess interactive rather than isolated process variables are discussed. The three process batteries, groups of self-report questionnaires, are reviewed with a listing of the instruments included and a description of the variables measured by them. The batteries and the instruments in them are: the Teacher Process Battery (Massachusetts Occupational Education Teacher Survey, Teacher Program Questionnaire, Image of Vocational Education Questionnaire, Purdue Teacher Opinionaire, Verbal Reasoning Scale of the Differential Aptitude Tests, and Planning Activities Sheet for Teachers and Administrators), the Administrator Process Battery (Massachusetts Administrator Inventory, Image of Vocational Education Questionnaire, Verbal Reasoning Scale of the Differential Aptitude Tests, and Planning Activities Sheet for Teachers and Administrators), and the Student Process Battery (Student Program Questionnaire and School Sentiment Index). An item by item analysis of the variables and factors measured by the three batteries is presented in tabular form. The research design and recommendations for future investigations are outlined. General guidelines for administering the batteries are provided. The instruments are not included. (MS)

The Process Batteries Operations Report

June 1973

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General Overview of the Process Sector of the MISOE Data Entry System

In the initial stages of the development of the concept of process as it was to apply in the MISOE Data System, it was decided that the focus of the process space or sector of the MISOE IPPI Model was to be "the instructional event, which is defined as the totality of a specific teaching and learning experience within a program." (Occasional Paper #2, page 4). It soon became evident that the number of process variables entailed by this conception of process space was quite extensive. Thus, in Operations Report #4 an attempt was made to provide a system for classifying process variables into three categories: human factors, physical factors and organizational factors.

Our approach to process data collection at this time was essentially univariable in that we identified each process variable as an entity apart from the context in which it occurred. For example, we categorized individual process variables such as the number of square feet in an automotive shop, the mean age of the teachers in a given program, the average pupil-teacher ratio for a given program, etc. The process-product analysis objective at this time was to determine the relationship between each of the process variables and student achievement as measured by product data . As we delved more into the study of process variables it soon become evident that the univariable approach was clearly inadequate in terms of our stated objective (Occasional Paper #5, page 37) of being "able to detect, through observation of naturally occurring phenomena, the particular combination of process factor variables which constitute the optimum educational program for specific objectives within occupational education programs, blocks and units for specific student types." It was at this point that the concept of the process mix was adopted.

The process mix was conceived of as a "complex array of interactive process variables" (Occasional Paper #5, page 38). Our feeling in adopting the multivariable approach to process space was that the educational factors that are likely to be related to student achievement are probably highly interactive. Therefore, the univariable approach was not likely to yield the type of information that we sought. The process mix concept meant that instead of trying to assess the effect on student achievement of an isolated variable such as floor space, we would attempt to assess the effect on pupil achievement of an interactive mix of seemingly significant process variables. Previous research findings were to help us determine which of the innumerable process variables should be included in the mix for a given program. (An example of a process mix is offered on pages 41-44 of Occasional Paper #5).

As originally prescribed, process data was to be collected in twenty high enrollment occupational education programs in Massachusetts. It was this realization that prompted our final decision to examine only those process mix variables that are common across all programs rather than attempting to define process mixes for individual programs. It was felt that the latter alternative might be too ambitious for first generation MISOE although it would be quite feasible in later generations. In addition, the over-programs process mix design offered the advantage of enabling comparisons of the effects of given process variables in different programs and thus contributed to analysis flexibility.

One additional constraint upon the choice of process mix variables was the fact that the MISOE research design specified that product data was to be collected once only at the end of a given cohort's program. Since one of our stated objectives was to be able to establish the ability of a given process mix

or of the individual variables which constitute that mix to predict achievement as measured by product data, it followed that the process variables which we chose to investigate should be those variables which could be examined on a time series basis over the length of a given cohort's program or those process variables that remain relatively stable over time. Therefore, we eliminated from consideration all process variables which were unique to a given time period within a cohort's program (e.g., the extent of teacher-pupil interaction in a given class), and concentrated instead on those variables which could be repeatedly measured over the length of the program or that did not change (e.g., $\bar{X}$ teacher age).

The process variables which were finally selected fell into one of two following categories: nonconstruct-type process variables and construct-type process variables. The nonconstruct-type process variables were defined as those unidimensional process variables which are relatively easily measured or assessed (e.g., teacher age, number of years and type of previous work experience, etc.). The construct-type process variables were defined as those multi-dimensional conceptual process variables which because of their complexity are generally relatively difficult to quantify or assess (e.g., teacher morale). It was our belief that these complex, multi-dimensional construct-type process variables offered the most promise in terms of their ability to predict the criterion measure.

A Review of the Three MISOE Process Batteries

Three Process Batteries were developed for the purpose of collecting process data. These batteries are: The Teacher Process Battery, the Administrator

Process Battery and The Student Process Battery. Each battery consists of a group of self-report questionnaires or inventories. Other types of measures had been considered for the collection of process data but had ultimately been rejected for first generation MISOE. Whenever possible this author strongly recommends that convergent measures of some of the less tangible construct-type process variables be introduced at a later data. A brief overview of the Process Batteries and the instruments included in them are offered below.

A. The Teacher Process Battery

1. The Massachusetts Occupational Education Teacher Survey (MOETS)

The MOETS represents a combined version of two earlier instruments developed by MISOE Staff: The Massachusetts Teacher Inventory and the Occupational Education Survey. The major process variables included in the MOETS are:

a) Teacher Background: This category of process variables includes information concerning educational attainment, previous work experience, degree of inbreeding (a construct-type variable which assesses the extent to which a given teacher is a product of the locality in which he/she teaches.)

b) Current Professional and Extraprofessional Work Activities: Included in this group of variables is information concerning teacher load (i.e., amount and type of current teaching activities), extent of moonlighting activities (i.e., amount of time spent working on other jobs concurrently with teaching), teacher-type.

c) Teacher Activities Directed Towards Keeping Abreast of Recent Developments in His/Her Occupational Area Specialty Subject: This construct-type process variable attempts to assess the extent to which and the means by which occupational education teachers keep up with the recent knowledge and practices that develop in their trade area. Our hypothesis, based on previous research, is that the extent to which occupational education teachers keep up with their trade will be significantly related to pupil achievement (i.e., teachers who keep up with their trade will be significantly more effective as measured by pupil performance on product objectives). A committee of occupational education teachers from the Quincy School System were consulted in order to determine the range of activities which teachers engage in in order to keep up with new developments in their trade areas. The questions were developed using this information.

2. The Teacher Program Questionnaire (TPQ)

The TPQ is a semantic differential attitude scale developed by Dr. Ralph C. Wenrich of the SChool of Education at the University of Michigan. Originally the scale was used to assess attitudes toward occupational education. We are using the scale to assess, in this case, the positiveness of a given teacher's attitude toward the particular occupational education program that is his/her teaching specialty area as measured by a single score representing an average of his/her response to each of the twenty scaled items.

3. The Image of Vocational Education Questionnaire (IVE)

The IVE is a Likert Scale attitude questionnaire, also developed by Dr. Wenrich, to assess an individual's attitude toward vocational education. We will use a single average score to represent the positiveness of a given teacher's attitude toward occupational education in general.

4. The Purdue Teacher Opinionaire (PTO)

The PTO is a commercially available Likert-type attitude questionnaire which is described in the manual as having been "designed to provide a measure of teacher morale." The psychometric properties of the instrument are described in the manual; it met our standards in terms of being psychometrically sound and was included in the Process Battery because it was hypothesized that teacher morale might be found to be significantly related to pupil achievement.

In addition to the total score which is said to indicate "the general level of a teacher's morale," the instrument yields ten subscores. These are described in the manual as follows:

1) Teacher Rapport with Principal deals with the teacher's feelings about the principal--his professional competency, his interest in teachers and their work, his ability to communicate, and his skill in human relations.

2) Satisfaction with Teaching pertains to teacher relationships with students and feelings of satisfaction with teaching. According to this factor, the high morale teacher loves to teach, feels competent in his job, enjoys his students, and believes in the future of teaching as an occupation.

3) Rapport Among Teachers focuses on a teacher's relationships with other teachers. The items here solicit the teacher's opinion regarding the cooperation, preparation, ethics, influence, interests, and competency of his peers.

4) Teacher Salary pertains primarily to the teacher's feelings about salaries and salary policies. Are salaries based on teacher competency? Do they compare favorably with salaries in other school systems? Are salary policies administered fairly and justly, and do teachers participate in the development of these policies?

5) Teacher Load deals with such matters as record-keeping, clerical work, "red tape," community demands on teacher time, extra-curricular load, and keeping up to date professionally.

6) Curriculum Issues solicits teacher reactions to the adequacy of the school program in meeting student needs, in providing for individual differences, and in preparing students for effective citizenship.

7) Teacher Status samples feelings about the prestige, security, and benefits afforded by teaching. Several of the items refer to the extent to which the teacher feels he is an accepted member of the community.

8) Community Support of Education deals with the extent to which the community understands and is willing to support a sound educational program.

9) School Facilities and Services has to do with the adequacy of facilities, supplies and equipment, and the efficiency of the procedures for obtaining materials and services.

10) Community Pressures gives special attention to community expectations with respect to the teacher's personal standards, his participation in outside-school activities, and his freedom to discuss controversial issues in the classroom.

5. I.Q. as Measured by the Verbal Reasoning Scale of Form L of the Differential Aptitude Tests

We examined several commercially available short-version I.Q. tests in our search for an appropriate instrument to include in the Teacher and Administrator process batteries, including the California Short Form Tests of Mental Maturity, the Otis-Lennon Tests of Mental Ability, the Otis Quick Scoring I. Q. Test. We were particularly interested in obtaining a measure of verbal intelligence. Coleman had used a measure of the verbal facility of teachers in his 1966 study and had found some relationship between this and student achievement. We hypothesized on the basis of previous research findings that a measure of teacher verbal reasoning might be even more positively related to pupil achievement.

The Verbal Reasoning Scale of the Differential Aptitude Tests is, according to the Manual (pp. 1-6), "aimed at the evaluation of the student's ability to abstract or generalize and to think constructively rather than at simple fluency or vocabulary recognition." It appeared to be the type of measure that we had been looking for. Our only reservations were: firstly, would the test provide adequate discrimination given our sample of teachers and administrators, (i.e., Would it top out?) and, secondly, would the teachers and administrators resent taking a test which had been administered to part of our student sample?

The differential Aptitude Tests are, according to the Sixth Mental Measurements Yearbook appropriate for grades 8-13 and adults (p. 1001). Furthermore, several studies are reported in the DAT Manual (p. 5-28) on the appropriateness of the DAT for administration to college freshmen at several different types of schools. In general, it was found to be appropriate. In addition, we examined the content of the Verbal Reasoning Scale and decided that it probably would be appropriate for our sample of teachers and administrators. This decision was also based upon the fact that the Verbal Reasoning Scale correlates quite highly with other measures of verbal I.Q., as reported in the Test Manual (p. 8-2); it has been shown that Verbal I.Q. scores are fairly stable over time. Our second concern that teachers and administrators might resent being tested on an instrument given to the student sample was mitigated by the fact that there would be a considerable time lag between the student and teacher administrations.

6. The Planning Activities Sheet for Teachers and Administrators (PASTA).

One of the construct-type process variables which we decided to investigate in first generation MISOE was termed "Planfulness." Travers states in An Introduction to Educational Research (1969, p.42) that "the emerging concept of the curriculum held by research workers and others is that it consists of all the planned conditions and events to which the pupil is exposed for the purpose of promoting learning..." It is those planned conditions and events that we decided to investigate with the Planfulness process variable.

The decision to investigate the planfulness process variable was based upon the hypothesis that the amount of planning and/or the type of planning activity engaged in by teachers might prove to be significantly related to student outcome behaviors (i.e., achievement as measured by product data). There is a definite dearth of previous research in this area as was discovered when we commissioned a search of the literature for studies relating the benefits of educational planning to student achievement. (The search yielded twenty-nine abstracts of which not one was directly pertinent).

Two interactive dimensions of teacher planfulness to be examined in the process research design are:

1) The Planning Mode: How many hours of planful activity occurred under each of the following planning modes?

   a) By the teacher planning alone.

   b) By the teacher planning with others at an administratively initiated meeting (initiated at the department head level or above).

   c) By the teacher planning with others at a non-administratively initiated meeting (initiated below the department head level).

2) The Number of Planful Hours Expended in Each of Nine Areas of Educational Activity

   The educational planning areas selected for inclusion in this instrument were those major planning areas which we hypothesized would be most likely to be related to pupil achievement. A committee of occupational educational faculty

members from the Quincy School System met for one month on a weekly basis with a MISOE staff member to help determine which educational planning activities should be included in the instrument. It should be noted that the PASTA was developed for administration to both teachers and administrators. Thus, the educational planning activities chosen were, in addition, those that are performed by either or both of these groups.

The unit of measure employed in the PASTA is the self-reported number of planning hours spent by a given teacher or administrator on each of the nine areas of educational activity by each of the three planning modes. The total number of planning hours by each of the three modes will be investigated as a process variable as will the total number of planning hours expended on each of the nine educational activities. The overall number of planning hours is a third process variable value yielded by this instrument.

B. The Administrator Process Battery

The Administrator Process Battery is essentially a truncated version of the Teacher Process Battery developed for administrators above the Department Head Level. (Department Heads are considered to be teachers rather than administrators throughout Process Space with the exception of the Planfulness instrument previously discussed). The instruments included in the Administrator Process Battery are:

1. The Massachusetts Administrator Inventory (MAI)

This instrument is a truncated version of the MOETS and includes information on educational and occupational background as well as the inbreeding construct-type process variable discussed earlier in connection with the MOETS. The remainder of the Administrator Battery contains instruments used in the Teacher Process Battery.

2. The Image of Vocational Education Questionnaire (IVE)

3. I.Q. As Measured by the Verbal Reasoning Scale of Form L of the DAT

4. The Planning Activities Sheet for Teachers and Administrators (PASTA).

C. The Student Process Battery

The Student Process Battery consists of two instruments which attempt to assess student attitudes.

1. The Student Program Questionnaire (SPQ)

This instrument is identical to the semantic differential type Teacher Program Questionnaire employed in the Teacher Process Battery except that it attempts to assess the positiveness of a given student's attitude toward the particular occupational education program that he/she is enrolled in.

2. The School Sentiment Index (SSI)

The School Sentiment Index was developed as a criterion referenced measure by the Instructional Objectives Exchange of the University of California at Los Angeles. The SSI is a Likert-type attitude scale containing 83 statements which pertain to five aspects of student attitude toward school. The five subscale scores yielded, by the SSI are as described in the manual:

1) Attitude Toward Teachers - i.e., one's subjective feelings about teacher behavior with respect to mode of instruction, authority and control, and the interpersonal relationship of teacher to pupils.

2) Attitude Toward Learning - i.e., one's attitude toward the learning experience, independent of attitude toward school, teachers and subjects, as reflected in intellectual curiosity, willingness to study, voluntarism, interest in problem solving, etc.

3) Attitude Toward School structure and Climate - i.e., one's attitude toward his school as a social center, a rule-making and rule-enforcing entity, and an extracurricular opportunity system.

4) Attitude Toward Peers - i.e., one's feelings regarding the structure of, and climate of relationships within the peer group, rather than toward particular individuals within that group.

5) Attitudes Toward School in General - i.e., one's general orientation toward schooling, independent of a particular school. In addition, a single total score can be obtained yielding a global estimate of attitude toward school. We came across the SSI in our search for an instrument to assess student attitude toward school. We were impressed with its comprehensiveness in terms of assessing attitude toward many aspects of the school situation. Our only reservation was that, because of

the criterion-referenced nature of the instrument, there was no description in the manual of the psychometric properties of the instrument. However, it was decided that if this information was not available we could use our own future data to obtain reliability and validity estimates for this instrument.

The three process batteries discussed in this section are respectively summarized in Tables 1, 2 and 3. The instruments themselves are in Appendix I. In the following section each of the multifactor instruments described briefly in this section will be detailed with an item by item description of the variables and factors involved.

AN ITEM BY ITEM ANALYSIS OF THE MULTIFACTOR PROCESS INSTRUMENTS

1. The Massachusetts Occupational Education Teacher Survey (MOETS)

ITEM #	VARIABLE	FACTOR
1	# Dependents	General Background
2	Type and # years non-teaching work	Occupational Background: General
3	Where born	General Background: Inbreeding
4	Where raised	" " "
5	Where lived	" " "
6	School location	" " "
7	# Years teaching experience	Occupational Background: Teaching
8	# Occupational refresher courses	Keeping-up-with-trade
9	# Years work experience in trade area	Occupational Background: Trade Experience
10	Trade income level prior to teaching	Occupational Background: Status Achieved in Trade
11	Level of trade position prior to teaching	Occupational Background: Status Achieved in Trade
12	Other places taught at this year	Moonlighting
13	Levels taught at this year	"
14	Other subject areas taught this year	"
15	Income from teaching.	Professional Income Level
	Income from other sources	Moonlighting
16	# Hours working other than teaching	"
17	# Hours per educational activity	Teacher Load

ITEM #	VARIABLE	FACTOR
18	# Journals read and subscribed to	Keeping-up-with-the trade
19	# Trade-related articles written	" " " " "
20	Frequency and type of trade-related visits	" " " " "
21	# Trade-related conferences & seminars attended	" " " " "
22	# Trade-related consultations	" " " " "
23	# Trade-related class field trips # Times trade person invited to lecture class	" " " " "
24	Level of participation in job placement	" " " " "
25	Level of participation in cooperative program	" " " " "
26	Participation in student summer job placement	" " " " "
27	Emphasis of program on established vs. new trade practices	Program emphasis on keeping-up-with-trade
28	Summer job in trade area	Keeping-up-with-trade
29	# Trade related organizations belonged to	" " " " "
30	# Hours working on trade-related job during school year	" " " " "
31	Extent of seasonal work in trade	" " " " "
32	Current degree status	Educational Background
33	Teacher type	Occupational Background: Teaching

11. Massachusetts Administrator Inventory (MAI)

ITEM #	VARIABLE	FACTOR
1	# Dependents	General Background
2	Current Degree Status	Educational Background
3	# Years Educational Experience	Occupational Background: Professional
4	# Years in Present Position	Occupational Background: Professional
5	Type and # Years Noneducational Work Experience	Occupational Background: General
6	Level of Job Position Prior to Teaching	Occupational Background: General
7	Where Born	General Background: Inbreeding
8	Where Raised	" " "
9	Where Lived	" " "
10	School Location	" " "
11	Income from Administering	Professional Income Level
	Income from Teaching	" " "
12	% Time Administering	Professional Work Load
	% Time Teaching	" " "

III. The Purdue Teacher Opinionaire (PTO)

Factor	Associated Item Numbers	Total # Items
1. Teacher Rapport With Principal	2, 3, 5, 7, 12, 33, 38, 41, 43, 44, 61, 62, 69, 70, 72, 73, 74, 92, 93, 95	20
2. Satisfaction With Teaching	19, 24, 26, 27, 29, 30, 46, 47, 50, 51, 56, 58, 60, 76, 78, 82, 83, 86, 89, 100	20
3. Rapport Among Teachers	18, 22, 23, 28, 48, 52, 53, 54, 55, 77, 80, 84, 87, 90	14
4. Teacher Salary	4, 9, 32, 36, 39, 65, 75	7
5. Teacher Load	1, 6, 8, 10, 11, 14, 31, 34, 40, 42, 45	11
6. Curriculum Issues	17, 20, 25, 79, 88	5
7. Teacher Status	13, 15, 35, 37, 63, 64, 68, 71	8
8. Community Support of Education	66, 67, 94, 96, 97	5
9. School Facilities and Services	16, 21, 49, 57, 59	5
10. Community Pressures	81, 85, 91, 98, 99	5

IV. THE PLANNING ACTIVITIES SHEET FOR TEACHERS AND ADMINISTRATORS (PASTA)

A. Planning Activity Variables by Planning Mode

1. # Hours/week planning instructional activities.

2. # Hours/week planning which occupational capabilities are to be attained by students.

3. # Hours/week planning student evaluation.

4. # Hours/week planning the sequencing and/or coordination of learning tasks.

5. # Hours/week planning budgetary matters.

6. # Hours/week planning for instructional materials to be used by students.

7. # Hours/week planning student disciplinary procedures.

8. # Hours/week planning staff policies.

9. # Hours/week planning scheduling.

B. Planning Mode Variables by Planning Activity

1. # Hours/week planning alone.

2. # Hours/week planning at administratively initiated meeting.

3. # Hours/week planning at nonadministratively initiated meeting

C. Generated Variables

1. Total number of planning hours/week for each planning activity.

2. Total number of planning hours/week for each planning mode.

3. Total number of planning hours/week.

V. THE SCHOOL SENTIMENT INDEX (SSI)

Factor	Associated Item Numbers	Total # Items
1. Attitude Toward Teachers	1, 3, 6, 8, 10, 12, 15, 17, 19, 21, 25, 27, 29, 33, 34, 38, 39, 41, 43, 44, 45, 47, 48, 50, 52, 57, 58, 60, 63, 65, 67, 69, 73, 74, 76, 77, 79, 81, 82	39
2. Attitude Toward Learning	11, 20, 28, 35, 53, 68, 75	7
3. Attitude Toward School Social Structure and Climate	5, 7, 14, 16, 23, 24, 31, 32, 36, 37, 40, 46, 49, 56, 62, 64, 71, 72, 78, 83	20
4. Attitude Toward Peers	9, 18, 26, 42, 51, 66	6
5. Attitude Toward School in General	2, 4, 13, 22, 30, 54, 55, 59, 61, 70, 80	11
6. Global Estimate of Attitude Toward School	1 - 83	83

THE PROCESS SPACE RESEARCH DESIGN

In Generation One MISOE, process variables are to be investigated in twenty SDS(2) high enrollment occupational education programs throughout Massachusetts. As previously mentioned, the process variables to be investigated are those that are common across all programs. This design enables comparisons between a given process variable in several different settings of one program (i.e., school environments) and/or a given process variable as it occurs in several different programs within one or more settings. The major unit of analysis, however, is to be the program-school combination - that is, analysis of process variables common to a given program over several different settings. (Note that analysis across IPPI elements is not a topic of discussion in this paper.)

There are basically two types of measures in the three Process Batteries: 1) those process variables that are assessed once only; 2) those process variables that are measured on a time series basis over the length of a given cohort's program. The former are variables such as teacher or administrator I.Q. that are relatively stable over time while the latter are variables such attitudes or behaviors that can vary considerably from one measurement time to another. With the exception of the PASTA, all process variables that may vary over time are measured on a yearly basis over the length of a given cohort's program. For those process variables that are measured on a time series basis, the yearly measures over the length of a given cohort's program are to be averaged, yielding a mean value with a standard deviation.

The PASTA is administered once each month during the school year.

Each administration covers a one week period of planfulness during a given month; the week to be covered is not announced prior to the time that the PASTA is to be filled out. One PASTA form is also filled out at the end of the summer since it was discovered that a good deal of planning for the school year occurs at that time. The summer PASTA form is identical in format to that used throughout the year. However, instead of recording the number of planning hours over a one week period, the teacher or administrator is asked to record the total number of half and whole work days spent over the summer planning each of the nine educational activities by each of the three planning modes. (A detailed description of the procedure involved in administration of the PASTA is contained in the Guidelines for Administration of the Process Batteries.) The schedule for administration of each of the individual process instruments is included in Tables 1, 2 and 3.

RECOMMENDATIONS

It is understood that the process variables selected for investigation in Generation One MISOE are to be expanded upon in the future. Since the process variables chosen for initial study are on somewhat of a macro (i.e., over-all-programs) level, it is suggested that later investigations might concentrate on process variables unique to a given program. It might also prove worthwhile to collect product data in several programs more frequently than once in order to enable investigation of those process variables that are unique to a given period of time within a cohort's program (e.g., the relationship of the frequency of teacher-pupil interaction in a given class to pupil achievement in that class as measured by some type of product data). It should be noted that the above comments are merely suggestions for the future and imply no criticism of the process space research design described herein.

Estimates of the reliability and validity of process instruments developed by MISOE Staff should be obtained in the near future. Instruments like the MOETS or MAI can be validated by checking into independent sources of the information provided by self-report. Reliability estimates can be obtained by administering the same instrument to a given teacher or administrator more than once over a short period of time and determining the stability of the information provided.

The Planning Activities Sheet for Teachers and Administrators (PASTA) is especially in need of estimates of the validity and reliability of the self-reported information provided by the best one can say is that the PASTA provides a respondent's recollection (subject of course to error) of planfulness. An estimate of this measurement error must be obtained before it can be claimed that the PASTA actually assesses planfulness in any objective sense. Ideally,

a convergent measure of what we have termed planfulness should be obtained for a sample of respondents.

One possibility is to have a carefully selected sample of teachers and administrators actually keep a detailed record of the number of hours that they spend planning each of the nine educational activities by each of the planning modes during a given week. A matched sample of teachers and administrators could then be asked to fill out a PASTA form at the end of that same week detailing their planning hours by activity and mode for that past week. (It is essential that they not know in advance for which week they are to fill out the PASTA as this is the manner in which the actual administration occurs). A comparison can then be made of the data obtained by these two methods. Unfortunately, this design is subject to between subject error variance.

Another alternative would be to have one group of teachers and administrators fill out PASTA forms several times as they are meant to be administered and several times on the basis of keeping careful records as previously described. The data obtained for each person by these two methods can then be compared. Then, on the assumption that measurement error due to the particular time at which the instrument was administered would cancel out, an estimate of the PASTA's validity can be obtained. Given additional thought, perhaps a clever method of determining the PASTA's validity will be thought of. This author feels that the instrument's usefulness as a research tool will be greatly enhanced if this can be accomplished.

Estimates of the reliability of the PASTA should not be difficult to obtain. The instrument can be administered twice within one day to the same group of teachers and administrators. The results would then be compared and a coefficient of correlation determined.

Even those process instruments which were not developed inhouse should have validity and reliability estimates provided based upon our particular sample. After the initial data is collected and analyzed, those instruments or parts of instruments which do not contribute significantly in terms of adding unique valid variance and/or predictive validity (as measured by pupil achievement on product data) should be eliminated from the process batteries.

In conclusion, it is urged that the search for promising new process variables in future generations of MISOE be actively pursued, that the process instruments described herein be proven to be psychometrically sound or be eliminated from the process batteries and that the data yielded by the actual administration of the process batteries be used to determine which process instruments are particularly worthwhile in terms of their ability to contribute significantly to the field of educational research.

Guidelines for Administration of the Process Batteries

I. The Teacher Process Battery

Each teacher in the SDS(2) sample will receive a packet of instruments and the accompanying answer sheets on the day that they are to be given the I.Q. test. They are to write their names on the outside of the packet. All answer sheets in a given teacher's packet will be encoded with the same dark mark coded number. Before proceeding with any of the instruments, each teacher should be asked to check and see that the same serial number is printed on the first page of every answer sheet in his packet. In those cases in which there are discrepancies, the teacher must be given a new packet in which all of the numbers do match.

The first task at the time of the administration of the I.Q. test is the filling out of the cover sheet. The cover sheet should then be immediately collected and placed in the envelope provided for mailing to the link agency. After the I.Q. test has been administered, teachers are to be given a full seven day week to fill out the remaining self-administered instruments in the packet. The I.Q. instruments are to be collected again at the end of the testing as are the answer sheets which are to be placed in the appropriately labelled envelope and mailed to MISOE. They should be emphatically told that only a number two pencil may be used for this purpose. The teachers are to return their completed packets in a sealed envelope to the Principal's Office by a designated time and date. The Principal is to have a list of each of the teachers to whom packets were distributed. Each time a packet is returned a given teacher's name can be crossed off the list. After the Principal is to contact all teachers whose packets were not returned and instruct them to return their completed packets as soon as possible. After all packets are returned, the completed packets are to be mailed to Project MISOE. After MISOE has recieved packets from all SDS(2) schools, the packets are to be disassembled so that the individual instruments contained in them can be separately processed.

II. The Administrator Process Battery

Ideally, the I.Q. test should be administered to the administrators at the same time that it is given to the teachers. If this is not possible, every effort should be made to make the administrator testing date as close as possible to the teacher testing date. The general directions for administration of the administrator process battery are identical to those of the teacher process battery. Each administrator in the SDS(2) sample is to be given a packet containing instruments and answer sheets at the time of the I.Q. testing. Each administrator should be told to check and see that each instrument in his packet including the cover sheet bears the same serial number. A new packet in which the numbers do match must be given to anyone for whom the numbers differ.

The first instrument to be filled out is the cover sheet which must then be immediately collected, placed in the appropriately labelled envelope and maile to the link agency. The I.Q. test can then be given. The I.Q. answer sheets are to be collected and mailed to MISOE and the test booklets are to be collected. The administrators are to be given a full week in which to complete the remaining self-administered instruments in their packets. They are to be emphatically told to use a #2 pencil only in filling out

instruments. The sealed packets are to be returned to the Principal's Office where each administrator's name must be checked off before the packets are returned to MISOE. At MISOE the packets are disassembled for data processing.

III. The Pupil Process Battery

During a designated date in April, SDS(2) students are to be given a packet containing two process instruments plus a cover sheet. The pupil process battery is to be administered by an occupational education teacher in the student's department. Maximum administration time required is one hour. All students should check to see that every instrument in their pa-ket, including the cover sheet, has the same serial number imprinted on it. A new packet in shich the numbers do match must be given to any student whose packet does not meet this requirement.

The first instrument to be filled out is the cover sheet. This is then to be collected and placed in the appropriately labelled envelope for mailing to the link agency.

Students are then ready to fill out the first combination instrument-answer sheet in the packet, the School Sentiment Index, the directions are to be read aloud by the teacher while students read along silently. Student questions should be answered after which students are to fill out the instruments. After the last student has finsihed the instrument is to be collected and placed in the appropiately labelled envelope which is to be mailed back to MISOE.

After a brief break the students are ready to fill out the final pupil process instrument, the Student Program Questionnaire. The teacher reads the directions aloud while students read silently along. The teacher then answers all student questions after which students can fill out the instrument. After the last student has finished the S.P.Q. is to be collected and placed in the appropiately labelled envelope for mailing to MISOE.

General Guidelines for Administration of the
P.A.S.T.A (Planning Activities Sheet for Teachers and Administrators)

In September of 1973 each teacher and administrator in the SDS (2) sample will receive a packet containing Guidelines for Filling Out the Planning Activities Sheet for Teachers and Administrators (P.A.S.T.A.) along with 11 P.A.S.T.A. forms and an accompanying cover sheet. Each P.A.S.T.A. form and cover sheet in a given person's packet will be serial numbered and dark mark coded with the same number. All teachers and administrators in the SDS (2) sample will recieve a training session instructing them how the cover sheet and P.A.S.T.A. are to be filled out. The cover sheets are to be filled out at this meeting an are to be collected and mailed to the link agency. Each person must write his name clearly on his packet.

Once each month during the school year, SDS (2) teachers and administrators will be informed by MISOE via memorandum that a P.A.S.T.A. form is to be filled in for the time period encompassed by exactly 7 days (one week) prior to the date on which the notice came. That is, if the notice came on a Wednesday, the respondant should fill in his planning hours between 8 a.m. of Wednesday the preceeding week and 8 a.m. of the Wednesday on which notice was received that a P.A.S.T.A. is to be filled out. The completed form is to be mailed directly to MISOE by the respondant. MISOE can contact the link agency if any P.A.S.T.A.'s are not returned and have them mail out a reminder to the persons involved. (The matching IFID's on the cover sheets and P.A.S.T.A.'s will enable the link agency to contact persons who fail to respond.)

Teachers or administrators who are not present on the day that notice of filling out a P.A.S.T.A. is given are to fill out the form for the one week period preceding the date on which they received the notice in their mailbox.

There is also to be a P.A.S.T.A. form which is filled out at the end of the summer since we have been told that this is often a planning period. The form itself is indenical to that used throughout the year, but the directions for filling it out are different. Respondants will be instructed to indicate the number of planning days that they spent on each activity over the summer months. Anything longer than a half day is to be counted as a planning day. The first summer P.A.S.T.A. will be filled out in September of 1974 at which time the P.A.S.T.A packet for the 1974 school year will be distributed.

Guidelines for Administration of the
Teacher and Administrator Master Identification Form (TAMIF)

Each teacher and administrator in the SDS (2) sample is to receive a manila envelope in October of 1973 containing one cover sheet and one Teacher and Administrator Master Idenification Form (T.A.M.I.F.). These forms are to be corner tacked and will bear the same serial number. For teachers there are no directions necessary to fill out the TAMIF form other than those already printed on the form itself.

The only instructions to teachers concern return of the two forms. Teachers will be told that the two attached forms are to be returned to their department head after they have answered every question. If they teach in more than one SDS (2) department they will be required to fill out the forms for each Department. (We anticipate that this would be an extremely rare occurrence).

Once the Department Head receives the completed cover sheet plus T.A.M.I.F. from each teacher in his Department, he can then enter the required teacher identification data on each T.A.M.I.F.
(He will receive separate instructions for accomplishment of this task.) After the teacher identification data has been entered, the cover sheets are to be mailed to the link agency and the T.A.M.I.F.'s are to be mailed to MISOE.

Administrators will require some additional directions to fill out their forms. A separate sheet will direct them to write and grid in their three digit LEA number in the appropriate space on the top of the T.A.M.I.F. form. After the cover sheet and T.A.M.I.F. have been completely filled in by the administrator, the cover sheet is to be mailed to the link agency and the T.A.M.I.F. to MISOE. (Note that by "administrator" we are referring to administrators <u>above</u> the department head level, unless otherwise specified.)