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ABSTRACT

The primary purpose of this project was to develop a system for the evaluation of student teachers employing automated data processing as an integral part of the system. This system employed data gathered from four sources: (1) Public School Pupils, Grades 7-12; (2) Student Teachers; (3) Supervising Teachers; (4) College Supervisors. The emphasis was placed on the first source, the data obtained from the pupils of the student teachers. This source constituted a large volume of evaluation information that had to be processed through the use of automated procedures. Results of the project compared the several sources of data, and indicated the relative effectiveness of each. The feedback provided from the evaluation information was used to identify strengths and weaknesses of individual student teachers, and cumulatively to evaluate the total student teacher program. Finally, by subdividing the data into categories relating to pupil characteristics, information was obtained about the effectiveness of student teachers in working with black, white, male and female students. As a result of this project, an automated system for gathering and analyzing a large amount of data is available to evaluate the effectiveness of student teaching. (Author)

Final Report

Project No. 2-D-078
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DEVELOPMENT OF AN AUTOMATED SYSTEM FOR EVALUATION OF STUDENT TEACHER EFFECTIVENESS

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U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

National Institute of Education

PREFACE

The authors would like to acknowledge the contribution to this project of the Educational Research Laboratory at the University of Georgia headed by Dr. R. Robert Rentz and in particular, Dr. Carl Schnittjer who worked closely with us throughout the project and who contributed in no small part to the successful completion of the project. We would also like to acknowledge the assistance and cooperation of Dr. J. Donald Hawk, Head, Department of Professional Laboratory Experiences, at Georgia Southern College.

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CHAPTER I

INTRODUCTION

Evaluation of student teachers has long been a problem for the faculty of institutions preparing teachers for the public schools. Efforts at improving evaluation of student effectiveness have taken on increased urgency because of the growing demand for greater accountability; the unstable, inflationary economic conditions; concern over the relevancy and credibility of public education; and the teacher surplus. However, newer and more effective procedures have been slow in developing. It was the purpose of this research project to develop and implement a system for the evaluation of student teachers by the public school pupils they taught during their student teaching experience. Information obtained from this evaluation was compared with the same type of information obtained from three other sources: college supervisors, public school supervising teachers, and the student teachers themselves. The information obtained from all four of these sources was analyzed through an automated data processing system, and used to counsel student teachers in an effort to improve their effectiveness.

OBJECTIVES

The objectives of this research were to:

1. Develop a system for the evaluation of student teachers employing automated data processing as an integral part of the system. Since the evaluation system dealt primarily with data obtained from public school pupils, the use of auto- procedures was the only feasible solution to handling the large amount of data gathered by this method of evaluation.

2. Identify the strengths and weaknesses of student teachers by securing evaluation information from several sources, thus allowing the college supervisor, supervising teacher, and student teacher to devise ways and means for specific improvements in teaching behavior.

3. Analyze the responses of black, white, male, and female public school pupils as a basis for adjustments in student teacher behavior, learning activities, and instructional materials.

4. Explore the possibility of using four sources of evaluation data (public school pupils in grades 7-12; student teachers; supervising teachers; and college supervisors) for student teachers, and to determine if there was a consistency in the information from the four sources.

5. Provide feedback for the teacher education program at Georgia Southern College through the data gathered from the four sources. This type of summary data will enable the curriculum committee that is primarily responsible for evaluating and updating the teacher education program to identify some of its strengths and weaknesses, and thereby effect changes in the preparation of teachers.

REVIEW OF SELECTED LITERATURE

Much of the literature focuses on the relationship between personality and desired classroom behaviors. The primary ways of measuring teacher effectiveness have been through classroom observation by trained observers and a rating scale completed by principals, supervisors, and teachers. Two basic weaknesses of these approaches are that they involve a limited number of rather brief observations and they generally fail to involve students who are in a strategic position to evaluate the teaching-learning process. Veldman and Peck (1963) argue that pupils see the teacher daily in diverse behavioral situations and afford the increased reliability and reduction of bias that multiple judges afford. In a later study (1967), Veldman and Peck summarized the advantages of using students ratings as indices of effective teaching as follows:

> Unlike ratings of observed behavior by adult judges, pupil evaluations have the advantage of averaging a large number of individual biases. They are also the product of observing the teacher on many occasions under "normal" conditions, and hence avoid many of the obvious problems encountered in typical "one-shot" classroom observations. With the availability of automated data-processing procedures, it would appear that the use of pupil evaluations are one facet of a comprehensive assessment battery for teachers is very much warranted.

Since this research was primarily concerned with the utilization of public school students and trained observers in evaluating student teacher effectiveness, this review focuses on students and trained observers as evaluators.

Public School Students as Evaluators

Beecher cited Bryan (1939) as most representative of the studies of pupil ratings of teachers made in the late 1930's, since his eleven-item questionnaire was developed to represent the latest ideas of ten other studies of this period. Summarizing his work, Bryan pointed out that students can discriminate between specific strong and weak spots in teaching to a degree that make pupil ratings worthwhile.

Beecher (1949) emphasized pupil reaction as a basis for teacher appraisal. His review summarized reactions of 30,000 pupils to their teachers and reported unusual consistency in the findings. He stated that perhaps the most important single source of evidence of teacher effectiveness is the pupil-teacher relationship.

Boyce and Bryan (1954) were concerned about the implications that pupils are too immature to appreciate the merits of a good teacher. One thousand questionnaires were mailed to college, high school, and elementary teachers; parents of elementary pupils; and to college students. Only a small minority of the students changed their opinions of former teachers during past school years. Boyce and Bryan concluded that the rationalization that maturity will cause individuals to look back in later years and see teacher merit that was not appreciated in school days seems to be largely unfounded. The best way to predict how pupils will feel about a teacher in later years is to learn how they feel while in the classroom.

Bryan (1963) studied several aspects of evaluating teacher effectiveness. A study of the responses of seventy-nine administrators showed that their judgment of teachers was based, to a very great extent, on student reaction to teachers. A comparison of opinions of thirty-eight teachers by students with those of administrators revealed (a) that there was substantial agreement between administrators and students, (b) that administrators agreed as well with students as they agreed with each other on most of the items in the questionnaire used, (c) that the agreement between student groups was higher than the agreement between administrators, and (d) that "halo" has less influence on students than administrators' opinions of teachers.

Another part of Bryan's study was concerned with the extent to which parent's judgments of teachers were based on student reaction. He found a correlation of .73 for parents and elementary children and .55 for parents and high school students. He also found that student opinions of teachers do not change significantly five to ten years after

graduation. Studies by Duncan and Duncan (1934), Drucker and Remmers (1951), and Boyce and Bryan (1954) supported these findings.

Bryan also studies the question, "To what extent may the feedback of information about student reactions improve teacher effectiveness?" The data collected over a three-year period (1960-62) indicate the feedback of information about student reactions can be used by many teachers as a means of improving effectiveness as seen by students. Studies by Savage (1957) and Gage, Runkel and Chatterjee (1960) concur with these findings.

Veldman and Peck (1963) used a Pupil Observation Survey (POSR) to determine characteristics of junior and senior level student teachers. They concluded that pupils can provide at least as much information regarding teacher characteristics as can expert adult judges on the basis of one or two hours of observation. A later study, Veldman and Peck (1969), shows that the grade received in student teaching is related to student ratings of student teachers on the POSR. This implies substantial agreement between student evaluations of teachers and supervisor evaluations of teachers. The authors agree that pupil evaluation holds great promise as one facet of a comprehensive assessment battery.

Remmers has conducted a major portion of the research involving students as evaluators of teachers. Summarized below are the major generalizations from Remmer's research:

1. Student ratings are reliable (Shock, Kelly and Remmers, 1927). An average of twenty-five or more student ratings is as reliable as the better educational tests presently available (Remmers 1960).

2. Grades have little relationship to instructor ratings by students (Remmers, 1928, 1930).

3. Halo effect, if present, does not prevent students from discriminating among the different aspects of teacher personality (Remmers, 1934).

4. Student ratings have little if any relationship to the difficulty of the course (Remmers, 1928).

5. Sex of student or teacher bears little or no relationship with their ratings (Remmers, 1929).

6. The cost of obtaining student ratings is low compared to other methods of evaluation (Remmers 1928, 1960).

7. Students are more favorable than teachers to student ratings, but more teachers than students have noticed improvement as a result of student ratings (Remmers, 1960).

Bledsoe, Brown and Strickland (1971) studied the perceptions of 4,368 secondary pupils toward their teachers using the POSR devised by Veldman and Peck (1963). Results indicated that secondary pupils can consistently evaluate behavioral characteristics of teachers.

Freese and West (1972) compared teacher self-perceptions with adolescent perceptions of the teacher in the areas of congruence, empathy, and regard and the effects of sex, age, years of teaching experience and grade received on ratings. They found significant differences ($P < .05$) in empathy and congruence in ratings of teachers and students with teachers viewing themselves as more empathetic and congruent. There was no significant difference between ratings of teachers because of sex, age, and experience of teachers and grade received by the student.

Trained Observers as Evaluators

The evaluation of teacher effectiveness by trained observers is the most common method used today. The college supervisor and supervising teacher are considered to be trained observers. The research summarized in this section is limited to several recent (since 1960) and widely reported studies.

One of the most extensive studies of teacher characteristics and effectiveness was conducted by Ryans (1960). This study involved some 6,000 teachers in 1,700 schools and approximately 450 school systems. The primary concern of the study was the personal and social behaviors of teachers as those behaviors related to classroom situations. The use of trained observers to record interactions between students and teacher using the classroom Observation Record was a key feature of this study. Ryans stated that only with trained observers could one expect to obtain meaningful assessments of teacher behavior.

An extensive study by the National Education Association (1964-1965) reported that teacher evaluation by the principal, assistant principal, instructional supervisor or department head, amounted to little more than the principal's recommendation for the next year and had little to do with actual teaching practices. Approximately twenty-five percent of the principals (total 826) and fifty percent of the teachers (total 1,134) expressed doubt or even a negative opinion that this system of evaluation actually improved teaching. Further,

fifty-one percent of the teachers reported that they were observed teaching in their classrooms less than ten minutes during the period (from September to February 1), and fifty-seven percent of the teachers reported that for the same period they had had two or fewer individual conferences of ten minutes or more with school system officials.

Flanders (1960) utilized trained observers and an interaction analysis approach for recording classroom behaviors of teachers and students.

Research has shown that students and trained observers can be used in evaluating teacher effectiveness. However, there seems to be no significant research combining the best features of these approaches. Utilization of large numbers of students is not feasible without the use of automated data processing which provides feedback quickly and accurately. There are indications that the approach described herein offers a new dimension in determining and improving the effectiveness of student teachers.

CHAPTER II

PROCEDURES

Over the one-year period of time covered by this study several different stages of development were necessary in order to make the intended student teacher evaluation system operational. One of the factors in the system which required the most attention was the data collection instrument. Revisions of the instrument were made after three separate tryouts. This chapter will describe the procedures used in the development of the instrument and in the development of the system to collect and evaluate the data collected.

Subjects

Sources of data for this study were four groups of subjects with the primary source of data being the public school students of the student teachers. None of the classes of the student teachers were identified as "remedial" in which a deficiency in reading might be a problem. College supervisors, supervising teachers in the public schools and the student teachers themselves were the other three groups. The number of subjects from the four groups during each of the data collection periods is shown in Table 1.

Table 1
Subjects for Study for Each
Revision Period

Data Collection Period	Students	Student Teachers	Number of Schools Represented
Spring 1972	533	27	21
Fall 1972	892	42	23
Winter 1972-73	879	36	21
Spring (Mid-quarter) 1973	2625	79	24
Spring (End-of-quarter) 1973	2787	77	24

Subjects for the first data collection (Spring, 1972) period were selected through a stratified-random sampling procedure. Every student teacher selected was evaluated by two classes that he had been working with, plus an evaluation by the college supervisor, supervising teacher and a self-

evaluation. The group of subjects used in the Fall, 1972 period was made up of all the student teachers enrolled for the quarter that would be working with grades 7-12. Due to some problems encountered during this period with data collection from classes in areas such as physical education, industrial arts, home economics, music and art, data were not collected from those classes in the subsequent periods. For the final two periods (Winter and Spring, 1973) all the student teachers working in grades 7-12, with the exception of the areas mentioned, participated in the study.

Instrument Development

One of the major concerns of the project was the development of a data collection instrument. All efforts to secure an instrument that had been published met with little success. The major problem encountered was that royalty payments for the use of an appropriate instrument would be too large to fit into the scope of the study.

The data collection instrument went through several developmental stages which are as follows:

Stage I. A thorough review of the literature was conducted to select items that were indicative of good and poor student teacher behavior. The selected items were reviewed by a panel of ten college faculty members from the School of Education at Georgia Southern College and invalid items were eliminated. A revised list of items was submitted to a group of 60 public school personnel for further validation. The teachers reviewed the items and indicated which items best described characteristics of the public school teacher in grades 7-12.

Stage II. The first preliminary instrument was constructed and consisted of eighty-one items divided into seven factors. This eighty-one item instrument was administered to a stratified-random sample of student teachers during the Spring Quarter, 1972. After an examination of the data collected by using the eighty-one item instrument, a revised instrument consisting of fifty items measuring seven factors, was developed. The resulting fifty item revision was administered during the Fall Quarter, 1972 to all the student teachers at the 7-12 level.

Stage III. The same process was repeated for each of the last two data collection periods Winter and Spring, 1973. Only minor changes were necessary in the instrument used during the Winter Quarter.

In making decisions about the items to be included in the several revisions of the instrument and the factors to which they were to be assigned several criteria were considered.

The subjective evaluation of items at the first helped to eliminate a large group of items that were not considered essential. However, once the preliminary decisions were made, empirical considerations were given top priority. Two essential analyses were performed with each set of data, (1) a factor analysis and (2) an item analysis. Items were retained because they:

(1) correlated highly with a total score on the instrument. (A value of less than .25 was considered a chance level and too low to be useful in discrimination.),

(2) had a rotated factor loading on the factor it was to determine of greater than .40,

(3) correlated with the factor total better than .50, and

(4) was meaningful to the purposes of the study.

The last criterion was included to insure that decisions about items would not be strictly an empirical process.

Data Collection

The preliminary collections of data in Stages I and II were made with the unrefined instruments and response formats and necessitated hand-scoring and coding of the data. Data collection, using the more refined instruments, was accomplished during the third stage with a machine scorable answer sheet developed for the project.

The seven factors determined by the preliminary analyses were named as follows:

Factor	Name
I	Class Leadership
II	Poise and Fairness
III	Academic Competence
IV	Media and Materials
V	Presentation
VI	Evaluation
VII	Motivational Efficacy

Items that made up the seven factors are indicated below by their item number:

Factor	Item Numbers
I	1, 5, 6, 16, 27, 28, 43, 44
II	8, 15, 22, 32, 34, 37, 48
III	3, 12, 21, 24, 30, 31, 38, 42
IV	14, 36, 41, 47, 49
V	2, 35, 40, 46, 50
VI	4, 9, 11, 17, 18, 26, 39
VII	7, 10, 13, 19, 20, 23, 25, 29, 33, 45

The final fifty item data collection instrument, the machine scorable answer sheet, directions to the supervising teacher about administering the instrument, and a letter to the school principal explaining the study are included in Appendix A. The directions in their final form were very helpful in smoothing out the rough spots in the procedure, but required refinement during each stage before the final form was developed.

The supervising teacher in the school was the person who was most able to insure the success of the data collection. A considerable effort was made to insure that these supervising teachers and their principals were knowledgeable of the project and in turn could be counted on for their full participation and cooperation.

In collecting the data from the public schools, two methods were employed. At first, a mailing procedure was established. However, many delays and lost information, combined with the expense of mailing, caused the abandonment of that procedure. The second procedure used for the final two data collection periods in the Spring, 1973 quarter was to have the college supervisor distribute and collect all the information. This procedure was the more efficient and inexpensive. In the Spring Quarter of 1973 the system of data collection was implemented as the total operational system. It is this period to which the final discussion will pertain.

Once the data had been collected from the four sources, the answer sheets were inspected for incomplete erasures, extra pencil marks, and torn sheets. After much effort to clean up the data, the answer sheets were transported to the University of Georgia (Athens, Georgia) for scoring. The answer sheets were scored and the responses punched into data processing cards to be analyzed and then to provide feedback of information to the student teachers.

Since time was an important consideration in the feedback of information to the student teachers, the system was designed to function over a three to four day period. This period of time was from the final preparation of the data for scoring until the computer printout, indicating the performance of the student teacher, was in the hands of the college supervisor. However, major difficulties were encountered in making the system entirely operational because of the breakdown of computer facilities on the Georgia Southern College campus. The system was able to function as far as the time period was concerned, but would not be considered as completely operational until more of the computer operation can be handled locally. The impracticality of performing all of the data analysis on another campus limited the usefulness of the system of evaluation and thereby limited the success of this project.

Data Analysis

Data were analyzed during each of the stages in the development of the instrument using, in part, programs developed for this study. These programs were an item analysis program, a factor score computation program, and a program to estimate reliability. Copies of these programs accompanied by sample output may be obtained from the authors. Other programs used in the project can be found in the Biomedical Computer Programs (BMD) published by the University of California Medical School (Dixon, 1972). In particular, the factor analysis program (BMDO3M) with orthogonal rotation was used.

As mentioned previously, much of the analysis effort was devoted to developing the instrument, and only in the last quarter of the study did the analysis include the provision for printed output to be used as feedback to the student teachers. Also, as indicated earlier in this report, the analyses had to be conducted at another campus making the analysis part of the evaluation system the weakest portion.

The primary information provided from the analysis was in the form of a profile report for each student teacher. This profile consisted of scores on each of seven factors determined by the items in the instrument, and reported by sex and race of the students who responded. Figure I is an example of the profile for a student teacher. The factor score consists of the average of the responses to the items defining the factor. A total score (average of all fifty items) and the number of students responding is also provided in the output.

A reliability program was written to assess split-half reliability of the instrument and to estimate reliability with Cronbach's Alpha. A program to correlate item scores with factor scores and the total score was also written for this project. This program was used throughout the project to perform part of the item analyses used in the various stages in the development of the instrument. All other programs for analyses including factor analyses with orthogonal rotation, were from the BMD Library of Programs.

Four sources of data were considered in the project, but the bulk of data was from the public school students of the student teachers. All of the analysis procedures were conducted on data from the public school students. Item means were calculated for the other three sources in order to intercorrelate the item means of all four. Results of the study are primarily from the student responses to the final fifty item instrument collected during the Spring Quarter, 1973.

STUDENT TEACHER EVALUATION PROFILE

LEGEND

Student Average

Mid Quarter -------

End of Quarter_____

STUDENT TEACHER CODE _____

Name of Student Teacher_____

College Supervisor _____

FACTORS AND FACTOR DESCRIPTIONS

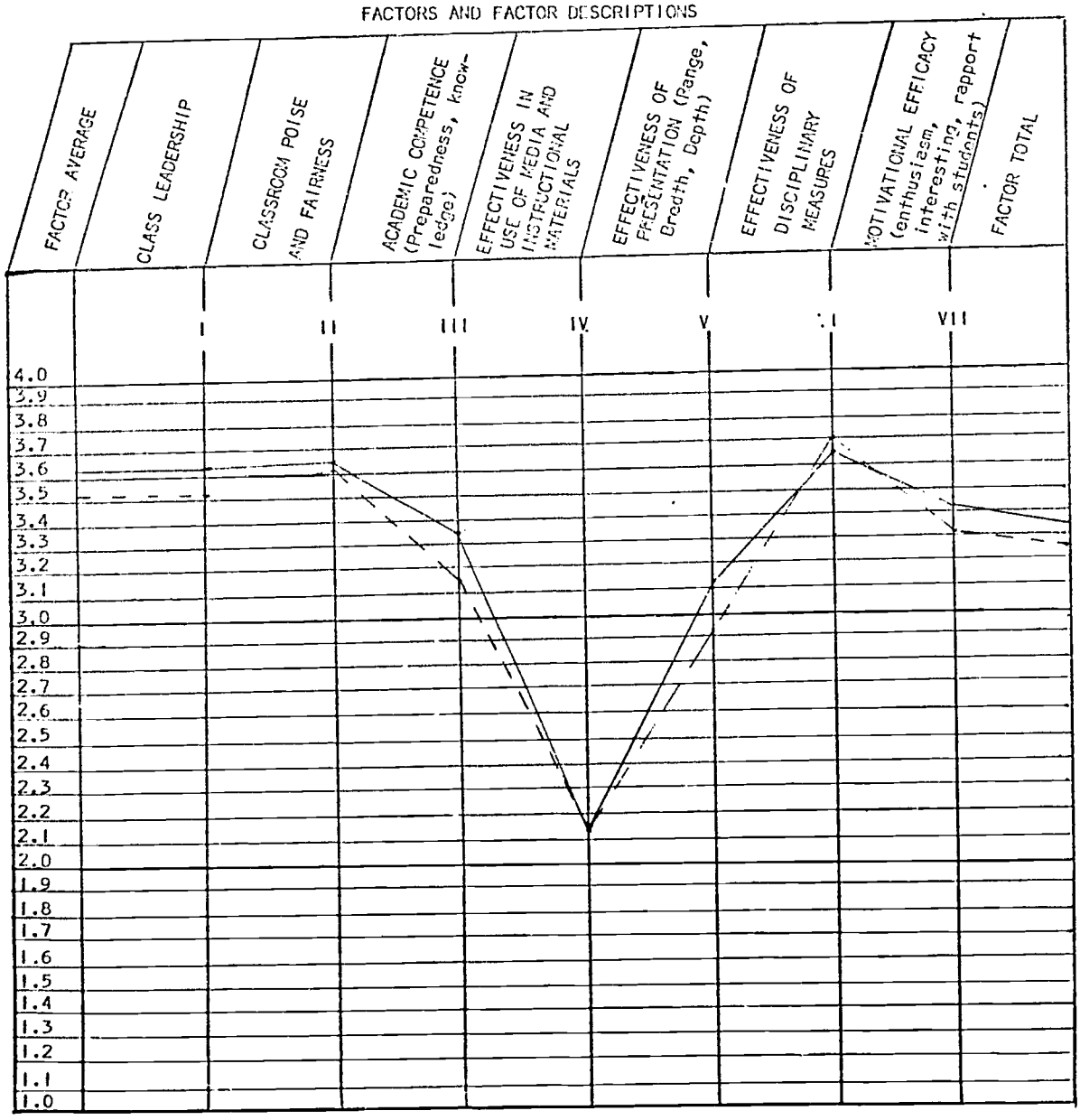


Figure 1
Sample Profile

STUDENT TEACHER EVALUATION PROFILE

LEGEND

Student Average

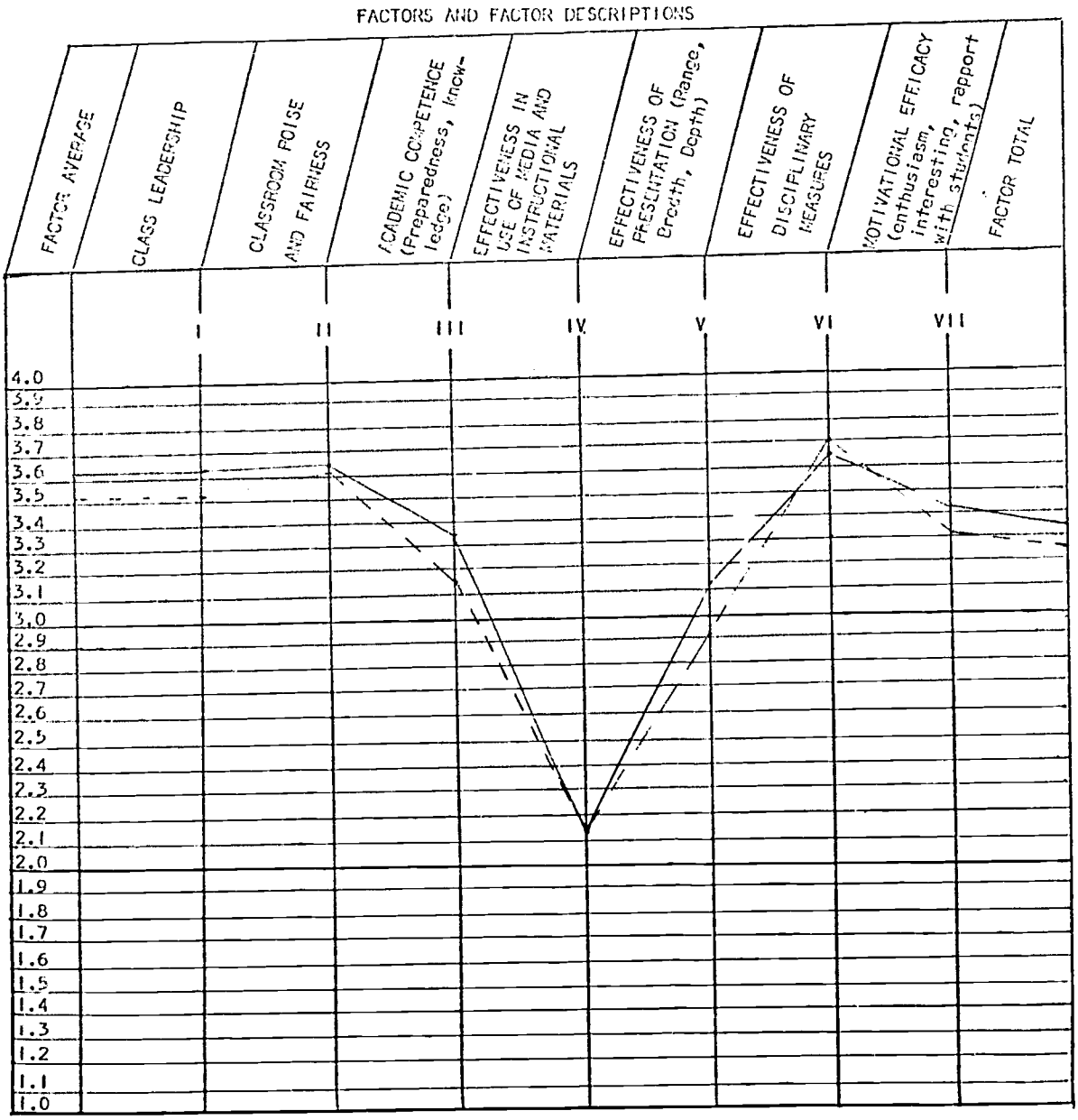
Mid Quarter -------

End of Quarter_____

STUDENT TEACHER CODE _____

Name of Student Teacher_____

College Supervisor _____



CHAPTER III

RESULTS

The overall objective of this project was to develop a system for the evaluation of student teachers employing data processing as an integral part of the system. This objective was achieved. The system of evaluation was developed and made operational with the aforementioned qualification regarding the unavailability of local data processing and computing facilities. This one aspect of the system was the only limitation to the success of the system for student teacher evaluation. The technical difficulties which plagued the project throughout will be remedied in the near future and implementation of the system should be satisfactory.

The critical feature of the study, development of a suitable evaluation instrument, required many steps in the formulation of the final instrument. The means and standard deviations of the items and the correlation of each item with its designated factor and the total are included in Appendix B. These data represent the item information for the mid-term data collection during the Spring Quarter, 1973. The same information about the items resulting from the analysis of responses collected at the end of the quarter are also included in Appendix B.

Table 2 contains a comparison of Eigenvalues and percent of variance accounted for by each of the factors at mid-quarter and at the end of the quarter.

Table 2
Factor Analysis Results
Eigenvalues and Cumulative Percent of Variance Accounted For

	Factor						
Mid-quarter	I	II	III	IV	V	VI	VII
Eigenvalue	13.13	3.33	1.81	1.35	1.19	1.09	1.07
% of Variance	26%	33%	37%	40%	42%	44%	46%
End-of-quarter	I	II	III	IV	V	VI	VII
Eigenvalue	17.14	3.45	1.79	1.13	1.02	.96	
% of Variance	34%	41%	45%	47%	49%	51%	53%

It can be noted from the table that Factor I accounts for the major portion of the variance in the mid-quarter

analysis and an even greater portion in the final. This finding is common to most studies of this type, and efforts to establish factors with somewhat equal weight in the overall factor structure met with little success. It must be concluded that the factor structure of the evaluation instrument contains a large general factor related to the performance of student teachers. The rotated factor matrix for each period indicating the factor loadings of each item are contained in Appendix B.

Reliability of the instrument was satisfactory as calculated by the odd-even, split-half method adjusted by the Spearman-Brown formula. The value was .94 for the mid-quarter responses and .96 for the end of the quarter. The values calculated to estimate reliability using Cronbach's Alpha were .92 and .94 respectively.

The total profiles for the mid-quarter and end of quarter responses for the student teachers are contained in Table 3.

Table 3
Comparison of Factor Averages for
Mid-Quarter and End-of-Quarter Periods

Mid-Quarter			End-of-Quarter			
Factor	Mean	S.D.	Mean	S.D.	t	Sig. Level
1	3.36	.23	3.37	.30	.31	ns
2	3.49	.18	3.46	.22	.83	ns
3	3.00	.26	3.10	.31	2.26	.05
4	2.55	.44	2.77	.45	3.13	.01
5	2.89	.24	3.02	.29	3.22	.01
6	3.58	.16	3.52	.21	2.00	.05
7	3.20	.24	3.62	.26	10.60	.001

A t test between each of the pairs of factor scores indicates that there were significant differences between five of the factors for the total profiles at mid-quarter and at the end of the quarter. Four of the factors (III, IV, V, and VII) had significant gains from the mid-quarter to the end of the quarter. Factor VI had a loss that was significant and Factors I and II had no significant change.

The correlations in Table 4 indicate the relationships among the four sources of information (students, student teachers, college supervisors, and supervising teachers) for both mid-quarter and end-of-quarter responses. These results show that the four sources of information are highly related, thereby strengthening the feasibility of the use of student ratings for evaluating student teachers. If the student ratings agree with the college supervisor and supervising teacher as well as they do, then it can be concluded that students can serve as a source of information in the evaluation of student teachers.

Table 4
Intercorrelations* Among Fifty Items from Four Sources of Data, Mid-Quarter and End of Quarter Periods

	Mid-Quarter				End of Quarter			
	Students	Student Teachers	Supervising Teachers	College Supervisors	Students	Student Teachers	Supervising Teachers	College Supervisors
	1	2	3	4	5	6	7	8
1	---	.74	.86	.79	.93	.85	.85	.83
2		---	.90	.87	.88	.95	.89	.88
3			---	.91	.89	.95	.96	.94
4				---	.83	.87	.88	.84
5					---	.90	.88	.84
6						---	.94	.93
7							---	.92
8								---

*All correlations significant at $p<.01$ level

Profiles of the total group of student teachers subdivided by race and sex are included in Table 5.

Table 5
Profiles of Student Teachers by Race and Sex

Spring Mid-Quarter	N	Factor I	II	III	IV	V	VI	VII
Male	1159	3.30	3.38	2.96	2.44	2.86	3.53	3.14
Female	1466	3.40	3.57	3.00	2.57	2.90	3.64	3.23
Black	726	3.29	3.31	2.94	2.59	2.80	3.48	3.13
White	1899	3.38	3.55	3.00	2.48	2.91	3.63	3.21
Spring End-of-Quarter	N	I	II	III	IV	V	VI	VII
Male	1205	3.27	3.33	2.99	2.62	2.95	3.41	3.13
Female	1583	3.41	3.54	3.13	2.75	3.03	3.59	3.28
Black	743	3.23	3.23	2.99	2.79	2.88	3.36	3.12
White	2044	3.39	3.53	3.10	2.69	3.03	3.57	3.25

Results indicate the same pattern for all the subgroups during both periods. A definite low point in the profile for all groups is the fourth factor dealing with the use of educational media. This information was made available to the curriculum committee of the School of Education at Georgia Southern for their consideration with regard to implementing curriculum changes.

CHAPTER IV

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

In this first section of Chapter IV the conclusions are summarized by project objective.

Objective I. Develop a system for the evaluation of student teachers employing automated data processing as an integral part of the system.

A system for the systematic collection, analysis and feedback of evaluative data was designed and implemented. All significant persons (student teachers, supervising teacher, college supervisors, public school students) completed the Georgia Southern College Student Teacher Evaluation Scale at the middle and end of the quarter. The response sheets were scored and a profile consisting of the mean factor ratings for each factor was constructed for each student teacher. The college supervisor held a conference with each student teacher and supervising teacher for the purpose of interpreting, drawing conclusions, and deciding on recommendations and changes the student teacher should make to improve identified weaknesses. A summary of profiles of all student teachers was developed to provide feedback for the committee on Curriculum and Graduate Affairs, department heads and Program Development Units of the School of Education for the purpose of curricular change in the teacher preparation program. The evaluation and feedback model is shown in Figure 2.

Objective II. Identify the strengths and weaknesses of student teachers by securing evaluation information from several sources, thus allowing the college supervisor, supervising teachers, and student teachers to devise ways and means for specific improvements in teaching behavior.

A profile consisting of the mean rating of all items for each of the seven factors was constructed for each student teacher at the middle and end of the quarter. Examination of the sample profile in Figure 3 reveals the strengths and weaknesses of a student teacher at mid-quarter and at the end of the quarter.

Figure 2
Evaluation and Feedback Cycle

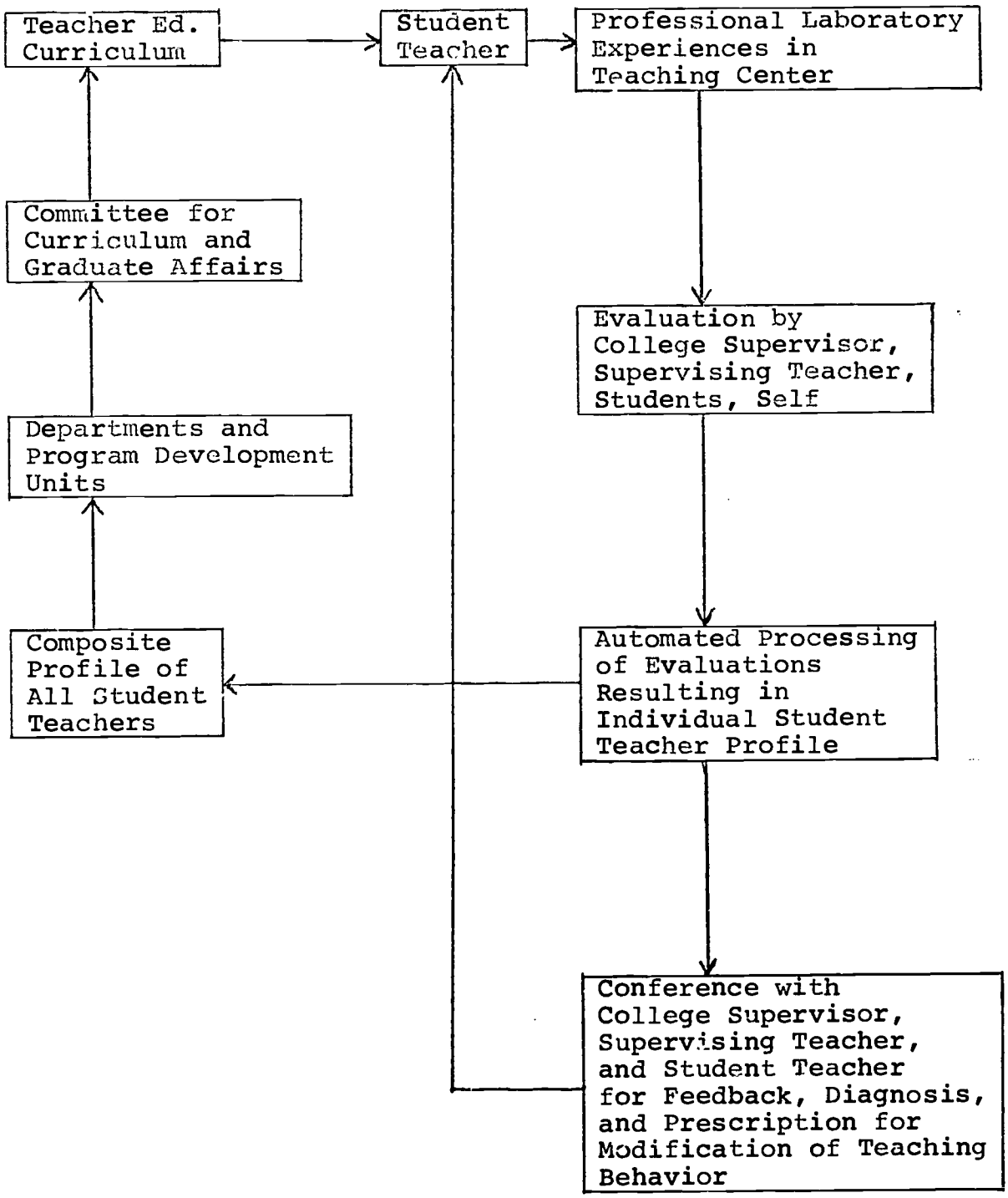
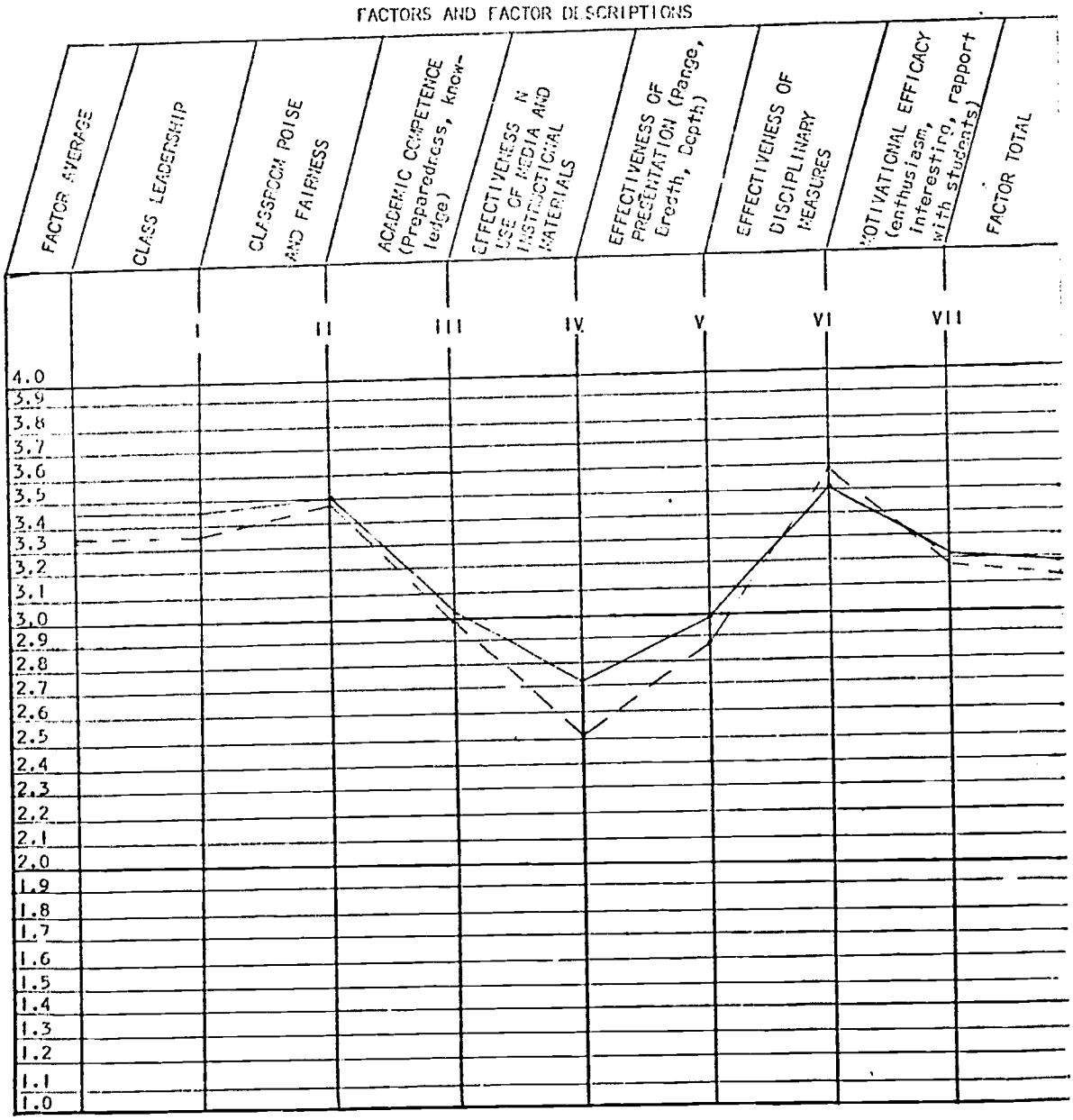


Figure 3
Profile of Factor Averages
Mid and End of Quarter

STUDENT TEACHER EVALUATION PROFILE

COMPARISON OF TOTAL PROFILES

Mid Quarter . . . N=2625
End of Quarter . . N=2787



Legend: Mid-Quarter ------
End of Quarter ——

The mid-quarter evaluation was completed by the students after the student teacher had assumed full teaching responsibilities for about five to fifteen instructional periods (usually fifty-five minutes in length) and by the college supervisor after one orientation and one teaching observation. End of quarter evaluations were completed by students after about 20 to 30 instructional periods and by the college supervisor after three teaching observations of a minimum of one instructional period each and a mid-quarter evaluation conference.

Even though evaluations by the supervising teacher who had observed most of the teaching sessions and student teacher represent more intensive exposure in a wider variety of settings than those of the college supervisor and students, there is a high correlation (Table 4, p.15) between all ratings. Ratings of individual student teachers did change from mid to end of quarter on Factors III Poise and Fairness, IV Media and Materials, V Presentation, and VII Motivational Efficacy. On the basis of these data it can be concluded that:

1. Student teachers were consistently weaker in the areas represented in Factors III Academic Competence, IV Media and Material, and V Presentation.

2. Areas of greatest strength were Factors I Class Leadership, II Poise and Fairness, VI Evaluation, and VII Motivational Efficacy.

3. There were significantly higher ratings for (Table 3, p.14) end of quarter evaluation (Spring, 1973) on Factors III Academic Competence, IV Media and Materials, V Presentation and VII Motivational Efficacy than at mid-quarter. This improvement in rating is primarily a result of the evaluation, feedback, and cooperative planning (between college supervisors, supervising teacher, and student teacher) for improved teaching behavior, and additional teaching experience from mid-quarter to the end of quarter.

4. The end of quarter rating for Factor VI, Evaluation was significantly lower ($P<.05$) than the mid-quarter rating. This was the only factor for which ratings were lower for the end of quarter than for mid-quarter. There seems to be two possible reasons for this. First, there was still a "halo" effect on the part of students for a change of pace and a new teacher near their own age. Second, some of the items in this factor identified teaching behavior which would not, in most cases, have been evident in the short time

in which the student teacher had been responsible for instruction before the mid-quarter rating.

5. There was no significant change in ratings on Factors I Class Leadership and II Poise and Fairness from mid-quarter to end of quarter ratings. This may be due to the very high mid-quarter ratings and continued high performance by student teachers in these two areas.

Objective III. Analyze the responses of black, white, male, and female public school pupils as a basis for adjustments in student teacher behavior, learning activities, and instructional materials.

Examination of profiles for individual student teachers revealed no consistent differences between ratings of students by race and sex. The summated ratings of all students seemed to provide the best indication of student teacher effectiveness.

Objective IV. Explore the possibility of using four sources of evaluation data (public school pupils in grades 7-12, student teachers, supervising teachers, college supervisors) and to determine if there was a consistency in the information from the four sources.

The implementation of evaluation procedures described in this project did provide for collection, analysis, and application of evaluative data from these four sources. Student teachers, supervising teachers, and college supervisors consistently reported that it was very interesting and helpful to be aware of the perceptions of others. Rating of the public school pupils were the most interesting and helpful of all, probably because it was only on these two occasions (mid and end of quarter) that this information was available whereas, feedback from the supervising teacher and for college supervisors was virtually continuous. There was a high correlation (Table 4 p.15) between the four sources of ratings.

Objective V. Provide feedback for the teacher education program at Georgia Southern College through the data gathered from the four sources.

A master profile representing all student teachers included in the evaluation program during the Spring Quarter, 1973 has been given to department heads and the committee on curriculum and Graduate Affairs of the School of Education. Figure 4 is a copy of this profile.

RECOMMENDATIONS

For those persons interested in the evaluation of student teachers and possibly the use of evaluation feedback for the

improvement of student teaching performance, this system seems to hold a great deal of potential. The overall feedback from the student teacher evaluation system provided an adequate source of information for curriculum decision making.

Although use of the system as constituted in the project is feasible, it should be noted that all teaching fields are not equally applicable. For example, the teaching areas of physical education and music do not lend themselves to an application of the system and use of the instrument because of some basic differences in the instructional methods and the facilities necessary for that instruction. It is recommended that a separate instrument be designed for these areas that will reflect their special characteristics. Otherwise, the system should function effectively once these deficiencies are corrected.

A second recommendation is that schools implementing a system of student teacher evaluation as developed in this project select an instrument that has been previously developed and validated. The time and effort expended in developing an instrument yields little more than results that have been obtained by the efforts of other investigators. However, if problems are encountered with copyrights, royalities, and special data processing requirements, the development of an in-house instrument might be the best course to pursue.

Finally, it is recommended that anyone considering the implementation of the system developed in this project have access to on-campus scoring, data processing, and computing equipment. This factor is essential to the successful operation of the system due to the emphasis on the period of time that is vital to the feedback loop in the system. Since a three to four day period of time is a crucial factor in the diagnosis and correction of student teacher behavior, it is impractical to consider anything such as off-campus facilities and equipment that may require additional time. Only larger school systems have access to the data processing equipment required for the system of evaluation developed in this project. For this reason this system would not be recommended as a method for assessing teacher competence in a public school system.

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APPENDIX A

GEORGIA SOUTHERN COLLEGE
STATESBORO, GEORGIA 30458

SCHOOL OF EDUCATION

Letter to Principals

Dear

As part of our continuing effort to better prepare teachers for our public schools, the Department of Professional Laboratory Experiences is in the process of developing a more comprehensive method of evaluating student teacher effectiveness. We plan to do this by securing evaluation data from the college supervisors, supervising teachers, student teachers, and public school students whom the student teacher has taught for a sustained period of time. A copy of the preliminary scale is attached. The data resulting from the first two or three testings will be used primarily to determine validation and reliability of the instrument.

We would like to have the attached scale administered to two classes currently being taught by each student teacher. The supervising teacher would administer the instrument with the student teacher out of the room during the time required. The scale is completely anonymous and the results will be used only to assist the student teacher in becoming a better teacher. We estimate that it will take 15 minutes for students to complete the scale.

The supervising teacher will be provided with all necessary information and materials. If you have additional questions or if you do not want this procedure followed in your school, please let us know.

Dr. John Morris from our staff, along with the School of Education's Research Professor, Dr. Brad Chissom, will handle the data collected and are the professors responsible for developing the proposal being implemented.

We appreciate your cooperation and support in our student teaching program. We solicit your continued support, especially in our current efforts for more effective evaluation and remediation in the area of student teacher effectiveness.

Sincerely yours,

J. Donald Hawk, Head
Department of Professional Laboratory Experiences

Enclosure

Directions for Administering
Student Teacher Evaluation Scale

TO: Supervising Teachers

SUBJECT: DIRECTIONS AND SUGGESTIONS FOR ADMINISTERING THE GEORGIA SOUTHERN COLLEGE STUDENT TEACHER EVALUATION SCALE--GRADES 7-12

DATES FOR ADMINISTERING:
1. Prior to Mid-Quarter Seminar--April 26, 1973
2. Prior to Student Teacher's Leaving--May 23, 1973

1. Please complete the Scale marked SUPERVISING TEACHER before administering the Scale to your classes. This will familiarize you with the Scale.

2. The scale should be given to two classes, if possible, with which the student teacher has worked most closely and consistently. If the student teacher has worked with only one class, then administer the Scale to only one. The same class(es) should be used at mid-quarter and at the end of the quarter. Do not be too concerned if the student teacher has had only brief (a week or two) exposure to students by mid-quarter. It is suggested that classes designated as remedial not be used. However, this has been done and seems to have worked well in some cases, so use your best judgment.

3. Administer the scale during a regular class period without advance notice. The student teacher is not to be present. Give the student teacher the copy labeled FOR STUDENT TEACHER and let him go to an appropriate place to evaluate himself at this time. During administration of the scale to the second class, the student teacher may be appropriately involved outside the classroom.

4. Introduce the scale to the class. Read the directions and examples aloud with the class. Emphasize the purposes and directions, and that the student's responses are completely anonymous and will in no way reflect on him, or his grade in the course.

   It is extremely important that the personal data section (age, sex, race, student teacher code, grade in school, grade in course, and subject) be filled in completely.

5. The response sheets are machine scored. Incomplete forms are useless, as are incorrectly marked forms. Please make every effort to impress upon students the necessity for accuracy, use of No. 2 pencil, complete erasures, no stray marks, etc.

6. The instructions to students are as clear as possible, but in the interest of accuracy, the personal data section should be completed step by step as a group activity under your supervision.

7. It should take about 15 - 20 minutes to completely administer the scale. However, there is no time limit.

8. Please answer student questions freely.

9. When all students have finished, collect all response sheets and put them in the envelope along with the one you and the student teacher completed. THE STUDENT TEACHER IS TO BRING ONLY THE COMPLETED RESPONSE SHEETS TO THE MID-QUARTER SEMINAR. PLEASE DO NOT MAIL.

10. We would like to encourage comparison and discussion of your and the student teacher's evaluations. This should be a good opportunity for mid-quarter or end of quarter evaluation. Please feel free to go over the student's evaluations with the student teacher. This should be interesting as well as providing opportunities for evaluation.

    The evaluations will be processed and returned by the college supervisor. They will be discussed with you and the student teacher.

11. When the second evaluation (near the end of the student teacher's stay) has been completed, let the student teacher bring the completed response sheets (including the ones you and the student teacher completed), unused response sheets and copies of the items to the FINAL SEMINAR.

THANK YOU FOR YOUR COOPERATION AND CONTRIBUTIONS TO OUR PROGRAM OF PROFESSIONAL LABORATORY EXPERIENCES.

IF YOU HAVE QUESTIONS, PLEASE ASK THE COLLEGE SUPERVISOR OR CALL OR WRITE John E. Morris (Phone: Office 764-6611, Ext. 247) Georgia Southern College, School of Education, Statesboro, Georgia 30458.

THE GEORGIA SOUTHERN COLLEGE STUDENT TEACHER
EVALUATION SCALE--GRADES 7-12

PURPOSES AND DIRECTIONS

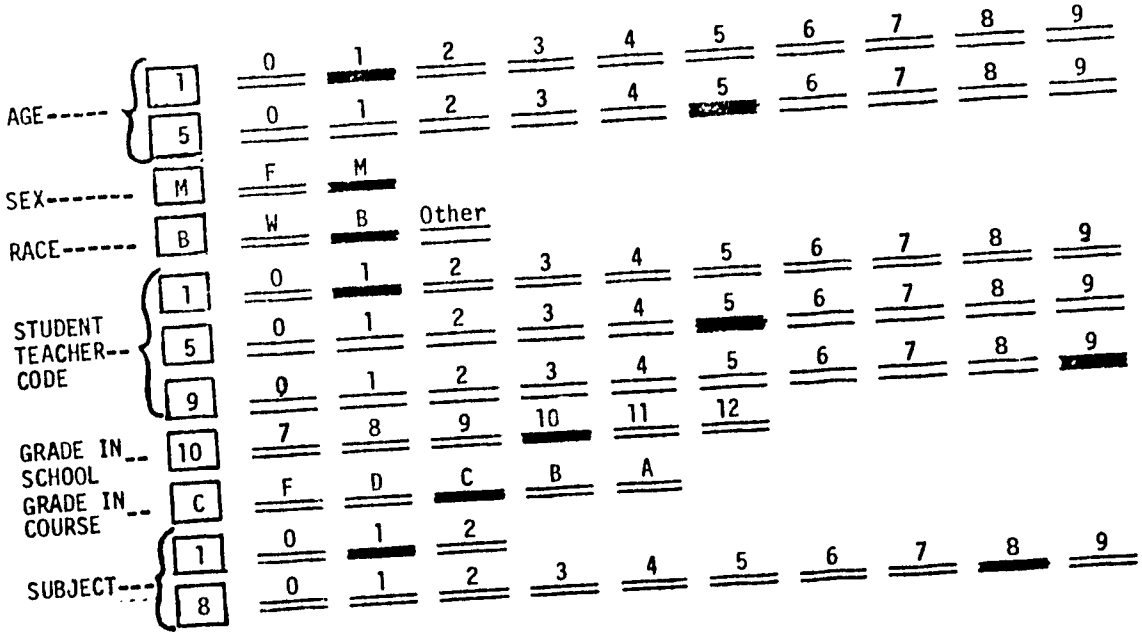
PURPOSES We are asking you to complete this scale so that:

1. You can express your feelings about how well your student teacher is doing.
2. You can help your student teacher become a better teacher.

HOW TO FILL OUT YOUR ANSWER SHEET

1. Use only a No. 2 Pencil.
2. In the boxes to the left write in the required information--letter or numbers.
3. Your teacher will give you the numbers for the student teacher code and the subject code.
4. Then blacken the space (only one on each line) to the right which matches the number(s) or letter you wrote in the box.
5. Be sure that you only blacken one space for each box.

Below is an example of the coded information for a student who is 15 years old, Male, Black, student teacher code 159, in the 10th grade, has a grade of C in this course, and the subject code is 18.



DIRECTIONS FOR RECORDING ANSWERS

MARKING YOUR ANSWERS

1. There are no right or wrong answers. Please respond to each statement as honestly as you can.

2. Read each statement carefully to see how well it describes your student teacher and the things he (she) does in class.

3. Select one of the four responses (almost always, most of the time, some of the time, almost never)

4. Blacken the space you select solidly and completely.

CHECKING YOUR ANSWERS

Check to see that:

1. Your answer is in the correct space on the answer sheet.

2. Your marks are between the dotted lines and do not extend beyond the lines.

3. You did not omit any statements.

4. You blackened only one answer for each statement.

5. If you changed an answer you erased the old answer completely.

6. You did not make any marks on the answer sheet except your answers.

EXAMPLES OF CORRECT MARKING

	Almost always	Most of the time	Some of the time	Almost never	My student teacher
1			■		requires too much homework.
2	■				comes to class on time.
3				■	gets upset easily.
4		■			is neat and appropriately dressed.

MY STUDENT TEACHER

1. prepares his (her) lessons well.
2. uses a variety of instructional materials.
3. shows us how to do an assignment.
4. makes fun of students.
5. seems to know just what to do next.
6. speaks clearly and loudly enough for all to hear.
7. is enthusiastic about his (her) subject.
8. permits too much misbehavior in our classroom.
9. does what he (she) says he (she) will do.
10. is a bore.
11. picks on some students.
12. is ready to give help when I ask for it.
13. encourages us to participate in class discussion.
14. uses pictures, charts, posters, etc., to help make the lesson meaningful.
15. tries to understand the student's point of view.
16. encourages and respects our ideas.
17. spends too much time on petty assignments.
18. keeps our work a long time before grading and returning.
19. gives assignments which help me learn more.
20. has my respect.
21. gives tests which help me learn.
22. avoids new activities.
23. takes time to explain exactly what we are to do with an assignment.
24. takes a great deal of interest in me.
25. encourages us to seek relationships between what we know and what we want to know.

GO TO NEXT PAGE

MY STUDENT TEACHER

26. is fair with us.
27. gives clear directions for preparing assignments.
28. has a good sense of humor.
29. provides valuable learning experiences.
30. grades my assignments in such a way that I know why I made mistakes.
31. keeps our class interesting.
32. makes me feel inferior to other students.
33. enriches discussion with illustrations from related areas.
34. punishes all of us when only a few students are at fault.
35. presents both sides of a question.
36. uses different ways to teach us.
37. avoids answering hard questions which students ask in class.
38. attempts to help us develop good study habits.
39. threatens students.
40. emphasizes the good in me and my work.
41. encourages us to read from many sources.
42. gives us some choices in what we do in class.
43. states lesson objectives clearly.
44. sets a good example for us.
45. seems to be interested in things that are important to us.
46. gives assignments which challenge me.
47. uses many different ways--other books, films, games, etc., to help us learn.
48. compares my grades to those of other students and does not consider how much I have learned.
49. uses films which support the lesson.
50. encourages us to assume responsibility for our learning.

*Note: Check your answer sheet to be sure that you marked ONLY ONE choice. ERASE any stray marks.

GEORGIA SOUTHERN COLLEGE STUDENT TEACHER EVALUATION SCALE GRADES 7–12

AGE	0	1	2	3	4	5	6	7	8	9
	0	1	2	3	4	5	6	7	8	9
SEX	F	M								
RACE	W	B	OTHER							
STUDENT TEACHER CODE	0	1	2	3	4	5	6	7	8	9
	0	1	2	3	4	5	6	7	8	9
	0	1	2	3	4	5	6	7	8	9
GRADE IN SCHOOL	7	8	9	10	11	12				
GRADE IN COURSE	F	D	C	B	A					
SUBJECT	0	1	2							
	0	1	2	3	4	5	6	7	8	9

	ALMOST ALWAYS	MOST OF THE TIME	SOME OF THE TIME	ALMOST NEVER
1				
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22				
23				
24				
25				

	ALMOST ALWAYS	MOST OF THE TIME	SOME OF THE TIME	ALMOST NEVER
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27				
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APPENDIX B

Item Analysis
Mid-Quarter

Item	Mean	S.D.	Correlation W/Factor	Correlation W/Total	Factor
1	3.60	0.65	0.60	0.52	1
2	2.77	0.98	0.59	0.49	5
3	3.32	0.90	0.58	0.50	3
4	3.79	0.58	0.57	0.33	6
5	3.25	0.78	0.65	0.54	1
6	3.54	0.74	0.56	0.45	1
7	3.42	0.79	0.55	0.51	7
8	3.46	0.87	0.51	0.30	2
9	3.35	0.80	0.53	0.47	6
10	3.36	0.91	0.57	0.54	7
11	3.69	0.75	0.63	0.35	6
12	3.61	0.73	0.55	0.52	3
13	3.28	0.94	0.57	0.49	7
14	2.48	1.13	0.67	0.42	4
15	3.31	0.83	0.48	0.64	2
16	3.24	0.85	0.67	0.63	1
17	3.52	0.81	0.59	0.35	6
18	3.54	0.90	0.49	0.16	6
19	3.00	0.99	0.62	0.55	7
20	3.49	0.81	0.62	0.59	7
21	3.01	1.02	0.61	0.54	3
22	3.41	0.95	0.56	0.31	2
23	3.41	0.86	0.62	0.58	7
24	2.58	1.01	0.68	0.59	3
25	3.01	0.98	0.71	0.65	7
26	3.55	0.74	0.62	0.63	6
27	3.35	0.82	0.72	0.64	1
28	3.27	0.92	0.65	0.58	1
29	3.01	0.91	0.71	0.66	7
30	3.02	1.04	0.66	0.53	3
31	2.96	0.96	0.70	0.67	3
32	3.52	0.88	0.57	0.24	2
33	2.62	1.02	0.58	0.54	7
34	3.59	0.85	0.58	0.31	2
35	3.09	0.92	0.67	0.60	5
36	2.73	1.02	0.61	0.53	4
37	3.47	0.99	0.60	0.26	2
38	2.92	1.00	0.66	0.60	3
39	3.67	0.77	0.58	0.33	6
40	2.66	1.04	0.72	0.59	5
41	2.46	1.13	0.68	0.48	4
42	2.45	1.04	0.53	0.42	3
43	3.22	0.86	0.67	0.60	1
44	3.37	0.85	0.73	0.67	1
45	3.28	0.87	0.66	0.63	7
46	2.67	1.05	0.63	0.42	5
47	2.58	1.14	0.81	0.47	4
48	3.62	0.83	0.57	0.24	2
49	2.31	1.20	0.73	0.34	4
50	3.21	0.92	0.69	0.57	5

Item Analysis
End of Quarter

Item	Mean	S.D.	Correlation W/Factor	Correlation W/Total	Factor
1	3.56	0.70	0.71	0.64	1
2	2.87	0.95	0.64	0.56	5
3	3.31	0.87	0.65	0.61	3
4	3.70	0.72	0.63	0.43	6
5	3.21	0.82	0.73	0.64	1
6	3.51	0.77	0.65	0.54	1
7	3.38	0.82	0.65	0.62	7
8	3.38	0.92	0.56	0.39	2
9	3.32	0.85	0.61	0.60	6
10	3.35	0.93	0.64	0.61	7
11	3.63	0.79	0.67	0.44	6
12	3.51	0.78	0.64	0.64	3
13	3.28	0.90	0.67	0.62	7
14	2.67	1.11	0.75	0.51	4
15	3.29	0.85	0.53	0.71	2
16	3.27	0.86	0.74	0.71	1
17	3.45	0.86	0.64	0.49	6
18	3.42	0.97	0.53	0.24	6
19	3.07	0.96	0.71	0.68	7
20	3.46	0.84	0.69	0.67	7
21	3.16	0.96	0.70	0.64	3
22	3.43	0.94	0.64	0.41	2
23	3.34	0.86	0.71	0.68	7
24	3.71	1.04	0.70	0.61	3
25	3.12	0.95	0.75	0.69	7
26	3.49	0.79	0.65	0.71	6
27	3.35	0.81	0.77	0.71	1
28	3.31	0.91	0.71	0.65	1
29	3.08	0.91	0.76	0.72	7
30	3.18	0.97	0.69	0.62	3
31	3.01	0.95	0.75	0.70	3
32	3.48	0.92	0.61	0.30	2
33	2.75	1.02	0.63	0.58	7
34	3.46	0.93	0.65	0.40	2
35	3.15	0.92	0.72	0.66	5
36	2.89	1.00	0.67	0.57	4
37	3.49	0.95	0.63	0.31	2
38	3.05	1.00	0.71	0.66	3
39	3.59	0.85	0.65	0.42	6
40	2.82	1.04	0.74	0.62	5
41	2.64	1.12	0.72	0.54	4
42	2.66	1.03	0.61	0.52	3
43	3.23	0.87	0.73	0.68	1
44	3.34	0.88	0.77	0.73	1
45	3.30	0.89	0.72	0.70	7
46	2.86	1.02	0.65	0.46	5
47	2.79	1.10	0.82	0.51	4
48	3.60	0.84	0.62	0.29	2
49	2.59	1.16	0.73	0.35	4
50	3.27	0.91	0.72	0.64	5

Rotated Factor Structure
Mid-Quarter Analysis

Item	VII	II	IV	I	V	III	VI	Factor
1	.16	.05	.08	.31	.25	.06	.45	1
2	.21	-.09	.52	.18	.05	.24	.22	5
3	.20	-.02	-.03	.52	.32	.22	.10	3
4	.01	.28	.09	.06	.60	-.06	.11	6
5	.26	-.02	.08	.23	.20	.11	.50	1
6	.12	.04	.10	.15	.10	.02	.59	1
7	.31	.18	.07	.06	.02	.08	.52	7
8	-.08	.24	.09	.02	.08	.25	.47	2
9	.23	.13	-.01	.19	.09	-.06	.49	6
10	.33	.13	.04	.10	.44	.30	.21	7
11	.07	.33	.06	.04	.59	.10	.02	6
12	.27	.11	-.06	.36	.34	-.08	.29	3
13	.32	.18	.17	.21	-.13	-.13	.39	7
14	.01	-.02	.66	.30	.13	.03	.08	4
15	.48	.14	.08	.23	.31	.12	.31	2
16	.50	.21	.08	.19	.21	.21	.35	1
17	.06	.31	.06	.04	.27	.28	.21	6
18	.02	.33	-.11	.03	.10	.42	-.04	6
19	.21	.04	.18	.65	.10	-.07	.12	7
20	.37	.14	.03	.18	.40	-.00	.34	7
21	.12	.10	.21	.63	.05	-.04	.21	3
22	.14	.39	.02	.03	-.08	.47	.15	2
23	.26	.07	.03	.50	.29	.17	.20	7
24	.62	.00	.08	.25	.09	.04	.10	3
25	.55	.07	.17	.31	.01	.05	.26	7
26	.43	.15	.01	.17	.46	-.01	.34	6
27	.28	.09	.10	.47	.24	.14	.31	1
28	.56	.05	.08	.10	.28	.05	.18	1
29	.46	.02	.17	.36	.07	.29	.27	7
30	.28	.08	.11	.57	.01	-.00	.10	3
31	.58	-.01	.12	.19	.22	.23	.27	3
32	-.04	.60	.00	.10	.04	.04	.10	2
33	.32	.01	.55	.23	-.06	.09	.15	7
34	.07	.62	.03	.11	.14	-.07	.03	2
35	.50	.17	.15	.24	-.00	.01	.25	5
36	.46	-.07	.37	.12	.03	.32	.12	4
37	.05	.56	.02	.03	.04	.25	.03	2
38	.49	.04	.18	.39	.04	.10	.08	3
39	.10	.66	.01	.03	.23	-.03	.07	6
40	.67	.02	.12	.26	.01	.03	.01	5
41	.47	-.01	.49	.14	-.07	-.08	-.02	4
42	.58	-.12	.29	-.01	.07	.06	-.07	3
43	.38	.07	.14	.43	.10	.14	.20	1
44	.49	.12	.04	.29	.31	.06	.28	1
45	.60	.09	.08	.17	.19	.02	.24	7
46	.27	.02	.09	.47	-.12	-.02	.06	5
47	.27	.00	.75	.06	.06	-.02	.04	4
48	.04	.53	-.08	-.04	.13	.08	.19	2
49	.11	.06	.75	-.02	.05	-.15	.03	4
50	.49	.17	.16	.29	-.05	-.05	.19	5

Rotated Factor Structure
End of Quarter Analysis

Item	VII	II	IV	I	V	III	VI	Factor
1	.10	.10	.14	.68	.01	.20	.03	1
2	.21	.03	.63	.34	-.08	.17	-.14	5
3	.07	.09	.12	.66	.11	.08	.06	3
4	.04	.26	.05	.25	-.00	.25	.61	6
5	.21	.04	.09	.64	.04	.22	.04	1
6	.05	.03	.12	.59	-.01	.28	.04	1
7	.23	.18	.14	.54	.00	.17	.04	7
8	.06	.21	.01	.17	.18	.63	.15	2
9	.05	.13	.08	.61	.19	.11	.15	6
10	.45	.22	.09	.33	-.08	.45	.20	7
11	.11	.32	.03	.24	-.03	.23	.60	6
12	.13	.19	.11	.66	.02	-.05	.22	3
13	.21	.18	.27	.45	.22	-.01	.14	7
14	.12	.05	.73	.26	-.02	.06	-.12	4
15	.35	.18	.11	.63	.05	-.04	.15	2
16	.37	.21	.15	.61	.03	-.05	.11	1
17	.19	.34	.11	.24	-.02	.41	.16	6
18	-.07	.31	-.04	.11	.07	.44	.06	6
19	.17	.05	.22	.59	.34	.14	.00	7
20	.34	.22	.10	.56	-.07	.16	.18	7
21	.15	.11	.21	.58	.23	.12	-.05	3
22	.10	.56	.11	.12	.07	.27	.04	2
23	.15	.16	.18	.67	.14	.01	.07	7
24	.55	.01	.16	.39	.16	.03	-.04	3
25	.45	.07	.21	.47	.26	.08	.05	7
26	.35	.14	.09	.64	.03	.02	.22	6
27	.17	.16	.16	.69	.16	.07	.05	1
28	.52	.14	.14	.49	.11	.06	.07	1
29	.39	.14	.28	.51	.16	.17	-.08	7
30	.20	.13	.20	.49	.26	.11	.02	3
31	.57	.07	.21	.46	.07	.20	-.01	3
32	.10	.60	-.03	.10	-.04	.11	.08	2
33	.30	.04	.57	.27	.18	.07	-.07	7
34	.11	.57	-.01	.17	.12	-.01	.25	2
35	.37	.17	.18	.46	.29	-.03	.06	5
36	.41	.06	.45	.26	.16	.06	-.09	4
37	-.04	.68	.01	.12	.06	.09	-.07	2
38	.34	.08	.19	.44	.44	.06	.04	3
39	.06	.60	.02	.21	.03	.04	.33	6
40	.56	.01	.21	.32	.31	.01	.07	5
41	.35	-.04	.52	.15	.33	-.02	.22	4
42	.51	-.06	.37	.16	.20	-.01	.13	3
43	.23	.13	.19	.55	.31	.07	.03	1
44	.35	.20	.12	.58	.20	.06	.11	1
45	.46	.20	.15	.50	.17	.02	.07	7
46	.16	-.04	.11	.28	.62	.16	-.09	5
47	.13	.01	.79	.19	.05	-.01	.07	4
48	-.00	.68	-.02	.13	-.07	.07	-.01	2
49	-.01	-.05	.74	.06	.12	-.09	.26	4
50	.30	.12	.16	.43	.41	.04	.12	5