Predicting and determining effectiveness of homemaking teachers

Beverly Deles-Dernier Crabtree
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PREDICTING AND DETERMINING EFFECTIVENESS OF HOMEMAKING TEACHERS

by

Beverly Deles-Dernier Crabtree

A Dissertation Submitted to the Graduate Faculty in Partial Fulfillment of The Requirements for the Degree of DOCTOR OF PHILOSOPHY

Major Subject: Home Economics Education

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Dean of Graduate College

Iowa State University
Of Science and Technology
Ames, Iowa
1965
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Effective teachers are essential for the development of the abilities of students, and hence, for the advancement of the nation and world. Ryans emphasized this belief when he stated that:

> It seems reasonable to assume that good teachers, those who are skillful in developing understanding of the world in which man lives, insightful with respect to the ways and means of stimulating intellectual appetites and capable of patience, understanding, and sincere feelings, may pave the way for an enlightened and productive society. Poor teaching, contrariwise, would seem to be a significant contributor of its unfortunate share to the perpetuation of ignorance, misunderstanding, and intellectual and cultural stagnation (48, p. 1).

The lay public and educators seem to be in general agreement that the quality of an education program is determined to a large extent by the quality of the teaching. Schools may have excellent material resources such as books, equipment, and buildings; the curricula may be appropriately adapted to the pupils' needs, interests, and abilities and to community requirements; but if the teachers are ineffective in the classroom the educational program results in wasted resources and limited change in pupil behaviors. Because of these basic beliefs considerable research effort has been devoted to the problem of determining and predicting teaching effectiveness.

Recognizing the need for good teachers is important, but taking steps to insure that the schools have good teachers must follow. One of these steps is the early identification of those individuals who could be expected to become effective teachers.
Educators in colleges and universities have long been interested in finding measures which would predict the success of individuals as teachers. These educators recognize their obligations to their students and to the employers of their graduates to assure a satisfactory degree of success in their teaching. If such prediction measures were available those students who might be expected to become effective teachers could be encouraged to enter and remain in the program; those students who were unlikely candidates could be guided into other programs leading to occupations in which they might become more successful. Guidance would result in better use of human and material resources as well as greater satisfaction for the individual and success in the chosen profession.

A member of the Home Economics Education staff at Iowa State University has been conducting a longitudinal research project designed to predict the effectiveness of homemaking teachers who are graduates of the University. The selection of measures which might be useful in prediction was begun in 1958 and data concerning students admitted to this teacher-education program have been collected since that time. It was hypothesized that personality, attitudes, vocational interests, and academic ability or achievement are factors related to teaching effectiveness. Data concerning personality have been obtained from sub-scores on the Minnesota Counseling Inventory and the

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1Iowa State University Agricultural and Home Economics Experiment Station Project 1413.
Guilford-Zimmerman Temperament Survey; sub-scores on the Just Suppose Inventory provide data regarding the student's attitudes toward people differing from himself. The vocational interests were measured by use of three occupational scales in the Johnson Home Economics Interest Inventory: 1) county extension work, 2) secondary teaching, and 3) work with young children. The college cumulative point average is assumed to be a measure of academic achievement and to involve subject matter competence, and to some extent, intellectual ability.

In order to judge the relevance and usefulness of the selected prediction measures the data need to be analyzed in terms of their relationship to criterion measures of teacher effectiveness. Based, in part, on an exploratory study by Scruggs (51) three criterion measures were selected to obtain data during the first year of teaching for those individuals who, after graduation from the University, taught homemaking in Iowa. The ability to establish rapport with pupils has been determined by the use of two forms of the Student Estimate of Teacher Concern inventory; pupil gain in the ability to apply generalizations in solving problems in home economics is estimated by administering two forms of two achievement tests. Data on teacher adjustment to the school and community in terms of the teacher's physical health; management of department; relations with school personnel, pupils, and community; and judgement regarding the discussion of personal and professional problems are secured through ratings by a school administrator.
on the form How Satisfactory Is Your Homemaking Teacher?.

The purpose of the present study is to investigate the usefulness of selected predictors in terms of their relationship to the criteria selected for determining the effectiveness of first-year homemaking teachers. Although the number of cases for which complete data are available is small, an exploratory analysis is needed to determine which predictive data should continue to be collected and to obtain clues to the types of additional data needed to increase the efficiency of the prediction.
REVIEW OF LITERATURE

Many studies of teacher effectiveness have been conducted since the beginning of the twentieth century by individuals or teams of researchers. The findings which have appeared in the literature have often been contradictory due no doubt, in part, to the fact that teaching is a complex phenomenon which involves a variety of human traits and abilities.

This review is limited to the predictors and success criteria involved in the present investigation. Four predictors of teaching effectiveness are included for which data have been collected during the undergraduate period: personality, attitudes, academic achievement, and vocational interests. Criteria relating to pupil gain; teacher-pupil rapport; relations with school personnel, pupils, and community; physical health of the teacher; judgment in the discussion of personal and professional problems; and management of department are used to determine teaching effectiveness. No investigations were found however that involved vocational interests as a predictor of teacher effectiveness and physical health, management of the department, and judgment regarding the discussion of personal and professional problems as success criteria.

The studies regarding success criteria are limited to those completed since 1959 to supplement Scruggs' (51) review. However, since her investigation did not include prediction data studies are reviewed here that were completed prior to 1959.
which used predictors being investigated in the present research.

This review of research is further limited to studies of the effectiveness of secondary school teachers because teaching at this level could be expected to have more factors in common than would those for elementary and college teachers.

In addition to a review of research, theories concerning the selection of these predictors and success criteria are discussed as well as some of the problems in the collection and use of the data.

The theories, problems, and investigations which are reviewed in this chapter have been grouped under two headings: predictors of teacher effectiveness and criteria used in research for determining teacher effectiveness.

Predictors of Teacher Effectiveness

If teacher effectiveness is to be predicted during the undergraduate period the question of what data could be collected during this period which might predict teaching effectiveness is paramount. Numerous predictors of success, single or in combination, have been investigated such as scores on tests of verbal and other cognitive abilities; scores on tests of knowledge of subject matter; grades in courses; amount of general and professional education; scores from inventories and/or projective devices relating to personality, emotional and social
adjustment; scores on attitude scales and inventories; age; sex; marital status; amount of support while in college; and influences affecting choice of teaching.

Many attempts to discover which traits and abilities are closely enough related to teacher effectiveness to predict effectiveness have not proved fruitful. According to Ryans it is quite probable that these investigations have not made the desired contribution in the prediction of teacher effectiveness because so little attention has been devoted to theory development regarding the importance of these predictors (49).

Personality

The personality of the teacher is believed by educators generally to be a significant variable in the classroom. Because the teaching-learning situation involves learners and teachers in a social situation it can thus be hypothesized that the personality of the teacher will have some relationship to the effectiveness of teaching. Bowers and Soar elaborated on this hypothesis further by stating that:

...the analysis of classroom social interaction can proceed best if attention is directed to the personality characteristics of a teacher and pupils. Personality traits, or as identifiable personality patterns, are covariants in studying the differential effect on pupils of varying degrees or qualities of classroom interaction. Personality traits condition, modulate, promote certain responses from pupils; they activate, direct, formulate pupil reactions in the classroom learning situation. They are basic to teachers and pupils working together successfully in some quest for knowledge, skills, understanding and attitudes....(11, p. 309).

Generally it has been assumed that the teacher's personality is
important in the study of teacher effectiveness but very little theory has been developed regarding what aspects of personality are important.

The complexity of personality as related to teaching effectiveness is pointed out by Dugan who states that:

Perhaps no one personality factor will ever be found to be predictive of success in teaching. Personality is complex and dynamic, and is more than a sum total of personality factors for each individual; it is also the organization of these factors and the effect of them on other people. Most likely the answer to the effective teacher will be in the discovery of certain patterns of personality factors coupled with certain professional factors that best suit a teacher for a specific teaching job (17, p. 337).

In addition to the complexity of personality Getzels and Jackson think that personality is an elusive concept and that:

...definitions are often contradictory, and observations based on one definition will contradict observations based on another definition. The problem is not that there are different conceptions of personality but the researchers fail to distinguish one conception from another and the data obtained in terms of one definition are not differentiated from the data obtained in terms of another (24, p. 574).

They further state that research is needed that leads "...to the discovery of specific and distinctive features of teacher personality and of the effective teacher" (24, p. 574).

Tyler believes that personality characteristics and teacher effectiveness may depend on the specific situation for he states that:

...we are deluding ourselves when we ask about the personality of the teacher...there are probably many kinds of teachers who may be successful under specific conditions and for stated purposes (54, p. 449).
Getzels and Jackson (24) and Barr et al. (6) have written a comprehensive review of research in area of teacher personality conducted after 1950; Barr (3), Domas and Tiedeman (16) and Morsh and Wilder (33) provide bibliographies which survey the field prior to 1950. A review of these investigations reveals that the Minnesota Multiphasic Personality Inventory (MMPI) has been used most commonly in recent research, but projective techniques are beginning to be explored as a means of analyzing personality.

Five recent studies were found in which personality data were collected during the undergraduate period and then compared with data relating to effectiveness as a teacher.

Starting with the hypothesis that personality characteristics are related to success as a first-year teacher Ort (36) made a study of 443 seniors in the College of Education at Bowling Green State University during the school years 1960-1962. Data were collected by administering the MMPI (Group Form) to seniors.

At the end of the first year of teaching following graduation an evaluation form was sent to the school superintendent where the teacher had taught. He was asked to have the immediate supervisor of the teacher make an estimate of teaching success. These estimates were made by supervisors, principals and/or superintendents depending upon the size of the school. In many cases there was a combined mean estimate made by all administrators who were in contact with the teacher. Of the 443
students, 323 taught the first year after graduation and evaluations of 273 teachers were returned.

Only one score on the MMPI, the social scale (Si), was correlated with the estimates of the first-year teaching success since the investigators considered this the one factor that would be useful with normal individuals. Since a very low correlation was found between the estimates of success and the Si score, Ort concluded that this score on the MMPI did not have any predictive value.

In discussing the difficulty of predicting teaching success Ort stated that:

There are many variables which are difficult to control when evaluating teachers. Some of the variables are drive, motivation, love of children, philosophy, experimental background, and health. Any one, or any combination of these, may become an important determiner of personality or attitude, or the success of an individual (36, p. 70).

In a five-year study at Occidental College, Cole (14) attempted to determine if data obtained from certain measures of personality were useful in predicting teaching success. The personality data were derived from administering the group form of the MMPI and the group Rorschach during the undergraduate period. The measures of success were the ratings given a teacher by a classroom observer and by his principal, but only findings relative to the first measure were reported.

Sixty teachers for whom personality data were available were observed in the classroom by an observer who rated these teachers in the areas of subject matter competence and inter-
personal relationships using a scale developed by Ryans (50). The ratings were then related to the previously obtained personality data. Five characteristics were identified which appeared to be associated with high or low observer ratings. An elevation on the Schizophrenic scale of the MMPI seemed associated with low ratings. The presence of "good" M (movement) scores on the Rorschach was associated with high observer ratings. The teachers with higher ratings were more likely to have a dominance of FC (form-color) over CF (color-form) scores on the Rorschach. An F (form) per cent exceeding 70 was found to be associated with low ratings. Subjective expressions of anxiety appeared more commonly in the group of teachers with lower ratings.

Using these findings Cole tentatively concluded that when personality test scores suggested "more than ordinary difficulty in empathy, emotional control, or heightened rigidity or anxiety, the teacher in question was a poorer than average risk, as judged by a classroom observer" (14, p. 345).

Using these empirically derived clues as a basis predictions were made of the ratings that would be given to a sample of 140 teachers from the personality test data which were obtained during the undergraduate period for each teacher. A single classroom observer rated the 140 teachers using the scale developed by Ryans. The observer, who was not aware of the prediction which had been made for the teacher in question, visited
the teacher twice; each visit was approximately 40 minutes in length. Ratings were made for both visits and a mean score derived. A correlation of +.65, significant at the .01 level, was obtained when observer ratings and predictions based on selected scores on the MMPI and Rorschach were compared.

The purpose of a research project conducted by Flanagan (19) was to investigate the relationship, if any, between scores and profile patterns of the MMPI and success in teaching as indicated by supervisory ratings. He included 167 subjects who had been graduated by the University of Wisconsin between 1953 and 1956 and who taught in the Wisconsin public schools. Supervisory ratings were obtained by submitting a rating blank to the superintendents, principals, or supervisors of the schools in which they were teaching. An overall rating of effectiveness was obtained from the administrators and they were also asked for comments regarding elements of strength and weakness in the teachers' work, and "general comments." Measures of personality had been obtained by administering the group form of the MMPI when the subjects were college freshmen.

The null hypothesis tested was that teachers with different personality profiles would not differ in ratings of success. The analyses of the data for male and female teachers were made separately, and differences were found in personality patterns among female teachers with different supervisory ratings. A high score on scale 3 (Hysteria) in the MMPI was
positively related to a rating of outstanding effectiveness, significant beyond the .02 level. There was some indication that scale 5 (Masculinity-Feminity) was positively correlated with supervisory ratings for women teachers but the relation was not statistically significant. Scale 2 (Depression) appeared to be inversely related to ratings for women but the relationship was not significant.

Twenty-five variables for which data were collected during the undergraduate period were studied, both singly and in combination, by Simun and Asher (52) to ascertain their value in predicting ratings on five criteria which a first-year teacher would receive from her school administrator. The subjects were 111 graduates from Carnegie Institute of Technology who were rated by administrators for teaching ability, preparation of subject matter, discipline, tact with students, and cooperation with staff.

One of the predictors studied was personality based on ratings by faculty members obtained during the senior year. Correlations were computed between personality rating and the administrators' rating on each of the five criteria. The correlations ranged from +.04 to +.17 and none was significant. However, the personality rating was included in a combination of variables used to obtain the largest multiple R in the regression equations for predicting the administrator's rating of the teachers' preparation of subject matter, teaching ability and tact with students. Hence, this investigation indicates that an
estimate of personality did contribute in the prediction of administrators' rating of teaching success when used in combination with other variables; but when used singly it had little relationship to administrators' ratings.

A cooperative study to predict effectiveness of secondary school teaching was undertaken by upstate New York colleges and universities preparing secondary teachers (9). The purpose was to determine if or to what extent secondary teaching effectiveness could be predicted from characteristics known prior to college admission.

The sample for this study included all of the students who were preparing to be secondary teachers enrolled in 16 upstate New York colleges and universities during the 1949-50 school year and who became teachers by 1954. Of the approximately 1300 students enrolled only 531 became teachers by this time. The predictive data included a wide range of characteristics presumed to be related to teaching effectiveness. These data were obtained from scores on the tests and inventories administered before admission to college: American Council on Education Psychological Examination (ACE), The Cooperative Culture Test Battery, The Cooperative Reading Comprehension Test, Kuder Preference Record, Minnesota Teacher Attitude Inventory (MTAI), and Teacher Personality Inventory developed from the MMPI. In addition data were obtained from two biographical information schedules which were filled out by the prospective students and
from the records in high schools attended by the students. These data included the student's experiences, socio-economic level and size of family; attitude of family toward teaching; his leadership, cultural, and hobby activities; age at the time of entry into college; and sex.

Seven measures of teaching effectiveness were used: pupil ratings; supervisors' ratings; ratings of teacher behavior by observers who were members of the college staffs; a composite of the three ratings; a scale to measure teacher-pupil relations, developed by combining the items from the three rating instruments which pertained to teacher-pupil relations; a scale to measure the teachers' disciplinary control, developed by combining the items which pertained to disciplinary control from the three rating instruments; and a scale to measure instructional excellence, developed by combining the items pertaining to the instructional procedures used by the teacher from the three rating instruments.

For each subject who taught one year, 46 items of information were obtained and were correlated with the data obtained from the criteria measures of teaching effectiveness. Of these 22 were chosen for further analysis on the basis of their correlation with one or more of the criterion measures. Fourteen regression equations, including one for predicting each of the seven measures of effectiveness for the "academic" subject teachers and also for the "nonacademic" subject teachers, were then developed and refined by eliminating variables which were
making a nonsignificant contribution to the prediction. The "nonacademic" subjects included commerce, physical education, art, agriculture, home economics, and music. The "academic" subjects included language, English, mathematics, science, and social studies.

Bicknell indicated in a summary report that personality data, as measured by scores on the Teacher Personality Inventory, had value as a predictor of teaching effectiveness, but no specific data were reported.

In summarizing the findings of four of the studies reviewed, certain aspects of personality were predictive of teacher effectiveness. However, there was little agreement as to which aspects these were. Data obtained from the group Rorschach and the score on the Schizophrenic scale on the MMPI were found by Cole to be predictive of observer ratings of teacher effectiveness; Flanagan's investigation revealed that the Hysteria scale on the MMPI was predictive of supervisory ratings. A study by Simun and Asher indicated that faculty ratings on personality contributed little as a single predictor of administrators' ratings but contributed to these predictions when used in combination with other variables. In determining the prediction efficiency of the scores on the Teacher Personality Inventory, Bicknell found that they had value as a predictor of teacher effectiveness. When only the social scale on the MMPI was the predictor, Ort's findings indicated that this score did
Attitudes

The attitudes of teachers have been assumed by educators generally to have an effect on teacher-pupil relations in the classroom, but very little theory has been developed regarding the importance of attitudes in relation to teacher effectiveness.

Mill believes that learning is facilitated when a close, positive relationship exists between the teacher and pupil. Thus, the attitude of a pupil toward his teacher and the attitudes of the teacher toward the students, community, and school may facilitate or hamper the teaching learning process (31).

Based on his theory that characteristics of the teachers and particular situations in which teachers are involved are determining factors of teacher behavior, Ryans includes teacher attitudes as one characteristic of the teacher (48). Davidson and Lang argue that the teacher's attitude toward a student is important because the child's self-concept originates and develops in an interpersonal setting for:

Feelings about the self are established early in life and are modified by subsequent experiences. Among the significant people believed to affect the child's feelings about himself are first, his parents, and, later, his teachers (15, p. 107).

Some studies have been reported which measured the students' attitudes during the undergraduate period for the purpose of predicting teacher effectiveness. The majority of these have been made at the elementary school level; very few include teachers at the secondary level.
In the study by Ort (36) described earlier a hypothesis was made that attitudes were related to teaching effectiveness. The MTAI was administered to the 443 seniors in the College of Education. Correlations were obtained between the score on the MTAI and the supervisors' rating of teaching effectiveness for the 273 subjects who entered teaching. Since a correlation of only +.07 was obtained Ort concluded that attitude as measured by the MTAI has no significant value in predicting how successful a graduate will be in his first year of teaching when effectiveness is determined by the rating of his supervisor.

Bicknell (9) also used the MTAI to assess the students' attitudes toward teaching. The data were not given in the summary report but Bicknell made the general statement that:

The variables which were predictive of the various measures of teaching effectiveness...included only measures of personality, attitude, interest, home and family influences and socio-economic level (9, p. 22).

The findings from these two investigations appear to be contradictory even though the MTAI was used in both studies.

**Academic achievement**

A reasonable hypothesis would seem to be that college academic achievement as measured by cumulative quality point average (CQPA) and/or grades in specific courses are related to and could be possible predictors of teacher effectiveness. The assumption is made that CQPA and grades in specific courses in the student's field of specialization involve in part the
individual's competence and motivation in the subject matter area which he is preparing to teach, and such aspects are considered to be important for teacher effectiveness. Likewise, achievement in professional education courses would appear to be useful as a predictor of teacher effectiveness since it should reflect the student's interest in the teaching profession as well as his competence in the teaching-learning process.

The assumption is often made that high academic achievement indicates high intellectual ability, but this relationship does not always exist. The intellectual ability as measured by intelligence tests does not reflect the element of motivation to achieve. An individual may "underachieve" or "overachieve" in terms of his intellectual ability due no doubt, in part, to motivation. Intellectual ability might, however, be a possible predictor of teacher effectiveness since this ability is important in making decisions relating to selecting, organizing, and teaching subject matter as well as in working effectively with pupils, school, and community; and in participating in decisions concerned with school policies.

Several researchers have investigated the relationship of academic achievement and/or intellectual ability to teaching effectiveness, but they have not discussed the theoretical framework in their reports.

From 1912 to 1950 many tests of intelligence were administered and the scores were related to various measures of teaching effectiveness. Morsh and Wilder (33) reviewed 55 studies
appearing between 1927 and 1952 in which such a relationship was investigated. Relatively high correlations were obtained in a few but in other instances low or negative correlations were found. Recently measures of general intelligence have been included less often in prediction studies and when such measures have been used the findings have been contradictory (24).

No studies were found using as predictors grades from courses in the student's field of specialization perhaps due, in part, to the investigators' desire to obtain predictive data early enough in the student's program to be useful in guidance.

Four recent studies have been published which involve academic achievement or intellectual ability as predictors. Three of these, Simun and Asher (52), Bicknell (9), and Ort (36), were described in the previous sections.

Simun and Asher used the cumulative college academic average and the grades received in three education courses: educational psychology, introduction of education, and student teaching. When correlations were obtained between the prediction variables and five criteria for effectiveness, academic average and the student teaching grade were the two, which when used singly, were related significantly to one or more of the administrators' ratings: the former at the .01 level with the rating of teaching ability and preparation of subject matter and at the .05 level with the rating of teacher discipline. The student-teaching grade correlated significantly
at the .01 level with all three of these administrators' ratings. Very low or negative correlations were obtained between the grades in the other education courses, educational psychology and introduction of education and the administrators' ratings of tact with students and cooperation with staff. Academic average, grade in educational psychology, and grade in student teaching were included in a combination of variables to obtain the largest multiple R in the regression equation for predicting the administrator's rating of teaching ability. Academic average, grades in introduction to education course and student teaching were included in the regression equations for predicting the administrator's rating of discipline, preparation of subject matter, and tact with students. Hence, certain measures of academic achievement used in this study did contribute in combination with other variables to predict various aspects of teacher effectiveness as measured by administrators' ratings.

The American Council on Education Psychological Examination (ACE) and high school academic achievement were used as predictors by Bicknell. No data were given in the summary report but his discussion of findings indicate that these were not among the variables which were predictive of the various measures of teacher effectiveness.

Ort found that academic achievement in college had little value in predicting how successful a student will be as a
first-year teacher. The college cumulative point average, the Trigg Reading Test-Survey Section (Form B) and ACE scores were included as variables for predicting teaching effectiveness. Correlations were computed between these predictors and success as estimated by the immediate supervisor. A correlation of +.16 was obtained between success and grade point average. He reported that very low correlations were found between the reading test score, the ACE scores and teaching success; actual correlations were not reported. Almost an equal number of students with low academic achievement records were judged to be "excellent" by their supervisors as the number of individuals who had high academic achievement and were rated as "inadequate" teachers. However more "inadequate" teachers with low academic records were found than were "inadequate" teachers with high academic achievement.

A study was conducted by Massey and Vineyard (30) to determine the relationship between first-year teaching success and college scholastic achievement. The sample included 62 subjects who were graduated by Panhandle A and M College during 1954, 1955, or 1956 and who entered the teaching profession. First-year teaching success was determined by a rating made by the person responsible for supervising the teachers. Correlations were calculated between the ratings on each of 15 qualities and the grade point average earned in college. Correlations, significant at the .01 level, were found between
scholastic achievement and a rating on mastery of subject and on character, standards, and ideals. Correlations, significant at the .05 level, were found between scholastic achievement and estimates of competence in English expression and "general culture". Those between scholastic achievement and each of the other evaluative criteria on the rating scale were all positive but nonsignificant.

Clearly the findings in these studies are contradictory. In two, Simun and Asher and Massey and Vineyard, academic achievement did correlate with teaching effectiveness as measured by administrators' ratings. Ort failed to establish that academic achievement in college had predictive value; and Bicknell that high school academic performance was predictive.

Ort and Bicknell also included a measure of intellectual ability, ACE scores, as a predictor of teaching effectiveness. Both of these investigations indicated that this measure would not predict how successful a student would be as a teacher.

Because of these discouraging results Getzels and Jackson conclude that:

...it seems highly unlikely that future researchers using global measures of intelligence and conventional criteria of teaching success will tell us much more than we now know about the relationship between general ability and teaching efficiency (24, p. 572).

They suggest new approaches to this problem as:

...different types of cognitive functioning, in addition to those currently assessed by tests of general ability, might be closely related to teaching efficiency...and... attitudinal and behavioral correlates of cognitive ability may be important in understanding teaching... for growth in our understanding of cognition has led
to the realization that many types of intellectual processes are not adequately assessed by conventional tests of intelligence (24, p. 572).

Criteria Used in Research for Determining Teacher Effectiveness

A criterion in research is used to provide a frame of reference for judging whether some phenomenon occurs and sometimes to the degree to which it occurs. In prediction research the "criterion is the behavior the researcher attempts to predict and against which the relevance and usefulness of his predictors may be judged" (48, p. 26).

Various classifications of criteria for teacher effectiveness have been developed in this area. Barr states that:

In general, with some exceptions, the criteria of teacher effectiveness employed in the investigations...are global in character and of two sorts, namely: a) efficiency ratings and b) pupil gains as measured by tests administered to the pupils before and after instruction (6, p. 10).

Mitzel (32) suggests that the teacher effectiveness criteria can be categorized as 1) product criteria, 2) process criteria, and 3) presage criteria. In defining product criteria he states that:

...product criteria depend for definition upon a set of goals toward which teaching is directed....These goals are most economically stated in terms of change in behavior on the part of students....These effects are variously called student changes, but they all involve measurement of change in student behavior, a portion of which logically can be attributed to the influence of individual teachers (32, p. 1483).

Process criteria he relates to those aspects of teacher
and student behavior which are believed to be of value in their own right because they are not necessarily directly related to the primary goals of education. However, their "presence or absence in the classroom is sometimes looked for because of their assumed mediating effects on product criteria" (32, p. 1483). Process criteria are most often "described and measured in the classroom in terms of conditions, climates, or typical situations involving the social interaction of students and teacher" (32, p. 1483). The measurement of these criteria may be in terms of teacher and/or student behavior.

His third category, presage criteria, consists of those criteria which are "from a logical standpoint completely removed from the goals of education" (32, p. 1484) and which are in a sense pseudo criteria because:

...their relevance depends upon an assumed or conjectured relationship to other criteria, either process or product....There are at least four types of presage variables in common use as criteria in teacher effectiveness research a) teacher personality attributes, b) characteristics of teachers in training, c) teacher knowledge and achievement, and d) in-service teacher status characteristics (32, p. 1494).

The Committee on Criteria of Teacher Effectiveness of the American Educational Research Association stated that the criteria concerning teacher effectiveness should include the teachers' effects on pupils, school operations, and on community-school relations (4, 5).

These three classifications indicate a difference in terminology and in criteria which characterize teacher effec-
tiveness. Because of this some basis is needed for determining the relative value of various criteria. One basis for this is the closeness to the ultimate objectives of the school or teacher; the Committee on Criteria stated that criteria might be thought of as:

...ranging along a continuum of "ultimacy-proximacy... the closer a characteristic of teachers is to the ultimate purpose of their teaching, the more ultimate is that characteristic or criterion of the teachers (4, p. 243).

The continuum was divided into two parts; the effects of the teacher which range along a continuum of ultimacy and behaviors and characteristics of the teachers which range along a continuum of proximacy. The criterion considered most ultimate by the Committee was the teachers' effect on "pupils' achievement and success in life" (4, p. 243). The other five criteria listed in order of decreasing ultimacy were the teachers' effect on:

- pupils' achievement in subsequent schooling
- pupils' achievement of current educational objectives
- pupils' satisfaction with the teacher
- parents' satisfaction with the teacher
- superintendents' satisfaction with the teacher (4, p. 243).

The first four behaviors and characteristics of the teachers listed in descending order along the criterion proximacy continuum are:

- teachers' "values" or evaluative attitudes
- teachers' knowledge of educational psychology and mental hygiene
- teachers' emotional and social adjustment
The justification for using any other criterion except the most ultimate criterion depends on the degree to which "...it can be considered related, relevant, or proximate to the ultimate criterion" (4, p. 244).

In addition to the problem of selecting the criteria of teacher effectiveness researchers must develop and/or employ adequate criterion measures. When judging the adequacy of a particular criterion measure Ryans states that there are:

...basically three characteristics of criterion measures with which the researcher is concerned: validity (or relevance), reliability, and feasibility...the relevance of a criterion measure is, of course, the really basic consideration (48, p. 35).

According to Ryans the basic approach to judgment of relevance of criterion measures is by construct validity, which he defines as:

...validity or relevance that is inferred from indirect, logically related, evidence...validity which may reasonably be assumed, but which is implied rather than directly indicated (48, p. 36).

In addition the researcher must be constantly on guard against bias for it is important that:

...a criterion measure be both comprehensive, or inclusive, and also that it not measure behaviors extraneous to the criterion dimension under consideration (48, p. 37).

The second standard by which the adequacy of a criterion measure is judged is that of reliability: "a criterion measure yields reliable data to the extent that the measurements it provides are free from fluctuations, or variable error" (48,
The generalizability of a criterion measure to other samples of the same or different populations is also a reliability consideration. Unless a measure maintains its relevance when it is applied to the criterion behavior of similar samples of the same population, it has no value to the researcher. If the measure continues to be relevant when its application is extended to other populations, its potential usefulness is still greater (48, pp. 38-39).

The third requirement of a criterion measure is that it be relatively convenient to use. Practical problems may force the researcher to use measurement procedures that are perhaps more subject to error than would be desired if an optimal measure were available (48).

Each of the criteria of teacher effectiveness used in the longitudinal project, of which the present study is a part, will be discussed from the standpoint of its relation to the ultimate criterion; problems in employing criterion measures for these criteria and investigations which have used these criteria will also be discussed.

**Pupil gain**

If the purpose of teaching is to attain objectives by bringing about desired changes in pupils, one of the most important measures of teacher effectiveness is the extent to which the teaching produces such changes. The teachers' effect on pupils' achievement and success in life was considered to be the most ultimate criterion by the Criteria Committee and the effect on their achievement of current educational objec-
tives to be slightly lower on the ultimacy continuum. One criterion which is very close to the ultimate objectives of the teacher is the gain made by pupils in the attainment of educational objectives which are being stressed by the teacher.

Other researchers agree that the growth of pupils in achieving educational objectives, pupil gain, is an ultimate criterion of teacher effectiveness (22, 10, 12, 53, 1).

According to Gage the concept of teacher effectiveness:

...connotes educational or social values of some kind... usually the value takes the form of some educational objective, defined in terms of desired pupil behaviors, abilities, habits, or characteristics... ultimate criterion of a teacher's effectiveness is usually considered to be his effect on his pupils' achievement of such objectives. The terms pupil gain and pupil growth are used to refer to this kind of ultimate criterion (22, p. 116).

Bloom takes the position that:

...unless the criteria of effectiveness are related to changes in students, the research has avoided the primary criterion and has used only proximate criteria (10, p. 379).

...we may have a value orientation which helps to define good and poor, and we may have a theory of education which enables us to differentiate the better from the poor teaching. But even such values and theories must ultimately rest on what we believe or what we know to be the consequences for the learner. Teaching and learning experiences are not good or poor in their own right. They are good or poor because of the ways in which they affect the learner (10, p. 379).

...other important changes occur in the learner but it is true that the cognitive changes in students are the ones which most teachers seek to bring about (10, p. 379).

Many difficulties are encountered by researchers who use
pupil gain or change as a criterion measure of teaching effectiveness. The major problem Ryans believes is the:

...difficulty of adequately controlling external factors in order to provide reasonable assurance that the hypothesized product is truly a product of the criterion behavior rather than that of a wide range of uncontrolled conditions occurring before and during the criterion behavior (48, p. 44).

Additional difficulties, according to Tomlinson, are related to the definition of pupil growth or change, how it is measured, and how the specific aspects and extent of pupil growth for which a certain teacher is responsible are measured (53).

The problem of defining pupil growth or change is also discussed by Ackerman:

Learning is a change in behavior. A teacher is effective when he does things or behaves in ways that engender the learning of skills, understandings, work habits, desirable attitudes and adequate personal adjustment on the part of the pupils or students. Looked at from this point of view neither pupil change nor teacher effectiveness is a unitary concept...It is then more proper to speak of pupil changes and teacher effectivenesses.... Such a concept of pupil change must employ more than gains or losses on achievement tests as criteria of teacher effectiveness. Change must include all-round pupil growth (1, p. 284).

The lack of means of measuring all types of objectives leads to measurement of pupil development only in the cognitive type. The affective types tend to be given little consideration, and in some subject areas this type of objective may be of such importance that adequate measurement is essential for teacher effectiveness studies. The measurement of pupil gain
in terms of restricted objectives tends to cause undesirable shifts of emphasis in teaching to those areas where results can be more readily shown.

Even though this problem were to be solved the problem still remains regarding the specific aspects and extent of pupil gain for which a given teacher is responsible. Other factors in addition to the teacher that might contribute to pupil gain are textbooks, prior learning, previous teachers, other teachers with whom the pupil is in contact at the same time, home and peer influence, ability, study habits, emotional stability, and others all of which have different effects on each of the pupils and are difficult to control in teacher effectiveness research.

Although teachers are effective to the extent that they stimulate pupils to work toward achieving desirable educational goals in only a relatively few studies has pupil growth toward these goals been used as a means of evaluating teaching effectiveness.

Instruments used to measure growth of pupils in ability to apply generalizations and change in attitudes toward children and attitudes toward family decision making were employed by Scruggs (51) as criterion measures of teacher effectiveness. To obtain growth scores for the ability to apply generalizations tests were developed and administered to the pupils enrolled in Homemaking I and II classes at the beginning and again near the
end of the school year. The attitude inventories were administered at the same times.

The mean gains of classes for these criteria were computed for each teacher. An analysis of variance indicated that the criterion measures of growth in the ability to apply generalizations and in attitudes failed to significantly differentiate among the 26 teachers. Scruggs believed, however, that the tests involving ability to apply generalizations had potential for determining effectiveness of homemaking teachers and recommended that further research be conducted to improve this measure.

After the tests used by Scruggs had undergone major revisions Ott (37) determined whether they discriminated among homemaking teachers. These tests had four forms, a pretest and a post-test for Homemaking I and for Homemaking II classes. An analysis of variance was based upon the mean gain in achievement for each Homemaking I and II class of 43 first-year teachers. Tests of significance of difference were made for teachers, levels, and the interaction of teachers with levels. The F-values obtained were significant at the .01 level for each. Therefore, Ott concluded that these achievement tests discriminated among teachers' ability to stimulate pupil growth in the ability to apply generalizations.

The Cogan study (12, 13) was based on the assumption that pupil work is very closely related to pupil change in the learning sequences of the classroom and thus to pupil gain and was
a valid measure of teacher effectiveness. Scores were obtained from the responses to a questionnaire called the "Pupil Survey" for two dependent variables of the study; the amount of required work and the amount of self-initiated work performed by the pupils. The required work score was obtained for each pupil by presenting a list of 30 of the most common types of assignments, such as "do drill exercises", "memorize rules", or "solve number problems". He was asked to report on his work with a particular teacher by indicating the frequency of doing the assignments. These numerical values were given to the responses: almost never (1), few times (2), sometimes (3), many times (4), almost always (5).

The pupil's self-initiated work score was obtained from the responses to 25 items dealing with such common, school-related activities as "making extra models", "making visits to museums", or "doing extra experiments". A six-point frequency scale was provided for the student to respond to each item, from "I never do this" to "I do it very often".

Data were collected from 987 eighth-grade pupils of 33 teachers in five public junior high schools. Cogan reported that the pupils' ratings of amounts of required and self-initiated work performed tended to differ for different teachers but he did not indicate the significance of this difference.

Attitudes and achievement measures were employed in an investigation by Flanders and Amidon (20). A random sample
of teachers in two subjects in two large urban school systems was selected: 50 per cent of all the teachers of seventh-grade combined English-social studies and 36 per cent of all the eighth-grade mathematics teachers were drawn. A short attitude inventory which involved student perceptions of the teacher and class activities was administered to the students in these teachers' classes. Using the scores on this inventory for each of the two subject areas, eight classes whose teachers were rated highest by the pupils and eight whose teachers rated lowest were chosen for further study.

Each teacher taught a special two-week unit of study to his classes. Observers made six visits to the classroom and classified all verbal statements at three-second intervals and tabulated the results. They also kept a record of how time was spent. An analysis of these data served as a basis for dividing each group of 16 teachers into three subgroups based on degree of "flexibility" and for predicting the level of achievement for each subgroup. The method of determining the degree of flexibility was not described in the report. Achievement measures were post-learning test scores adjusted for "initial ability". These tests included knowledge of content, skills in problem solving, interpreting data, and the application of these skills to a new situation. After the unit was completed student attitudes toward teacher and class were again measured using a longer form of the inventory than that used at the beginning.
Flanders and Amidon believe the "results verified that teachers whose students learn more are teachers who are able to vary their behavior to match the class needs" (20, p. 44). The data or the level of significance were not given but the investigators stated that they found measures of student attitudes were positively correlated with achievement scores. The investigators reported that the English-social studies teachers in the high-scoring classrooms used praise or encouragement and clarified the ideas of students when new material was introduced. 12 times more frequently and the mathematics teachers five times more frequently than did the teachers in the low-scoring classes. They concluded that this "research indicates that the most effective teachers adjust their behaviors to match different situations and class needs" (20, p. 45).

In these studies several measures of pupil gain were employed. On the premise that an effective teacher is one who adjusts his behaviors to different situations and class needs Flanders and Amidon found that pupil achievement as measured by post-learning test scores was related to teacher effectiveness. Cogan's pupil growth criterion measure was the pupils' estimates of required and self-initiated work performed and was based on the assumption that pupil work is very closely related to pupil change in the classroom and thus a valid measure of effectiveness.

Scruggs used the criterion measures of pupil gain in
ability to apply generalizations and change in attitudes toward children and toward family decision making. She found these measures did not discriminate among teachers but recommended that further research be conducted to improve the test measuring gain in ability to apply generalizations. Ott found that the achievement tests designed for use in collecting criterion data did discriminate among teachers.

**Teacher-pupil rapport**

The belief seems to be generally held that rapport between teacher and pupil plays an important role in the teaching-learning process. Since it is not always feasible to rely entirely on the most ultimate criterion of teacher effectiveness, pupil gain, because of the practical difficulties in many studies intermediate criteria are used. According to the Committee on Criteria such criteria could be justified if related to the ultimate criterion, pupils' achievement and success in life (4). Thus, the ultimacy of the criterion pupil-teacher rapport would depend upon the degree to which this criterion affects the achievement of the pupils.

Support for the belief that teacher-pupil rapport has an effect upon pupil learning has been given by various researchers. Grim and Hoyt state that:

We think of the psychological state of the learner as a cluster of intervening variables (such as attitudes, feelings, and emotions) between the instructional materials as stimulus and the teacher-approved behavior
as response. No learning of a desirable nature will take place without the learner being motivated to wrestle actively with the material and to have made it a meaningful portion of his own experience. An important task of the teacher is to initiate this state of mild tension in the individual pupils. Teacher-pupil relations are two-way. If they are strained, both teacher and pupil suffer; if they are harmonious, both will benefit (25, p. 86).

In the development of a measure of teacher-pupil relations, which he referred to as an attitude inventory, Leeds postulated that:

...rapport between teacher and pupil constitutes one of the many factors essential to teaching success. Although only one of the many such factors it is assumed further that it is one of the most important (28, p. 1).

The relationship of the behavior of teachers and productive behavior of their pupils is described by Cogan based on the theory that:

...the teacher may become on the one hand a cue for anxiety, or on the other, for liking or respect. An appropriate response to anxiety is avoidance of some sort; an appropriate response to liking is approach. Thus the teacher who becomes a cue for strong anxiety will motivate his pupils to an acceptable minimum of required work; i.e., the pupils will use the most expeditious means of avoiding an anxiety-laden stimulus. They will, in addition, tend to perform very little self-initiated work, since this would be the symbolic equivalent of remaining longer than absolutely necessary in proximity to an unpleasant situation. On the other hand, the concept of gradient approach suggests that pupils will perform much more self-initiated work for the teacher who becomes a cue for approach (12, p. 90).

Several instruments have been designed to measure teacher-pupil rapport and used in investigations of teacher effectiveness.
The Pupil Reaction Inventory, Scale Six, Form D, was selected by Scruggs (51) as a measure of the attitude of pupils toward their teacher and was administered to 28 Homemaking I and II classes of 12 first-year teachers. An analysis of variance indicated that it failed to differentiate among teachers; however, Scruggs recommended that it be explored further as a criterion measure of effectiveness.

The area of teacher concern and its measurement were investigated by Nygren (35) in the belief that a teacher's concern for a student might be one of the means by which the teacher is able to cultivate positive attitudes in the student. In defining teacher concern for the student Nygren stated that:

...it describes a condition in which a teacher has communicated to a student a regard for his well-being. In common terms, teacher concern refers to "taking an interest in a person" to the degree that a teacher selects discriminatingly those procedures that appear to offer each student some personal benefit....the theory of teacher concern places emphasis upon the quality of the student-teacher relationship as one important factor in the learning situation (35, p. 177).

Nygren assumed that a teacher who is highly concerned with individual students is one who exhibits recognition, understanding, and help and will be a more effective teacher with a larger number of individuals within a class than will a teacher with very limited concern. Therefore, she investigates how teacher concern is perceived by the students and whether teacher concern could be measured.

Four New York state homemaking teachers participated in
the study. A criterion for their selection was that they were judged as likely to show concern for some students. Each teacher selected one of her eighth-grade classes as subjects. Opinions of 53 students were obtained using a questionnaire, the Student's Estimate of Teacher Concern (SETC). The SETC consisted of 93 questions about the homemaking teacher including items relating to teacher recognition, understanding of the pupil, and help given to him. To validate the SETC the teacher's estimate of concern was obtained by having the teacher rate each of her students on a three-point scale according to visibility, knowing, and help given. Visibility was thought to relate to a teacher's awareness, and knowing referred to how well a teacher thought she understood each student. The teacher was also asked to estimate the amount of help given or offered to the student. It was expected that these three factors would be closely related to the recognition, understanding, and help dimensions on the SETC.

When a comparison of the mean scores on the SETC was made with the teachers' own estimates of their concern it was found that the teachers' estimates were higher for those pupils who scored the teacher higher on the SETC. Also the pupils who received lower estimates from the teacher were those who scored the teacher lower. According to Nygren this investigation appears to support the belief that the SETC is a valid measure of concern (35).
This study was continued by Ray (43, 44) to investigate whether student ratings of teachers could be used to differentiate among teachers. The SETC developed by Nygren was revised by Ray in an attempt to increase the discriminating power of the individual items and to clarify the dimensions of concern as defined by Nygren. In addition to Nygren's three dimensions, awareness, understanding, and help given, a fourth dimension, a desire to help, was identified. The SETC, was administered to the 468 pupils of the nine teachers and the mean score was computed for each teacher. An analysis of variance for groups of unequal size was computed for the nine subgroups and an F-value of 6.08 significant at the .01 level was obtained which supported the hypothesis that the inventory is capable of producing significantly wide variation in scores (44).

In order to determine whether the mean scores would differentiate among individual teachers, the scores were ranked and the t-test was used to test the significance of the difference between the score of one teacher and that of each of the other teachers. Ray found that the mean SETC scores for the teachers ranking first, second, and third "were significantly different from all teachers' scores except those with adjacent ranks"; the level of significance was not indicated in the report.

Ray also investigated further the validity of the SETC as a measure of teacher concern by determining whether the accuracy of the teacher's perception of her concern for students
was related to the pupils' perception. Mean scores were obtained from the teachers' own estimates of awareness, understanding, communication of a desire to help, and help given. These mean scores were correlated with the mean SETC scores; a correlation significant at the .10 level, +.55, was obtained between the two awareness scores; correlations, significant at the .01 level, were obtained between the two scores on understanding, communication of a desire to help, and help given, +.75, +.75, and +.79 respectively.

These findings offer further validity to Nygren's concept of concern and Ray stated that:

The SETC has produced individual scores which discriminate among students and mean scores which will differentiate to some degree among teachers. To the degree, therefore, that teacher concern can be accepted as an index of teaching effectiveness, the SETC may be considered a measure of teaching effectiveness (44, p. 182).

Northey (34) administered an adaptation of the SETC to 309 pupils in the Homemaking I and II classes of 11 Iowa teachers; a mean score was computed for each teacher. An analysis of variance of these means did not yield a significant value at either grade level; however, discrimination did approach significance at the Homemaking I level.

The SETC inventory was revised and two forms developed, one for Homemaking I and the other for Homemaking II pupils. Ott (37) investigated the ability of the revised forms to discriminate among homemaking teachers. Mean scores for Homemaking I and II classes were computed for each of 34 teachers.
An analysis of variance of the mean scores was performed which permitted a test of the significance of a difference which can be attributed to the teachers and to the teacher-grade level interaction. The results revealed that the SETC differentiated among teachers at the .01 level of significance, but the F-value for interaction was not significant. Therefore, Ott inferred that the differentiation among teachers is a function of the teacher rather than a function of the levels taught by the teachers. The F-value for levels was not computed because the difference in the highest possible score of the two forms made the comparison of the two sets of scores questionable.

A study dealing with the attitudes of in-service homemaking teachers was conducted by Ford and Hoyt (21) on the premise that attitudes of a teacher are related to her effectiveness and her satisfaction with her work. Inventories were developed which dealt with attitudes toward the community, school-community, profession, subject matter, and familiar inter-personal relations; the MTAI was selected as a measure of attitude toward pupils.

The measures of teaching effectiveness used were ratings based on the 32 criteria judged by a jury of 11 homemaking education leaders to be pertinent to the maintenance of an effective classroom learning situation. These criteria related to the teacher, the pupils, the learning experiences, and the homemaking department. For example, one criterion in each
area, in order is: "The teacher shows impartial behavior to all pupils"; "The pupils are all personally involved in classroom activities, both in planning and doing"; "The learning experiences provide opportunities for practice in leadership and cooperation"; and "The homemaking department has a pleasant, healthful and home-like atmosphere". A pupil relationships inventory, "What Would You Do (WWYD)" was a 50 item multiple-choice form and was developed to assess pupils' ability to make mature responses to problems of interpersonal relations.

To determine the relationship between teaching effectiveness, as measured by observation using the 32 criteria and by the mean-pupil score on the WWYD, data were collected for 85 homemaking teachers in Minnesota. No significant correlations were obtained between any of the attitude scores and the classroom ratings. Also the class means on the pupil relationships inventory had a very low correlation with all of the teacher attitude scores. Ford and Hoyt concluded that if ratings obtained through the use of criteria are valid it appears that attitudes other than those measured in their investigation are important for homemaking teacher effectiveness and thus warrant further investigation.

Gage and Suci (23) theorized that the accuracy of social perception is positively related to effectiveness of interpersonal relations. To test this inference they obtained estimates of the accuracy of teachers' perceptions of pupils' attitudes; the pupils' attitudes toward the teacher; the teachers'
attitudes regarding teacher-pupil relations; and the relationship between each of these.

To obtain estimates of the accuracy of the teachers' perceptions of pupils' attitudes twenty teachers in a high school were asked to predict the percentage of the 200 students who would answer "yes" to each of 67 opinion items. The items dealt with three areas; scholastic, recreational, and student governmental issues in their school. The students responded anonymously underlining "yes" or "no" for the same items and the percentages of yes responses were computed. Each teacher was scored by determining the difference between his estimates and the percentage of students' yes responses, summing the difference, and obtaining a mean difference or error of all items. The mean error scores were also secured for each of the three subgroups of items. Each teacher's predicted percentage was also correlated with the actual percentages to obtain an r score. The teachers were then rated by their pupils, anonymously, on 52 items such as the following:

- Is the teacher often bossy?
- Does this teacher think he or she is always right and the student wrong?

A score was obtained for each teacher by weighting favorable pupil responses 1, unfavorable responses 0, summing and obtaining a mean for the teacher. The analysis indicates that the larger the teacher's mean error in estimating student opinion the lower his mean rating by his students; the teachers'
mean error correlated -.37 with the mean rating by their pupils. Their r score correlated +.50 with the mean rating.

The MTAI was employed for appraising the teachers' attitudes toward teacher-pupil relations. The scores on the inventory correlated -.57 with the mean error scores but -.20 with the mean ratings. However, the latter correlation was not significantly different from zero. This indicates that the attitudes and understandings concerning pupils which are assessed by this inventory are significantly related to ability to estimate student opinions. From this investigation Gage and Suci tentatively concluded that a teacher's accuracy of social perception is positively related to his effectiveness in obtaining a positive affect in pupils.

On the assumption that rapport between teacher and pupil is one of the many factors essential to teaching success and that it is one of the most important, Leeds (28) attempted to construct a measuring instrument that would aid in the differentiation of teachers who have or will have rapport with pupils from those who do not or will not have such rapport. Rapport was defined as "...a state of harmonious relationship characterized by mutual affection, sympathy, understanding and cooperative behavior" (28, p. 1).

For the investigation it was assumed that a teacher's attitude toward pupils and toward children in general is an index to the rapport he has or will have with them. The Teacher-
Pupil Inventory consisted of opinion statements relating directly to pupils and to children in general. The researcher "...felt that a teacher's reaction to children as such is of significance in her attitudes toward pupils" (28, p. 3). The subject responds to each item by indicating the degree of his acceptance on a five-point scale. The items were classified into five categories: moral status, discipline, child knowledge, educational principles, and personal reactions of teacher. Two forms of the trial instrument were administered to two groups of high school and elementary school teachers, 100 in each group, divided on the basis of the local administrator's judgment of the teacher's ability to maintain harmonious relations with pupils. Form A was administered first and Form B approximately one month later. From the 756 items in the original two forms only 164 were chosen for use in the final Inventory. The criteria employed in the selection and rejection of items were as follows:

1) Was the item adequate in differentiating the two groups of teachers?
2) Was the item ambiguous in meaning, lacking in clearness, or poorly stated?
3) Did the content of an item duplicate that of another item that had been selected?
4) Did the item show a response pattern that was difficult to interpret? (28, p. 10)

The statistic, chi-square, was used as a measure of the degree of differentiation between the two groups of teachers.

For the purpose of establishing validity of individual items a comparison was made between the two groups of teachers
using only these 164 items and a highly significant difference was found between the means of the two groups of teachers; a mean of 131 was obtained by the superior, and -32 by the inferior group.

The validity of the Inventory, as a whole, was established using a new sample of 100 elementary school teachers on whom ratings were obtained from the principal, a classroom observer, and from pupils; when the Inventory scores were correlated with the ratings the correlations obtained were +.43, +.49, and +.45 respectively. A correlation of +.59 was obtained when the Inventory scores were correlated with a composite of the ratings. The mean score for this unselected group of teachers was 77.6 compared with 131 for the superior and -32 for the inferior teachers in the original group. Based on these findings Leeds stated that "teacher attitudes toward pupils and pupil behavior are related to teacher-pupil rapport in the classroom" (28, p. 24).

An investigation was undertaken by Reed (45, 46) to identify some teacher behaviors that relate to desirable pupil behavior. The teacher variables selected were warmth, demand, and intrinsic motivation. This selection was based on the rationale that these behaviors would contribute to the changing of the behavior of pupils. Warmth referred to pupils' perceptions of the teacher's behaviors in relaxing interpersonal tension between teacher and pupil; other terms "frequently used as synonyms of warmth are affection, affiliation, con-
sideration, kindness, friendliness, sympathy, responsiveness, and geniality" (46, p. 206). Demand referred to the standards which the teacher set for each pupil's performance on school tasks, and intrinsic motivation referred to the teacher's ability to cause the students to internalize or to make the learning experiences meaningful to the students. Desirable pupil behavior was defined as interest in science.

The sample included 1045 ninth-grade boys and girls and their 38 general science teachers from 19 public schools in Massachusetts. Four factors which might have affected the criterion scores for classes were controlled: school subject, grade level, sex, and fathers' interest in science. The pupils were administered the Pupil Inventory which was composed of two parts: Part I the Science Interest Inventory, a 10-item scale to measure pupils' voluntary science activities during the school year, provided the criterion score for each pupil; and Part II, composed of a random ordering of teacher behavior items, provided scores for warmth, demand, and intrinsic motivation for each of the teachers. The within class stability of pupil responses for these three scales in Part II ranged from +.78 to +.93. Analyses showed that the warmth, demand, and intrinsic motivation scales differentiated among teachers significant at the .001 level for both boys and girls.

Reed found that the pupils' interest scores, as measured by the Science Interest Inventory, correlated at the .001 level of significance with teacher warmth and intrinsic motiva-
tion scores. No significant correlation was found between pupil interest scores and teacher demand scores.

From these findings Reed inferred that science interests of many pupils in this sample were independent of the demands of the teacher, but were a function of the teacher's ability to establish a relaxed interpersonal relationship with the pupil and to utilize intrinsic motivation.

The relationship of teacher behavior and productive behavior of pupils was studied by Cogan (12, 13). Scores for each pupil's estimate of required and self-initiated work performed were obtained from the "Pupil Survey" which has been described in the section on pupil gain. Observable teacher behaviors, classified as "inclusive", "preclusive", and "conjunctive", were measured. The inclusive behaviors were defined as those which tend to make the pupils central in the teacher's classroom decisions and teaching-learning situation; these behaviors he termed "integrative", "affilative", or "nurturant". Preclusive behaviors are those which tend to make the pupils feel left out of the classroom decisions and experiences and include behaviors that he described as "dominative", "aggressive", or "rejectant". Conjunctive behaviors are those behaviors that give evidence of the teacher's skill in classroom management, ability to communicate with the pupils, command of and ingenuity in working with the subject matter, and his level of demands of the pupils. Using a five-point frequency scale pupils responded to statements about their
teacher's behavior. These items had been categorized into the three types of behavior described and mean scores for each were computed.

An instrument, "The Teacher As Seen By His Colleagues", was designed to measure the opinion of the teacher's principal relative to the three types of teacher behavior. The scores were then correlated with the mean scores for each of the types of behaviors. Each teacher was asked to rate his pupils on the amount of required and self-initiated work performed and these scores were compared with the corresponding estimate furnished by the pupil.

Data were collected from 33 teachers, five principals, and 987 eighth-grade pupils in five public junior high schools. Cogan reported that the pupils differed in their perception of the teachers' behavior and also differed in the amount of work performed; however, no data were given regarding the significance of this difference. The principals' rating of the teachers' behaviors were found not to be consistently related to the pupils' rating of the teachers. The evidence was inconclusive as to the relationship of the preclusive teacher behaviors with self-initiated and required work scores, but it was inferred, that as perceived by the pupils, scores on inclusive and conjunctive behaviors of teachers are related to the work scores of the pupils. Of the 66 correlations of conjunctive behavior with pupils' estimates of required and self-initiated work performed half were significant at the .05 or
.01 level; of the 66 correlations between inclusive behavior and work scores 30 were significant at the .01 level and 16 at the .05 level. Hence Cogan concluded that certain kinds of teacher behavior as perceived by the pupils do have an effect upon the pupils' work and thus may be an important factor in teaching effectiveness.

Complete data relating to teachers' estimates of pupils' work performed were obtained from only 29 teachers. Because 14 significant correlations in 29 for required work and 16 significant correlations in 29 for self-initiated work were found Cogan stated that the "...teachers' estimates of their pupils' required and self initiated work are significantly related to the pupils' own estimate of their work" (12, p. 100-103).

In the Teacher Characteristics Study (48) an investigation was made of the teachers' attitudes toward children and the relationship between these attitudes and performance in the classroom. Sixteen scales were constructed for collecting data on teacher attitudes; two in each of eight areas based on the hypothesis that the scales estimated teachers' attitudes toward the following types of persons or procedures: administrators, supervisors, pupils, parents, teachers, nonteaching employees, democratic classroom procedures, and democratic administrative procedures. A total of 192 items, 12 items in each of the 16 scales, were included in an instrument named the Inventory of Teacher Opinion. This Inventory was sent to
a sample of 240 teachers stratified by years of teaching experience and grade level taught. A factor analysis of the data yielded three factors: attitude toward pupils and toward democratic classroom procedures (Factor R), attitude toward administrative-supervisory personnel (Factor A) and attitude toward teachers and other nonadministrative personnel (Factor N). In addition these teachers were observed in the classroom and rated on a seven-point scale which included 18 teacher-behavior dimensions; this rating device was named the Classroom Observation Record. Using a factor analysis six factors or patterns of teacher behavior were identified in this observation device; but only three patterns of teacher behavior were used in this part of the investigation: $X_0$, $Y_0$, and $Z_0$.

Using scores on the three attitude factors a number of relationships between attitudes and other teacher characteristics were investigated. The findings relating to secondary teachers indicated that when teachers were classified according to amount of teaching experience very few clear-cut differences emerged among the groups on the three factors. Age did not appear to be associated with the attitudes of the teachers studied.

When the teacher classroom behavior, assessed by the Classroom Observation Record, and teacher attitudes were related it was found that teachers who were high on Pattern $X_0$ (sympathetic, understanding classroom behavior) expressed more favorable attitudes toward pupils and toward democratic pro-
cedures (Factor R) than did teachers who were given lower assessments.

In attempting to investigate further the relationship between the teachers' attitudes and behavior in the classroom, a study of the attitudes of teachers judged by their principals to be outstandingly superior or notably poor was undertaken. A sample of 600 principals was included in one of the three subgroups and each of these principals was asked to nominate one superior and one poor teacher: 1) 200 elementary school principals, 2) 200 high school principals who nominated teachers in the fields of English and/or social studies, and 3) 200 high school principals who nominated teachers in the fields of mathematics and/or science. The attitudes of the teachers were assessed by the Inventory of Teacher Opinion; an effort was made to maintain complete anonymity of the teacher and to prevent him from becoming aware that he was involved in such a nominating phase of the project.

The findings indicate that the three subgroups based on grade level and/or subject area were "strikingly similar". In addition Ryans reported that the superior teachers were significantly more favorable in their opinions of pupils than were the poor teachers. The superior teachers also expressed more favorable attitudes toward the administrators, the difference being significant at the .05 level. In none of the groups of teachers, however, were differences on Factor N, attitude toward teachers and other nonadministrative personnel, statis-
tically significant. Ryans thus concluded that the significant finding of this particular research was that there is strong indication that teaching behavior, based upon principals' judgments of outstandingly superior and notably poor teaching, is related to teachers' attitudes toward pupils and toward administrators.

The findings of four of the investigations reviewed here support the hypothesis that the criterion teacher-pupil rapport is an important factor in teaching effectiveness.

Gage and Suci tentatively concluded that a teacher's accuracy of social perception is positively related to his effectiveness in obtaining a positive effect in pupils. The findings of Cogan indicate that certain kinds of teacher behavior as perceived by the pupils have an effect upon pupils' work and thus may be an important factor in teaching effectiveness. Ryans' investigation supports the belief that the teachers' attitudes toward pupils and administrators are related to teacher behavior. Reed concluded that pupils' interest in science was a function of the teachers' ability to establish relaxed interpersonal relationships with pupils and to utilize intrinsic motivation.

In one investigation the data failed to find that this criterion is related to teaching effectiveness. The research by Ford and Hoyt revealed that teacher-pupil relations as indicated by the inventory scores involving teachers' attitudes
toward pupils, school, community, subject matter, and interpersonal relations were not significantly related to a classroom rating of teacher effectiveness.

Relations with school personnel, pupils, and community

The Committee on Criteria of Teacher Effectiveness has suggested that the measurement of teacher effectiveness should include teacher effects on the community, school, as well as pupils (4). One aspect of this effect would be in terms of the teachers' relations with persons in the school and community. The teachers' effects on pupils', parents', and superintendents' satisfaction with the teacher are listed in this order and are seen as slightly lower than the ultimate criterion (4). The Committee believes these effects are relevant to the ultimate criterion, pupil achievement, and can thus be justified as a criterion of teacher effectiveness. They argue that community relations need to be considered:

Communities can have many kinds of relationships to their own public schools. They may be interested or uninterested, favorable or antagonistic, cooperative or uncooperative, supporting or threatening...What we need here are the dimensions of the relationships of the community to the schools. The teacher's effect on those dimensions may be considered relevant to teacher effectiveness (4, p. 248).

The effect of the teacher on the community's understandings of the school with regard to its purposes, curriculum, procedures, and problems may affect pupil achievement (4). Another dimension of the community's relationship is its parti-
cipation in school affairs involving such dimensions as the degree to which citizens vote on school issues, become active members of school organizations, and take an interest in the school activities of their children (4). This Committee believes that:

The teacher who affects the community relationships to the school more desirably along these various dimensions should thus be considered the more effective teacher (4, p. 248).

The effect of teachers on various dimensions of school operations is also considered to be a relevant criterion of teacher effectiveness and the Committee believes that such dimensions might involve:

...use of school buildings, acquisition and distribution of supplies, securing pupil attendance, providing health services, operating evaluation programs involving the pupils of more than one teacher, execution of inservice teacher education programs (4, p. 248).

The effect of the teacher may be considered a criterion dimension of effectiveness if he operates through social processes "within the given structure of a school so as to exert an effect on these dimensions of school operations" (4, p. 248). Relations with school personnel would become an important factor in such social processes and would be relevant to the ultimate criterion.

Theories regarding the importance of the criterion of the teacher's relations with pupils have been discussed in the teacher-pupil rapport section.

If relations with the school personnel, pupils, and community are criteria of teaching effectiveness measures are
needed for collecting relevant data; one measure could be an administrators' rating of aspects relating to these criteria. It would seem that the local school administrator or supervisor would be in a position to judge such teacher effects outside the classroom. There are problems, however, in using administrators' ratings for collecting these data. In smaller towns the administrator would no doubt interact with the teacher in more situations outside the classroom than might be the case in a larger city; therefore, the school administrator in the larger city would have an inadequate basis for judging many aspects of teacher relations.

In addition the problem of rater bias arises, but data indicate that this may not be the problem it was thought to be. A study to investigate the extent to which ratings assigned by principals to teachers are contaminated by similarity and difference in personality between principal and teacher was conducted by Andrews and Brown (2). The personality characteristics studied were manifest needs, value orientations, and educational attitudes. Nine principals and their staff members, ranging in number from 40 to 105, were included in the sample of 608 subjects. Each subject was administered the Edwards Personal Preference Schedule to determine needs, the Allport-Vernon-Lindzey Study of Values, and the MTAI to determine educational attitudes. The principals estimated the teachers' effectiveness using a six-point Principal-Rated Effectiveness Scale which was devised to obtain from the princi-
pal a judgment of the teachers' total effectiveness in terms of degrees above and below the average effectiveness of teachers in the particular school. Similarity in personality characteristics between teacher and principal was expressed by the absolute score difference and the Cronbach-Gleser $D^2$ measure of profile similarity. The relationship between effectiveness scores and similarity scores was then obtained using a chi-square analysis. No significant relationship was found and so it was inferred that no relationship between teacher-principal similarity in personality elements and principals' ratings of teacher effectiveness exists.

The findings of Andrews and Brown confirm those of Prince (42) who used a sample of 20 principals and 100 teachers for his investigation. No significant relationship was obtained between degree of teacher-principal agreement on educational values and principal-rated teacher effectiveness. Prince thus assumed that because of the principal's background of experience and training and because of the number of comparisons he makes daily among teachers, it is not necessary that the teacher's values agree with his in order to obtain a high rating.

No research studies were found that used the teachers' relations with school personnel, pupils and community as a criterion of teacher effectiveness. Investigations have been conducted regarding the teachers' out-of-school activities,
but no attempt has been made to relate these findings, to the teachers' relations with or effect on the community as a criterion of teaching effectiveness. Most studies in this area have been generally concerned with obtaining frequency data and relating them to such aspects as sex, age, or teaching levels.

One investigation was found that related out-of-school activities and the professional performance of teachers as measured by teacher attitudes toward pupil-teacher relations and principals' ratings of over-all teaching effectiveness. Popham and Standlee (38, 39) collected data on teachers' out-of-school activities including education, employment, daily living, organizations, sports, entertainment, and hobbies by a questionnaire. Principals rated the teachers using a rating on a decile scale in terms of their over-all teaching effectiveness. The MTAI was used to assess teachers' attitudes toward pupil-teacher relations.

The sample consisted of 880 teachers who were 1954 graduates of 24 Indiana institutions for higher education. Relationships between teachers' out-of-school activities and their professional performance were tested for significance using the chi-square statistic. Using the .05 and .10 levels of significance certain out-of-school activities of teachers were found to be significantly related to their professional performance as measured by the principals' ratings: attendance at Parent-Teacher Association meetings; number of professional books read; current enrollment in college courses for credit;
time spent in doing housework; participation in religious, service, relief-welfare, and leisure organizations; and participation in individual and team sports. Principals' ratings were not consistently related to the three professional out-of-school activities. Of the 10 activities significantly related to principals' ratings only the first three were professional in nature. On the other hand, 14 activities were significantly related to MTAI scores and nine of these were of a professional nature; for example, membership on educational committees, reading professional books and periodicals, attendance at educational meetings. Only two represented teachers' participation in non-professional organizations and sports activities.

The investigators concluded that the two indices of professional performance were essentially different. The MTAI seemed to relate more to the professional rather than the non-professional aspects of teachers' conduct and the principals' ratings seem to be more related to areas of the teachers' behavior associated with community life. They believe this suggests that principals' ratings may be based more on the so-called 'human values' rather than on professional competence; and concluded that teachers' professional performance, as it is measured by the principals' ratings and MTAI scores, is not related to the whole range of the teachers' out-of-school activities, but only to particular activities.
Physical health of teacher

An assumption made by educators generally is that a teacher's physical health can be an important factor in teaching effectiveness. How the teacher relates to and interacts with the pupils may depend, in part, on the health of the teacher. In addition if the teacher does have good health there would be less teacher absenteeism and hence more progress toward educational goals.

No studies were found that used physical health as a factor in teaching effectiveness.

Judgment in the discussion of personal and professional problems

The judgment of the teacher regarding when and with whom to discuss personal and professional problems would appear to be a factor in relations with the school personnel, pupils, and community; in teacher-pupil rapport; and thus in pupil achievement. Support for including these criteria has been given in the previous sections.

No investigations were found which used this criterion of teacher effectiveness.

Management of department

One of the proximate criteria which would seem to be associated with successful homemaking teaching is the effective management of the department. Because of the physical facilities involved and the nature of the subject matter taught the
homemaking teacher is concerned with department management. The term department management includes the aspects of taking care of department business and maintaining of the facilities in the department. Often the department is used by individuals and groups other than classes; hence, for the department to function effectively it is necessary that effective management be maintained. Through the participation in the management of the department students can learn the importance of management in the home.

The criterion was not used in any investigations of teacher effectiveness; one reason for this could be due to the fact that this is not an important aspect for the teachers who have classrooms without laboratory facilities.
METHOD OF PROCEDURE

Purpose

This study is part of a larger investigation being con­ducted to select means of identifying those applicants for ad­mission to the teacher-education program at Iowa State Uni­versity who could be expected to become effective homemaking teachers in the secondary schools. The present study is ex­ploratory because of the small number of cases for which com­plete data have been collected but can serve by indicating the relative importance of selected predictors for predicting ef­fectiveness of homemaking teachers; by determining which of the predictive data should continue to be collected; and, in addition, it may indicate the need for collecting other types of data.

The measures for prediction of teacher effectiveness be­ing used are sub-scores from: 1) Minnesota Counseling Inven­tory (MCI); 2) Guilford-Zimmerman Temperament Survey (GZTS); Johnson Home Economics Interest Inventory (JHEII); 4) Just Suppose Inventory (JSI); and 5) Cumulative Quality Point Av­erage (CQPA).

The measures to determine teacher effectiveness being em­ployed are those designed to measure 1) teacher-pupil rapport, 2) pupil gain in ability to apply generalizations, and 3) teacher adjustment to the school and community.
Prediction Measures Selected

Selection of the measures for prediction of teacher effectiveness was begun in 1958. It was hypothesized that personality, vocational interests, attitudes, and academic achievement or ability are factors in teacher effectiveness.

Minnesota Counseling Inventory

This instrument was developed by Berdie and Layton (7, 8) in an attempt to measure seven unique personal qualities: social relations, family relations, emotional stability, conformity, reality, mood, and leadership. The Inventory contains 355 items in the form of statements and the examinee responds to each item by answering "True" or "False." Although it was developed for use with pupils in secondary schools data indicate it is appropriate for college students as well. A mean profile was established for the Inventory by the authors from a sample of 25 high schools in Minnesota, and the comparison of norms of this sample with norms of samples in other states indicated very little difference. In addition separate norms were established for Minnesota college men and women.

Coefficients of correlation between scores on odd-even numbered items corrected by Spearman-Brown formula were obtained from four high school groups divided according to sex and grade level: 1) 200 boys in ninth- and tenth-grades, 2) 200 girls in ninth- and tenth-grades, 3) 200 boys in eleventh- and twelfth-grades, and 4) 200 girls in eleventh- and twelfth-
grades. The coefficients range from +.56 to +.95; the highest coefficients were obtained for the family relations, social relations, and emotional stability scales and the lowest for the mood and conformity scales. The test-retest reliability coefficients for the seven scales were obtained for twelfth-grade students in two high schools in Minnesota, and again the mood and conformity scales had the lowest coefficients. However, the values for these two coefficients are higher than their odd-even coefficients.

**Guilford-Zimmerman Temperament Survey**

This instrument was developed (26) to measure ten unique traits identified by item-analysis and factor-analysis: general activity, restraint, ascendance, sociability, emotional stability, objectivity, friendliness, thoughtfulness, personal relations, and masculinity. The Survey contains 300 items, 30 items for each of the 10 traits, and the examinee has the choice of three responses to each item: "Yes," "?" or "No."

Guilford and Zimmerman obtained estimates of the total-score reliabilities based upon samples of 523 male and 389 female college students. Kuder-Richardson formulas were applied to data for women and men separately and then combined. The reliability estimates range from +.75 to +.87 for the ten traits when the male and female populations were combined. These reliability estimates are very similar with samples of either sex with the exception of the masculinity trait in
which there is a large sex difference in mean scores. Intercorrelations of the ten trait scores were also obtained from the sample. In general, the intercorrelations are low indicating the uniqueness of each trait.

**Johnson Home Economics Interest Inventory**

Johnson (27) developed this instrument to be used to identify the vocational interests of college students in the field of home economics. After classifying the field of home economics into subject matter areas, she listed the occupations related to each area. Three criteria were used in selecting occupations to be included in the inventory: similarity of occupational environment and job activity, number of home economists employed in the occupation, and the availability of the occupations to recent female college graduates. As a result of this procedure 14 occupations became the criterion groups for her investigation to determine if this inventory differentiated among occupations and to develop scoring keys.

Items for the trial inventory were obtained from job analyses made by 26 professional home economists during interviews, from job analyses reported in vocational guidance literature, and from interest inventories in use at that time. A total of 448 items were included in the trial form of the inventory and were grouped into 3 sections: activities to which reactions were to be made on a five point scale, job
characteristics to which reactions were to be made on a five point scale, and other items combined into a series to be ranked in order of preference. Copies of the trial form were then sent to specialists in the fields of psychology, psychological testing, and educational research for criticism of the statement of items and clarity of directions, and their suggestions were used in revising the trial form.

Copies of the revised trial form were sent to the 14 criterion groups consisting of a sample of 100 persons employed in each of the occupations selected for study. A total of 1,884 inventories were sent; 1,175 or 65 per cent were returned. However, when these were classified it was necessary to reduce the original list of occupations from 14 to 10 as the returns were not large enough to make the analysis of the other four occupational groups feasible.

A Chi-square technique was used for analyzing the response for each item to determine which items differentiated among occupational groups. Ninety-two per cent of the 448 items in the inventory were significant at the .05 level and 89 per cent were significant at the .01 level. This indicated that most of the items included did differentiate among the 10 occupational groups. Tentative scoring keys were developed for the 10 occupations by determining which items most successfully differentiated between each occupational group.

Later a second set of inventories was sent to home economists employed in the 4 occupations for which scoring keys had
not been developed. The responses from these professional home economists and those returned by the home economists employed in the 10 occupations initially studied were classified. These responses were used to select 300 items which most successfully differentiated among the 14 occupations in home economics. The scoring keys were revised and tentative norms for each occupation were established.

The reliability coefficients computed by the split-half method for the 14 occupational keys were obtained for a sample of 300 students randomly selected from approximately 550 students entering Iowa State College in the fall of 1954 and designating home economics as their major area of study. These coefficients of reliability range from +.67 to +.93.

Fife (18) further investigated the Inventory to determine if common factors existed among the occupational scales. She obtained product-moment correlations between all possible pairs of the 14 occupational groups. The large number of negative correlations and low correlations indicated the interest patterns measured by the Inventory are quite different among the 14 occupations. Fife used three methods of cluster analysis and found that similar clusters were formed by all three methods. One cluster included the three occupations of county extension work, secondary teaching, and work with young children. The scores from these three occupations in this cluster are being used in the present study as measures for prediction of teacher effectiveness.
Just Suppose Inventory

This Inventory was developed as part of a cooperative research project to obtain evidence of acceptance of other persons (29). Incomplete sentences were used to collect attitude statements from approximately 400 students in five colleges. The majority of these students were freshmen, a few were sophomores; both sexes and home economics and non-home economics majors were included. Their statements were then categorized by the Cooperative Research Committee as statements indicating acceptance or nonacceptance. A trial instrument was developed for use with criterion groups of teachers. Twelve problem situations were described and for each problem 40 statements were selected as representing a variety of attitudes toward the persons involved in each situation.

The trial instrument was divided into two sections: Form A, 12 problems with 20 statements each; Form B with the same 12 problems and 20 different statements each. This trial form was then administered to approximately 200 high school homemaking teachers in various parts of the United States. Each of these teachers had been rated by home economics supervisors as acceptant or non-acceptant persons with regard to one or more aspects. A statistical analysis of their responses was made to identify the statements which discriminated between the teachers rated as acceptant and those rated as non-acceptant. A shorter trial form was developed, using the most dis-

2This Inventory not yet published; copies are on file in Department of Home Economics Education, Iowa State University.
criminating items, which was administered to freshmen and to home economics education seniors at one university and supplemented by interviews with 50 of these respondents. The trial form was again revised as a result of this pretesting.

Twelve situations similar to those which teachers may encounter are described in the final form of the Inventory. The 12 situations relate to: 1) parents; 2) different size communities; 3) broken homes and families where the mother works; 4) foreign born; 5) people with different educational backgrounds; 6) low-income groups; 7) different religions; 8) middle-class and upper-class groups; 9) a school with low IQ and delinquent students and disinterested parents; 10) families of the laboring class; 11) an ethnic group other than one's own; and 12) a three-generation family living in one home. Each is followed by a list of 15 statements describing how teachers might feel when in such a situation, and the examinee is asked to project himself into each situation and record how he would feel. The examinee responds by indicating whether he "strongly agrees," "in general agrees," "is undecided or uncertain," "in general disagrees," or "strongly disagrees." A score is obtained for each of the 12 situations as well as a total score.

Cumulative Quality Point Average

This criterion measure for prediction of teacher effectiveness is recorded for each student at the end of the sophomore year (approximately 90 quarter hours), the time when students may be formally admitted into the home economics
teacher-education program. Transfer students are an exception; they must complete two quarters of work (30-40 quarter hours) at Iowa State University before they may be formally admitted into the teacher-education program, and the CQPA is recorded for these students when approximately 35 quarter hours have been completed.

Criterion Measures Selected

Scruggs' (51) exploratory study was used, in part, as a basis for selecting the criterion measures for use in the longitudinal research project: 1) teacher-pupil rapport, two forms of the Student's Estimate of Teacher Concern (SETC), Homemaking I and Homemaking II; 2) pupils' gain in the ability to apply generalizations in solving problems in home economics, four forms of achievement tests, Homemaking I, Form A and Form B, and Homemaking II, Form A and Form B; and 3) teacher adjustment to the school and local community as judged by the school administrator, How Satisfactory Is Your Homemaking Teacher?

Student's Estimate of Teacher Concern

Nygren (35) began the development of the instrument to measure teacher concern for pupils for use with seventh- and eighth-grade pupils. The instrument was revised by Ray (43) who categorized the items under four headings; recognition of pupils, understanding of pupils, willingness to help pupils, and help given to pupils. Northey (34) made further revisions
of the instrument and studied its usefulness in differentiating among 11 first-year homemaking teachers who were graduates of Iowa State teaching ninth- and tenth-grade classes in Iowa. She found that the revised SETC did not discriminate significantly among the teachers, but did show promise and warranted further investigation. It discriminated better among teachers when used with ninth- than with tenth-grade pupils; hence the decision was reached to develop a form for each grade level.

The revised Homemaking I SETC form consists of 89 statements about the homemaking teacher and the pupil indicates his feelings about this teacher by agreeing or disagreeing with the statement. Sixty-four statements are included in the revised Homemaking II SETC form, and the pupil responds in the same manner as for the Homemaking I form. The items relate to the teacher's interest in, understanding of, and attitudes toward the pupil; and willingness to help and amount or kind of help given to the pupil.

Ott (37) investigated the extent of discrimination for the two forms, Homemaking I and Homemaking II\(^3\), among 34 first-year homemaking teachers. Both forms differentiated among teachers at the .01 level of significance but the interaction of level and teacher was not significant. Because of this Ott stated the mean scores of the two forms of the SETC

\(^3\)Copies of these instruments are on file in the Department of Home Economics Education, Iowa State University.
could be combined, if desired, for use as a discriminating measure in predicting teacher effectiveness. Ott computed the coefficient of internal consistency for each form. The split-half technique corrected by the Spearman-Brown formula was used, and the estimated coefficient obtained was +.95 for the Homemaking I form and +.97 for the Homemaking II form.

Achievement tests

Achievement tests were developed by the Leader of the project to determine the gain in pupils' ability to apply generalizations in solving problems in home economics. Scruggs (51) had developed two tests of this type; however, these tests did not discriminate among teachers and four new tests were developed to measure achievement. The four tests are: 1) Homemaking I, Form A; 2) Homemaking I, Form B; 3) Homemaking II, Form A; and 4) Homemaking II, Form B. The Form A tests are used as pre-tests and are administered at the beginning of the school year and Form B tests as post-tests and administered late in the school year.

The trial forms of the achievement tests contained revisions of items from three sources; evaluation materials based on the Iowa Homemaking Curriculum Guides developed for use with Iowa teachers, and tests developed by Roland (47) and Scruggs (51). These items were compiled into five sets for Homemaking I for the five areas of homemaking (Foods and

4Copies of these instruments are on file in the Department of Home Economics Education, Iowa State University.
Nutrition, Child Development, Family Relations, Housing, and Textiles and Clothing) and administered to samples of Iowa Homemaking I pupils. Four sets of items were developed for Homemaking II in four areas of homemaking (Foods and Nutrition, Family Relations, Housing, and Textiles and Clothing) and administered to samples of Iowa Homemaking II pupils.

After obtaining the scores for each set of items the pupils were divided into two groups using two different criteria: the upper and lower 50 per cent of the scores made on the achievement tests and the upper and lower 50 per cent of the scores made on the Iowa Tests of Educational Development (ITED) which was used to obtain an estimate of mental ability. The Phi coefficient was obtained for each response to the items and used in determining the extent to which responses differentiated between the high and low scores. The items selected in each subject matter area for the final form of the achievement tests were those which yielded the largest difference between high and low scores on responses to the test items and the smallest difference between the two groups for the ITED. The item difficulty was indicated by computing the percentage of students selecting the right responses. The items selected were divided into two forms of approximate difficulty for the two forms for Homemaking I and for Homemaking II tests.

The achievement tests are divided into two parts. Part I includes problem situations followed by suggested solutions and reasons. The pupils are asked to indicate the solution
they would select and the reason or reasons for their selection. Part II includes problem situations followed by a question and reasons which might explain the behavior described. The pupils are asked to indicate whether each suggested reason is a likely or unlikely explanation. The Homemaking I, Form A and B achievement tests include 20 situations relating to five areas of homemaking: Foods and Nutrition, Textiles and Clothing, Child Development, Family Relations, and Housing; the Homemaking II forms include 17 situations in the above areas with the exception of Child Development.

An investigation by Ott (37) on the extent of discrimination for both the Homemaking I and Homemaking II achievement tests using a sample of 43 first-year teachers and their pupils in Homemaking I and II classes indicated that the tests as a unit do not discriminate among teachers; hence separate regression equations should be used for the two levels when predicting teacher effectiveness using pupil gains on the achievement tests as a criterion measure. Ott also computed the coefficient of internal consistency for the achievement tests using the split-half technique and correcting with the Spearman-Brown formula. The estimated coefficients were +.76 for each form of the Homemaking I test and +.70 for each form of the Homemaking II test.

How Satisfactory Is Your Homemaking Teacher?

A committee in the Department of Home Economics Education
developed this instrument\(^5\) in an attempt to measure teacher adjustment to the school and local community as judged by the school administrator. The administrator asked to make these judgments in the small schools is the superintendent, in the large schools the principal and in the city school systems the home economics supervisor. The instrument contains 32 items four of which have two parts; hence the administrator reacts to a total of 36 items. Thirty-one items are questions about the teacher to which the administrator reacts by responding "Always," "Usually," "Occasionally," "Seldom or never," or "Do not know." When reacting to the last five items the administrator is asked to underline the word or phrase that best describes the teacher. The series of words or phrases are: "Yes," "Improving," "Little or no progress" for two items; "Very effectively," "Improving," and "Little progress"; "Considerable," "Some," "Little or none"; and "As needed", "Occasionally," "Never". For example, when reacting to item 28, "Has she established friendly relations with school personnel?", the administrator responds by underlining "Yes", "Improving," or "Little or no progress." Space is provided at the end of the instrument for an indication of the teacher's greatest strengths and greatest needs for improvement. The items in the instrument relate to the teacher's physical health;

\(^5\)A copy of this instrument may be found in Appendix A.
judgment; attitudes; use of English; department management; relations with the pupils, school personnel, parents, community; participation in community, school and professional activities; adult education program; and program planning.

When an analysis was made of the responses it was found that 11 items were not answered by the majority of administrators because of the inadequate information or the items did not apply to the local situation. The decision was reached to disregard these items before any further statistical analysis was carried out: items 8, 10b, 11, 12, 16, 17, 20, 24b, 25b, 26a, 26b.

The present investigation includes an analysis of the responses to obtain clusters of items, to identify unique items and to decide which items to discard because they include traits measured in other items. The responses to the remaining 25 items were given numerical values for the analysis as follows:

Responses to
items 1-27, except 2, 5 and 22
"Always" value of 6
"Usually" value of 4
"Occasionally" value of 3
"Seldom or never" value of 1

items 2, 5 and 22
"Always" value of 1
"Usually" value of 3
"Occasionally" value of 4
"Seldom or never" value of 6

items 28-32
first word or phrase in series value of 5
Intercorrelations among the 25 items were obtained for a sample of 65 school administrators to identify factors within the criterion measure. From the analysis two single item factors and two clusters of items were identified. The two single item factors are "Physical health of teacher", item 2, "Is she below par physically?"; and "Judgment in discussion of personal and professional problems", item 22, "Does she use poor judgment in when, with whom, and how she discusses personal, professional and pupils' problems?" The cluster 'Management of Department' includes the following five items:

Item 13 -- "Does the homemaking department look attractive and homelike?"
Item 14 -- "Do her pupils help to keep the department attractive?"
Item 15 -- "Does she discuss plans for department improvement with you?"
Item 18 -- "Are financial records kept, such as money spent for groceries?"
Item 19 -- "Does she turn in school reports accurately, neatly, and promptly?"

Twelve items are included in the cluster, 'Relations with school personnel, pupils, and community':

Item 6 -- "Has she seemed to enjoy work on committees or cooperative work of some kind with other faculty members?"
Item 7 -- "Is she loyal to the administration and her co-workers?"
Item 9 -- "Does she divide her time well between her job and her personal and social life?"
Item 10a - "Does she take family and community standards and conditions into consideration in her teaching of homemaking to high school pupils?"
Item 21 - "Does she seek help on teaching problems when needed?"
Item 24a - "Does she have the confidence and respect of high school pupils in her classes?"
Item 25a - "Has she made those in her high school home-making classes feel that she is interested in them?"

Item 27 -- "Is she mature in her relationships with high school pupils, both boys and girls?"

Item 28 -- "Has she established friendly relations with other school personnel?"

Item 29 -- "Has she become a member of the community?"

Item 30 -- "Does she help other teachers and the community understand the homemaking program?"

Item 31 -- "How much has she participated in professional education meetings?"

Six items were discarded as a result of the analysis. These items were removed because they correlated significantly with several of the other items, hence the traits appeared to be measured in other items:

Item 1 -- "Does she use good English?"

Item 3 -- "Is she optimistic and cheerful?"

Item 23 - "Does she accept responsibility for her own decisions: does she avoid excuses or blaming others, if things go wrong?"

The response to item 4, "Does she adjust her behavior to the community attitude toward such things as smoking, drinking, dress, kinds of recreation?", evidently depends upon the size of the community and the strictness of the community attitude. This item was deleted since it did not correlate highly with the items in the school-community relations cluster and it did not seem to warrant being a single factor. Both negative and positive low correlations were obtained for item 32, "Is the equipment in her department rearranged to provide for a variety of activities?". Since the logical place for this item would be in the management of department cluster, but the correlations with the items in this cluster were low, it there-
fore seemed that this item was not useful. The logical place
for item 5, "Does she 'gripe'?", is in the school-community
relations cluster but the correlations with other items in
this cluster were low; thus this item was not used in the
study.

Description of Sample

Because the purpose of this study is to determine the
usefulness of certain types of data for predicting teacher ef­
ficacitiveness rather than to make inferences concerning the char­
acteristics of a population, the sample was not randomly se­
lected.

The population for the longitudinal research project as
well as for the present study includes graduates of Iowa State
University with a major in Home Economics Education who taught
Homemaking I and/or II in Iowa for one complete year after
graduation. The study is limited to those graduates who
taught in Iowa because the achievement tests are based upon
the Iowa Homemaking Curriculum Guides and the mean gain in
achievement is determined by administering the tests at the
beginning of the school year and at the end.

The present study includes 64 teachers for whom complete
predictive and success data were available: 44 teachers who
taught both Homemaking I and II classes, 16 teachers who
taught Homemaking I but not Homemaking II classes, and 4
teachers who taught Homemaking II but not Homemaking I classes.

Collection of Data

In 1958 the research project was begun and certain measures were selected for use in predicting teacher effectiveness. The GTZS and the JHBII were selected first and later the MCI and the JSI were added to the battery of instruments. The CQPA is recorded at the end of the students' sophomore year with the exception of the transfer student whose CQPA is recorded after the completion of two quarters of work at Iowa State University.

Data are collected by the criterion measures for teacher effectiveness during the teachers' first year of teaching. During the month of August the Head of the Department of Home Economics Education sends a letter to the administrator of each of the Iowa schools in which a first-year graduate is employed. This letter explains the purposes of the study and describes what would be involved if permission is granted by the administrator and if the teacher is willing to participate. The letter also requests permission to contact the teacher and a postcard is enclosed for the reply. The administrator contacted is the superintendent in the smaller schools, the principal in the larger schools, and the home economics city supervisor in the city schools.
If the administrator's permission is granted a letter from the Head of the Department is then sent to the teacher explaining what would be involved if she were to participate in the study. A card is enclosed on which the teacher indicates whether she is willing to participate in the research project and the number of Homemaking I and II pupils which she has enrolled in her classes for use in determining the number of achievement tests to send to the teacher.

Early in the school year the Homemaking I, Form A and/or the Homemaking II, Form A achievement tests, answer sheets, and directions for administering these tests are sent to each of the participating teachers with instructions to administer the tests to the appropriate classes and return all materials as soon as possible. Near the end of the school year a letter is sent to teachers who had administered the Form A achievement tests to their pupils earlier in the school year. A postal card is enclosed for the teacher to indicate on which date she desires to administer the Form B tests to the same classes. It is requested that this date be as late in the school year as possible. The Form B achievement tests, answer sheets and directions for administering the tests are sent near the date on which the teacher desires to administer the tests.

The SETC is usually administered during March. A letter is sent by the Leader of the project to the teachers requesting permission for a member of the Iowa State University staff to administer the SETC to her Homemaking I and/or II classes.
A postal card is enclosed on which the teacher is asked to indicate the times her Homemaking classes meet and the inconvenient dates during the period proposed for such a visit. After the date for administering the SETC is decided a card is sent to each teacher indicating the date when a staff member will administer the inventory to her classes. One exception in administering the SETC was made during the school year 1964-65 due to extreme weather conditions. A retired homemaking teacher living in the geographical area administered the SETC to pupils in three schools. Complete directions for administering the inventory were sent to her before she visited the schools.

To encourage free responses by the pupils, the homemaking teacher left the room while the inventory was administered. Also pupils were instructed not to write their names on the answer sheet. They were told that their responses were being used in a research project and the teacher would not see them.

In April the Head of the Department sends a letter to the school administrator requesting that he complete the enclosed form, "How Satisfactory Is Your Homemaking Teacher?".

Treatment of Data

For the present investigation, data were secured from the prediction and criterion measures selected.² Thirty-four

²A list of predictors and criteria used in the investigation may be found in Appendix B.
sub-scores were obtained and recorded for the prediction measures during the teachers' undergraduate work at Iowa State University. The success data were collected during the graduates' first year of teaching.

The responses to the SETC are scored by giving a value of one point for each response favorable to the teacher; and a value of zero for responses unfavorable to the teacher, items to which the pupils had written in a response, and for items to which the pupil had responded both "yes" and "no." A class mean for each teacher was computed by summing the scores for each class in Homemaking I and in Homemaking II and dividing by the total number of pupils in the class.

The responses to the achievement tests are scored by assigning a value of one point for each correct response and summing. Those cases for which it seemed obvious that the pupil did not finish the test were regarded as incomplete and eliminated from the study. Only the scores of those pupils who responded to both Form A and Form B were used to determine the mean scores. A mean class gain was computed for each teacher by summing the scores for Homemaking I, Form A, subtracting this from the sum of the scores for Homemaking I, Form B and dividing by the number of pupils who completed both forms.

The responses to the administrators' rating device were given the same values as were used when obtaining scores used in correlating the items. The cluster values were obtained by
summing the scores for the responses to the items within the cluster.

The data were analyzed to determine the relationship of the predictors to the criteria for determining the effectiveness of homemaking teachers in order to develop a prediction formula for teacher effectiveness.

Because so many predictors and criteria were to be included in the analyses and a small number of cases was available the decision was made to use an adaptation of the J-Coefficient procedure (40, 41, 55) to obtain prediction formula weights for the variables. A panel of eight judges was selected for rating the predictors in terms of their relative importance for prediction of teacher effectiveness. These judges were Iowa State University faculty members in the Departments of Home Economics Education, Education, and Psychology. Each judge made these ratings by indicating the degree of certainty he felt that a predictor is important for teacher effectiveness.\(^7\) The judge responded using a certainty scale from 1 to 99. If the judge was certain that a predictor was important for teacher effectiveness he then had to decide how certain; if very certain he used the number 99, if less certain a number between 50 and 99. If he could not decide

\(^7\) A copy of the instrument developed for obtaining the judges' ratings for each of the predictors may be found in Appendix C.
he indicated this by using the number 50. If the judge felt a predictor was not important for teacher effectiveness he indicated this by using a number between 1 and 50; 1 if very certain it was unimportant, and a number between 1 and 50 if less certain that a predictor was not important. The same panel of judges then rated the six success criteria in terms of their importance for determining teacher effectiveness again using the degree of certainty method for responding. Both sets of judges' responses were then transformed into standard scores.

Intercorrelations among judges' ratings were obtained for the predictors and for the success criteria, (Tables 1 and 2). It was assumed that the responses of these judges would correlate positively if they were valid; hence negative correlations and/or low correlations for a judge would indicate that his response should not be used. Using this criterion one judge (Judge 2) was removed from the predictor panel and two judges (Judges 7 and 8) from the criterion panel. Based on the remaining judges' responses standard deviations were obtained for each predictor and criterion. Those predictors and criteria with large standard deviations among judges were identified and the judges contributing to this large deviation were interviewed in an attempt to obtain greater unanimity of responses. It was thought that some of the deviation might 8

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8A copy of the instrument developed for obtaining judges' ratings for each of the criteria may be found in Appendix C.
Table 1. Intercorrelations\textsuperscript{a} among judges' ratings: Predictors

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\textsuperscript{a}Decimal points for this and all subsequent tables have been deleted.

Table 2. Intercorrelations among judges' ratings: Criteria

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be due to misunderstanding of the directions or of the particular predictor or criterion being rated. Four judges were interviewed regarding particular predictors and three of these judges were also interviewed regarding certain criteria. If agreement was not obtained for each of these among the judges, those judges who did not agree were removed. The responses of one judge (Judge 5) regarding both the predictors and criteria were not used in further analysis leaving a total of six judges on the predictor panel and five on the criterion.
panel. The mean of the remaining judges' responses was obtained for each predictor and criterion for use in computing the weights for the predictors and criteria.

Since the success criteria include data for both Homemaking I and II classes, a decision was made to divide the teachers into three groups because prediction of homemaking teacher effectiveness is desired regardless of whether they teach both levels. Ott had found in her investigation that the achievement in Homemaking I and II classes could not be combined for determining teacher effectiveness. The three groups of teachers are:

Group 1 -- 44 teachers who taught both Homemaking I and II classes (data from classes at both levels used)

Group 2 -- 60 teachers including 44 teachers from Group I (only data from their Homemaking I classes used) and 16 who taught Homemaking I but not Homemaking II classes

Group 3 -- 48 teachers including 44 teachers from Group I (only data from their Homemaking II classes used) and 4 who taught Homemaking II but not Homemaking I classes

The standard deviations were computed for each of the predictors and criteria for the three groups of teachers and were used in obtaining weights for the prediction formulae.

The formula used for determining the weight for each predictor and criterion in the prediction formula is

9The weights used may be found in Table 9, Appendix D.
where $W_i$ is the standard score mean for the panel of judges and $\sigma_i$ is the standard deviation for the sample of teachers.

Each of the predictors and criteria was given the appropriate weight for the three groups of teachers. Because low scores on the MCI are considered to be more favorable than high scores the predictors 11 through 17 were given negative weights. A composite prediction score was obtained for each teacher using the formula

$$X_c = \sum_{i=1}^{34} w_i X_i$$

where $\sum_{i=1}^{34} w_i X_i$ is the sum of the 34 predictor scores, each multiplied by its appropriate weight. The composite criterion score was obtained in the same manner using the appropriate weight for each of the criteria and summing.

The composite prediction score was correlated with the composite criterion score for each of the three groups. At the same time correlations were obtained for each of the predictors with the individual criteria and the composite criterion, and intercorrelations among the specific criteria and the composite criterion were also obtained.

Because very low correlations were obtained between the predictors involving personality and vocational interests and the individual criteria and composite criterion, a new predic-
tion composite score was obtained by deleting those predictors, 1 through 20, and using predictors 21 through 34. The new composite prediction score was correlated with the composite criterion for each of the groups.

In order to predict the expected composite criterion from scores on the predictors, this multiple regression equation formula was used:

$$\hat{Y}_c = B_0 + B_1 \left( \sum_{i=21}^{34} w_iX_i \right) + B_2(w_{21}X_{21})$$

where:

- $\hat{Y}_c$ = the predicted composite score for the individual
- $B_0$ = the constant used in the regression equation
- $B_1$ = the regression weight for the composite prediction score
- $\sum_{i=21}^{34} (w_iX_i)$ = the individual's composite prediction score obtained by summing predictors 21 through 34 which had each been multiplied by the appropriate weight
- $B_2$ = the regression weight for weighted predictor 21
- $(w_{21}X_{21})$ = the individual's weighted score for predictor 21
FINDINGS AND DISCUSSION

The purpose of the present analyses of data was to determine the relationship of the predictors to the criteria for determining the effectiveness of homemaking teachers in order to develop a prediction formula for teacher effectiveness. Such analyses could aid in identifying those predictors for which data should continue to be collected and in providing clues regarding additional data needed in order to increase the efficiency of the prediction.

Data for three groups of teachers were analyzed and the findings concerning each group are presented. In addition the three groups will be compared and recommendations for future research will be made.

Since the sample size is small in this exploratory study and additional subjects will be available for later analyses, to avoid deleting predictors which might be useful correlations which are significant at or beyond the .10 level of significance are pointed out in addition to those at the .05 and .01 levels.

Group 1

Correlations

Group 1 is composed of 44 teachers who taught both Home-making I and II classes. Intercorrelations obtained among the eight specific criteria and the composite success criterion are shown in Table 3 for this group.
Table 3. Intercorrelations among the specific criteria and the composite criterion: Group 1

<table>
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<tr>
<th>Criteriaa</th>
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n = 44
.10 level of significance = 25
.05 level of significance = 30
.01 level of significance = 38

a35 = Teacher-pupil rapport, Homemaking I
36 = Teacher-pupil rapport, Homemaking II
37 = Pupil gain in ability to apply generalizations, Homemaking I
38 = Pupil gain in ability to apply generalizations, Homemaking II
39 = Physical health of teacher
40 = Judgment in discussion of personal and professional problems
41 = Management of department
42 = Relations with school personnel, pupils, and community
44 = Composite criterion
The intercorrelations among the eight specific criteria, 35 through 42, range from -.15 to +.63; the highest was obtained between the two clusters from the administrators' ratings on management of department and relations with school personnel, pupils, and community. The only negative correlations are those between pupil gain in Homemaking II classes and three of the criteria measured by the administrators' rating: judgment in the discussion of personal and professional problems, management of the department, and school-community relations; whereas two of the correlations between each of these three criteria and the pupil gain in Homemaking I classes are significant at or beyond the .10 level. Homemaking I pupil gain also correlates more with the other specific criteria than Homemaking II pupil gain. The two criteria relating specifically to Homemaking I classes, pupil gain and teacher-pupil rapport, are significantly correlated; but these two criteria relating to Homemaking II classes are not. The data also indicate that if a teacher has good rapport with the Homemaking I pupils she will tend to have good rapport with Homemaking II pupils, +.51. In addition pupil gain for Homemaking I is related to pupil gain for Homemaking II beyond the .10 level of significance, +.27. Ott (37) found that teacher-pupil rapport scores for Homemaking I and II classes could be combined when discriminating among teachers, but not pupil gain scores.

For the present study teacher effectiveness was determined
by combining the scores on the specific criteria and obtaining composite criterion scores. The correlations obtained between the specific criteria and the composite criterion range from +.33 to +.67; seven are significantly different from zero beyond or at the .01 level and one beyond the .05 level. Teacher-pupil rapport for both Homemaking I and II classes correlates with the composite criterion, +.67 and +.60 respectively; but the correlations for pupil gain for these classes vary considerably, +.66 and +.38. No reason can be given for this diversity between correlations for these two levels.

Correlations of the predictors with the composite criterion shown in Table 4 were studied to determine which predictors are most useful. Only two correlations were obtained which are significant beyond the .05 level; the composite criterion with academic achievement, +.34 and with attitude toward people with different educational backgrounds, +.33. Those which are significant beyond the .10 level are attitude toward low-income groups, +.26; and attitude toward middle- and upper-class groups, +.26.

From observation of the correlations obtained with the composite criterion it appears that some predictors are contributing little and others negatively to the prediction of teacher effectiveness. With the exception of restraint and thoughtfulness, the predictors measured by the GZTS, predictors 1 through 10, are negatively correlated with the composite
### Table 4. Correlations of predictors with criteria\(^*\) and composite criterion\(^a\): G

<table>
<thead>
<tr>
<th>Predictors</th>
<th>35</th>
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</table>
| 1. General activity                                                        | -01 | 1
| 2. Restraint                                                               | -02 | 1
| 3. Ascendance                                                              | -11 | 1
| 4. Sociability                                                             | -16 | 1
| 5. Emotional stability                                                     | -02 | 1
| 6. Objectivity                                                             | -17 | 1
| 7. Friendliness                                                            | -21 | 1
| 8. Thoughtfulness                                                          | 20  | 1
| 9. Personal relations                                                       | -19 | 1
| 10. Masculinity                                                            | -11 | 1
| 11. Family relations                                                       | 13  | 1
| 12. Social relations                                                       | -07 | 1
| 13. Emotional stability                                                    | -02 | 1
| 14. Conformity                                                             | -01 | 1
| 15. Reality                                                                | -04 | 1
| 16. Mood                                                                   | 14  | 1
| 17. Leadership                                                             | -09 | 1
| 18. Secondary teaching                                                     | -20 | 1
| 19. Extension work                                                         | 25  | 2
| 20. Work with young children                                               | -17 | 1
| 21. Academic achievement                                                   | 17  | 2
| 22. Attitude toward parents                                                | 07  | 1
| 23. Attitude toward different size communities                             | -16 | 1
| 24. Attitude toward broken homes and families where mother works           | 19  | 1
| 25. Attitude toward foreign born                                           | -03 | 0
| 26. Attitude toward people with different educational backgrounds          | 17  | 1
| 27. Attitude toward low-income groups                                      | 05  | 1
| 28. Attitude toward different religions                                    | -02 | 2
| 29. Attitude toward middle- and upper-class groups                         | 09  | 1
| 30. Attitude toward school community with low IQ and delinquent students and disinterested parents | -08 | 0
| 31. Attitude toward families of the laboring class                         | 05  | 1
| 32. Attitude toward a particular ethnic group                              | 12  | 1
| 33. Attitude toward a three-generation family                              | 11  | 2
| 34. Total attitude score for variables 22 through 33                       | 10  | 2
| 43. Composite prediction score                                             | -06 | 1

\(n = 44; .10 \text{ level of significance} = 25; .05 \text{ level of significance} = 30; .01 \text{ level of significance} = 44\)

\(^a\)\(35 = \) Teacher-pupil rapport, Homemaking I; \(36 = \) Teacher-pupil rapport, Homemaking II; \(38 = \) Pupil gain in ability to apply generalizations; \(39 = \) Physical health of teacher; \(40 = \) Judgment in discussion of personal criterion; \(41 = \) Relations with school personnel, pupils, and parents; \(42 = \) Management of department.
Predictors with criteria and composite criterion: Group 1

<table>
<thead>
<tr>
<th>Criteria</th>
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*a = 25; .05 level of significance = 30; .01 level of significance = 38

Note: Homemaking I: 36 = Teacher-pupil rapport, Homemaking II: 37 = Pupil gain in ones; Homemaking I: 38 = Pupil gain in ability to apply generalizations, Home- of teacher; 40 = Judgment in discussion of personal and professional problems; 42 = Relations with school personnel, pupils, and community; 44 = Composite
Those predictors measured by the MCI, predictors 11 through 17, were assigned negative weights for computing the composite prediction score because a low score is considered more acceptable than a high score; hence, the correlations should be interpreted thusly: negative correlations for predictors 11 through 17 with specific criteria and the composite criterion indicate a positive relationship between scores; a positive correlation indicates there is a negative relationship between scores. The correlations of the predictors measured by the MCI with the composite criterion indicate that these predictors contribute little to the prediction of teaching effectiveness.

The three predictors measured by the JHEIII, predictors 18 through 20, are negatively correlated with the composite criterion; and hence have little predictive value. The judges believed interest in extension work was unimportant in teacher effectiveness and thus weighted this predictor negatively which may explain the negative correlation.

Because only four of the correlations of predictors with the composite criterion are significant beyond the .10 level, the correlations of the predictors with the individual criteria were also studied to determine if any of the predictors were useful in predicting scores for the specific criteria of teacher effectiveness. These correlations are shown in Table 4. Even though not significantly correlated with the
composite criterion, restraint is correlated with:
  pupil gain in Homemaking I classes, .05 level
  physical health of teacher, .05 level
  school-community relations, .05 level
  management of department, .01 level

A high score on restraint indicates that the subject is de-liberate, consistent, and displays self control; and these qualities would logically seem to be related to teacher effectiveness.

Attitude toward the foreign born is correlated with:
  management of department, .10 level
  school-community relations, .05 level
  physical health of teacher, .01 level

Although academic achievement is significantly correlated with the composite criterion it is related significantly to only one specific criterion, management of department. All of the correlations of academic achievement with the specific criteria are positive. Attitude toward people with different educational backgrounds correlates with the composite criterion but not significantly, at the .05 level, with any of the single criteria; correlations with pupil gain for Homemaking I classes and school-community relations are significant beyond the .10 level. This predictor correlates positively with all the specific criteria except pupil gain for Homemaking II classes. Attitudes toward low-income and middle- and upper-class groups, which relate significantly beyond the .10 level to the composite criterion, correlate significantly
at or beyond the .10 level with specific criteria. Attitude toward low-income groups is positively related to all of the specific criteria and significantly to judgment in the discussion of personal and professional problems and to school-community relations. A significant relationship is found between two of the specific criteria with attitude toward middle- and upper-class groups; pupil gain for Homemaking I classes and judgment in the discussion of personal and professional problems. This predictor is related positively to all of the specific criteria.

Other predictors are also identified which correlate positively at or beyond the .10 level with various single criteria. General activity, which reflects the individuals' drive, energy, courage and enthusiasm, is related to management of the department. Emotional stability measured by the MCI which reflects the individuals' mood and degree of optimism is significantly correlated with Homemaking II teacher-pupil rapport but is surprisingly negatively correlated with Homemaking I teacher-pupil rapport. Interest in county extension work and the two criteria relating to teacher-pupil rapport correlate significantly. However, the judges weighted this predictor negatively and hence the positive correlation indicates a negative relationship between a criterion and this predictor.

Attitude toward parents is significantly correlated, at
the .10 level, with school-community relations; such a relationship would seem to be logical. The other correlations are low or negative. Although attitude toward a three-generation family correlates little with the composite criterion, the correlation with teacher-pupil rapport for Homemaking II classes is significant. The correlation of attitude toward a particular ethnic group different than one's own is significant beyond the .10 level with pupil gain for Homemaking I classes.

**Prediction formula**

When the composite prediction score and the composite criterion score were computed using 34 weighted predictors and eight weighted criteria and a correlation between them determined, the relationship was very slight, +.02. A new composite prediction score using only the weighted predictors 21 through 34 was computed because of the very low and numerous negative correlations obtained between the weighted predictors 1 through 20 and the composite criterion. A correlation of +.28, significant beyond the .10 level, was obtained between the new composite prediction score and the composite criterion.

Because academic achievement is weighted so much more than other predictors in computing the composite prediction score, 1.6386 compared to the next highest weight of .0836, the decision was made to regress the composite criterion on the new composite prediction score, which included predictors 21
through 34, and on academic achievement; a multiple R of .41 was obtained.

The regression equation developed for predicting the effectiveness of a teacher of Homemaking I and II classes is

\[ \hat{Y} = 14.1918 + .2718(\sum_{i=21}^{34} w_i X_i) + 2.5513 (X_{21}) \]

where \( (\sum_{i=21}^{34} w_i X_i) \) is the composite prediction score using weighted predictors 21 through 34 and \( (X_{21}) \) is the academic achievement score. The numerical value, 2.5513, was obtained by multiplying the regression weight, 1.5570, for \( (w_{21}X_{21}) \) by the weight for the predictor.

Group 2

Correlations

In Table 5 are the intercorrelations obtained among the success criteria and composite criterion for Group 2. Because this group contains the 60 teachers who taught Homemaking I classes, criteria relating to Homemaking II, criteria 36 and 38, are not included. This group is composed of the 44 teachers in Group 1 in addition to the 16 teachers who taught Homemaking I but not Homemaking II classes.

The intercorrelations among the six criteria range from +.07 to +.65; the highest is that between the criteria management of department and relations with school personnel, pupils, and community. When all of the criteria were combined into a
composite criterion, correlations, significant beyond the .01 level, were obtained between each criterion and the composite criterion and range from +.44 to +.63.

Correlations of the predictors with the composite criterion are shown in Table 6. Four positive correlations were obtained which are significant beyond the .05 level; restraint, +.30; and attitudes toward foreign born, toward low-income groups, and toward middle- and upper-class groups, +.29, +.29, and +.30 respectively. Attitude toward people with different educational backgrounds is significantly correlated with the composite criterion beyond the .01 level, +.35. A negative correlation, significant at the .05 level, was obtained between sociability and the composite criterion, -.26. Sociability involves the ability to make friends, to be a conversationalist, and to enjoy social life. A high score on sociability is considered to be more acceptable than a low score but it may be that a high degree of sociability interferes with teaching effectiveness. Two criteria, academic achievement and total attitude score, are significantly correlated beyond the .10 level with the composite criterion.

With a few exceptions the predictors measured by the JSI, predictors 22 through 34, appear to be the most useful predictors of the composite criterion; only one negative correlation is found. The predictors 1 through 20, measured by the GZTS, MCI, and JHEII, yield low or negative correlations with the exception of restraint.
Table 5. Intercorrelations among the specific criteria and the composite criterion: Group 2

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^a35 = Teacher-pupil rapport, Homemaking I
37 = Pupil gain in ability to apply generalizations, Homemaking I
39 = Physical health of teacher
40 = Judgment in discussion of personal and professional problems
41 = Management of department
42 = Relations with school personnel, pupils, and community
44 = Composite criterion

The correlations of predictors with the specific criteria are given in Table 6. In addition to being significantly correlated at the .10 level with the composite criterion, the correlation of academic achievement with management of the department is significant beyond the .05 level; and total attitude score is correlated beyond the .05 level with pupil gain.
Table 6. Correlations of predictors with criteria and composite criterion: Group 2

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<td>34. Total attitude score for variables 22 through 33</td>
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<td>43. Composite prediction score</td>
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n = 60; .10 level of significance = 22; .05 level of significance = 26; .01 level of significance.

a35 = Teacher-pupil rapport, Homemaking I; 37 = Pupil gain in ability to apply general principles, Homemaking I; 39 = Physical health of teacher; 40 = Judgment in discussion of personal and social problems; 41 = Management of department; 42 = Relations with school personnel, pupils and community; 44 = Composite criterion.
### Table: Correlation coefficients of predictors with criteria and composite criterion: Group 2

<table>
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-05 -07 -07 -13 10 08 -04
00 20 27 15 35 25 30
-07 -25 -03 04 04 -05 -14
-05 -34 -17 -02 -17 -11 -26
-09 03 -12 -07 -02 -05 -07
-02 -07 -22 10 03 -03 -05
-04 14 -13 06 12 08 08
-06 -20 09 11 -09 -06 -11
-07 08 -00 04 07 -03 01
01 04 -04 -06 -01 02 01
06 00 -05 -01 -04 09 04
00 -14 -20 17 -15 -08 -10
-09 07 10 -01 19 23 11
-08 04 -08 -14 -02 -07 -01
18 -07 -13 -08 -14 -05 -02
-01 00 -16 07 -11 -04 -04
17 03 11 18 17 22 09
22 -03 -11 -07 -30 -21 -06
-20 15 02 01 01 -02 -03
11 19 08 09 29 11 25
-02 16 -07 -06 15 25 14
-15 11 -05 -07 04 19 02
20 06 -04 -04 -02 -05 08
09 13 31 09 26 27 29

|          |    |    |    |    |    |    |    |

-03 21 02 09 01 06 12
11 22 15 -02 -00 -08 13
09 18 07 00 -01 15 17
09 27 07 09 07 14 23
00 09 -06 07 09 09 09

Significance = 22; .05 level of significance = 26; .01 level of significance = 34

1 = rapport, Homemaking I; 37 = Pupil gain in ability to apply generalizations, 2 = Health of teacher; 40 = Judgment in discussion of personal and professional development; 42 = Relations with school personnel, pupils, and composite criterion.
Restraint is related to the composite criterion at the .05 level and positively related to all the criteria; it is correlated with:

- school-community relations, .10 level
- physical health of teacher, .05 level
- management of department, .01 level.

Attitude toward the foreign born is significantly correlated with three of the administrators' estimates: school-community relations, management of the department, physical health of the teacher; the latter approaches the .01 level.

Attitudes toward groups with different educational backgrounds, with low income, and middle- and upper-classes are significantly correlated beyond the .05 level with pupil gain; and in addition, attitude toward different educational backgrounds significantly beyond the .10 level with school-community relations. Correlations significant beyond the .10 level are found for attitude toward low-income groups and for attitude toward middle- and upper-class groups with judgment in the discussion of personal and professional problems. In addition attitude toward low-income groups correlates significantly at the .10 level with school-community relations.

Other positive correlations are found between the predictors and the criteria which do not reach the .05 level of significance but which approach this level. Conformity, which indicates the individuals' acceptance of rules, regulations, and criticism, is significantly correlated with school-community
relations. Interest in county extension work is positively correlated with teacher-pupil rapport but because the judges had weighted this predictor negatively this correlation indicates a negative relationship. The relationship between attitude toward parents and the teachers' school-community relations is significant beyond the .10 level, and attitude toward a particular ethnic group correlates significantly with pupil gain.

**Prediction formula**

A correlation of +.09 was obtained when the composite prediction score, including the 34 weighted predictors, was correlated with the composite criterion, made up of the six weighted criteria. When the predictors 1 through 20 were removed and a new composite prediction score was computed and correlated with the composite criterion, a correlation of +.28 was obtained, significant beyond the .05 level. Because academic achievement is given so large a weight in the computation of the composite prediction score, 1.5613 compared to the next highest weight of .0784, the composite criterion was regressed on the new composite prediction score and on academic achievement; and a multiple R of +.32 was obtained.

The regression equation developed for predicting the effectiveness of a teacher of Homemaking I is

\[ \hat{Y} = 15.6997 + .1826 \left( \sum_{i=21}^{34} w_i X_i \right) + .9753 (X_{21}) \]
where \( \sum_{i=21}^{34} w_i x_i \) is the new composite prediction score using weighted predictors 21 through 34 and \((X_{21})\) is the academic achievement score. The numerical value, .9753, was obtained in the same manner as in Group 1; the regression weight for \((w_{21}x_{21})\) is .6247.

**Group 3**

**Correlations**

Intercorrelations among the success criteria and composite criterion for Group 3 are shown in Table 7. This group contains data for the 48 teachers of Homemaking II classes; hence, criteria relating to Homemaking I are not included. In addition to the four teachers who taught Homemaking II but not Homemaking I classes, Group 3 includes the 44 teachers in Group 1.

The correlations among the six criteria range from -.13 to +.62; the highest correlation is found between the criteria management of the department and relations with the school personnel, pupils, and community. The only negative correlations are between pupil gain and three of the criteria measured by the administrators' ratings: judgment in the discussion of personal and professional problems, management of department; and relations with school personnel, pupils, and community. Correlations between each criterion and the composite criterion range from +.38 to +.62; all significant beyond the .01 level.

Only two correlations, significant beyond the .05 level,
Table 7. Intercorrelations among the specific criteria and the composite criterion: Group 3

<table>
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<tr>
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</table>

n = 48

.10 level of significance = 24
.05 level of significance = 28
.01 level of significance = 37

\[ ^{a}36 = \text{Teacher-pupil rapport, Homemaking II} \]
\[ 38 = \text{Pupil gain in ability to apply generalizations, Homemaking II} \]
\[ 39 = \text{Physical health of teacher} \]
\[ 40 = \text{Judgment in discussion of personal and professional problems} \]
\[ 41 = \text{Management of department} \]
\[ 42 = \text{Relations with school personnel, pupils, and community} \]
\[ 44 = \text{Composite criterion} \]

were obtained for the individual predictors with the composite criterion, Table 8: academic achievement, +.35 and attitude toward low-income groups, +.30. Only one other correlation approaches this level of .28; attitude toward foreign born, +.27. With the exception of restraint those predictors, 1 through 20, measured by the GZTS, MCI, and JHEII yield low or
Table 8. Correlations of predictors with criteria* and composite criterion*: Group

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<td>2 Restraint</td>
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<td>3 Ascendance</td>
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<td>4 Sociability</td>
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<td>5 Emotional stability</td>
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<td>-245</td>
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<td>6 Objectivity</td>
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<td>7 Friendliness</td>
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<td>8 Thoughtfulness</td>
<td>0356</td>
<td>-045</td>
<td>-175</td>
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<td>9 Personal relations</td>
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<td>-215</td>
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<td>10 Masculinity</td>
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<td>12 Social relations</td>
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<td>20 Work with young children</td>
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<td>21 Academic achievement</td>
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<td>22 Attitude toward parents</td>
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<td>24 Attitude toward broken homes and families where mother works</td>
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<td>28 Attitude toward different religions</td>
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<td>29 Attitude toward middle- and upper-class groups</td>
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<td>30 Attitude toward school community with low IQ and delinquent students</td>
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<td>31 Attitude toward families of the laboring class</td>
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<td>34 Total attitude score for variables 22 through 33</td>
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n = 48; .10 level of significance = 24; .05 level of significance = 28; .01 level of significance = 28

*36 = Teacher-pupil rapport, Homemaking II; 38 = Pupil gain in ability to apply Homemaking II; 39 = Physical health of teacher; 40 = Judgment in discussion of person problems; 41 = Management of department; 42 = Relations with school personnel, pupils; 44 = Composite criterion.
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Significance = 24; .05 level of significance = 28; .01 level of significance = 37

*Hipp rapport, Homemaking II; 38 = Pupil gain in ability to apply generalizations; physical health of teacher; 40 = Judgment in discussion of personal and professional quality of department; 42 = Relations with school personnel, pupils, and community; 44 = Pupil's score for variables 22 through 33.
negative correlations with the composite criterion.

Correlations of the predictors with the individual criteria were also obtained and are indicated in Table 8. Academic achievement is significantly correlated with the composite criterion as well as with management of department; all other correlations are positive. Attitude toward low-income groups also is significantly related to the composite criterion and to two criteria: judgment in the discussion of personal and professional problems and the teachers' school-community relations. Attitude toward low-income groups correlates positively with all the criteria.

Restraint which is not significantly correlated with the composite criterion and attitude toward foreign born are significantly correlated with three single criteria: physical health, management of department, and school-community relations. Emotional stability measured by the MCI is significantly correlated at the .05 level with teacher-pupil rapport. This relationship would seem reasonable to expect since this predictor relates to the individuals' mood, degree of optimism, and attitude toward health; all of which could have an effect on rapport with students. Even though general activity has a very low correlation with the composite criterion, the correlation with management of the department is significant at the .10 level.

Interest in county extension work correlates significantly beyond the .10 level, with teacher-pupil rapport, but since
this predictor was weighted negatively by the panel of judges
the relationship between these two variables is negative.

Attitude toward people with different educational back-
grounds correlates positively with five of the six individual
criteria; the correlation with school-community relations ap-
proaches the .05 significance level. The correlations of at-
titude toward middle- and upper-class groups are all positive
and one, judgment in the discussion of personal and profes-
sional problems, is significant beyond the .10 level. The
correlations of attitude toward a three generation family are
in general low or negative with all the individual criteria ex-
cept teacher-pupil rapport which approaches the .05 signifi-
cance level.

Prediction formula

The composite prediction score correlated with the com-
posite criterion +.06 when the 34 weighted predictors and six
weighted criteria were included in the composite scores. Be-
cause predictors 1 through 20, with the exception of restraint,
did not appear to contribute to the prediction of the composite
criterion these were removed and a new composite prediction
score was computed. This new prediction score correlated with
the composite criterion +.27, which is close to significance
at the .05 level. In this new score academic achievement was
weighted approximately 20 times more than any of the other
predictors, 1.6802 compared to the next highest weight of
Because of this the composite criterion was regressed on the new composite score and on academic achievement; a multiple R of +.41 was obtained.

The regression equation developed for predicting the effectiveness of a teacher of Homemaking II is

$$\hat{Y} = 10.5736 + .1777 \left( \sum_{i=21}^{34} w_i X_i \right) + 1.7978 (X_{21})$$

where $$\left( \sum_{i=21}^{34} w_i X_i \right)$$ is the new composite score using weighted predictors 21 through 34 and $$(X_{21})$$ is the academic achievement score. The regression weight for $$(w_{21} X_{21})$$ is 1.0700.

**Comparison of the Three Groups**

**Correlations**

When the intercorrelations among criteria are compared for the three groups of teachers it is noted that the correlations are quite similar which is to be expected since the groups have 44 teachers in common. Only one criterion, pupil gain for Homemaking II classes, included in Groups 1 and 3 yield negative correlations with other criteria. The scores involving pupil gain and teacher-pupil rapport for Homemaking II classes are not significantly correlated in either Group 1 or Group 3. When the two criteria for Homemaking I are compared, they do correlate significantly in Group 1 but not in Group 2.
There is some indication that a halo effect exists among the specific criteria measured by the administrators' ratings. In all three groups the highest intercorrelation among these criteria is between management of the department and school-community relations, even though it would logically seem that these two criteria have little in common. There is overlapping among the other criteria measured by the administrators' ratings. The correlations for all three groups are significant between physical health and management of department, between physical health and school-community relations, and between judgment in discussion of personal and professional problems and school-community relations. These correlations could be due in part to the halo effect but could also be due to the fact that each of these criteria logically have certain aspects in common. An earlier analysis of administrators' responses to items in the rating device was for the purpose of identifying clusters of items and single items. Two single items were identified and provide data for two criteria, physical health and judgment in discussion of personal and professional problems. The correlations between these two criteria are very low for each of the three groups. When the scores were examined it was found that there was lack of variation among scores for each criterion which may contribute to the low correlations obtained.

When correlations of the specific criteria with the composite criterion are compared, a consistent pattern is noted
among the three groups for the four criteria measured by the administrators' ratings; school-community relations has the highest correlation of the four and management of the department the second highest. Physical health of the teacher and judgment in the discussion of personal and professional problems correlate lowest with the composite criterion for each of the three groups.

Correlations of predictors with composite criterion and with the specific criteria are also compared. Restraint is the only predictor measured by the two personality inventories which has a correlation that is significant, in one of the groups, with the composite criterion. Also, the data indicate that restraint is a better predictor of administrators' ratings in each group and of pupil gain for Homemaking I classes for Groups 1 and 2 than of any other single criterion.

Other predictors involving personality appear to have value for predicting scores of specific criteria. In only one of the groups the correlation between conformity and school-community relation is significant beyond the .10 level. Emotional stability measured by the MCI is correlated, at the .05 level, with teacher-pupil rapport for Homemaking II classes in Group 3 and the correlation approaches this level in Group 1. This relationship would seem logical, but surprisingly emotional stability is correlated negatively or very low with the teacher-pupil rapport for Homemaking I classes. One possible explanation is that pupils in the tenth-grade, Homemaking II, are more difficult to understand and hence, the teacher needs
to be more emotionally stable in order to establish rapport than at the ninth-grade level. For Groups 1 and 3 general activity appears to have value in predicting scores for one of the criteria measured by the administrators' ratings, but correlations with the other criteria are low or negative; the correlations of general activity with management of the department are significant at the .10 level.

These data may be compared with those of Cole (14) and Flanagan (19) who found that some aspects of personality as measured by the MMPI were of value in predicting teacher effectiveness as determined by supervisory and observer ratings. On the other hand the personality factor measured by faculty ratings in the investigation by Simun and Asher (52) contributed very little as a single predictor of administrators' ratings but did contribute when combined with other predictors. Ort's investigation indicated that the personality aspect he used which was measured by the social scale on the MMPI had no predictive value. Hence, the findings of the present study and of these studies indicate that the relationship between personality and teaching effectiveness depends on what aspects of personality are measured and the measures used. In general, the GZTS and MCI do not measure those aspects of personality which are predictive of the composite score for teacher effectiveness as defined for the present study. On the other hand some of these predictors appear to have value in predicting scores for specific criteria.

Vocational interests measured by the three scales on the
JHBII yielded low or negative correlations with the composite criterion for each of the three groups and appear to have little predictive value for the composite criterion.

Academic achievement measured by OQPA appears to have value for predicting teacher effectiveness; it is significantly correlated, at or beyond one of the significance levels, with the composite criterion in the three groups. In all three groups academic achievement correlates significantly with management of the department. All other correlations with the specific criteria are positive. These findings agree in general with those in an investigation by Simun and Asher (52) which indicated that college academic average did contribute singly and in combination in the prediction of teaching effectiveness. The college grade average was found by Massey and Vineyard (30) to correlate positively with 15 criteria of teaching effectiveness; two significant at the .01 level and two at the .05 level. Ort (36), however, failed to establish that college academic achievement had any predictive value.

Certain attitudes of the student toward people different from himself measured by the JSI appear to have value in predicting teacher effectiveness for the three groups of teachers. Those predictors which have the highest correlations with the composite criterion in the three groups are:

attitude toward the foreign born
attitude toward people with different educational backgrounds
attitude toward low-income groups
attitude toward middle- and upper-class groups
Those consistently very low and/or negatively correlated are:
attitude toward different size communities
attitude toward broken homes
attitude toward different religions
attitude toward a school community with low IQ and delinquent students and disinterested parents

Similarities are found among the three groups in the correlations of predictors involving attitudes with specific criteria. The correlations between attitude toward parents and the teachers' school-community relations in Groups 1 and 2 are similar and approach the .05 significance level; such a relationship would seem logical. Although attitude toward a three-generation family correlates fairly low with the composite criterion the relationship of this predictor to teacher-pupil rapport for Homemaking II classes approaches the .05 significance level for Groups 1 and 3. The relationship of attitude toward a particular ethnic group to pupil gain for Homemaking I classes is significant in Groups 1 and 2.

A difference is found between Groups 1 and 2 in terms of the correlation of total attitude score with pupil gain for Homemaking I classes; the correlation is significant beyond the .05 level for Group 2 but is low and nonsignificant for Group 1. No explanation can be given for this difference.
Hence some attitudes appear to be of value in predicting teacher effectiveness. When these findings are compared with those of Ort (36) and Bicknell (9), both of whom employed the MTAI to assess attitudes, differences are apparent. Attitudes had no predictive value in Ort's study whereas they did in Bicknell's investigation. These two researchers used different criteria of teacher effectiveness which may have contributed to these contradictory findings. Ort used supervisors' ratings and Bicknell employed pupils', supervisors' and classroom observers' ratings.

In summary it was found that three predictors are positively correlated with all the individual criteria and the composite criterion in the three groups: academic achievement, attitude toward low-income groups, and attitude toward middle- and upper-class groups. Attitude toward foreign born is positively correlated with all the single criteria and the composite criterion in Groups 2 and 3. In addition attitude toward people with different educational backgrounds and the total attitude score are positively correlated with all the single criteria and with the composite criterion in Group 2.

**Prediction formulae**

When the 34 weighted predictors were included in the composite prediction score for each group, very low correlations were obtained between the composite prediction and the composite criterion scores. After removing the 17 predictors
measured by the two personality inventories and the 3 predictors measured by the interest inventory, a new composite prediction score was computed for each group. The correlation between the composite prediction and the composite criterion was increased and was significant beyond the .10 level for Group 1 and Group 3. It did reach the .05 level of significance for Group 2 which contains a larger number of cases. The correlations between the new composite prediction and composite criterion were very similar for the three groups, +.28, +.28 and +.27.

A comparison of the regression weights used in the prediction formulae for the three groups reveals that those for the new composite prediction score are quite similar; they range from .1777 to .2717. The regression weights for the weighted academic achievement score differ somewhat; they vary from .6247 to 1.5570.

The multiple R obtained for each group is: Group 1, +.41; Group 2, +.32, and Group 3, +.41. Because these are so low the prediction formulae could not be used in predicting individual teaching effectiveness.

Recommendations for Future Research

On the basis of the findings from this exploratory study it appears that certain predictors used in the investigation have potential for predicting the effectiveness of first-year homemaking teachers; further research is needed to identify
additional predictors in order to increase the efficiency of the prediction.

The correlations with the composite criterion and/or with the specific criteria justify the retention of four of the predictors involving personality: restraint and general activity measured by the Guilford-Zimmerman Temperament Survey; and conformity and emotional stability measured by the Minnesota Counseling Inventory. Even though these predictors, with the exception of restraint, yielded negative or low correlations with the composite criterion, these predictors have value in predicting scores for several of the specific criteria of teacher effectiveness.

There is a need for a theoretical analysis of teacher personality to obtain clues to additional personality aspects and patterns that appear to be important for teacher effectiveness and thus might be of value in predicting effectiveness of teachers. Other personality inventories should be investigated, refined, or developed which include these aspects in order to increase the efficiency of the prediction.

The three sub-scores for county extension work, work with young children, and secondary teaching measured by the Johnson Home Economics Interest Inventory should no longer be used as predictors of teacher effectiveness. There were no significant correlations of these predictors with the criteria or composite criterion.
Academic achievement, as measured by the college cumulative quality point average, should continue to be used as a predictor since it was found to be significantly correlated with the composite criterion score for teacher effectiveness as well as with several of the specific criteria.

Seven sub-scores involving attitudes of the individual toward people different than himself and the total attitude score measured by the Just Suppose Inventory were found to have predictive value for the composite criterion and/or several of the specific criteria; hence, these scores should be included in future research. A theoretical analysis of teacher attitudes might give clues concerning other attitudes which affect teacher effectiveness and instruments measuring these attitudes could then be obtained for trial. Attitudes worth investigation are those toward the teaching of homemaking and of the various subject areas in homemaking and toward teaching adolescents.

The exploratory study has raised a question of whether all of the criteria based on the administrators' ratings should continue to be used as there is indication that a halo effect exists among them. Data based on a larger sample should be analyzed to determine if this effect continues to exist; if so, certain of these criteria would be removed from further analysis. In addition before this criterion measure is used again it is recommended that an analysis be performed to
determine if the scores on the four criteria discriminate among teachers since an examination of these scores indicates little variation.

Because some teachers have only Homemaking I classes and others only Homemaking II classes, the problem exists of how to combine the data for those subjects who teach at one level with those who teach at another level. If such a combination cannot be achieved data for each level will again have to be analyzed separately or only the data for teachers of both Homemaking I and II classes can be included in the analysis.

Four additional recommendations are made relating to the analysis of data. The number of judges on the panels needs to be increased and the judges should be prepared more thoroughly. Several statements made and questions asked by the judges indicate that in addition to a written definition of the individual predictors and criteria, a sample of items from each of the instruments used to measure the particular variable should be included. Also it is recommended that all the predictor scores should be on the same basis before beginning analysis of data. If low scores are more acceptable than high scores the scores should be subtracted from a constant.

Difficulties were encountered in obtaining complete predictive and criterion data for each subject who was graduated and subsequently taught in Iowa. Rather than remove the subjects from the study because of incomplete information on just
one of the variables it is recommended that the possibility of using a missing data formula or another type of computation be studied; the score of this variable could then be estimated using such a procedure and compensation for this would be made in the interpretation of the analysis by reducing the degrees of freedom accordingly.

Because of the small multiple R's obtained it is recommended that the prediction formulae developed to estimate individual success not be used. Before reliable individual prediction of teaching effectiveness can be made research is needed using a larger sample and additional predictors.
SUMMARY

The present investigation is part of a longitudinal study being conducted at Iowa State University. The purpose of the larger study is to select means of identifying those applicants for admission to the teacher-education program at the University who could be expected to become effective home-making teachers at the secondary level. The purpose of this exploratory study was to investigate the usefulness of certain predictors in predicting the effectiveness of first-year home-making teachers.

Selection of the measures for prediction was begun in 1958. It was hypothesized that personality, vocational interests, attitudes, and academic achievement are factors related to teacher effectiveness. Ten sub-scores on the Guilford-Zimmerman Temperament Survey and seven on the Minnesota Counseling Inventory provided data relating to personality. Vocational interests were measured by three occupational scales in the Johnson Home Economics Interest Inventory: county extension work, secondary teaching, and work with young children. Attitudes of the student toward people different than himself were measured by 12 sub-scores and total score on the Just Suppose Inventory; the college cumulative point average provided the measure for academic achievement. Data were collected during the time the subjects were enrolled in the Home Economics Education Department at the University.
The measures employed for determining teacher effectiveness were designed to measure teacher-pupil rapport, pupil gain in the ability to apply generalizations in solving problems in home economics, and adjustment of the teacher to the school and community. Two forms of the Student's Estimate of Teacher Concern, Homemaking I and Homemaking II, provided the teacher-pupil rapport data; four forms of the achievement tests, Homemaking I, Forms A and B, and Homemaking II, Forms A and B, provided data for pupil gain. Adjustment to the school and local community was measured by an administrators' rating, How Satisfactory Is Your Homemaking Teacher?. Based on an analysis of responses of 65 school administrators to the items on this instrument four factors were identified and used as criteria for effectiveness: physical health of the teacher; judgment in the discussion of personal and professional problems; management of department; and relations with school personnel, pupils, and community. The first two of these criteria were measured by single item factors and the two latter by clusters of items; five items and 12 items respectively. Data were obtained using the criterion measures during the subjects' first year of teaching homemaking in Iowa.

Three groups of Iowa first-year homemaking teachers for whom complete data were available were included in the analysis of data. Group 1 consisted of 44 teachers who taught both Homemaking I and II classes; Group 2 included the 44 teachers in Group 1 in addition to 16 teachers who taught Homemaking I.
but not Homemaking II classes; Group 3 consisted of the 44 teachers in Group 1 plus 4 teachers who taught Homemaking II but not Homemaking I classes. These teachers were graduated by Iowa State University during the school years from 1961 to 1964.

The data were analyzed for each of the three groups to determine the relative usefulness of the selected predictors in predicting effectiveness of homemaking teachers. Because of the small number of cases and the large number of predictors and criteria to be included in the analysis, an adaptation of the J-coefficient procedure was used to provide weights for the 34 predictors and the six criteria for Groups 2 and 3 and eight criteria for Group 1. A panel of eight judges, Iowa State University faculty members in the Departments of Education, Home Economics Education and Psychology, rated the predictors in terms of importance for teacher effectiveness and the criteria in terms of importance as indicators of teacher success. To increase the correlations among judges' responses, two were removed from the predictor panel and three from the criterion panel before obtaining the mean of the responses for each of the variables. The standard deviation was computed for the variables for each of the three groups. The weights assigned to the predictors and criteria were determined by dividing the mean of the judges' responses by the standard deviation for the particular group of teachers.

Composite prediction scores were secured by summing the
weighted predictors; the composite criterion scores were obtained in the same manner. These scores were then correlated for each of the groups of teachers. Because many low or negative correlations were obtained between the composite criterion and the predictors involving personality and vocational interests, these scores were removed and a new composite prediction score was computed and correlated with the composite criterion. The correlations were significant beyond the .10 level for Groups 1 and 3, and at the .05 level for Group 2; Group 1, +.28; Group 2, +.28; and Group 3, +.27. Group 2 contained the largest number of subjects.

Since the weight assigned academic achievement was approximately 20 times more than those for any of the other predictors used in the new composite prediction score, the composite criterion was regressed on the new composite prediction score which included the weighted academic achievement score, and on the academic achievement score. The regression equation developed for each group was:

Group 1 -
\[
\hat{Y} = 14.1918 + 0.2718 \left( \sum_{i=21}^{34} w_i X_i \right) + 2.5513 \left( X_{21} \right)
\]

Group 2 -
\[
\hat{Y} = 15.6997 + 0.1826 \left( \sum_{i=21}^{34} w_i X_i \right) + 0.9753 \left( X_{21} \right)
\]

Group 3
\[
\hat{Y} = 10.5736 + 0.1777 \left( \sum_{i=21}^{34} w_i X_i \right) + 1.7978 \left( X_{21} \right)
\]
The $\hat{Y}$ denotes the estimated criterion composite score of the individual when the 14 weighted predictors, including academic achievement, and academic achievement are included in the prediction formula.

The multiple R obtained for the regression equation in each group was: Group 1, +.41; Group 2, +.32; and Group 3, +.41. These were too low to predict individual success.

In addition to obtaining correlations of the composite prediction score with the composite criterion score, correlations of the specific predictors with the composite criterion and with each criterion were also obtained. These were examined to determine if any predictors appear to have value for predicting the composite criterion and/or any of the specific criteria for teacher effectiveness. Four of the predictors involving personality were found to have significant correlations: restraint and general activity measured by the Guilford-Zimmerman Temperament Survey, and conformity and emotional stability measured by the Minnesota Counseling Inventory. Academic achievement measured by the college Cumulative Quality Point Average should continue to be used as a predictor since it correlated significantly with the composite criterion score as well as with several of the specific criteria. Seven sub-scores and the total score on the Just Suppose Inventory which involve attitudes of the individual toward people different than himself should also be included in the future research for prediction of teacher effectiveness.
In order to increase the efficiency of the prediction, a theoretical analysis should be made to identify other aspects of personality and attitudes which may be important for teacher effectiveness, and instruments found or developed to measure these aspects. In addition, the size of the sample of teachers needs to be increased.

The question of whether to continue to use all of the four criteria based on the administrators' ratings is raised by the intercorrelations among these criteria. There is indication that a halo effect exists among them. Also it is suggested that the four criteria measured by these ratings be analyzed to determine if they discriminate among teachers.

When a panel of judges is used again to obtain weights for predictors and criteria, it is recommended that in addition to a definition of each of these variables, sample items from the instruments used be given the judges. In addition, it would be well to increase the number of judges.
LITERATURE CITED


ACKNOWLEDGMENTS

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Gratitude is expressed to Dr. Marguerite Scruggs for help in statistical analysis; Dr. Leroy Wolins and Dr. Wayne Fuller for assistance in decisions concerning the analysis of data; the homemaking teachers, pupils, and administrators who cooperated in the collection of data; and the University faculty members who served as judges during the analysis of data.

The writer is especially grateful to Dr. Hester Chadderdon for her unlimited guidance and encouragement throughout the entire study.
APPENDIX A: ADMINISTRATORS' RATING SHEET
APPENDIX B: PREDICTORS AND CRITERIA USED IN INVESTIGATION

Predictors

Sub-scores for GZTS
1  General activity
2  Restraint
3  Ascendance
4  Sociability
5  Emotional stability
6  Objectivity
7  Friendliness
8  Thoughtfulness
9  Personal relations
10 Masculinity

Sub-scores for MCI
11 Family relations
12 Social relations
13 Emotional stability
14 Conformity
15 Reality
16 Mood
17 Leadership

Sub-scores for JHEII
18 Secondary teaching
19 County extension work
20 Work with young children

CQPA
21 Academic achievement

Sub-scores for JSI
22 Attitude toward parents
23 Attitude toward different size communities
24 Attitude toward broken homes and families where mother works
25 Attitude toward foreign born
26 Attitude toward people with different educational backgrounds
27 Attitude toward low-income groups
28 Attitude toward different religions
29 Attitude toward middle- and upper-class groups
30 Attitude toward school community with low IQ and delinquent students and disinterested parents
31 Attitude toward families of the laboring class
32 Attitude toward a particular ethnic group other than one's own
Sub-scores for JSI

33  Attitude toward a three generation family living in one home
34  Total attitude score for predictors 22 through 33

Criteria

Scores for SETC
35  Teacher-pupil rapport, Homemaking I
36  Teacher-pupil rapport, Homemaking II

Scores for pupil gain
37  Pupil gain in the ability to apply generalizations, Homemaking I
38  Pupil gain in the ability to apply generalizations, Homemaking II

Ratings by administrators
39  Physical health of the teacher
40  Judgment in discussion of personal and professional problems
41  Management of department
42  Relations with school personnel, pupils, and community

Composite Scores
43  Composite prediction score
44  Composite criterion score
APPENDIX C: INSTRUMENTS USED FOR OBTAINING JUDGES' RATINGS OF PREDICTORS AND CRITERIA

Rating of Predictors

The Home Economics Education Department, Iowa State University, has been studying several criteria in attempting to predict and determine the effectiveness of its graduates who teach homemaking. It is believed that some of the criteria may be of greater importance than others in prediction of teaching success. The purpose of this project is to analyze the data in an effort to determine if such a difference may exist.

Five criterion measures have been used and scores from 33 categories were obtained for prediction purposes.

The next step in the project is to ask a panel of judges how certain they are that each of these categories is important for teacher effectiveness. Directions: Following are statements concerning each of these categories. On the attached sheets you will find an explanation of the 33 categories.

For each of the following statements indicate how certain you are whether you agree or disagree by a number from 1 to 99. If you are certain that you agree with the statement, decide how certain you are about this decision. If you are very certain write 99 in the blank. If you are less certain use a number between 50 and 99.
If you cannot decide whether you agree or disagree write 50 in the blank.

If you are certain that you disagree with the statement, decide how certain you are about this decision. If you are very certain that you disagree write 1 in the blank. If you are less certain that you disagree use the number between 1 and 50.

The following scale may help you keep these directions in mind.

\[
\begin{align*}
\text{Disagree} & \quad \rightarrow & \quad \text{Agree} \\
1 & \quad 10 & \quad 20 & \quad 30 & \quad 40 & \quad 50 & \quad 60 & \quad 70 & \quad 80 & \quad 90 & \quad 99
\end{align*}
\]

Very certain that I disagree \hspace{1cm} \text{Uncertain} \hspace{1cm} \text{Very certain that I agree}

(see explanation of each category on the attached sheets)

<table>
<thead>
<tr>
<th>Degree of certainty</th>
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<tbody>
<tr>
<td>1. General activity is important for teacher effectiveness.</td>
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<tr>
<td>2. Restraint is important for teacher effectiveness.</td>
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<tr>
<td>3. Ascendance is important for teacher effectiveness.</td>
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<tr>
<td>4. Sociability is important for teacher effectiveness.</td>
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<tr>
<td>5. Emotional stability is important for teacher effectiveness.</td>
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<tr>
<td>6. Objectivity is important for teacher effectiveness.</td>
</tr>
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<td>7. Friendliness is important for teacher effectiveness.</td>
</tr>
</tbody>
</table>
8. Thoughtfulness is important for teacher effectiveness.
9. Personal relations is important for teacher effectiveness.
10. Masculinity is important for teacher effectiveness.
11. Social relations is important for teacher effectiveness.
12. Family relations is important for teacher effectiveness.
13. Conformity is important for teacher effectiveness.
14. Reality is important for teacher effectiveness.
15. Mood is important for teacher effectiveness.
16. Leadership is important for teacher effectiveness.
17. County extension work is important for teacher effectiveness.
18. Secondary teaching is important for teacher effectiveness.
19. Work with young children is important for teacher effectiveness.
20. COPA is important for teacher effectiveness.
21. Attitude toward parents is important for teacher effectiveness.
22. Attitude toward different size communities is important for teacher effectiveness.
23. Attitude toward broken homes and families where mother works is important for teacher effectiveness.
24. Attitude toward foreign born is important for teacher effectiveness.
25. Attitude toward people with different educational backgrounds is important for teacher effectiveness.
26. Attitude toward low-income groups is important for teacher effectiveness.
27. **Attitude toward different religions** is important for teacher effectiveness.

28. **Attitude toward middle-class and wealthy, upper-class groups** is important for teacher effectiveness.

29. **Attitude toward school community with low IQ students, delinquents and disinterested parents** is important for teacher effectiveness.

30. **Attitude toward families of the laboring class** is important for teacher effectiveness.

31. **Attitude toward a particular ethnic group** is important for teacher effectiveness.

32. **Attitude toward a three-generation family** is important for teacher effectiveness.

33. **Total attitude scores for items 21 through 32** is important for teacher effectiveness.

**Explanation of categories for which scores are obtained for prediction of teacher effectiveness:**

1. **General activity:** drive, energy, vitality, speed, courage and enthusiasm
2. **Restraint:** deliberateness, consistency, self-control and seriousness
3. **Ascendance:** social aggressiveness and leadership
4. **Sociability:** ability to make friends, to be a conversationalist, to enjoy social life, and to have social interests
5. **Emotional stability:** mood, degree of optimism, cheerfulness and attitude toward health
6. **Objectivity:** ability to look at things objectively without being self-centered, suspicious or hypersensitive
7. **Friendliness:** desire to be liked, tolerant of hostile action and respect for others
8. **Thoughtfulness:** interest in thinking, philosophizing, mental poise and reflectiveness
9. **Personal relations:** tolerance and understanding of other people, faith in social institutions, cooperative spirit and quality of personal relations
10. **Masculinity:** ability in not being easily disgusted, degree of interest in masculine activities and vocations, resistance to fear, the extent of inhibition of emotional fear and interest in clothes and styles
11. Social relations: attitude toward attending social events and the degree of self confidence in a social situation
12. Family relations: cooperation with family members and feelings toward home life
13. Conformity: accepts rules, regulations and criticism
14. Reality: ability to face problems and reality
15. Mood: attitude toward health, interest in different kinds of play and recreation and general feeling toward life
16. Leadership: attitude toward working with people and being in a group situation
17. County extension work: preference for taking part in such activities as working with rural people, demonstrating homemaking techniques, giving homemaking advice to women in their own homes, and working with young people
18. Secondary teaching: preference for taking part in such activities as teaching adolescents, helping young people develop new skills and abilities
19. Work with young children: preference for taking part in such activities as helping young children develop good habits and desirable attitudes, accepting and helping young children to develop new skills and abilities
20. CQPA: is the cumulative quality point average of the individual's college course work (taken at the end of the sophomore year)
21. Attitude toward parents: attitude toward today's parents generally
22. Attitude toward different size communities: attitude toward families in small towns, farm families, and families in large cities
23. Attitude toward broken homes and families where the mother works: attitude toward families broken by death, divorce or separation and toward families where the mother is employed outside the home
24. Attitude toward foreign born: attitude toward families where the parents or grandparents were born in a foreign country
25. Attitude toward people with different educational backgrounds: attitude toward associating with parents who have little formal education, who have finished high school and who have attended college
26. Attitude toward low-income groups: attitude toward teaching in a slum area of a city
27. Attitude toward different religions: attitude toward groups who have religious beliefs which are quite different from own
28. Attitude toward middle-class and wealthy, upper-class groups: attitude as a teacher toward these two groups
29. Attitude toward school community with low IQ students, delinquents and disinterested parents: attitude toward working in this type of school community
30. Attitude toward families on the laboring class: attitude toward living within a school district located in the manufacturing section of the city zoned for light and medium industry
31. Attitude toward a particular ethnic group: attitude toward an ethnic group different from her own but one with which she is familiar
32. Attitude toward a three-generation family: attitude toward a three-generation family living within the same household
33. Total attitude score for items 21 through 32: is the sum of all of the scores for categories 21 through 32 i.e., attitudes toward pupils and families with a variety of backgrounds and types of communities

Rating of Criteria

The Home Economics Education Department, Iowa State University, has been studying several criteria in attempting to predict and determine the effectiveness of its graduates who teach homemaking. It is believed that some of the criteria may be of greater importance than others in determining teaching success. The purpose of this project is to analyze the data in an effort to determine if such a difference may exist.

To determine teacher effectiveness, data were collected for subjects who, after graduation from Iowa State University, taught homemaking in Iowa at least one year. These data were obtained from 3 criterion measures of (1) teacher-pupil rapport, (2) pupil gain in the ability to apply generalizations, and (3) teacher adjustment to the school and local community.

The criterion measure of teacher-pupil rapport attempts to determine the teacher's recognition and understanding of her pupils, and the help given to them, as judged by her pupils.
The students responded to statements in an inventory regarding the teacher's concern for them. A mean for each of the teacher's classes was obtained.

The criterion measure of pupil gain in the ability to apply generalizations in solving problems in home economics involves two tests, one administered at the beginning of the school year and another near the end of the school term. The data obtained are the class mean gains between the pre- and post-achievement tests.

The school administrator's judgment of teacher adjustment to the school and local community was obtained by using a rating scale with questions regarding how satisfactory the homemaking teacher is. The scale is composed of 4 aspects as determined by an intercorrelation of the items in the scale. These aspects are:

a. Physical health of the teacher
b. Judgment regarding when and with whom to discuss professional, personal, and pupils' problems
c. Management of department - attractiveness of department, financial records and school reports
d. Relations with faculty, administration, students, community, and participation in professional organizations

The next step in the project is to ask a panel of judges how certain they are that each of these aspects is important for determining teacher effectiveness.
Directions:

Following are statements concerning each of the aspects.

For each of the statements indicate how certain you are whether you agree or disagree by a number from 1 to 99.

If you are certain that you agree with the statement, decide how certain you are about this decision. If you are very certain write 99 in the blank. If you are less certain use a number between 50 and 99.

If you cannot decide whether you agree or disagree write 50 in the blank.

If you are certain that you disagree with the statement, decide how certain you are about this decision. If you are very certain that you disagree write 1 in the blank. If you are less certain that you disagree use a number between 1 and 50.

The following scale may help you keep these directions in mind.

\[\text{Disagree} \quad \rightarrow \quad \text{Agree}\]

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Very certain that I disagree \quad Uncertain \quad Very certain that I agree

Degree of certainty

1. **Teacher-pupil rapport** is an important indicator of teacher success.

2. **Pupil gain in the ability to apply generalizations in solving problems in home economics** is an important indicator of teacher success.
3. **Physical health of the teacher** is an important indicator of teacher success.

4. **Judgment regarding when and with whom to discuss professional and personal problems** is an important indicator of teacher success.

5. **Management of department** is an important indicator of teacher success.

6. **Relations with school personnel, pupils and community** is an important indicator of teacher success.
APPENDIX D: TABLE OF WEIGHTS FOR COMPUTING COMPOSITE PREDICTION AND COMPOSITE CRITERION SCORES

Table 9. Weights used in obtaining composite prediction and composite criterion scores

<table>
<thead>
<tr>
<th>Judges' weight (W)</th>
<th>Group 1 (w)</th>
<th>Group 2 (w)</th>
<th>Group 3 (w)</th>
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*aPredictors were assigned negative weights for computing composite prediction scores because a low score is considered more acceptable than a high score on the MCI.*
Table 9. (Continued)

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<th>Criteria</th>
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