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An analysis of selected personal factors related to effective teaching in secondary schools

Earl F. Bridgewater
Iowa State University

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AN ANALYSIS OF SELECTED PERSONAL FACTORS RELATED TO
EFFECTIVE TEACHING IN SECONDARY SCHOOLS

Iowa State University

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An analysis of selected personal factors related to
effective teaching in secondary schools

by

Earl F. Bridgewater

A Dissertation Submitted to the
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CHAPTER I. INTRODUCTION

The selection of teachers to be employed by a school system is one of the most important decisions made by educational administrators. Medley stated, "The effect of schools on the individual pupil depends to a considerable extent on who the teacher is" (54). Effective teachers have been studied for decades to determine what personality characteristics and behaviors are important to their performances. The quest for a valid index of teacher effectiveness has been one of the elusive targets in the history of educational research. A recent review by Bloom stated:

There is little support believing the characteristics of teachers...have an effect on the learning of students. And yet, each of us has had an experience base that tells us that indeed, there are personality differences between good and poor teachers. (6)

Perhaps the most sophisticated study which attempted to identify personality constructs related to effective teaching was Ryans' (74). That research included 6,179 teachers in 1,747 schools. The findings revealed that the most effective teachers were more: understanding, friendly, responsible, business-like, systematic, stimulating, and imaginative.

Other researchers during the past two decades such as Ebel (19), Patrick (68), Cruickshank (14), Evertson (22), Weslander (84), and Coker (13) concluded that global personality factors such as poise, empathy, enthusiasm, self-confidence, flexibility, tolerance, imagination, self-control, and warmth were related to successful teaching. The

presence of such qualities does not guarantee teaching effectiveness, but the absence of them may contribute toward ineffective performances.

The teacher is so crucial to the quality of the educational program that it seems obvious that who should be hired as teachers would be made with the utmost certainty. Yet, such decisions often lack any high degree of sophistication and are frequently intuitive and subjective. Employment decisions have been generally based on a cursory review of the candidate's credentials and superficial impressions based on a thirty-minute personal interview. To add to this problem, during the seventies, the value of credentials was diminished as a result of open personnel files, and the increased potential lawsuits associated with "negative" recommendations. Because of the recognized weaknesses of the traditional selection method, too many teachers have been employed who have behavior which contributes towards alienating youth from other teachers, subjects, and educational institutions.

Consequently, in order to reduce the risk of hiring teachers, there has been a national trend towards measures for teacher selection beyond the typical interview and the use of credentials. Those efforts have generally been in the use of competency tests and/or personality assessment measures. Examples of the latter type of effort are: Emphasizing More Personalized Attitudes Toward Helping Youth (Project Empathy), by the Omaha, Nebraska, Public Schools (79); and the Teacher Perceiver Interview by the Lincoln, Nebraska, Public Schools (62). These instruments pose hypothetical questions or situations to the candidate, with the intent of assessing noncognitive traits and reducing the possible

interviewer bias of unstructured interviews. These two methodologies which purportedly discriminate between good and poor teacher applicants have had a considerable impact on their own districts as well as districts nationally. Other school systems are developing their own means of determining such data.

The purpose of this study was to develop a methodology to obtain objective data for making judgments concerning personality characteristics and behaviors of secondary teacher applicants. It was structured to determine if there were a constellation of personality variables which distinguish secondary teachers who exceed district standards as determined by principals' evaluations, from those who met district standards, and moreover to determine if these factors differ among teachers of different academic disciplines.

The assumption was that teachers who exceed district standards of performance possess personal characteristics atypical of the majority of secondary staff. If that assumption is correct, districts could develop a personal characteristics profile based on the findings--and, subsequently, use such to measure teacher applicants.

Statement of the Problem

The recent emergence of teacher surplus, reduced funds, staff layoffs, and accountability has focused considerable attention on the selection process. As a result of these combined forces, school districts have been forced to reexamine their hiring practices and devise improved procedures and/or methodologies.

The selection of teachers to be employed is the responsibility of

principals, supervisors, and/or personnel administrators. Criteria used to measure applicants by these administrators usually include such behavioral constructs as enthusiasm, sense of humor, poise, warmth, flexibility, interpersonal skills, etc. Judgments on these personality variables often lack any high degree of sophistication and are usually based on simply an interview and a set of credentials; therefore, they are intuitive and somewhat subjective.

Therefore, central to this study are two basic questions: what personal factors are important to effective secondary teaching, and how can these factors be assessed? Such information for educational decision-makers has either not been available or at best extremely limited.

Hypotheses to Be Tested

This study was designed to examine a representative sample of secondary teachers. Its purpose was to ascertain whether there were any significant differences in the personal characteristics and behaviors of teachers evaluated above district standards compared to those who met district standards, across subjects taught, experience, and educational training, as measured by three personality inventories' respective scales: the California Psychological Inventory (CPI); the 16 Personal Factors Questionnaire (16 PF); and the Fundamental Interpersonal Relations Orientation-Behavior Questionnaire (FIRO-B).

This study can be more specifically defined by the following operational hypotheses:

- (1) Teachers who were evaluated as above district standards, who had the greatest amount of education, and who had limited experience, would also:
 - (a) be more outgoing, more intelligent, emotionally stable, assertive, happy-go-lucky, conscientious, venturesome, tough-minded, trusting, imaginative, shrewd, placid, experimenting, self-sufficient, controlled, and relaxed as measured by the 16 PF Questionnaire.
 - (b) be more extroverted, express lower anxiety, be more tough, poised, and express more independence, as measured by the second order factors of the 16 PF Questionnaire.
 - (c) express greater feeling of inclusion, control and affection and wanted feeling of inclusion, control and affection as measured by the FIRO-B Questionnaire.
 - (d) be more dominant, express greater capacity for status, be more sociable, express greater social presence, be more self-accepting, express greater sense of well-being, be more responsible, express greater socialization, express greater self-control, be more tolerant, express greater favorable impression, communality, conforming behavior, achievement potential, intellectual efficiency, responsiveness to others, flexibility, and femininity of interests, as measured by the CPI.
- (2) The mean scores of teachers of different subject areas would be similar on the scales of the 16 PF, the FIRO-B, and the CPI inventories.

- (3) The mean scores of teachers with the greatest amount of educational training, who were evaluated as above district standards, would be higher on the scales of the 16 PF, the FIRO-B and the CPI inventories.
- (4) The mean scores of teachers with the least years of experience, who were evaluated as above district standards, would be higher on the scales of the 16 PF, the FIRO-B and the CPI inventories.

Basic Assumptions

This study was based on certain assumptions which were necessary in order to test the hypotheses, and they are as follows:

- (1) The teacher performance evaluation instrument used for this investigation is valid.
- (2) Building administrators and central office staff can differentiate between teachers who meet district standards and those who exceed district standards.
- (3) Certain personal factors are closely associated with teacher effectiveness as perceived by administrators.
- (4) The California Psychological Inventory, the Fundamental Interpersonal Relations Orientation-Form B Inventory, and the 16 Personal Factors Inventory are as good or better than other personality inventories available for measuring personal factors of teaching staff in the district.
- (5) Few concrete facts have been determined concerning what makes an effective teacher.

- (6) Existing research has provided very little aid in providing a methodology for predicting teacher success for viable teaching applicants.

Delimitations

This study was intended as an initial breakthrough in developing a possible methodology of assessing and evaluating personal characteristics and behaviors of teacher applicants. It was not intended to be the final word in predicting teacher effectiveness. Delimitations of this study would include:

- (1) Data generated from the 180 teachers used in this study were from the Des Moines Public Schools' secondary teaching staff who were evaluated by their supervisors in 1978. These teachers were a representative sample of the entire population.
- (2) The administrators' evaluation of teachers' performances will be the sole criterion used to differentiate between those teachers that meet district standards and those that exceed district standards.
- (3) Teachers in seventeen different buildings were evaluated by thirty different administrators.
- (4) The California Psychological Inventory, the 16 Personal Factors Inventory, and the Fundamental Interpersonal Orientation-Form B Inventory, as any other personality test, have certain discriminatory limitations.

Definitions

FIRO-B (Fundamental Interpersonal Relations Orientation-Behavior)

A psychological measure of a person's characteristic behavior toward other people in the areas of inclusion, control, and affection.

16 PF (The Sixteen Personality Factor Questionnaire)

An objective test devised to measure sixteen functionally independent and psychologically meaningful personality traits or factors.

CPI (California Psychological Inventory)

An objective questionnaire which attempts to measure eighteen standard scales of interpersonal psychology.

Personality

The sum of one's qualities of body, mind, and character.

Teacher Competency

Refers to any single knowledge, skill, or professional value, the possession of which is believed to be relevant to the successful practice of teaching.

Teacher Performance

Refers to what the teacher does on the job rather than to what he/she can do.

Teacher Effectiveness

Refers to the effect that the teacher's performance has on pupils.

Meeting District Standards

Is a performance rating value on the Des Moines teacher evaluation instrument which is the middle performance level on a five

performance level system.

Exceeding District Standards

Is a performance rating value on the Des Moines teacher evaluation instrument which would include the two top performance levels of the five performance level system.

CHAPTER II. REVIEW OF LITERATURE

A General Review of Teacher Effectiveness

The question of what makes an effective teacher has eluded researchers for decades. The entire field of teacher evaluation has suffered from a surplus of opinions and a shortage of evidence. Ann Lewis, Executive Editor of Education U.S.A., stated, "Personnel assessors are stumped by the age-old question of what makes an excellent teacher" (47). James Popham (71) succinctly pointed out the magnitude of the issue in the following statement:

One of the exclusive targets in the history of the educational research is a valid index of teacher effectiveness. Since the turn of the century, literally hundreds of investigations have probed the question of teacher competency assessment, and most of them produce little, if any significant progress.
(71)

There is a commonsense notion of what is a good teacher, but teacher effectiveness, like intelligence, is an often-used but difficult to define quality. Brody (11) stated that a good teacher was harder to define than to find and indicated that researchers have yet to pinpoint the qualities that make one teacher superior to another.

A review of the history of empirical research during the twentieth century by Donald Medley (54) on teacher effectiveness revealed four general periods. The thrust of the earliest efforts presumed that teacher effectiveness was a result of personality traits or characteristics of the teacher and research was geared to identify those traits. Those studies tended to emphasize personality attributes that were hypothesized to be related to excellence in teaching. The most

frequently mentioned characteristics included cooperation, personal magnetism, appearance, breadth and intensity of interest, consideration, and leadership. Numerous correlational studies were generated as a result of this quest.

Later, effectiveness was not seen so much as the result of certain personality traits possessed by the teacher, but by the methods used in teaching. The results of this research tended to be inconclusive and frequently contradictory.

Following the failure of research on teacher effectiveness as being dependent on teaching methods, researchers sought answers by examining the climate the teacher created and maintained in the classroom. This method of research was to observe behavior in teachers' classrooms on random occasions, looking for behaviors that were stable across observations. This focus was often referred to as "process-product" research. Results of these efforts were disappointing and the quest for defining the basis for teacher effectiveness continued.

More recent research efforts have attempted to identify generic teaching behaviors. Proponents of this thrust view effectiveness as mastery of a repertoire of competencies and the ability to use those professional competencies appropriately.

Review of Other Recent Reviews

In recent years, various researchers and organizations such as Biddle and Ellena (5), Dunken and Bittle (18), Holley (38), Gudridge (31), Rand Corporation (17), and the Stanford Center for Research and Development in Teaching (63) have reviewed studies on teacher

effectiveness. They have concluded that one is unable to precisely define or measure teacher effectiveness, and the bulk of studies on the subject to date have produced negligible or contradictory results. One of the first such efforts was Biddle and Ellena (5). This summary of research concluded that results have been modest, inconclusive, and often contradictory, and it is not an exaggeration to say we do not today know how to select trained, effective teachers.

According to Dunkin and Biddle (18), research on teacher effectiveness has been conducted for many years and has generated more than 10,000 published studies. The authors point out that studies have provided few outcomes that a superintendent can use to hire a teacher. They conclude that the significant shortcoming of the earlier studies was that they did not focus on the actual process of teaching in the classroom, such as the crucial events of teacher-pupil interaction.

A review by the Stanford Center for Research and Development in Teaching, prepared by the National Institute of Education, concluded:

The literature on the evaluation of teachers, although bountiful in size and scope, suffers from an accumulation of unresolved issues. Theoretically, the process of evaluating teachers is still plagued with basic questions: are teachers subject to professional or bureaucratic evaluative processes? what are the critical aspects of a teacher's classroom performance? how are teaching techniques related to learning outcomes? should teachers be evaluated on performance or outcome?
(63)

Freda Holley (38) reviewed the literature on teacher evaluation and noted the tremendous number of publications about teacher evaluation. She concluded that there was very little true research which would give practical assistance in the design of a more effective evaluation system.

Gudridge (31) reported research findings from Medley, Coker, Ruth and Robert Soar, and others. She concluded that several studies revealed that the most marked differences between good and bad teachers is the trait of positive expectation. Good teachers believe their students will succeed--and they do. In a study of thirty Maryland schools, for example, both principals and teachers in the better schools expected a lot of the students. Gudridge further stated that what works with one group of students can have the opposite effect on another, depending on such factors as grade level, learning tasks, and socio-economic status.

A review of the literature of a recent doctoral dissertation provided an extensive compilation of pertinent research findings. Weslander (84) reported that from the beginning research findings were mixed and inconclusive. Based upon the literature, experience, academic record, and level of professional activity do not contribute to increased teacher effectiveness. Some personality characteristics, including methods of perceiving, have been found to correlate with improved performance of a teacher. But correlation is not causation, and consistent personality traits of successful teachers still seem to resist clear identification. Stable criteria for judging teacher effectiveness continue to be elusive.

The Rand Corporation (17) in conducting a teacher evaluation study for the National Institute of Education concluded that linking precise and specific teacher behavior to precise and specific learning of pupils is not possible at this time. Research has produced inconsistent findings.

Studies Related to the Role of the Teacher's Personal Characteristics to Effective Teaching

Throughout the four periods of research on teacher effectiveness, the personal qualities and behaviors of teachers have been hypothesized to have contributed toward given effects on students. Ryans (74), Patrick (68), Twining (81), Cruickshank (14), Tuckman (80) and Coker (13) are some of the researchers who have continued to examine this area.

Unfortunately, some researchers would have others believe that these traits and behaviors of successful teachers cannot be identified. Adherence to this negative position results in a line of thinking that states, "It is no use researching this field as past efforts have indicated it will be unproductive." Obviously, additional research is needed. No doubt proper methodological procedures will yield additional knowledge about the personal characteristics and behaviors of successful classroom teachers.

This review of the literature reveals that it is apparent that the traits associated with the effective teacher are legion. Certainly the numerous and varied lists of teacher characteristics stand as testimony to the fact it is indeed difficult to determine just what combination of traits defines a good teacher. The lack of easily measured and quantifiable teacher traits has been one of the shortcomings of teacher effectiveness studies.

Probably the largest and most sophisticated study related to teacher effectiveness was that conducted by Ryans (74). The research included 6,179 teachers in 1,747 schools. The findings revealed that there were three major patterns of teachers' classroom behavior: (1) warm,

understanding and friendly behaviors versus aloof, egocentric and restricted teacher classroom behavior; (2) responsible, businesslike, and systematic versus evading, unplanned, and slipshod teacher classroom behavior; and (3) stimulating and imaginative versus dull and routine teacher classroom behavior. One expert stated, "The Teacher Characteristic Study, directed by Ryans, is the single most extensive study of teachers to date" (27).

Yet, these early efforts to identify teacher characteristics related to effective teaching were disappointing, as reported by Getzels and Jackson:

Despite the critical importance of the problem and a half century of diligent research effort, very little is known for certain about the nature and measurement of teacher personality, or about the relationship between teacher personality and teaching effectiveness. The regrettable fact is that many of the studies so far have not produced significant results. Then it is said after the usual inventory tabulation that good teachers are friendly, cheerful, sympathetic, and morally virtuous rather than cruel, depressed, unsympathetic, and morally depraved. But when this has been said, not very much has been revealed that is especially useful. For what conceivable human interaction--and teaching implies first and foremost human interaction--is not the better if people involved are friendly, cheerful, sympathetic, and virtuous rather than the opposite? What is needed is not research leading to the reiteration of the self-evident but to the discovery of the specific and distinctive features of teacher personality of the effective teacher. (28)

Flanders (25) and Amidon and Giametteo (1) attempted to classify behaviors in terms of the interactive situation between the teacher and the students. They found that the superior teachers talked less, accepted more student ideas, encouraged more pupil-initiated participation, and gave fewer directions than did the average teachers.

Patrick (68) reported the profile of an effective teacher based on

the Edwards Personal Preference Schedule. The writer operationally defined the effective teacher in terms of student preference. The question was asked of college students, "Who was the most effective teacher you have had?" The teachers were then located and administered the Edwards Preference Inventory. The findings revealed that the effective teachers were outgoing and supportive on the one hand, and not autocratic and dogmatic on the other. Among the many traits of an effective teacher which Patrick listed were enthusiasm, creativity, interest in the subject, love of children, love of teaching, being a caring person, competence, understanding, and patience. Patrick concluded that effective teachers scored above the population means on the nurturance, change, affiliation, achievement, intraception, dominance, and exhibition scales of the Edwards. One of her recommendations was that teacher education institutions emphasize people rather than programs. In other words, the personality dimension is more important than the external criteria commonly used to hire teachers.

Manatt et al. (50) listed thirty items which they found to discriminate between teachers who were evaluated high and those that were evaluated low. The items were categorized into five rubrics descriptive of teacher behavior: productive teaching techniques, positive interpersonal relations, organized and structured class management, intellectual stimulation, and desirable out-of-class behavior. Within each factor, there were six teacher behaviors which discriminated between high and low rated groups. The six items related to positive interpersonal relations were: the teacher shows respect for pupils; the

teacher is tolerant of students with differing ideas; the teacher uses supportive criticism rather than blame, shame, or sarcasm; the teacher is readily available to students; the teacher is fair, impartial, and objective in treatment of pupils, and the teacher provides opportunities for all pupils to attain success.

A Department of Health, Education and Welfare (82) publication entitled "Do Teachers Make a Difference?" pointed out five categories of traits of an effective teacher. They were: (1) dedication to all children, which included such qualities as patience, humaneness, sensitivity, optimism, and tolerance; (2) ability to communicate, which included poise, sincerity, tact, adaptability, and expressiveness; (3) ability to motivate, which included empathy, enthusiasm, helpfulness, persuasiveness, friendliness, openmindedness, and charm; (4) ability to organize and manage a class, which included confidence, maturity, common sense, responsiveness and equanimity; and (5) the ability to create learning experiences, which included the tendency to experiment, curiosity, imagination, resourcefulness, and artistic ability.

Evertson et al. (22) examined junior high school mathematics and English classes to determine the relationship between some special classroom teacher behaviors and student achievement. The findings were relatively clear with regard to mathematics classes, but the results for effective English teachers were more complex. For instance, teachers of low-entering-ability students used methods quite different from teachers of high ability students in order to be successful. They were friendlier, more tolerant of personal requests, and encouraged appropriate

social contacts with their students. In contrast to math teachers, students wanted English teachers to give them choices--variety in their assignments, and not use class discussion exclusively. While academic rigor in math was valued by students, they were inclined to rate lower those English teachers who used criticism, sustained feedback, or difficult questions. The more effective mathematics teachers were active, well-organized, businesslike, and academically oriented, as well as nurturant, enthusiastic, and affectionate. While these characteristics were associated most clearly with attitude gains, they were related to achievement gains as well. These teachers used appropriate and generous amounts of praise, especially in encouraging and accepting student contribution. This research supports the concept that teacher effectiveness must be viewed differently when looking at differing grade levels or subject areas.

Gudridge (31) reported findings of the massive six-year Beginning Teacher Evaluation Study (BTES), conducted by the California Commission of Teacher Preparation and Licensing under the auspices of the National Institute of Education. The purpose of the study was to identify classroom conditions and teaching activities that foster student learning in elementary schools. The major finding of the study was that the more time students spent engaged in a learning activity, the more they will master the task. Other findings included that academic feedback had the strongest and most consistent positive relationship to achievement; students pay attention more when they have substantive interaction, and what works with one group of students can have an opposite effect on

another, depending on such factors as grade level, learning task, and socioeconomic status.

In a study by Coker et al. (13), a panel of teachers first compiled a list of teacher competencies believed to be important in teaching. Then trained observers rated one hundred teachers on the competencies. Behaviors related to increased student achievement included: listening to students, involving students in organizing and planning; giving clear, explicit directions; and maintaining self-control. Teacher behaviors related to decreased student achievement included using nonverbal communication skills, using praise or rewards, and giving students a voice in decision making.

Students are very quick to pick up other people's expectations about both their academic competence and their behavior. To an important extent, people tend to live up or down to what is expected of them. This factor was supported in a study by Klemp, an educational psychologist who studied the traits of poor and good teachers as measured by achievement of students, and his conclusions were:

The most marked difference between good and bad teachers is the trait of positive expectation. Good teachers believe their students will succeed...and the others have a low opinion of them. The other key trait separating the two is group management skills--the ability to know where the students are, and to be sensitive to their feelings. A certain level of knowledge is needed, but high levels of knowledge do not predict superior performance. (43)

The success of a teacher selection system, Selection Research Interview, was reported by Joe Millard and Richard Brooks (56). They used Selection Research Interview in the selection of teachers in two school districts in Polk County, Iowa, by analyzing audiotaped interviews with

the top three or four candidates for each position, and matching the candidates with previously prepared profiles of the school district. A three-year evaluation study of the Selection Research Interview process was conducted to determine the success of the teachers selected by the process by surveying peers, administrators, and students of the subjects. The survey and appraisal data were compared with the recommendations of the Selection Research Interview psychologists.

Three of the findings of the Millard and Brooks study were: (1) the Selection Research Interview process of identifying teachers who are likely to be successful in a given school district is reasonably successful; (2) Selection Research Interview is not equally effective in every district; and (3) the Selection Research Interview service is a useful process for teacher selection if it is used in the manner for which it is designed.

Beatrice Gudridge, an education writer, reviewed a case study in Reno, Nevada, "Helping Good Teachers Become Great." The Reno project, according to Associate Superintendent Roth of the Washoe County School District, Reno, Nevada, attempted to identify the differences between good and great teachers. Roth reported that:

We knew some time ago that some of our teachers were doing a terrific job so we interviewed them to find out what they were doing that was so effective. We discovered that they were not carbon copies of each other, but that many kinds of strengths could add up to super teaching. (31)

By using the teacher perceiver system and expanding upon what was learned, the district has determined many characteristics that distinguish good from great teachers. Some examples are:

Great teachers:

believe that teaching children is more important than teaching subjects

have certain characteristics that develop a learning climate, such as:

- they have empathy
- they listen
- they are objective
- they see people as individuals

have characteristics that activate learning

- they have a drive to build rapport
- they are innovative

have the drive to share their knowledge with students

read and collect things

use specific teaching techniques which they can describe

derive satisfaction from their investment in their work--from seeing children learn

Gudridge reviewed the Teacher Perceiver Interview system and quoted Gale Miller, general manager of SRI Perceiver Academies, Lincoln, Nebraska, who stated that,

The interview requires principals and other administrators to listen for teacher personality traits which have been validated by research as positively related to teaching. The list of traits includes: mission, empathy, rapport, drive, individualized perception, listening, investment, input drive, activation, innovation, Gestalt, objectivity, and focus. (31)

Skipper (78) conducted a four-year longitudinal study, following educational majors from their freshman year through their senior year, for the purpose of determining whether academic achievement and attitudes towards students might be positively associated with effective teaching. Findings of the study revealed academic achievement of these candidates

was positively related to personal and professional qualities, along with instructional competency and total effectiveness. Personal qualities were defined as emotional control, poise, and interest in students. Academic achievement is an important and practical factor in predicting teacher effectiveness for secondary candidates.

Thayer (79) reported on Project Empathy, an Omaha, Nebraska, Public Schools teacher selection methodology, which researched what hundreds of students, teachers, administrators, parents, and community patrons perceived about effective teaching. Eight life-style themes emerged as the focal points around which to describe an outstanding teacher. They were:

1. Relationship: a teacher relates to students by listening, being patient, caring, and building relationships to help students grow and develop.
2. Democratic orientation: a teacher with a democratic orientation works out problems with the students and sees supervision as supportive and understanding; not authoritarian, but is not necessarily permissive.
3. Rapport drive: the teacher likes students and wants them to like him or her; the teacher has a high rapport drive which makes one feel comfortable around them.
4. Empathy: the teacher puts himself or herself in the other person's place and attempts to understand the student's state of mind.
5. Student orientation: the teacher believes students ought to be heard, understood, and dealt with as people first, and such things as curriculum materials and public image take second place.
6. Acceptance: the teacher accepts the person as he is, and helps from that point; accepting teachers often have an openness about their feelings that makes them approachable.

7. Student success: the teacher receives satisfaction from the success of his/her students and sees it as fulfillment of his or her goals.
8. Work and professional orientation: the teacher participates in his or her professional organizations, cultivates professional relationships, and believes in his or her profession.

Follow-up research concerning the effectiveness of this approach in the hiring of teachers has been supportive to this methodology. Administrators from 350 school districts throughout the United States have been trained and are using part or all of the assessment system which stresses the importance of human qualities.

Hicknor (36) organized a study to determine whether organization of personality variables can be used to predict the attitude of student teachers towards teaching. This followed a literature search which showed little research had been done on the personality characteristics of teachers which influenced their attitudes toward students. Findings supported the study's hypotheses that prospective student teachers with an open conceptual system compared to a more closed or dogmatic system had a more favorable attitude toward students than those with a closed or dogmatic system. The nonauthoritarian individual was found to possess the characteristics of tolerance, achievement, independence, intellectual efficiency, self-acceptance, flexibility, responsibility, and a sense of well-being.

A survey which sampled superintendents' ideas concerning their priorities in selecting elementary teachers was reported by Marquardt (52). The research was designed to develop a profile or a composite

description of an ideal candidate. School superintendents from rural districts, suburbs, small cities, and metropolitan communities responded to a survey which requested them to group twelve items under three headings. The group headings specified major consideration, secondary considerations, and minor considerations in teacher selection. The resulting placement of the items in rank order was as follows: major considerations included student teaching record, work with children, emotional stability and personality; secondary considerations included health, majors and minors, grade point average, and work experience. Marquardt suggested that administrators should begin to consider using a screening test for emotional stability and personality before interviewing.

Weslander (84), in a doctoral dissertation, summarized that the traits, behaviors, and attitudes of effective teachers can be roughly classified into three categories. First, those relating to teaching techniques--those that contribute towards the teacher being organized and aid the teacher to "get down to business." Second, there are characteristics having to do with the personality type or traits of the teacher. As a person, the effective teacher is tolerant, patient, spontaneous, a caring person, friendly, imaginative, governed by an internal frame of reference, concerned with perceptual meaning. Third, the teacher exhibits certain behaviors outside the classroom or before entering the teaching field. The effective teacher has democratic attitudes, is committed to the goal of assisting pupil growth, utilizes community resources, is a good team worker, and has participated in "teacher-like" behaviors before entering teaching.

Many other researchers during the past two decades concluded that certain personal qualities are related to effective teaching. Some common personal characteristics and behaviors identified by these researchers are: warmth (30, 32, 44, 69), flexibility (30, 44, 46, 72), enthusiasm and dominance (41, 46, 69), and communication and interpersonal trust (11, 69).

Various studies reporting on youths' perceptions of what factors are important in effective teaching support the view that teacher personality characteristics are critical elements in bringing excellence to teaching. One of those studies was reported in Education U.S.A. (46) concerning a Colorado Department of Education sponsored conference on "Views of Youth." Top concerns of high school youth were that there was a lack of acceptance and involvement. Students felt no one cared and no one listened to their needs.

Wright and Alley (85) cited from a study of junior high students that views of the ideal teacher differed significantly from students as compared to teachers. According to students, the ideal teacher would be fair, intelligent, friendly, would assign homework as if it will be pleasurable, fun to be with, show no favoritism, and be good looking.

Mazer (53) concluded that students place more emphasis on teacher attitudes and relationships with students than on teacher merit. Levin (45) reported that students' ratings of teachers are substantially different than supervisors. Clarity of presentation, enthusiasm, and empathy with students are desirable characteristics of good teachers as perceived by students.

The Use of Tests for Pre-Selection Purposes

Teacher pre-employment testing is emerging rapidly as a new subject across the country. Montgomery (61) reported that this could turn into a bandwagon. Pre-selection tests are generally either instruments which measure cognitive items or personality and interpersonal psychology factors or a combination of the two.

In a survey of the 99 largest school districts in the United States, Holley (39) found that 25 per cent of the districts were using a test for screening purposes. Lewis reported that "one-third of the big city school systems require a test which is usually nothing more than a test of knowledge" (47). This fad has been fed by accountability, the teacher surplus, student competency testing, and a 1978 United States Supreme Court ruling. This high court decision upheld South Carolina's use of the National Teacher Examination for both certification and for salary purposes. The result is new pressures, laws, and regulations in a number of states to force new teachers to submit to various tests of their competencies. This trend is based partially on the belief that teachers should be able to demonstrate cognitive competencies as a prerequisite to a teaching position.

Nothorn (64) reported that ten states have mandated either by legislative or by Department of Public Instruction action, competency testing for teacher applicants. Fiske (24) noted that six states use the National Teacher Examination. In Florida, the legislature passed a law requiring a candidate for a teaching job to complete a competency test as well as a one-year internship before being awarded a teaching

certificate, beginning in 1980. A new Georgia program requires candidates to pass tests in 18 competencies and 55 indicators. Similar tests have been developed in South Carolina, Houston, Texas, and Montgomery County, Maryland.

In the private sector, personality and psychological testing is not new. Psychological and educational tests are used in the selection of personnel because it is generally accepted that they supply information which gives additional and valuable assistance in making decisions about people. Many businesses use psychological tests in their employment data collection.

In fact, Korten reported that Paul Sparks, a psychologist and coordinator of personnel research at Exxon Corporation, stated the following:

There is no major company that isn't at least experimenting with some form of psychological assessment.

The trend isn't new. For instance, Sears, Roebuck and Company began its psychological assessment program in the early 1940's. More corporations use psychologists nowadays, partly because testing has become more sophisticated, comprehensive, and objective.

"Increasingly, business believes that hiring and promotion decisions are too important to be made solely on the basis of such things as office politics, tenure, and highly-subjective performance evaluations by bosses," says Jon Boentz, Sears' Director of Psychological Research.

"Since 1960, more than 1600 firms have created assessment centers. They include General Electric, Union Carbide, International Business Machines, and J. C. Penney," says John Dobbs, Vice President of Development, Dimension, Inc., a Pittsburgh consulting firm. (44)

The testing in the private, as well as in the public sector, has not been done without conflicts. The experience that the Dallas Public Schools had in its research project using the Wesman Personnel Classification Tests is an example of this. Mitchell (59) reported that the

Wesman test was being used as a screening device for new teachers, and caught public fire because the district's validation study revealed low scores for currently-employed teachers.

In addition to possible conflict, administrators have been slow to use such tests for such reasons as cost, lack of trained personnel, and the belief that human behavior is too complex to measure. Although tests may not be absolute and perfect predictors, they have the capacity to improve batting averages in selection.

Realizing the possibility of conflict, there is substantial support for the personality testing. Two of those proponents were Sergiovanni and Carver, and they pointed out the following:

In most occupations controversy exists over the use of personality tests in estimating personal adequacy; but we believe that the job of teaching, in requiring close contact with children over long periods of time, is an exception and that personality testing in this case is essential. (77)

Support for such testing was voiced by English, an Oklahoma City, Oklahoma, Board of Education school board member when he stated:

Psychological examination should be administered to applicants for teaching positions in the Oklahoma City Public Schools and stricter criteria should be used for selecting teachers. . . . Before teachers are hired, school administrators should have some valid criteria about whether a prospect has a great interest in kids or if teaching is just a job.

Psychological testing and personality inventories could pick out applicants who might display some forms of behavior which will hinder classroom performance. (21)

The attitude of teacher organizations toward the use of tests for licensing, employment, and promotion is unlike more prestigious professions who insist on high standards, partly to restrict admission to special practice.

Effective Teaching as Measured by Principals' Ratings

As a part of the accountability of the Eighties, principals are being required to formally evaluate teachers. Wuhs and Manatt (86) reported that 26 states have mandated by state statutes and/or by state regulations the requirement to formally evaluate teachers.

To accomplish that task, the principals may use systematic observations for the purpose of collecting data essential to reliable evaluations. This method, usually coupled with pre- and post-conferences, is the mainstay of most teacher evaluation systems (23). It involves direct observation of the teacher performing in the classroom and attempts to capture what the teacher knows and does in interacting with a class of students. The process results in a measure of a teacher's performance.

However, even proponents of this method recognize its limitations. Observer bias, insufficient samples of performance, and poor measurement instruments can threaten the reliability and validity of results.

Summary

The review of literature was intended to cite and discuss representative writings in the areas of personal factors that contribute towards effective teaching. The literature, although bountiful in size and scope, suffered from an accumulation of unresolved issues. Theoretically, evaluating teachers is still plagued with the basic question, "What teacher characteristics and behavior make students learn more?" Since the research of the literature has cited no previous study that has identified a single constellation of personal qualities that fit a

person ideally to teach, and because of the uniqueness of this study of secondary teachers, unique because as Thomas Good stated, "Most research to date has focused on skill achievement in elementary schools, considerably fewer clear cut results are available for secondary schools" (29), it is anticipated that this research topic cannot only benefit the Des Moines Public Schools, but also districts and universities throughout the nation.

The review of literature also included a look at pre-employment personality and psychological testing in the public schools as well as the private sector. An analysis of that review indicated that the private sector is far in advance of the public sector in such efforts.

The review concluded by examining the practice of evaluating teacher performances by principals' ratings. The practice of principals evaluating teachers was found to be the mainstay of most evaluation systems.

CHAPTER III. METHODS

Purposes and Hypotheses

The major goal of this investigation was to identify differences in personal characteristics among secondary teachers. That goal led to the development of seven purposes, with each purpose generating an operational hypothesis which in turn suggested an empirical hypothesis.

The purposes and hypotheses are as follows:

- (1) To determine if personality characteristics differ for those teachers evaluated as exceeding district standards as compared to those that met district standards; the mean scores would be higher on the scales of the three personality inventories who exceeded district standards as compared to those that met district standards; there will be no significant differences in the mean scores on the scales of the three inventories of those teachers evaluated as exceeding district standards as compared to those who met district standards.
- (2) To determine if teachers of different subject areas who exceeded district standards have personality characteristics different from those who met district standards; the mean scores would be higher on the scales of the three personality inventories of teachers of different subject areas who exceed district standards as compared to those that met district standards; there will be no significant differences in the mean scores on the scales of the three personality inventories of the teachers of different subject areas who exceeded district standards as compared to those teachers who met

district standards.

- (3) To determine if teachers with advanced professional training who exceeded district standards have personality characteristics different from those who met district standards; the mean scores would be higher on the scales of the three personality inventories of teachers with advanced professional training who exceeded district standards as compared to those that met district standards; there will be no significant differences in the mean scores on the scales of the three personality inventories of the teachers with advanced professional training who exceeded district standards as compared to those teachers who met district standards.
- (4) To determine if teachers with different years of teaching experience who exceeded district standards have personality characteristics different from those who met district standards; the mean scores would be higher on the scales of the three personality inventories of teachers with the least experience who exceeded district standards as compared to those who met district standards; there will be no significant differences in the mean scores on the scales of the three personality inventories of the teachers with different years of experience who exceeded district standards as compared with those teachers who met district standards.
- (5) To determine if teachers of different subject areas possess similar personality factors; the mean scores of teachers of different subject areas would score similarly on the scales of the three personality inventories; there will be no significant differences

in the mean scores of the teachers of different subject areas.

- (6) To determine if teachers with different levels of advanced training possess similar personality factors; the mean scores of teachers with different levels of advanced training would score similarly on the scales of the three personality inventories; there will be no significant differences in the mean scores of the teachers with different levels of advanced training on the scales of the three personality inventories.
- (7) To determine if teachers with various years of experience possess similar personality factors; the mean scores of teachers with various years of experience would score similarly on the scales of the three personality inventories; there will be no significant differences in the mean scores of the teachers with various experience on the scales of the three personality inventories.

Research Design

The design for this investigation included as a first step the selection of three personality inventories which were to be administered to the subjects selected for this study. The three inventories selected were the 16 Personality Factor, the Fundamental Interpersonal Orientation-Form B, and the California Psychological.

The next task was to invite 240 secondary teachers who were evaluated as either meeting or exceeding district standards to participate in this study. These teachers were to represent various teaching areas, ages, and educational training. The measure as to whether a teacher met or exceeded district standards was a principal's summative

performance evaluation rating.

Four testing sessions were scheduled, and to insure consistency and uniformity across testing sessions, a representative from the personnel office served as a proctor at each test session. Approximately half of the sample included teachers who were evaluated as meeting district standards, and the other half as exceeding district standards. Results from each teacher were collected at the testing stations. The final step of the research design was to score the data and subject them to the appropriate tests of significance to determine if the differences on the scales of the three personality inventories were greater than might have occurred by chance.

Identification of the Research Subjects

The population for this sample consisted of 177 Des Moines secondary teachers who were evaluated by their supervisors as either meeting or exceeding district standards. These teachers taught in eleven junior high schools and six senior high schools.

The 177 teachers were identified from a population of 520 secondary teachers who were evaluated by their principals in 1979. Eighty-six of the 177 teachers met district standards and 91 exceeded district standards. The number of staff members selected in each building meeting district standards was matched by a similar number that exceeded district standards. Stratified random selection from the two populations formed the basis for the selection.

Table 1. Descriptive data on 177 teachers who participated in this study (N=177)

Performance level	Subject taught		Educational training		Experience (years)		
	No.	No.	No.	No.	No.	No.	
Meets	86	Math-Sci	30	Bachelor's	31	0- 5	25
Female	42	Female	13	Bachelor+15	35	6-10	45
Male	44	Male	17	Master's	36	11-15	33
Exceeds	91	Eng-Soc Sci	47	Master+15	53	16-20	23
Female	43	Female	20	Specialist	22	21-25	18
Male	48	Male	27			26-30	21
		Arts ^a	37			30+	11
		Female	16				
		Male	21				
		Others ^b	63				
		Female	36				
		Male	27				

^aIncluded art, music, home economics, and industrial arts teachers.

^bIncluded physical education, driver training, and business education teachers.

Instruments

The Sixteen Personality Factor questionnaire, the Fundamental Interpersonal Relations Orientation-Form B inventory, and the California Psychological inventory were administered to the subjects for this study.

A brief discussion of those instruments is as follows:

- (1) The Sixteen Personality Factor (16 PF). Cattell (12) designed an objectively scored test devised by basic research in psychology to give the most complete personality assessment possible in a brief time. The comprehensive coverage of personality rests upon measurement of 16 functionally independent and psychologically meaningful dimensions isolated and replicated in more than 30 years of factor-analytic research on normal groups. In addition to the 16 primary factors, the test can be used as a measure of eight secondary

dimensions which are broader traits, scorable from the component primary factors. The scales of the sixteen primary traits, as well as four of the eight second order dimensions, are listed and described in Table 2.

- (2) The California Psychological (CPI). Gough (30) created an objectively scored test which includes 18 standard scales concerned with characteristics of personality which have a broad applicability to human behavior. The inventory is intended primarily for use with normal subjects. Its scales are addressed to personality characteristics important for social living and social interaction. Each of the 18 standard scales is intended to assess one important fact of interpersonal psychology. The 18 standard scales and their definitions are listed in Table 3.
- (3) The Fundamental Interpersonal Relations Orientation-Form B (FIRO-B). This personality inventory is an objectively scored test whose primary purposes are to (1) measure how an individual acts in interpersonal situations, and (2) to provide an instrument that will facilitate the prediction of interaction between people. To accomplish the second objective, two aspects of behavior in each dimension are assessed: the behavior an individual expresses toward others (e); and the behavior he wants others to express towards him (w). Schutz (76), who developed this test, postulates that every individual has three interpersonal or group needs: inclusion, control, and affection. Inclusion is defined as the interpersonal need to establish and maintain a satisfactory

Table 2. Scales and descriptions of the 16 primary and 4 second order personality factors of the 16 Personal Factors Inventory^a

Factor	Low score direction	High score direction
A	RESERVED, detached, critical, aloof, stiff	OUTGOING, warmhearted, easygoing, participating
B	DULL, low intelligence	BRIGHT, high intelligence
C	AFFECTED BY FEELINGS, emotionally less stable, easily upset, changeable, lower ego strength	EMOTIONALLY stable, mature, faces reality, calm, higher ego strength
E	HUMBLE, mild, easily led, docile, accommodating, submissiveness	ASSERTIVE, aggressive, competitive, stubborn, dominance
F	SOBER, taciturn, serious desurgency	HAPPY-GO-LUCKY, enthusiastic, surgency
G	EXPEDIENT, disregards rules, weaker superego strength	CONSCIENTIOUS, persistent, moralistic, staid, stronger superego strength
H	SHY, timid, threat-sensitive	VENTURESOME, uninhibited, socially bold
I	TOUGH-MINDED, self-reliant, realistic	TENDER-MINDED, sensitive, clinging, overprotected
L	TRUSTING, accepting conditions	SUSPICIOUS, hard to fool
M	PRACTICAL, "down-to-earth" concerns	IMAGINATIVE, bohemian, absent-minded
N	FORTHRIGHT, unpretentious, genuine but socially clumsy, artlessness	ASTUTE, polished, socially aware, shrewdness
O	SELF-ASSURED, placid, secure, complacent, serene, untroubled adequacy	APPREHENSIVE, self-reproaching, insecure, worrying, troubled, guilt proneness

^aSource: Cattell et al. (12, pp. 16-17).

Table 2. Continued

Factor	Low score direction	High score direction
Q ₁	CONSERVATIVE, respecting traditional ideas, conservatism of temperament	EXPERIMENTING, liberal, free-thinking, radicalism
Q ₂	GROUP DEPENDENT, a "joiner" and sound follower, group adherence	SELF-SUFFICIENT, resourceful, prefers own decisions, self-sufficiency
Q ₃	UNDISCIPLINED SELF-CONFLICT, lax, follows own urges, careless of social rules, low self-sentiment integration	CONTROLLER, exacting will power, socially precise, compulsive, following self-image, high strength of self-sentiment
Q ₄	RELAXED, tranquil, torpid, unfrustrated, composed, low ergic tension	TENSE, frustrated, driven, overwrought, high ergic tension
<u>Second-Order Factor Scores</u>		
Q _I	INTROVERSION, shy, self-sufficient, inhibited in interpersonal contacts	EXTROVERSION, socially outgoing, uninhibited, good at making and maintaining interpersonal contacts
Q _{II}	LOW ANXIETY, life is generally satisfying and is able to achieve those things that seem to be important	HIGH ANXIETY, is generally dissatisfied with degree to which is able to meet demands of life and to achieve what is desired
Q _{III}	TENDERMINDED EMOTIONALLY, sensitive to subtleties of life, likely to be artistic and rather gentle, may be a discouraged and frustrated type	TOUGH POISE, likely to be an enterprising, decisive and resilient personality
Q _{IV}	SUBDUEDNESS, is group-dependent, chastened, passive personality, likely to desire and need support from other persons	INDEPENDENCE, tends to be aggressive, independent, daring, incisive person, likely to exhibit considerable initiative

Table 3. Scales and their descriptions for the California Psychological Inventory^a

Scale	Scale descriptions
Dominance Do	Assesses factors of leadership, ability, dominance, persistence and social initiative.
Capacity for status Cs	Serves as an index of an individual's capacity for status. The scale attempts to measure the personality qualities and attributes which underlie and lead to status.
Sociability Sy	Identifies persons of outgoing, sociable, and participative temperament.
Social presence Sp	Assesses factors such as poise, spontaneity, and self-confidence in personal and social interaction.
Self-acceptance Sa	Assesses factors such as sense of personal worth, self-acceptance, and capacity for independent thinking and action.
Sense of well-being Wb	Identifies persons who minimize their worries and complaints, and who are relatively free from self-doubt and disillusionment.
Responsibility Re	Identifies persons of conscientious, responsible, and dependable disposition and temperament.
Socialization So	Indicates the degree of social maturity, probity, and rectitude which the individual has attained.
Self-control Sc	Assesses the degree and adequacy of self-regulation and self-control and freedom from impulsivity and self-centeredness.

^aSource: Gough (30, pp. 10-11).

Table 3. Continued

Scale	Scale descriptions
Tolerance To	Identifies persons with permissive, accepting and nonjudgmental social beliefs and attitudes.
Good impression Gi	Identifies persons capable of creating a favorable impression, and who are concerned about how others react to them.
Communality Cm	Indicates the degree to which an individual's reactions and responses correspond to the common pattern established for the inventory.
Achievement via conformance Ac	Identifies those factors of interest and motivation which facilitate achievement in any setting where conformance is a positive behavior.
Achievement via independence Ai	Identifies those factors of interest and motivation which facilitate achievement in any setting where autonomy and independence are positive behaviors.
Intellectual efficiency Ie	Indicates the degree of personal and intellectual efficiency which the individual has attained.
Psychological-mindedness Py	Measures the degree to which the individual is interested in and responsive to, the inner needs, motives, and experiences of others.
Flexibility Fx	Indicates the degree of flexibility and adaptability of a person's thinking and social behavior
Femininity Fe	Assesses the masculinity or femininity of interests.

relationship with people with respect to interaction and association. The interpersonal need for control is the need to establish and maintain a satisfactory relationship with people with respect to control and power. The interpersonal need for affection is the need to establish and maintain a satisfactory relationship with others with respect to love and affection. The scales and their descriptions are identified in Table 4.

Table 4. Names, descriptions and symbols for the Fundamental Interpersonal Relations Orientation-Form B scales^a

Interpersonal dimensions	Expressed behavior	Wanted behavior
INCLUSION, need to establish and maintain a satisfactory relationship with people with respect to interaction and association.	e ^I I make efforts to include other people in my activities and to get them to include me in theirs. I try to belong, to join social groups, to be with people as much as possible.	w ^I I want other people to include me in their activities and invite me to belong, even if I do not make an effort to be included.
CONTROL, need to establish and maintain a satisfactory relationship with people with respect to control and power.	e ^C I try to exert control and influence over things. I take charge of things and tell other people what to do.	w ^C I want others to control and influence me. I want other people to tell me what to do.
AFFECTION, need to establish and maintain a satisfactory relationship with others with respect to love and affection.	e ^a I make efforts to become close to people. I express friendly and affectionate feelings and try to be personal and intimate.	w ^a I want others to express friendly and affectionate feelings toward me and try to become close to me.

^aSource: Schutz (76, p. 5).

Statistical Treatment

Data processing was conducted at the Iowa State Computation Center, using the Statistical Package for the Social Sciences, and each of the seven hypotheses was subjected to statistical treatment and tested at the .05 and the .01 level. Responses from each of the subjects on each of the three personality inventories were subjected to three, two-way multivariate analyses of variance (MANOVA). The general linear model for any given personality inventory scale was as follows:

$$Y_{ijkl} = \mu_i + \alpha_{ij} + \beta_{ik} + \alpha\beta_{ijk} + \varepsilon_{ijk}$$

where:

μ_i is the overall mean for a given i th personality inventory scale;

α_{ij} is the evaluation effect;

β_{ik} is either the subject area taught, teacher's experience, or teacher's degree effect;

$\alpha\beta_{ijk}$ is the interaction of the evaluation effect and either subject area taught, teacher's experience or teacher's degree effect; and

Y_{ijkl} is the dependent variable.

After computing each MANOVA, Wilks' Lambda was used as the multivariate significance test of group differences. The Wilks is the preferred statistic for testing the significance of each of the sources of variance in a Manova experimental design (34). It is used to test the significance of the main effects and interaction effects of the independent variables on the dependent variables. Subsequent univariate

F-tests were computed on the main effects and the interaction effect whenever the Wilks' Lambda was found to be statistically significant.

Finally, Tukey's Honestly Significant Difference test was used to delineate group mean differences for statistically significant univariate F-tests. This multiple comparison test was computed to adjust for the unequal cell sizes within subject effect.

CHAPTER IV. FINDINGS

Introduction

The basic problem for this research was to identify differences in personality characteristics among secondary teachers classified by performance levels with the intent of improving selection procedures. To accomplish this task, data were collected from three personality inventories which were administered to 177 stratified, randomly-selected teachers who had been evaluated as either meeting or exceeding district standards by their supervisors. These teachers represented various teaching areas, ages, and levels of educational training. The measure as to whether a teacher met or exceeded district standards was a principal's end-of-the-year summative performance evaluation rating.

The chapter is divided into three parts. First, there is a listing of the means for the four main effects and the three interactions followed by a summary table of inferential statistics for the 16 PF. Next, data are presented for the four main effects and three interactions and a summary table of inferential statistics for the CPI. Finally, there is a listing of the means for the four main effects and the three interactions for the FIRO-B.

A comparison of the personal factors as measured by the 16 PF of teachers classified by "exceeds" or "meets" the district's performance standards is contained in Table 5. The personal factors (16 plus 4 second order factors) describe the subjects' personal characteristics in such diverse attributes as "reserved vs. out-going" to "subdued vs. independent." Generally speaking, the teachers' ratings in each category

Table 5. Means of teachers either evaluated as meeting or exceeding district standards as measured by the scales of the 16 PF, standard mean score for general population and raw score range potential (N=177)^a

Scale - Factor	Evaluation level		Standard mean score for general population	Raw score range potential
	Meets	Exceeds		
Low score vs. high score	N=86	N=91		
A Reserved vs. outgoing	10.05	10.93	10.75	0-20
C Affected by feelings vs. emotionally stable	16.09	16.88	16.07	0-26
F Sober vs. happy-go-lucky	12.09	14.11	13.86	0-26
H Shy vs. venturesome	15.14	16.44	13.85	0-26
L Trusting vs. suspicious	6.50	6.67	6.80	0-20
Q ₁ Conservative vs. experimenting	7.44	7.50	8.59	0-20
Q ₃ Undisciplined self-conflict vs. controlled	13.67	13.99	12.89	0-20
N Forthright vs. astute	8.71	8.57	9.80	0-20
B Dull vs. bright	7.65	8.47	7.04	0-13
G Expedient vs. conscientious	13.05	13.15	13.08	0-20
M Practical vs. imaginative	12.71	12.72	13.08	0-26
Q ₂ Group dependent vs. self-sufficient	11.09	10.39	10.23	0-20
E Humble vs. assertive	12.09	12.89	12.08	0-26
I Tough-minded vs. tender-minded	10.71	11.55	11.18	0-20
O Self-assured vs. apprehensive	8.46	7.70	10.09	0-26
Q ₄ Relaxed vs. tense	10.57	10.54	11.82	0-20
Q _I Introversion vs. extroversion	5.30**	6.12**	na ^b	10.7
Q _{II} Low anxiety vs. high anxiety	5.00	4.78	na	7.3
Q _{III} Tender-minded vs. tough poise	5.64	5.80	na	10.0
Q _{IV} Subduedness vs. independence	5.66	5.91	na	10.4

^aSource: Cattell (12, p. 27).

^bNot available.

**Significant P < .01 (see Table 12).

could be described as desirable and positive. In terms of descriptive data, 15 of the 20 means were greater for the "exceeds" teachers. Only one factor examined, however, was statistically significant and that was "introversion vs. extroversion." That is to say, the "exceeds" teachers were significantly more extroverted. In the main, both performance groups were similar to the general population except in the factor "self-assured vs. apprehensive." In this instance, teachers were markedly more self-assured.

As reported in Table 6, when the personal factors of teachers who teach different subject areas were contrasted, statistically significant differences were found on four sub-scales. Those sub-scales were C, "affected by feelings vs. emotional stability"; I, "tough-minded vs. tender-minded"; Q₄, "self-assured vs. apprehensive"; and Q_{II}, "relaxed vs. tense."

On the personal factor of "affected by feelings vs. emotional stability," the mean scores for the mathematics-science teachers were significantly higher ($P < .01$) than the English-social science and the arts teachers. Consequently, as measured by the 16 PF, the mathematics-science teachers tended to be more emotionally stable and the English-social science and arts teachers more affected by feelings.

Similarly, differences on the scale of "tough-minded vs. tender-minded" were identified. The mean scores of English-social science, physical education, drivers' education, counselors, and business education teachers were significantly higher ($P < .01$) than the mathematics-science teachers, and, as measured by this instrument, all were more

Table 6. Means for teachers of various subject areas as measured by the scales of the 16 PF, standard mean score for general population and raw score range potential (N=177)

Scale - Factor	Subject area				Standard mean score for general population	Raw score range potential
	Math/science	Eng/Soc Sci	Arts ^a	Miscellaneous ^b		
Low score vs. high score	N=30	N=47	N=37	N=63		
A Reserved vs. outgoing	9.40	10.89	10.51	10.73	10.75	0-20
C Affected by feelings vs. emotionally stable	18.03**	15.17**	16.00**	17.05**	16.07	0-26
F Sober vs. happy-go-lucky	13.53	12.47	13.81	13.03	13.86	0-26
H Shy vs. venturesome	15.87	15.94	14.24	16.60	13.85	0-26
L Trusting vs. suspicious	6.70	7.34	6.38	6.09	6.80	0-20
Q ₁ Conservative vs. experimenting	7.27	7.87	7.16	7.46	8.59	0-20
Q ₃ Undisciplined self-conflict vs. controlled	14.43	13.17	13.59	14.19	12.89	0-20
N Forthright vs. astute	8.97	8.42	9.00	8.43	9.80	0-20
B Dull vs. bright	8.90	7.85	7.78	8.01	7.04	0-13
G Expedient vs. conscientious	13.13	13.08	13.67	12.76	13.08	0-20
M Practical vs. imaginative	13.17	13.68	12.24	12.06	13.08	0-26
Q ₂ Group dependent vs. self-sufficient	11.47	11.15	10.73	10.08	10.23	0-20
E Humble vs. assertive	12.43	13.07	13.13	11.75	12.08	0-26
I Tough-minded vs. tender-minded	8.73**	12.87**	10.70**	11.25**	11.18	0-20
O Self-assured vs. apprehensive	8.07	7.59	10.00	7.30	10.09	0-26
Q ₄ Relaxed vs. tense	10.37*	10.74*	12.65*	9.27*	11.82	0-20
Q _I Introversion vs. extroversion	5.52	5.67	5.63	5.91	na ^c	10.7
Q _{II} Low anxiety vs. high anxiety	4.50**	5.18**	5.72**	4.37**	na	7.3
Q _{III} Tender-minded vs. tough poise	6.27	5.41	5.61	5.77	na	10.0
Q _{IV} Subduedness vs. independence	5.91	6.17	5.38	5.69	na	10.4

^aIncluded art, music, home economics and industrial arts teachers.

^bIncluded physical education, driver education, counselors, and business education teachers.

^cNot available.

**Significant P<.01 (see Table 12).

*Significant P<.05 (see Table 12).

tender-minded than the mathematics-science teachers who rated "tough minded." In addition to differing from the mathematics-science teachers, the means of the English-social science teachers were significantly higher than the arts teachers; i.e., English-social science teachers tended to be more tender-minded and the arts teachers more tough-minded.

Arts teachers, as reported in Table 6, were statistically different than the physical education, drivers' education, counselors, and business education teachers on factor Q_4 , "relaxed vs. tense." Arts teachers on this measured factor tended to be more tense, while the physical education, drivers' education, counselors, and business education teachers were more relaxed.

The results of the second order factor Q_{II} , "low anxiety vs. high anxiety," revealed that the means of the arts teachers were statistically different ($P < .01$) than the mathematics-science, physical education, drivers' education, counselors and business education teachers. In this personal factor, the arts teachers tended to have more anxiety and the physical education, drivers' education, counselors, and business education teachers lower anxiety.

Inspection of all teachers' scores and the general population means revealed few differences. Teachers were, perhaps, more venturesome and self-assured. Note that no statistical treatment was performed.

An analysis of Table 7 indicated that professional training had no statistically significant association with the results of the mean scores for the 20 personal factors of the 16 PF. Table 8 similarly indicated

Table 7. Means of teachers with different educational training as measured by the scales of the 16 PF, standard mean score for general population and raw score range potential (N=177)

Scale - Factor		Training level					Standard mean score for general population	Raw score range potential
		BS-BA>	BS<30	MS-MA>	MA<15	MA+15>		
Low score vs. high score		N=31	N=35	N=36	N=53	N=22		
A	Reserved vs. outgoing	10.52	9.88	10.80	10.94	9.91	10.75	0-20
C	Affected by feelings vs. emotionally stable	15.64	16.55	15.83	17.07	17.32	16.07	0-26
F	Sober vs. happy-go-lucky	14.22	12.48	13.11	13.70	11.27	13.86	0-26
H	Shy vs. venturesome	14.97	16.88	15.28	16.07	15.50	13.85	0-26
L	Trusting vs. suspicious	6.77	7.00	6.19	6.62	6.23	6.80	0-20
Q1	Conservative vs. experimenting	7.32	8.23	6.53	7.57	7.82	8.59	0-20
Q3	Undisciplined self-conflict vs. controlled	12.87	14.31	14.39	13.77	13.68	12.89	0-20
N	Forthright vs. astute	8.61	8.23	8.53	8.94	8.77	9.80	0-20
B	Dull vs. bright	8.58	7.54	7.94	8.32	7.82	7.04	0-13
G	Expedient vs. conscientious	13.84	11.54	13.17	13.47	13.54	13.08	0-20
M	Practical vs. imaginative	12.87	11.46	12.42	13.47	13.18	13.08	0-26
Q2	Group dependent vs. self-sufficient	10.87	10.77	10.78	10.51	10.95	10.23	0-20
E	Humble vs. assertive	13.00	11.71	12.80	12.96	11.45	12.08	0-26
I	Tough-minded vs. tender-minded	12.10	11.83	11.14	10.96	9.14	11.18	0-20
O	Self-assured vs. apprehensive	9.32	7.71	7.53	8.26	7.32	10.09	0-26
Q4	Relaxed vs. tense	12.81	9.74	9.64	10.98	9.14	11.82	0-20
QI	Introversion vs. extroversion	6.01	5.46	5.76	5.93	5.19	na ^a	10.7
QII	Low anxiety vs. high anxiety	5.66	4.61	4.72	4.90	4.50	na	7.3
QIII	Tender-minded vs. tough poise	5.79	5.89	5.39	5.86	5.61	na	10.0
QIV	Subduedness vs. independence	5.83	5.72	5.80	5.85	5.68	na	10.4

^aNot available.

Table 8. Means of teachers with varied years of experience as measured by the scales of the 16 PF, standard mean score for general population and raw score range potential (N=177)

Scale - Factor	Years of experience							Standard mean score for general population	Raw score range potential
	0-5	6-10	11-15	16-20	21-25	26-30	30+		
Low score vs. high score	N=25	N=45	N=33	N=23	N=18	N=21	N=11		
A Reserved vs. outgoing	10.35	10.47	10.91	10.04	11.39	10.76	8.82	10.75	0-20
C Affected by feelings vs. emotionally stable	15.42	16.91	16.42	15.78	17.72	16.76	16.54	16.07	0-26
F Sober vs. happy-go-lucky	13.96	14.11	13.51	12.09	13.28	12.57	9.00	13.85	0-26
H Shy vs. venturesome	15.23	15.18	16.21	14.65	20.33	15.48	14.18	13.85	0-26
L Trusting vs. suspicious	7.27	6.13	6.45	6.83	6.22	6.95	6.64	6.80	0-20
Q ₁ Conservative vs. experimenting	8.35	7.40	6.70	7.26	8.50	6.57	8.54	8.59	0-20
Q ₃ Undisciplined self-conflict vs. controlled	12.50	13.60	14.33	12.48	14.39	14.52	17.09	12.89	0-20
N Forthright vs. astute	8.65	7.87	9.12	8.52	8.78	9.33	9.00	9.80	0-20
B Dull vs. bright	8.88	8.11	8.03	7.74	7.94	7.90	7.36	7.04	0-13
G Expedient vs. conscientious	13.08	12.95	13.67	11.78	13.33	14.38	12.00	13.08	0-20
M Practical vs. imaginative	11.96	13.33	12.48	12.30	12.61	13.38	12.45	13.08	0-26
Q ₂ Group dependent vs. self-sufficient	11.46	10.42	9.64	10.48	11.11	11.90	11.27	10.23	0-20
E Humble vs. assertive	13.31	13.13	12.06	12.13	11.94	12.05	11.91	12.08	0-26
I Tough-minded vs. tender-minded	12.04	12.22	10.94	11.17	10.11	9.71	9.54	11.18	0-20
O Self-assured vs. apprehensive	9.92	7.93	7.57	8.39	6.28	8.86	6.54	10.09	0-26
Q ₄ Relaxed vs. tense	12.31	10.40	9.39	11.61	9.05	12.28	7.45	11.82	0-20
Q _I Introversion vs. extroversion	5.94	5.93	5.91	5.45	6.09	5.36	4.47	na ^a	10.7
Q _{II} Low anxiety vs. high anxiety	5.78	4.75	4.48	5.23	4.10	5.44	4.05	na	7.3
Q _{III} Tender-minded vs. tough poise	6.21	5.70	5.77	5.41	5.90	5.42	5.53	na	10.0
Q _{IV} Subduedness vs. independence	5.96	5.98	5.49	5.73	5.92	5.45	6.10	na	10.4

^aNot available.

that experience had no statistically significant relation to the mean scores for the personal factors.

A comparison of the personal factors of teachers classified by "exceeds" or "meets" performance level, classified by various teaching areas, appears in Table 9. A look at the descriptive data indicated that the means of the "exceeds" teachers were generally greater than the "meets" teachers. Specifically, 14 of 20 for the mathematics-science and English-social science teachers, 12 of 20 for the arts teachers, and 13 of 20 for the physical education, counselors, and business education teachers were greater than the "meets" teachers. Nonetheless, only two factors were statistically significant; they were factor G, "expedient vs. conscientious" ($P < .01$) and O, "self-assured vs. apprehensive" for the interaction of performance evaluation and subject area taught. Information from Table 9 and Figures 1 and 2 supports those findings.

An interpretation of Figure 1 noted that English-social science and arts teachers who were evaluated as "exceeds" were more conscientious and the "meets" teachers of the same subject areas were more "expedient." Interestingly, the physical education, drivers' education, counselors, and business education teachers who were evaluated as "exceeds" tended to have the opposite characteristics. They were more expedient and the "meets" teachers were more conscientious!

The mean scores of the mathematics-science teachers who were evaluated as exceeding district standards as compared to those who met were very similar.

Table 9. Means for subject area taught and evaluation classification effects on the 16 PF, standard mean score for general population and raw score range potential (N=177)

Scale - Factor	Low score vs. high score	Subject area				Standard mean score for general population	Raw score range potential
		Evaluation	Math/science N=30	Eng/Soc sci N=47	Arts ^a N=37		
A	Reserved vs. outgoing	Meets	9.73	9.68	9.86	10.64	0-20
		Exceeds	9.07	11.96	11.37	10.80	
C	Affected by feelings vs. emotionally stable	Meets	18.67	14.14	15.76	16.50	0-26
		Exceeds	17.40	16.08	16.31	17.48	
F	Sober vs. happy-go-lucky	Meets	13.53	9.82	13.24	12.25	0-26
		Exceeds	13.53	14.80	14.56	13.66	
H	Shy vs. venturesome	Meets	15.47	15.27	13.86	15.82	0-26
		Exceeds	16.27	16.52	14.75	17.23	
L	Trusting vs. suspicious	Meets	6.47	8.45	5.81	5.50	0-20
		Exceeds	6.93	6.36	7.12	6.57	
Q ₁	Conservative vs. experimenting	Meets	7.07	9.14	6.52	7.00	0-20
		Exceeds	7.47	6.76	8.00	7.83	
Q ₃	Undisciplined self-conflict vs. controlled	Meets	14.67	11.73	13.14	15.07	0-20
		Exceeds	14.20	14.44	14.19	13.48	
N	Forthright vs. astute	Meets	8.27	9.18	9.09	8.28	0-20
		Exceeds	9.67	7.76	8.87	8.54	
B	Dull vs. bright	Meets	8.73	7.27	7.24	7.68	0-13
		Exceeds	9.07	8.36	8.50	8.28	

^aIncluded art, music, home economics, and industrial arts teachers.

^bIncluded physical education, driver education, counselors, and business education teachers.

Table 9. Continued

Scale - Factor		Subject area					Standard mean score for general population	Raw score range potential
		Evaluation	Math/science	Eng/Soc sci	Arts ^a	Miscellaneous ^b		
Low score vs. high score			N=30	N=47	N=37	N=63		
G	Expedient vs. conscientious	Meets	13.13**	12.32**	12.95**	13.64**	13.08	0-20
		Exceeds	13.13**	13.76**	14.62**	12.06**		
-M	Practical vs. imaginative	Meets	12.53	13.64	12.62	12.14	13.08	0-26
		Exceeds	13.80	13.72	11.75	12.00		
Q ₂	Group dependent vs. self-sufficient	Meets	11.33	11.95	10.81	10.50	10.23	0-20
		Exceeds	11.60	10.44	10.62	9.74		
E	Humble vs. assertive	Meets	12.13	12.59	12.71	11.21	12.08	0-26
		Exceeds	12.73	13.48	13.69	12.17		
I	Tough-minded vs. tender-minded	Meets	7.67	11.86	10.95	11.25	11.18	0-20
		Exceeds	9.80	13.76	10.37	11.26		
O	Self-assured vs. apprehensive	Meets	6.93*	8.73*	10.95*	7.21*	10.09	0-26
		Exceeds	9.20*	6.60*	8.75*	7.37*		
Q ₄	Relaxed vs. tense	Meets	9.23	10.59	13.19	9.25	11.82	0-20
		Exceeds	11.40	10.88	11.94	9.28		
Q _I	Introversion vs. extroversion	Meets	5.54	4.63	5.34	5.67	na ^c	10.7
		Exceeds	5.51	6.58	6.01	6.11		

^cNot available.

**Significance P<.01 (see Table 12).

*Significance P<.05 (see Table 12).

Table 9. Continued

Scale - Factor	Subject area					Standard mean score for general population	Raw score range potential
	Evaluation	Math/science	Eng/Soc sci	Arts ^a	Miscellaneous ^b		
Low score vs. high score		N=30	N=47	N=37	N=63		
Q _{II} Low anxiety vs. high anxiety	Meets	4.02	5.50	5.87	4.48	na ^c	7.3
	Exceeds	4.99	4.90	5.52	4.28		
Q _{III} Tender-minded vs. tough poise	Meets	5.91	5.65	5.81	5.37	na	10.0
	Exceeds	6.64	5.20	5.34	6.08		
Q _{IV} Subduedness vs. independence	Meets	5.81	6.09	5.16	5.62	na	10.4
	Exceeds	6.01	6.23	5.67	5.75		

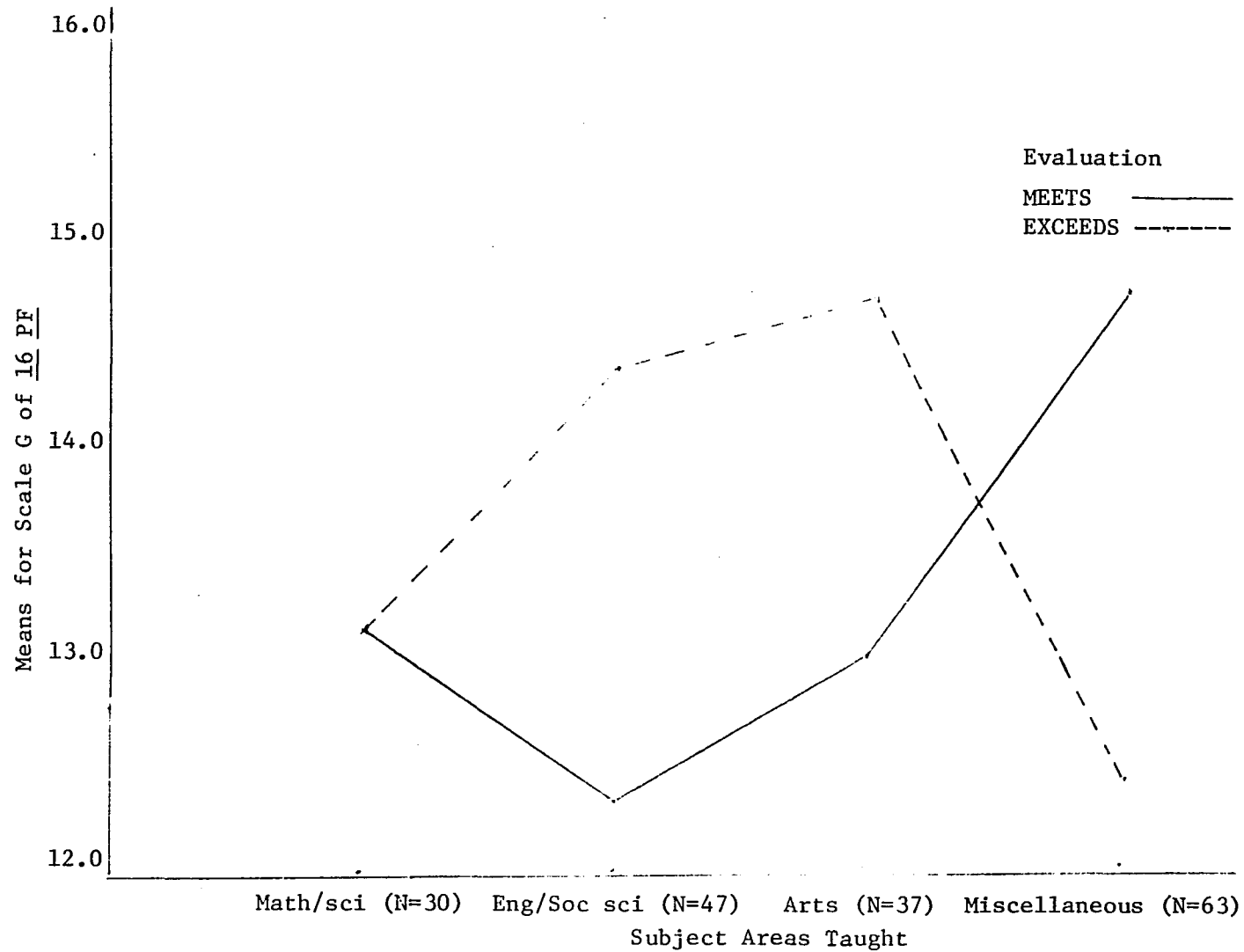


Figure 1. Evaluation by subject area taught interaction for scale G, expedient vs. conscientious, from the 16 PF

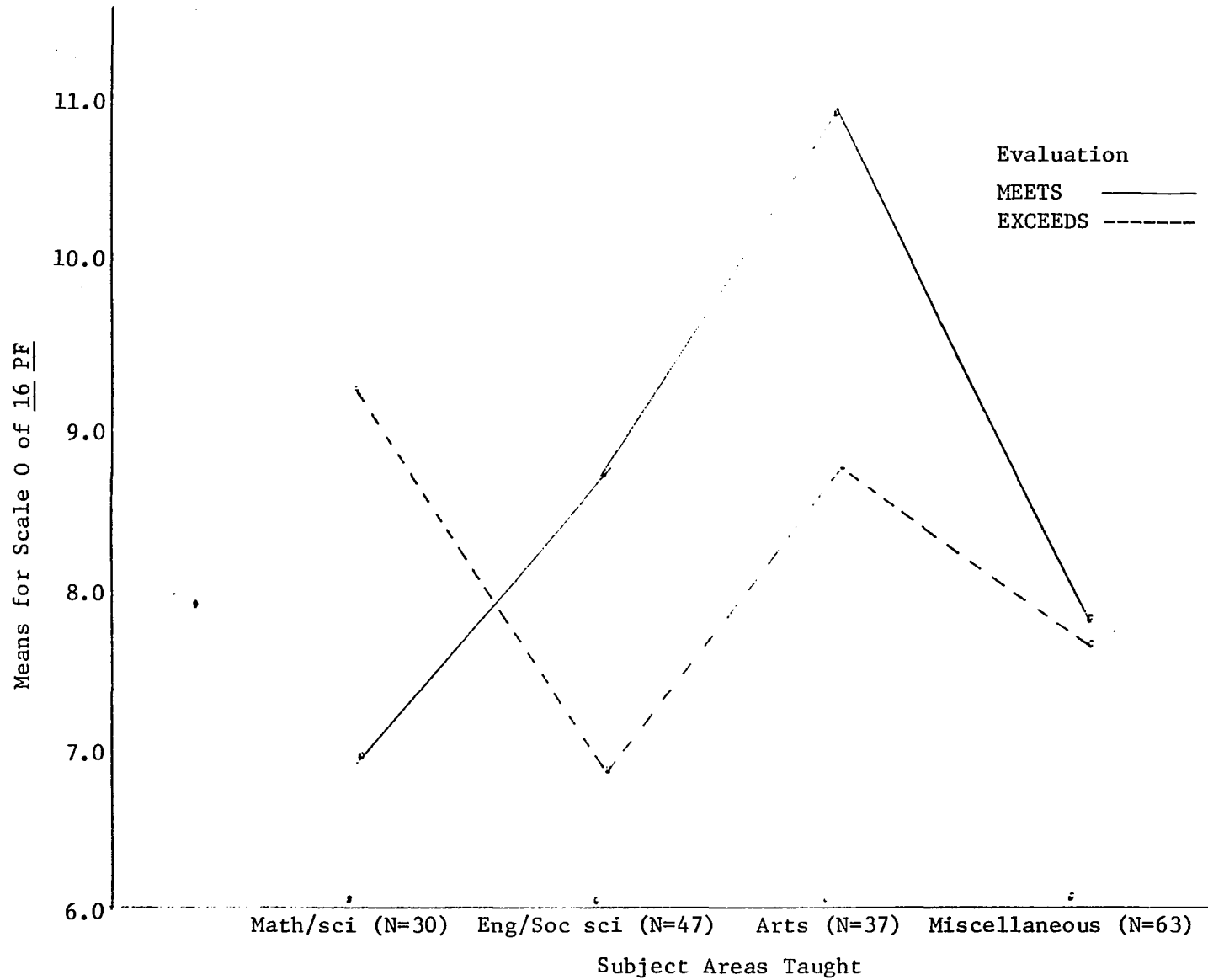


Figure 2. Evaluation by subject area taught interaction for scale 0, self-assured vs. apprehensive, from the 16 PF

Statistically significant data reported in Figure 2 concerning the factor of "self-assured vs. apprehensive" indicated that the mathematics-science teachers who were evaluated as "exceeding" district standards tended to be more apprehensive as compared to those who "met" standards. The English-social science and arts teachers' mean scores indicated a personality trait opposite that of the mathematics-science teachers. Those teachers who were evaluated as "exceeding" district standards tended to be more self-assured and the teachers who met district standards more apprehensive. As measured by this factor, the physical education, drivers' education, counselors, and business education teachers who were evaluated as "exceeding" district standards as compared to those who met were very similar and, consequently, no distinguishing differences in personal characteristics on this scale.

Generally, the means of all of the teacher groups who were similar to the general population, except when comparing the means of the "exceeds" teachers with the general population for the factors of "shy vs. venturesome" and "self-assured vs. apprehensive." In these comparisons, the mean scores of the teachers were substantially higher, therefore, were more "venturesome" and "self-assured." Again, no statistical treatment was performed.

An examination of Table 10 revealed that, when contrasting the personal factors of teachers who were evaluated as "exceeding" district standards compared to those who "met" classifying by professional training, no statistically significant differences resulted.

Table 11 similarly indicates that experience had no statistically

Table 10. Means for education degree and evaluation classification effects on the 16 PF, standard mean score for general population, and raw score range potential (N=177)

Scale - Factor	Evaluation	Training					Standard mean score for general population	Raw score range potential
		BS-BA>	BS<30	MS-MA	MS+45	MS+15>		
Low score vs. high score		N=31	N=35	N=36	N=53	N=22		
A Reserved vs. outgoing	Meets	10.17	10.64	9.90	10.64	8.33	10.75	0-20
	Exceeds	11.00	9.54	11.74	11.21	11.80		
C Affected by feelings vs. emotionally stable	Meets	16.05	15.18	15.70	16.72	16.33	16.07	0-26
	Exceeds	15.08	17.17	16.00	17.39	18.50		
F Sober vs. happy-go-lucky	Meets	12.78	12.27	12.40	12.76	9.00	13.86	0-26
	Exceeds	16.23	12.58	14.00	14.53	14.00		
H Shy vs. venturesome	Meets	13.94	20.45	14.80	15.08	12.75	13.85	0-26
	Exceeds	16.38	15.25	15.87	16.96	18.80		
L Trusting vs. suspicious	Meets	6.00	8.64	6.45	5.80	6.83	6.80	0-20
	Exceeds	7.85	6.25	5.87	7.36	5.50		
Q ₁ Conservative vs. experimenting	Meets	7.83	10.09	6.20	7.24	6.92	8.59	0-20
	Exceeds	6.61	7.37	6.94	7.86	8.90		
Q ₃ Undisciplined self-conflict vs. controlled	Meets	13.05	13.45	14.70	13.60	13.25	12.89	0-20
	Exceeds	12.61	14.71	14.00	13.93	14.20		
N Forthright vs. astute	Meets	8.83	8.09	8.50	8.92	9.00	9.80	0-20
	Exceeds	8.31	8.29	8.56	8.96	8.50		
B Dull vs. bright	Meets	8.61	7.00	7.05	7.56	8.00	7.04	0-13
	Exceeds	8.54	7.79	9.06	9.00	7.60		
G Expedient vs. conscientious	Meets	12.89	11.45	12.90	13.80	13.42	13.08	0-20
	Exceeds	15.15	11.58	13.50	13.18	13.70		
M Practical vs. imaginative	Meets	13.00	12.27	11.45	13.16	13.83	13.08	0-26
	Exceeds	12.69	11.08	13.62	13.75	12.40		

Table 10. Continued

Scale - Factor	Evaluation	Training					Standard mean score for general population	Raw score range potential	
		BS-BA>	BS<30	MS-MA	MS+45	MS+15>			
	Low score vs. high score	N=31	N=35	N=36	N=53	N=22			
Q ₂	Group dependent vs. self-sufficient	Meets	11.55	10.73	11.50	9.84	12.67	10.23	0-20
		Exceeds	9.92	10.79	9.87	11.11	8.90		
E	Humble vs. assertive	Meets	12.61	11.09	12.25	12.56	11.00	12.08	0-26
		Exceeds	13.54	12.00	13.50	13.32	12.00		
I	Tough-minded vs. tender-minded	Meets	11.83	11.27	10.25	10.64	9.42	11.18	0-20
		Exceeds	12.46	12.08	12.25	11.25	8.80		
O	Self-assured vs. apprehensive	Meets	9.94	8.27	7.75	8.40	7.75	10.09	0-26
		Exceeds	8.46	7.46	7.25	8.14	6.80		
Q ₄	Relaxed vs. tense	Meets	12.39	10.73	9.10	10.92	9.42	11.82	0-20
		Exceeds	13.38	9.29	10.31	11.03	8.80		
Q _I	Introversion vs. extroversion	Meets	5.30	5.77	5.32	5.65	4.11	na ^a	10.7
		Exceeds	6.98	5.32	6.30	6.18	6.48		
Q _{II}	Low anxiety vs. high anxiety	Meets	5.47	5.20	4.71	4.93	4.73	na	7.3
		Exceeds	5.92	4.34	4.72	4.87	4.23		
Q _{III}	Tender-minded vs. tough poise	Meets	5.34	5.98	5.71	5.68	5.61	na	10.0
		Exceeds	6.41	5.84	4.99	6.02	5.62		
Q _{IV}	Subduedness vs. independence	Meets	5.87	5.74	5.58	5.50	5.76	na	10.4
		Exceeds	5.78	5.72	6.08	6.16	5.59		

^aNot available.

Table 11. Means for years of experience and evaluation classification effects on the 16 PF, standard mean score for general population and raw score range potential (N=177)

Scale - Factor	Evaluation	Years of experience							Standard mean score for general population	Raw score range potential	
		0-5	6-10	11-15	16-20	21-25	26-30	30+			
	Low score vs. high score	N=25	N=45	N=33	N=23	N=18	N=21	N=11			
A	Reserved vs. outgoing	Meets	10.37	9.95	9.44	10.14	10.67	10.50	8.62	10.75	0-20
		Exceeds	10.30	10.96	11.46	10.00	12.83	11.11	9.33		
C	Affected by feelings vs. emotionally stable	Meets	15.31	16.86	16.00	14.00	16.58	16.83	15.62	16.07	0-26
		Exceeds	15.60	16.96	16.58	16.56	20.00	16.67	19.00		
F	Sober vs. happy-go-lucky	Meets	13.25	13.32	11.55	9.28	12.42	12.42	8.50	13.86	0-26
		Exceeds	15.10	14.87	14.25	13.31	15.00	12.78	10.33		
H	Shy vs. venturesome	Meets	14.19	14.41	13.67	13.00	21.00	15.33	13.50	13.86	0-26
		Exceeds	16.90	15.91	17.17	15.37	19.00	15.67	16.00		
L	Trusting vs. suspicious	Meets	6.62	5.68	6.55	6.14	6.75	6.75	8.00	6.80	0-20
		Exceeds	8.30	6.56	6.42	7.12	5.17	7.22	3.00		
Q ₁	Conservative vs. experimenting	Meets	8.12	7.27	6.78	4.86	9.08	6.67	8.25	8.59	0-20
		Exceeds	8.70	7.52	6.67	8.31	7.33	6.44	9.33		
Q ₃	Undisciplined self-conflict vs. controlled	Meets	12.44	13.41	13.22	10.28	14.50	14.17	18.37	12.89	0-20
		Exceeds	12.60	13.78	14.75	13.44	14.17	15.00	13.67		
N	Forthright vs. astute	Meets	9.06	8.68	9.00	6.71	9.00	8.92	8.75	9.80	0-20
		Exceeds	8.00	7.09	9.17	9.31	8.33	9.89	9.67		
B	Dull vs. bright	Meets	9.00	7.68	8.22	5.86	7.42	7.00	7.12	7.04	0-13
		Exceeds	8.70	8.52	7.96	8.56	9.00	9.11	8.00		
G	Expedient vs. conscientious	Meets	12.81	12.86	13.78	10.86	13.33	14.92	11.87	13.08	0-20
		Exceeds	13.50	13.04	13.62	12.19	13.33	13.67	12.33		

Table 11. Continued

Scale - Factor	Evaluation	Years of experience							Standard mean score for general potential	Raw score range potential	
		0-5	6-10	11-15	16-20	21-25	26-30	30+			
	Low score vs. high score	N=25	N=45	N=33	N=23	N=18	N=21	N=11			
M	Practical vs. imaginative	Meets	12.12	13.00	15.33	11.43	11.92	13.08	11.87	13.08	0-26
		Exceeds	11.70	13.65	11.42	12.69	14.00	13.78	14.00		
Q ₂	Group dependent vs. self-sufficient	Meets	11.19	11.68	10.11	10.00	11.33	10.75	11.50	10.23	0-20
		Exceeds	11.90	9.22	9.46	10.69	10.67	13.44	10.67		
E	Humble vs. assertive	Meets	12.44	12.32	13.44	11.43	10.92	10.92	13.37	12.08	0-26
		Exceeds	14.70	13.91	11.54	12.44	14.00	13.55	8.00		
I	Tough-minded vs. tender-minded	Meets	11.94	12.00	10.33	9.00	9.92	9.92	9.00	11.18	0-20
		Exceeds	12.20	12.43	11.17	12.12	10.50	9.44	11.00		
O	Self-assured vs. apprehensive	Meets	9.94	8.68	8.55	8.43	6.92	8.83	6.62	10.09	0-26
		Exceeds	9.90	7.22	7.21	8.37	5.00	8.89	6.33		
Q ₄	Relaxed vs. tense	Meets	11.94	11.14	11.11	9.00	8.92	11.33	8.37	11.82	0-20
		Exceeds	12.90	9.69	8.75	12.75	9.33	13.55	5.00		
Q _I	Introversion vs. extroversion	Meets	5.56	5.32	5.27	4.88	5.72	5.32	4.46	na ^a	10.7
		Exceeds	6.55	6.52	6.15	5.70	6.82	5.40	4.50		
Q _{II}	Low anxiety vs. high anxiety	Meets	5.62	4.89	4.82	4.96	4.51	5.42	4.37	na	7.3
		Exceeds	6.05	4.61	4.36	5.36	3.30	5.45	3.20		
Q _{III}	Tender-minded vs. tough poise	Meets	5.86	5.55	6.37	4.68	6.05	5.25	5.47	na	10.0
		Exceeds	6.76	5.84	5.55	5.73	5.60	5.64	5.67		
Q _{IV}	Subduedness vs. independence	Meets	5.72	5.75	6.17	5.08	5.47	5.05	6.45	na	10.4
		Exceeds	6.34	6.19	5.24	6.01	6.80	5.98	5.17		

^aNot available.

significant association with the mean scores for the personal factors of the 16 PF.

Table 12 presents summary information on statistically significant two-way Manova and Anova analyses for the 16 PF. Significance beyond the .05 level is denoted by a single asterisk (*), and significance beyond the .01 level is denoted by a double asterisk (**). Summary information from the 16 PF is continued on Table 13, which lists means and standard deviations of statistically significant variables for the 16 PF.

A comparison of the personal factors as measured by the CPI of teachers classified by "exceeds" or "meets" the district's performance standard is contained in Table 14. The personality characteristics (18 in all) describe subjects' personality attributes in such diverse ways as socialization to sense of well-being. Basically, the teachers' data in both categories could be assessed as satisfactory and positive. A review of the raw data indicated that 15 of the 18 means were greater for the "exceeds" teachers. However, there were no statistically significant differences between any of the means for any of the personal characteristics of the two classifications of teachers.

Generally, both groups were similar to the general male population, except in the personality characteristics of "achievement via independence," "femininity," and "dominance." In these instances, teachers were substantially more independent, possessed more femininity of interests, and were more dominant.

Data reported in Table 15 contrasting the personal factors of

Table 12. Statistically significant two-way MANOVA and ANOVA effects for the 16 PF

Statistical test	Source of information	Scale	Statistical test value
Wilks	Evaluation		.96*
F-test	E	Q ₁ - Introversion vs. extroversion	7.70**
Wilks	Subject area (SA) by Evaluation (E)		.658*
F-test	SA by E	G - Expedient vs. conscientious	4.15**
F-test	SA by E	O - Self-assured vs. apprehensive	2.57*
Wilks	SA		.56*
F-test	SA	C - Affected by feelings vs. emotionally stable	5.17**
F-test	SA	I - Tough-minded vs. tender-minded	10.07**
F-test	SA	Q ₄ - Relaxed vs. tense	2.78*
F-test	SA	Q ₁₁ - Low anxiety vs. high anxiety	4.80**

*Denotes significance beyond the .05 level.

**Denotes significance beyond the .01 level.

Table 13. Means and standard deviations of statistically significant variables from the 16 PF

Scale	Evaluation level			
	Meets		Exceeds	
	Mean	Std Dev	Mean	Std Dev
Q ₁ -Introversion vs. extroversion	5.30	1.71	6.12	2.12

Scale	Evaluation	Subject area							
		Math/sci		Eng/SSc		Arts		Others	
		Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
G-Expedient vs. conscientious	Meets	13.13	4.0	12.32	3.12	12.95	3.07	13.64	5.25
	Exceeds	13.13	2.97	13.76	4.90	14.62	3.20	12.06	3.82
O-Self-assured vs. apprehensive	Meets	6.93	2.43	8.73	4.03	10.95	4.34	7.21	3.76
	Exceeds	9.20	3.26	6.60	3.84	8.75	3.61	7.37	3.87

Scale	Subject area							
	Math-sci		Eng/SSc		Arts		Others	
	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
C - Affected by feelings vs. emotionally stable	18.03	2.97	15.17	3.90	16.00	4.26	17.05	4.68
I - Tough-minded vs. tender-minded	8.73	3.19	12.87	4.05	10.70	3.78	11.25	4.41
Q ₄ - Relaxed vs. tense	10.37	5.04	10.74	5.11	12.65	5.40	9.27	4.84
Q ₁₁ -Low anxiety vs. high anxiety	4.50	1.69	5.18	1.72	5.72	2.15	4.37	1.90

Table 14. Means for teachers either evaluated as meeting or exceeding district standards on the CPI, standard general male population raw score and raw score range potential (N=177)^a

Scale	Evaluation level		Standard general male population raw score	Raw score range potential
	Meets	Exceeds		
	N=86	N=91		
SO Socialization	36.87	35.63	36.7	0-54
SC Self-control	30.24	29.13	31.0	0-50
TO Tolerance	22.26	22.47	22.9	0-32
GI Good impression	18.91	18.47	20.0	0-40
AC Achievement via conformance	28.35	28.47	27.6	0-38
AI Achievement via independence	20.13	21.20	18.6	0-32
IE Intellectual efficiency	36.70	37.43	39.3	0-52
PY Psychological-mindedness	11.78	12.42	11.0	0-22
FX Flexibility	8.31	8.75	9.0	0-22
FE Femininity	18.83	18.99	16.2	0-38
RE Responsibility	29.72	31.12	31.1	0-42
DO Dominance	28.48	30.74	26.8	0-46
SA Self-acceptance	20.66	22.27	19.2	0-34
CS Capacity for status	19.30	20.20	19.4	0-32
CM Communality	22.91	23.80	25.2	0-28
SP Social presence	34.36	37.01	34.1	0-56
SY Sociability	24.60	25.76	24.5	0-36
WB Sense of well-being	34.73	36.97	37.5	0-44

^aSource: Gough (30, p. 32).

Table 15. Means for teachers of various subject areas as measured by the scale of the CPI, general male population raw score and raw score range potential (N=177)

Scale	Subject area				General male population raw scores	Raw score range potential
	Math/science N=30	Eng/Soc sci N=47	Arts N=37	Miscellaneous N=63		
SO Socialization	38.27	34.64	35.98	36.62	38.3	0-54
SC Self-control	31.17	29.13	28.43	30.10	33.5	0-50
TO Tolerance	23.67	22.15	21.03	22.70	25.1	0-32
GI Good impression	18.17	19.09	16.30	20.03	20.5	0-40
AC Achievement via conformance	29.90	28.45	27.05	28.48	30.2	0-38
AI Achievement via independence	20.97	20.98	20.05	20.71	22.8	0-32
IE Intellectual efficiency	39.40	36.66	35.05	33.48	40.5	0-52
PY Psychological-mindedness	12.73	11.74	10.84	12.83	13.0	0-22
FX Flexibility	7.67	8.21	7.76	9.65	11.0	0-22
FE Femininity	17.07	18.83	19.57	19.48	23.9	0-38
RE Responsibility	31.83	30.77	28.57	30.63	34.5	0-42
DO Dominance	29.87	29.57	27.90	30.60	28.5	0-46
SA Self-acceptance	21.97	21.09	20.38	22.22	20.9	0-34
CS Capacity for status	20.57	19.79	18.41	20.16	21.8	0-32
CM Communality	24.47	22.92	22.97	23.40	26.1	0-28
SP Social presence	37.33	34.79	33.76	36.81	35.5	0-56
SY Sociability	26.43	25.28	23.76	25.40	24.7	0-36
WB Sense of well-being	37.33	35.26	33.89	36.83	38.0	0-44

teachers who teach different subject areas revealed one sub-scale as statistically significant. That was Py, "psychological-mindedness." Mathematics-science, physical education, drivers' education, counselors, and business education teachers on this scale scored statistically higher than the arts teachers, and, therefore, were significantly more psychologically-minded as measured by the CPI.

Results reported in Tables 16 and 17 indicated that professional training and experience had no statistically significant relationship to the results of the mean scores for the 18 sub-scales of the CPI.

An analysis of the personality characteristics of teachers classified by "exceeds" or "meets" performance level of various teaching areas is revealed in Table 18. A look at the data indicated differences in the means for the four major subject area classification. For instance, 17 of the 18 means for the "exceeds" mathematics-science teachers were less than the "meets" teachers; 18 of the 18 means for the "exceeds" miscellaneous teachers were less; whereas, 17 of the 18 means for the "exceeds" English-social science and arts teachers were greater than the "meets" teachers. However, no sub-scale examined was statistically significant.

An examination of Tables 19 and 20 reveal that neither professional training nor experience had any statistically significant association with scores on the sub-scales of the CPI.

Table 21 reports on the statistically significant two-way Manova and Anova tests of the CPI. The F-test for subject area taught discloses a statistical test value of 3.18*.

Table 16. Means for teachers with different educational training as measured by the scales of the CPI, general male population raw score and raw score range potential (N=177)

Scale	Educational training					General male population raw scores	Raw score range potential
	BS-BA> N=31	BS<30 N=35	MS-MA> N=36	MA<15 N=53	MA+15> N=22		
SO Socialization	35.06	34.74	36.47	38.47	34.50	38.3	0-54
SC Self-control	26.61	29.34	30.03	31.42	29.73	33.5	0-50
TO Tolerance	20.13	22.54	22.44	23.85	21.55	25.1	0-32
GI Good impression	17.16	18.91	18.22	19.36	19.59	20.5	0-40
AC Achievement via conformance	26.94	27.26	28.39	30.38	27.64	30.2	0-38
AI Achievement via independence	18.97	20.77	21.44	21.88	18.86	22.8	0-32
IE Intellectual efficiency	34.74	36.49	38.75	38.79	34.45	40.5	0-52
PY Psychological-mindedness	11.32	11.94	12.31	12.55	12.09	13.0	0-22
FX Flexibility	7.55	8.54	8.42	9.21	8.50	11.0	0-22
FE Femininity	19.42	19.34	19.80	19.38	14.95	23.9	0-38
RE Responsibility	28.32	29.91	31.75	30.87	31.05	34.5	0-42
DO Dominance	27.81	29.37	31.06	30.53	28.18	28.5	0-46
SA Self-acceptance	21.65	20.94	21.31	22.17	20.82	20.9	0-34
CS Capacity for status	18.68	19.03	20.72	20.02	20.27	21.8	0-32
CM Communality	22.39	22.63	24.72	23.96	22.23	26.1	0-28
SP Social presence	35.00	35.03	35.33	36.89	35.68	35.5	0-56
SY Sociability	24.35	24.43	25.86	25.58	25.59	24.7	0-36
WB Sense of well-being	33.19	35.66	37.53	36.87	34.95	38.0	0-44

Table 17. Means for teachers with varied years of experience as measured by the CPI, general male population raw score and raw score range potential (N=177)

Scale	Years of experience							General male population raw scores	Raw score range potential
	0-5	6-10	11-15	16-20	21-25	26-30	30+		
	N=25	N=45	N=33	N=23	N=18	N=21	N=11		
SO Socialization	35.08	34.93	37.30	30.48	39.33	36.86	38.55	38.3	0-54
SC Self-control	25.96	27.80	31.33	28.26	33.39	30.14	37.09	33.5	0-50
TO Tolerance	20.42	21.80	23.24	21.30	25.33	22.24	24.27	25.1	0-32
GI Good impression	17.38	17.60	19.67	16.70	22.06	18.62	22.00	20.5	0-40
AC Achievement via con- formance	26.69	27.40	30.39	27.04	29.33	29.29	30.36	30.2	0-38
AI Achievement via independence	19.92	20.56	20.67	20.70	22.33	20.33	21.09	22.8	0-32
IE Intellectual efficiency	34.81	36.07	38.33	37.30	40.44	37.00	37.00	40.5	0-52
PY Psychological- mindedness	11.77	11.60	12.55	12.35	13.22	11.67	12.18	13.0	0-22
FX Flexibility	8.50	9.53	6.88	9.04	10.56	6.81	8.45	11.0	0-22
FE Femininity	20.04	18.47	19.94	17.74	19.50	17.14	19.91	23.9	0-38
RE Responsibility	30.12	29.42	31.33	29.74	33.83	30.57	28.36	34.5	0-42
DO Dominance	29.92	29.53	29.91	28.39	32.11	30.14	26.18	28.5	0-46
SA Self-acceptance	23.65	21.22	21.61	20.78	21.94	20.81	19.18	20.9	0-34
CS Capacity for status	19.81	19.31	19.88	19.35	22.17	19.14	19.27	21.8	0-32
CM Communality	22.73	23.09	23.85	23.30	24.67	23.05	23.09	26.1	0-28
SP Social presence	38.04	35.69	35.30	35.65	38.11	33.86	31.45	35.5	0-56
SY Sociability	25.85	24.87	25.61	24.78	27.94	24.33	21.82	24.7	0-36
WB Sense of well-being	35.16	35.00	36.52	36.00	39.61	34.62	35.45	38.0	0-44

Table 18. Means for subject area and evaluation classification effects on the CPI, general male population raw score and raw score range potential (N=177)

Scale	Evaluation	Subject area				General male population raw scores	Raw score range potential
		Math/sci N=30	Eng/Soc sci N=47	Arts ^a N=37	Miscellaneous ^b N=63		
SO Socialization	Meets	40.93	34.05	34.52	38.68	38.3	0-54
	Exceeds	35.60	35.16	37.86	34.97		
SC Self-control	Meets	33.80	29.82	26.62	31.39	33.5	0-50
	Exceeds	28.53	28.52	30.81	29.06		
TO Tolerance	Meets	24.20	21.68	19.05	24.07	25.1	0-32
	Exceeds	23.13	22.56	23.63	21.60		
GI Good impression	Meets	20.40	18.59	14.52	21.64	20.5	0-40
	Exceeds	15.93	19.52	18.63	18.74		
AC Achievement via conformance	Meets	32.06	27.55	24.43	29.93	30.2	0-38
	Exceeds	27.73	29.24	30.50	27.31		
AI Achievement via independence	Meets	21.40	19.14	19.00	21.11	22.8	0-32
	Exceeds	20.53	22.60	21.44	20.40		
IE Intellectual efficiency	Meets	40.60	34.23	33.24	39.18	40.5	0-52
	Exceeds	38.20	38.80	37.44	36.11		
PY Psychological-mindedness	Meets	13.00	11.00	10.10	13.00	13.0	0-22
	Exceeds	12.47	12.40	11.81	12.69		
FX Flexibility	Meets	7.47	7.14	7.90	10.00	11.0	0-22
	Exceeds	7.87	9.16	7.56	9.37		
FE Femininity	Meets	17.60	17.23	19.48	20.29	23.9	0-38
	Exceeds	16.53	20.24	19.69	18.83		
RE Responsibility	Meets	32.40	28.23	26.86	31.61	34.5	0-42
	Exceeds	31.27	33.50	30.81	29.86		
DO Dominance	Meets	31.33	25.82	25.19	31.50	28.5	0-46
	Exceeds	28.40	32.88	31.44	28.89		

^aIncluded art, music, home economics and industrial arts teachers.

^bIncluded physical education, driver education, counselors, and business education teachers.

Table 18. Continued

Scale	Evaluation	Subject area				General male population raw scores	Raw score range potential	
		Math/sci	Eng/Soc sci	Arts ^a	Miscellaneous ^b			
		N=30	N=47	N=37	N=63			
SA	Self-acceptance	Meets	22.67	18.36	18.71	22.86	20.9	0-34
		Exceeds	21.27	23.48	22.56	21.71		
CS	Capacity for status	Meets	21.47	18.18	16.95	20.79	21.8	0-32
		Exceeds	19.67	21.20	20.31	19.66		
CM	Communality	Meets	24.53	20.86	21.81	24.46	26.1	0-28
		Exceeds	24.40	24.72	24.50	22.54		
SP	Social presence	Meets	37.33	31.45	30.95	37.61	35.5	0-56
		Exceeds	37.33	37.72	37.44	36.17		
SY	Sociability	Meets	28.47	22.55	22.29	25.89	24.7	0-36
		Exceeds	24.40	27.68	25.69	25.00		
WB	Sense of well-being	Meets	38.27	31.64	31.29	37.86	38.0	0-44
		Exceeds	36.40	38.44	37.31	36.00		

Table 19. Means for education degree and evaluation classification effects on the CPI, general male population raw score and raw score range potential (N=177)

Scale	Evaluation	Training					General male population raw scores	Raw score range potential	
		BS-BA>	BS<30	MS-MA	MS+45	MS+15>			
		N=31	N=35	N=36	N=53	N=22			
SO	Socialization	Meets	35.72	31.18	37.50	39.24	37.83	38.3	0-54
		Exceeds	34.15	36.38	35.19	37.79	30.50		
SC	Self-control	Meets	27.78	26.09	29.65	32.60	33.83	33.5	0-50
		Exceeds	25.00	30.83	30.50	30.36	24.80		
TO	Tolerance	Meets	20.11	19.55	22.75	24.20	23.08	25.1	0-32
		Exceeds	20.15	23.92	22.06	23.54	19.70		
GI	Good impression	Meets	18.17	16.64	18.25	19.60	21.75	20.5	0-40
		Exceeds	15.77	19.96	18.19	19.14	17.00		
AC	Achievement via conformance	Meets	26.56	23.45	29.00	30.56	29.83	30.2	0-38
		Exceeds	27.46	29.00	27.63	30.21	25.00		
AI	Achievement via independence	Meets	19.50	18.18	20.50	21.00	20.50	22.8	0-32
		Exceeds	18.23	21.96	22.63	22.68	16.90		
IE	Intellectual efficiency	Meets	35.22	33.45	37.70	38.40	36.75	40.5	0-52
		Exceeds	34.08	37.88	40.26	39.14	31.70		
PY	Psychological-mindedness	Meets	11.33	10.64	12.30	11.84	12.50	13.0	0-22
		Exceeds	11.31	12.54	12.31	13.18	11.60		
FX	Flexibility	Meets	8.33	8.45	7.50	8.44	8.50	11.0	0-22
		Exceeds	5.77	8.58	9.56	9.89	8.50		
FE	Femininity	Meets	19.61	17.91	19.90	19.28	15.83	23.9	0-38
		Exceeds	19.15	20.00	19.69	19.46	13.90		

Table 19. Continued

Scale	Evaluation	Training					General male population raw scores	Raw score range potential	
		BS-BA>	BS<30	MS-MA	MS+45	MS+15>			
		N=31	N=35	N=36	N=53	N=22			
RE	Responsibility	Meets	28.78	26.73	31.45	29.92	30.58	34.5	0-42
		Exceeds	27.69	31.38	32.13	31.75	31.60		
DO	Dominance	Meets	27.94	26.45	31.25	29.20	25.00	28.5	0-46
		Exceeds	27.62	30.71	30.81	31.71	32.00		
SA	Self-acceptance	Meets	21.39	19.09	20.90	21.52	18.33	20.9	0-34
		Exceeds	22.00	21.79	21.81	22.75	23.20		
CS	Capacity for status	Meets	19.50	16.91	20.15	19.64	19.08	21.8	0-32
		Exceeds	17.54	20.00	21.44	20.36	21.70		
CM	Communality	Meets	22.27	19.82	24.80	23.84	21.58	26.1	0-28
		Exceeds	22.54	23.92	24.63	24.07	23.00		
SP	Social presence	Meets	34.83	30.55	35.55	35.40	33.00	35.5	0-56
		Exceeds	35.23	37.08	35.06	38.21	38.90		
SY	Sociability	Meets	24.67	21.73	25.55	25.48	23.75	24.7	0-36
		Exceeds	23.92	25.67	26.25	25.68	27.80		
WB	Sense of well-being	Meets	33.28	31.09	36.20	36.24	34.67	38.0	0-44
		Exceeds	33.08	37.75	39.19	37.43	35.30		

Table 20. Means for experience and evaluation classification effects on the CPI, general male population raw score and raw score range potential (N=177)

Scale	Evaluation	Years of experience							General male population raw scores	Raw score range potential	
		0-5	6-10	11-15	16-20	21-25	26-30	30+			
		N=25	N=45	N=33	N=23	N=18	N=21	N=11			
SO	Socialization	Meets	37.81	35.18	36.44	33.43	40.08	36.67	38.63	38.3	0-54
		Exceeds	30.70	34.70	37.63	34.94	37.83	37.11	38.33		
SC	Self-control	Meets	28.88	27.64	29.67	28.29	34.33	31.42	36.13	33.5	0-50
		Exceeds	21.30	27.96	31.96	28.25	31.50	29.78	39.67		
TO	Tolerance	Meets	22.25	20.77	21.00	21.14	25.92	21.25	24.75	25.1	0-32
		Exceeds	17.50	22.78	24.08	21.38	24.17	23.56	23.00		
GI	Good impression	Meets	20.31	16.27	16.78	18.14	21.67	19.50	21.38	20.5	0-40
		Exceeds	12.70	18.87	20.75	16.06	22.83	17.44	23.67		
AC	Achievement via conformance	Meets	28.00	26.68	27.78	27.57	29.92	29.42	31.00	30.2	0-38
		Exceeds	24.60	28.09	31.38	26.81	28.17	29.11	28.67		
AI	Achievement via independence	Meets	21.25	19.68	19.11	18.43	22.42	19.42	19.50	22.8	0-32
		Exceeds	17.80	21.39	21.25	21.69	22.17	21.56	25.33		
IE	Intellectual efficiency	Meets	37.13	35.32	36.11	34.43	41.92	36.50	34.86	40.5	0-52
		Exceeds	37.10	36.78	39.17	38.56	37.50	37.67	42.67		
PY	Psychological-mindedness	Meets	16.63	11.41	11.44	11.14	13.33	10.58	11.50	13.0	0-22
		Exceeds	10.40	11.78	12.96	12.88	13.00	13.11	14.00		
FX	Flexibility	Meets	9.88	8.77	6.67	7.43	10.50	6.50	6.00	11.0	0-22
		Exceeds	6.30	10.26	6.96	9.75	10.67	7.22	15.00		
FE	Femininity	Meets	21.56	18.82	18.22	15.00	19.42	16.92	19.50	23.9	0-38
		Exceeds	17.60	18.13	20.58	18.94	19.67	17.44	21.00		

Table 20. Continued

Scale	Evaluation	Years of experience							General male population raw scores	Raw score range potential	
		0-5	6-10	11-15	16-20	21-25	26-30	30+			
		N=25	N=45	N=33	N=23	N=18	N=21	N=11			
RE	Responsibility	Meets	30.36	27.68	30.33	28.57	34.08	30.00	27.38	34.5	0-42
		Exceeds	29.70	31.09	31.71	30.25	33.33	31.33	31.00		
DO	Dominance	Meets	29.50	27.82	21.67	27.71	31.75	29.08	25.13	28.5	0-46
		Exceeds	30.60	31.17	31.13	28.69	32.83	31.56	29.00		
SA	Self-acceptance	Meets	22.56	19.95	20.67	20.57	21.83	19.58	18.75	20.9	0-34
		Exceeds	25.40	22.43	21.96	20.88	22.17	22.44	20.33		
CS	Capacity for status	Meets	20.38	17.73	19.89	20.71	21.58	17.83	18.38	21.8	0-32
		Exceeds	18.90	20.83	19.88	18.75	23.33	20.89	21.67		
CM	Communality	Meets	22.63	22.14	23.90	22.71	24.92	22.50	22.25	26.1	0-28
		Exceeds	22.90	24.00	23.83	23.56	24.17	23.78	25.33		
SP	Social presence	Meets	38.31	32.59	34.44	36.00	36.50	31.42	31.00	35.5	0-56
		Exceeds	37.60	38.65	35.63	35.50	41.33	37.11	32.67		
SY	Sociability	Meets	26.13	22.68	25.11	26.86	27.40	23.92	21.13	24.7	0-36
		Exceeds	25.40	26.96	25.79	23.88	29.00	24.89	23.67		
WB	Sense of well-being	Meets	35.06	32.95	34.89	33.71	39.25	34.17	33.75	38.0	0-44
		Exceeds	35.20	36.96	37.13	37.00	40.33	35.22	40.00		

The means and standard deviations of the statistically significant variable of "psychological-mindedness" of subject areas taught are presented in Table 22.

An examination of data presented in Tables 23 to 29 reveals that no means were statistically different from other means as measured by the FIRO-B. However, the standard mean scores for teachers for W^c (wanted control) were substantially higher for the main effects and the interactions than the population tested for this study. Data from Table 27 indicate that the means of English-social science teachers for expressed affection and wanted affection for "exceeds" teachers were not only markedly higher than the "meets" teachers and the standard mean for the general population of teachers, but also when compared to the other subject area classifications.

Table 21. Statistically significant two-way MANOVA and ANOVA effects for the CPI

Statistical tests	Source of information	Statistical test value
Wilks	Subject area (SA)	.61*
F-test	SA	3.18*

*Denotes significance beyond the .05 level.

Table 22. Means and standard deviations of statistically significant variables from the CPI

Scale	Subject area							
	Math/sci		Eng/SSc		Arts		Miscellaneous	
	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
PY Psychological-minded	12.73	3.29	11.74	4.02	10.83	3.86	12.82	3.01

Table 23. Means for teachers either evaluated as meeting or exceeding district standards as measured by the FIRO-B, standard mean score for teachers and raw score range potential (N=177)

Scale - Behavior	Evaluation level		Standard mean score for teachers	Raw score range potential
	Meets	Exceeds		
	N=86	N=91		
EA Expressed affection	3.45	4.23	3.7	0-9
EC Expressed control	3.10	3.19	3.1	0-9
EI Expressed inclusion	4.55	4.49	5.2	0-9
WA Wanted affection	4.12	4.82	4.3	0-9
WC Wanted control	3.01	2.91	5.1	0-9
WI Wanted inclusion	3.21	3.18	3.4	0-9

Table 24. Means for teachers of various subject areas as measured by the scales of the FIRO-B, standard mean score for teachers, and raw score range potential (N=177)

Scale - Behavior	Subject area				Standard mean score for teachers	Raw score range potential
	Math/science	Eng/Soc sci	Arts ^a	Miscellaneous ^b		
	N=30	N=47	N=37	N=63		
EA Expressed affection	3.40	4.21	3.84	3.81	3.7	0-9
EC Expressed control	2.87	3.19	3.32	3.14	3.1	0-9
EI Expressed inclusion	4.20	4.77	4.27	4.63	5.2	0-9
WA Wanted affection	4.17	4.47	4.78	4.46	4.3	0-9
WC Wanted control	2.77	3.00	3.19	2.89	5.1	0-9
WI Wanted inclusion	2.67	3.26	3.95	2.95	3.4	0-9

^aIncluded art, music, home economics and industrial arts teachers.

^bIncluded physical education, driver education, counselors, and business teachers.

Table 25. Means for teachers with differed educational training as measured by the scales of the FIRO-B, standard mean score for teachers, and raw score range potential (N=177)

Scale - Behavior	Training					Standard mean score for teachers	Raw score range potential
	BS-BA>	BS<30	MS-MA	MA+45	MS+15>		
	N=31	N=35	N=36	N=53	N=22		
EA Expressed affection	3.90	3.74	3.72	4.02	3.77	3.7	0-9
EC Expressed control	3.03	3.31	3.25	3.06	3.09	3.1	0-9
EI Expressed inclusion	4.90	4.11	4.64	4.68	4.05	5.2	0-9
WA Wanted affection	4.74	4.54	4.44	4.45	4.14	4.3	0-9
WC Wanted control	3.03	2.71	2.67	3.30	2.91	5.1	0-9
WI Wanted inclusion	3.45	2.74	3.78	3.08	2.86	3.4	0-9

Table 26. Means for teachers with varied years of experience as measured by the scales of the FIRO-B, standard mean scores for teachers, and raw score range potential (N=177)

Scale - Behavior	Years of experience							Standard mean score for teachers	Raw score range potential
	0-5	6-10	11-15	16-20	21-25	26-30	30+		
	N=25	N=45	N=33	N=23	N=18	N=21	N=11		
EA Expressed affection	3.58	3.78	4.64	3.26	4.33	4.10	2.45	3.7	0-9
EC Expressed control	3.19	3.18	3.30	3.00	3.61	2.81	2.64	3.1	0-9
EI Expressed inclusion	4.42	4.53	5.12	3.83	5.44	4.33	3.18	5.2	0-9
WA Wanted affection	4.61	4.31	5.24	3.78	4.39	4.52	4.09	4.3	0-9
WC Wanted control	2.69	2.70	3.60	2.87	3.50	2.62	2.73	5.1	0-9
WI Wanted inclusion	3.69	3.09	4.03	1.61	4.00	3.24	1.82	3.4	0-9

Table 27. Means for subject area and evaluation classification effects on the FIRO-B, standard mean score for teachers, and raw score range potential (N=177)

Scale/ Behavior	Evalu- ation	Subject area				Standard mean score for teachers	Raw score range potential
		Math/ science N=30	Eng/ Soc sci N=47	Arts ^a N=37	Miscel- laneous ^b N=63		
EA/expressed affection	Meets	3.53	3.18	3.52	3.57	3.7	0-9
	Exceeds	3.27	5.12	4.25	4.00		
EC/expressed control	Meets	2.13	3.23	3.14	2.96	3.1	0-9
	Exceeds	2.60	3.16	3.56	3.29		
EI/expressed inclusion	Meets	5.13	4.32	4.19	4.68	5.2	0-9
	Exceeds	3.27	5.16	4.38	4.60		
WA/wanted affection	Meets	4.00	3.73	4.71	4.04	4.3	0-9
	Exceeds	4.33	5.12	4.88	4.80		
WC/wanted control	Meets	3.00	2.91	3.38	2.82	5.1	0-9
	Exceeds	2.53	3.08	2.94	2.94		
WI/wanted inclusion	Meets	3.53	2.77	4.00	2.79	3.4	0-9
	Exceeds	1.80	3.68	3.88	3.09		

^aIncluded art, music, home economics and industrial arts teachers.

^bIncluded physical education, driver education, counselors, and business teachers.

Table 28. Means for education degree and evaluation classification effects on the FIRO-B, standard mean score for teachers, and raw score range potential (N=177)

Scale/ Behavior	Evalu- ation	Training					Standard mean score for teachers	Raw score range poten- tial
		BS-BA>	BS<30	MS-MA	MS+45	MS+15>		
		N=31	N=35	N=36	N=53	N=22		
EA/expressed affection	Meets	3.89	3.09	3.00	3.80	3.17	3.7	0-9
	Exceeds	3.92	4.04	4.62	4.21	4.50		
EC/expressed control	Meets	2.94	3.36	3.65	3.04	2.33	3.1	0-9
	Exceeds	3.15	3.29	2.75	3.07	4.00		
EI/expressed inclusion	Meets	4.61	4.45	4.60	4.84	3.83	5.2	0-9
	Exceeds	5.30	3.96	4.69	4.54	4.30		
WA/wanted affection	Meets	4.72	4.36	3.90	3.92	3.75	4.3	0-9
	Exceeds	4.77	4.63	5.13	4.93	4.60		
WC/wanted control	Meets	2.94	3.18	2.30	3.40	2.33	5.1	0-9
	Exceeds	3.15	2.50	3.13	3.21	2.40		
WI/wanted inclusion	Meets	3.39	3.82	3.80	2.88	2.08	3.4	0-9
	Exceeds	3.54	2.25	3.75	3.25	3.80		

Table 29. Means for years of experience and evaluation classification effects on the FIRO-B, standard mean score for teachers, and raw score range potential (N=177)

Scale/ Behavior	Evalu- ation	Years of experience							Standard mean score for teachers	Raw score range poten- tial
		0-5	6-10	11-15	16-20	21-25	26-30	30+		
		N=25	N=45	N=33	N=23	N=18	N=21	N=11		
EA/expressed affection	Meets	3.44	3.41	4.11	2.29	3.83	4.16	2.25	3.7	0-9
	Exceeds	3.80	4.13	4.83	3.69	5.33	4.00	3.00		
EC/expressed control	Meets	2.63	3.50	2.89	3.29	3.25	3.25	2.63	3.1	0-9
	Exceeds	4.10	2.87	3.46	2.88	4.33	2.22	2.67		
EI/expressed inclusion	Meets	4.75	4.32	4.89	3.57	5.50	5.00	3.12	5.2	0-9
	Exceeds	3.90	4.74	5.21	3.94	5.33	3.44	3.33		
WA/wanted affection	Meets	4.94	4.00	4.22	2.29	4.00	4.75	3.50	4.3	0-9
	Exceeds	4.10	4.61	5.63	4.44	5.17	4.22	5.67		
WC/wanted control	Meets	3.06	2.91	3.44	1.86	3.67	3.00	2.75	5.1	0-9
	Exceeds	2.10	2.48	3.67	3.31	3.17	2.11	2.67		
WI/wanted inclusion	Meets	3.88	2.77	4.33	2.14	3.42	3.83	1.50	3.4	0-9
	Exceeds	3.40	3.39	3.92	1.38	5.17	2.44	2.67		

CHAPTER V. SUMMARY, CONCLUSIONS, LIMITATIONS
AND RECOMMENDATIONS

Summary

The selection of teachers to be employed in a school district is a serious responsibility of administrators. Criteria used to measure the applicants typically include personality variables such as enthusiasm, poise, flexibility, warmth, interpersonal skills, etc. However, there remains considerable doubt as to what personality characteristics are associated with good teaching and how those factors can be assessed.

To help solve that riddle for secondary schools, the major purpose of this study was to ascertain whether there were any significant differences in the personal characteristics and behaviors of teachers evaluated above district standards as compared to those teachers who met district standards. Other variables (and their relationships which were considered) were subject areas taught, levels of educational training, and years of experience. Data were obtained from three personality inventories--the 16 PF, the CPI, and the FIRO-B--administered to 177 secondary teachers for the purpose of determining relationships. The typical teacher evaluated had taught approximately 13 years, possessed a master's degree and was evaluated as either meeting or exceeding the district's performance standards.

Responses from the 177 subjects on each of the three personality inventories were subjected to three, two-way multivariate analysis of variance (Manova). After computing the Manova, the Wilks-Lambda was used as the multivariate significance test of group differences.

Subsequent univariate F tests were computed on the main effects and the interaction effect whenever the Wilks-Lambda was found to be significant. Tukey's honestly significant difference test was used to delineate group mean differences for statistically significant univariate F tests. A summary of those results is reported in Table 30.

Specific findings of this study identified a number of significant differences as a result of the statistical analysis. One major finding ($p < .01$) was that teachers who were evaluated as exceeding district standards were more extroverted as measured by the 16 PF than those teachers who met district standards. Cattell (12) described behavior of the more extroverted as more socially outgoing, less inhibited, and good at making and maintaining interpersonal contacts. An analysis of the data from the CPI and the FIRO-B failed to identify statistically different characteristics between the teachers evaluated as exceeding district standards and those evaluated as meeting district standards.

Personality characteristics of teachers evaluated as exceeding district standards when compared to the "meets standards" group from various academic disciplines did differ statistically. One of those differences was on the personal factor of expedient vs. conscientious ($p < .01$). The highly rated English-social science and arts teachers (as assessed by the 16 PF) were more conscientious, while the "meets" teachers were more expedient; whereas the physical education, drivers' education, business education teachers and counselors who were evaluated as exceeding district standards were more "expedient", while the "meets" teachers were more "conscientious." There were no apparent differences

Table 30. Summary of findings

Test	Significance	Direction	Hypotheses
1. Evaluation			
Meets vs. exceeds			
<u>16 PF</u>	Introversion vs. extroversion	Exceeds teachers more extroverted	1. There are no significant differences (NSD) in the mean scores on the scales of the three inventories of those teachers evaluated as exceeding district standards (EDS) as compared to those who met district standards (MDS).
<u>CPI and FIRO-B</u>	No significant differences		
2. Interactions			
Subj/eval			
<u>16 PF</u>	Expedient vs. conscientious	Eng/soc sci and arts exceeds teachers more conscientious Math/sci No differences Miscellaneous Exceeds more expedient	2. There is NSD in the mean scores on the scales of the three personality inventories of the teachers of different subject areas who EDS as compared to those who met.
	Self-assured vs. apprehensive	Math/sci Exceeds teachers more apprehensive Eng/soc sci and arts exceeds teachers more self-assured	

Table 30. Continued

Test	Significance	Direction	Hypotheses
		Miscellaneous Exceeds teachers not significantly differ- ent from meets	
<u>CPI</u> and <u>FIRO-B</u>	No significant differences		
3. Interaction Training/eval			
<u>16 PF</u> , <u>CPI</u> , and <u>FIRO-B</u>	No significant differences		3. There is NSD in the mean scores of the scales of the three per- sonality inventories of the teachers with advanced profes- sional training who EDS as compared to those who met.
4. Interaction Experience/eval			
<u>16 PF</u> , <u>CPI</u> , and <u>FIRO-B</u>	No significant differences		4. There is NSD in the mean scores of the scales of the three per- sonality inventories of the teachers with different years of experience who EDS as com- pared with those who MDS.
5. Subject area			
<u>16 PF</u>	Affected by feel- ings vs. emotion- ally stable	Math/sci teachers more stable Eng/soc sci and arts more affected by feelings	5. There is NSD in the mean scores of teachers of different subject areas.

Table 30. Continued

Test	Significance	Direction	Hypotheses
	Tough-minded vs. tender-minded	Math/sci teachers more tough-minded Eng/soc sci and miscellaneous more tender-minded Arts teachers more tough-minded as compared to Eng/soc sci	
	Relaxed vs. tense	Arts teachers more tense and miscellaneous teachers more relaxed	
	Low anxiety vs. high anxiety	Miscellaneous teachers less anxiety and arts teachers more anxiety	
<u>CPI</u>	Psychological-minded	Math/sci and miscellaneous teachers more interested in inner needs of individuals and arts teachers less interested	
<u>FIRO-E</u>	No significant differences		

Table 30. Continued

Test	Significance	Direction	Hypotheses
6. Training			
<u>16 PF, CPI, and FIRO-B</u>	No significant differences		6. There is NSD in the mean scores of teachers with different levels of advanced training who were evaluated as EDS on the scales of the personality inventories
7. Experience			
<u>16 PF, CPI, and FIRO-B</u>	No significant differences		7. There is NSD in the mean scores of the teachers with various levels of experience who were evaluated as EDS on the scales of the three personality inventories

between the two performance levels of the mathematics-science teachers. On this factor, Cattell (12) defined conscientious as someone who is more staid, persevering, rule-bound and possesses a stronger super-ego strength.

Another statistical difference ($p < .05$) was identified on the personal factor of self-assured vs. apprehensive. As measured by the 16 PF, the "exceeds" mathematics-science teachers were more apprehensive as compared to the "meets" standards teachers who were more self-assured. Interestingly, the English-social science and arts "exceeds" teachers were more self-assured as compared to the "meets" teachers who were more apprehensive. There were no significant differences noted between the "exceeds" and "meets" miscellaneous group teachers. The CPI and the FIRO-B revealed no significant differences.

An analysis was made of the influence of professional training and years of experience on the personal characteristics of teachers. Data from the 16 PF, the CPI and the FIRO-B indicated there was no statistically significant association.

Statistical differences were noted from the 16 PF on the personal characteristics of teachers of various academic disciplines. One of those personal factors was affected by feelings vs. emotional stability ($p < .01$) as measured by the inventory. English-social science and arts teachers tended to be more affected by feelings, while mathematics-science teachers were more emotionally stable. Another statistical difference ($p < .01$) was found on the personal factor of tough-minded vs. tender-minded. Mathematics-science teachers were more tough-minded,

and the English-social science and miscellaneous group teachers were more tender-minded. Additionally, arts teachers as evaluated on this factor were more tough-minded than the English-social science teachers.

Two other personal factors in which differences were identified were relaxed vs. tense ($p < .05$). Arts teachers were more tense while miscellaneous group teachers, which included physical education, drivers' education, business education teachers and counselors, were more relaxed. Also, on the anxiety factor, arts teachers exhibited higher anxiety and the miscellaneous group teachers lower anxiety.

Further consideration of differences in the personal characteristics of teachers of various subject areas resulted in the CPI identifying one statistical difference ($p < .05$), psychological-mindedness. That personality inventory indicated that the mathematics-science teachers were more interested in the inner needs of individuals while arts teachers were less interested. The FIRO-B reported no significant differences among the various subject area teachers.

Finally, data from the 16 PF, CPI and FIRO-B failed to identify any significant association of professional training and years of experience with the personality characteristics of teachers.

Conclusions

Considering the data collected and analyses made in this investigation, the following hypotheses and conclusions are offered regarding differences in the personal characteristics of teachers evaluated as exceeding or meeting district standards as classified by the various academic disciplines, professional training and years of experience as

measured by the 16 PF, the CPI, and the FIRO-B:

- H₁ H₁ stated that there were no significant differences in personality characteristics by performance level. This was true, except that the "better" teachers were more extroverted.
- H₂ There were no significant differences in personality characteristics of teachers of different subject areas who exceeded district standards as compared to those who met. Differences were found as the "exceeds" English-social science and arts teachers were more conscientious and self-assured than the "meets" teachers, who tended to be more expedient and apprehensive. The physical education, drivers' education, business education "exceeds" teachers and counselors were more expedient, while the "meets" teachers were more conscientious. Finally, the "exceeds" mathematics-science teachers were more apprehensive and the "meets" teachers more self-assured.
- H₃ There were no significant differences in personality characteristics by amount of training by performance areas. This hypothesis could not be rejected as the personality characteristics did not vary by professional training when teachers were categorized by performance levels.
- H₄ There were no significant differences in personality characteristics by years of experience by performance area. This hypothesis was not rejected as years of experience had no interactive association to personal characteristics of teachers when categorized by performances.

- H₅ There were no significant differences in personality characteristics by subject matter areas. There were differences. English-social science and arts teachers were more affected by feelings when compared to mathematics-science teachers, who tended to be more emotionally stable. Additionally, mathematics-science teachers were more tough-minded and the English-social science and miscellaneous group teachers more tender-minded. Arts teachers were more tough-minded when compared to English-social science teachers who were more tender-minded. Arts teachers were more tense and exhibited higher anxiety while the miscellaneous group was more relaxed and exhibited lower anxiety. Finally, the mathematics-science teachers revealed greater concern for the inner needs of individuals as compared to the arts teachers.
- H₆ There were no significant differences in personal characteristics by amount of training. The hypothesis could not be rejected as graduate professional training had no relationship to the personal characteristics of teachers.
- H₇ There were no significant differences in personal characteristics to years of experience. This null hypothesis remains tenable because years of experience had no relationship to the personality characteristics of teachers.

Limitations

It must be noted that certain limitations were imposed due to the nature of the design of this study. They include:

- (1) Data generated from the 177 teachers used in this study were from one school district, Des Moines, and were only from the secondary teaching staff.
- (2) The administrator's evaluation of a teacher's performance was the sole criterion used to differentiate performance levels of teachers.
- (3) Teachers in 17 buildings were evaluated by 30 different administrators.
- (4) Because of the small number of teachers in certain academic disciplines, cells had to be collapsed, resulting in teachers from more than one subject area being grouped together.
- (5) The instrument used to measure teachers' performance was the Des Moines teachers' evaluation instrument, not a standardized instrument.
- (6) There were statistically significant differences; however, the magnitude of those differences was minimal.
- (7) Some of differences in the mean scores of the subjects on the 16 PF could be associated with sex response differences rather than to the other independent variables.
- (8) Perhaps the most important limitation was the absence of any teachers in the sample who were rated below district standards in performance. Because of legal and political considerations, none of this category were tested; hence, the performance distribution was skewed to the top.

Discussion

This study and its findings provided valuable information for school administrators and other professional educators concerning personality characteristics of teachers from various subject areas. Researchers in the past have isolated very few specific characteristics that correlate with effective teaching, particularly at the secondary level. In fact, school administrators have struggled for years in attempting to identify those personal qualities that contribute to "greatness" in teachers. Little is known about the personality characteristics of successful teachers and particularly those of various subject areas. Data from this study provide a tentative first step, which provides a statistical baseline to measure the best teacher applicants and also a baseline to measure attributes of teachers from various academic disciplines. A major contribution of this study was to identify personality characteristics that related to the best teachers of various teaching areas. For example, findings from this study suggest that personality characteristics that are significantly associated to successful English teaching may not be significant for a science teacher.

Additional personality differences might have been identified if the comparative groups had included "below standard" performers as well as those rated meets and exceeds district standards. That speculation is based on the fact that when comparing meets vs. exceeds teachers, the means on the 16 PF, CPI and FIRO-B for the exceeds teachers were generally greater. In fact, for the 16 PF the means were greater on 15 of the 20 and the CPI 15 of 18, even though these magnitudes were generally not

statistically different. It is likely that comparison of a wider spread of performance levels would have resulted in several significant relationships.

The 16 PF was successful in identifying statistically significant differences in personality characteristics between "exceeds" and "meets district standards" teachers as well as differences in characteristics among teachers of various subject areas. The CPI revealed only one statistically significant difference (which was among teachers of various subject areas), whereas the FIRO-B was unsuccessful in identifying any differences. Perhaps a major reason the 16 PF was the most discriminating was that the central feature of the 16 PF (which distinguishes it from other adult questionnaires) is that it is firmly based on the personality sphere concept--a design to insure initial item coverage for all the behavior that commonly enters ratings and the dictionary descriptions of personality. Thus, it has not been built up only by factoring of questionnaire material, but is part of the general structuring research on personality in everyday life, i.e. rating data, objective tests, etc.

The 18 scales of the CPI assess 18 important facets of interpersonal psychology. The test endeavors to provide data concerning characteristics of personality which have a wide and pervasive applicability to human behavior. Only one statistical difference was found, and that difference was among teachers of different subject areas. Because of its length and the types of questions, the CPI is not recommended for replication studies.

Why was the FIRO-B unsuccessful in identifying statistically

significant differences in personality characteristics and behaviors among teachers? Perhaps because it measures behavior of an individual in a given situation and predicts how an individual will interact with people. Consequently, the emphasis on measuring behavior reduced its usefulness in identifying differences in personality characteristics.

Findings from this study as compared to results of other research efforts vary. The personality characteristic of extroversion identified in this study as being statistically significant for the "better" teachers generally agrees with previous research findings of Weslander (84), Patrick (68), Ryans (74), and Manatt (50). However, some of the personal characteristics that Ryans (74) and Getzels and Jackson (28) found significant to effective teaching were not identified by this study as important to teachers of all subject areas. For example, one of Ryans' findings was that effective teachers were warm, understanding and friendly. Information from this study indicated that, generally speaking, the "better" English-social science teachers were warm and friendly but the most effective mathematics-science teachers were more tough-minded. The unique contribution of this study revealed that personal characteristics do vary from academic area to academic area, which, as indicated in Chapter II, has received very little attention in previous research studies.

Recommendation to Practitioners

The value of this research for the educational administrator is significant. As a result of this study, baseline data have been identified for the most effective teachers of general subject matter fields from the 16 PF. Criteria for the selection of teachers usually include

a number of personal factors, yet most administrators have little or no objective data to aid in their decisions. The 16 PF could be administered to all secondary teacher applicants and their results compared to the profile of successful teachers in this research sample. That information would aid administrators in making their selection decisions.

The study's results could also be useful to colleges of education in counseling and working with pre-service secondary teachers. University students as well as educational colleges need to know as early as possible when students are not well-suited for teaching careers. The results of this investigation (with sufficient replication for validation) may have a predictive value before students complete teacher training. In summary, it is recommended that personnel officers use the 16 PF as a routine screening device, but that the FIRO-B and the CPI not be used.

Recommendations for Further Research

Looking at the study and interpreting the findings lead to thoughts of possible further research. Even though testing teachers is a very sensitive matter, further testing is strongly suggested. Confidentiality, anonymous responses and informed consent are critical ingredients to the further research testing. Suggested testing and research areas are as follows:

- (1) It is recommended that the present study be replicated with the exception that the subjects for the sample should come from the most effective teachers and the least effective teachers, instead of the "exceeds" and "meets district standards" teachers. It is further recommended that a sizable number of teachers of different

teaching areas be tested so that the sample of a teaching area would be large enough to make comparisons without combining teachers from two or more subject areas in order to make comparisons.

- (2) Since elementary subjects were not included in this research effort, it is recommended that the study be replicated using elementary subjects for the purpose of developing baseline data for the best elementary teachers.
- (3) Another suggestion for consideration would be to use the 16 PF to test pre-service secondary subjects and then a subsequent testing after the same subjects have had a year of active teaching for the purpose of assessing if going on the job affects the personality characteristics of teachers.
- (4) An area of possible research would be replicating the study, but instead of using subjects from one urban district, select subjects from a cross-section of urban as well as rural districts.
- (5) Assessing possible differences in personality characteristics between males and females and majority and minority subjects could provide another research topic that would be of general interest to educators.
- (6) Another recommendation for further research would be to test teacher applicants on the 16 PF, as well as use the selection methodology of Project Empathy or the Selection Research Interview process for the same applicants and then compare the results. Each of these efforts is concerned with personal attributes of subjects and their relationship to effective teaching. Their agreement or disagreement

would be of general interest to administrators.

- (7) It is further suggested that the study be replicated in the Des Moines district. Since the original testing project, the Des Moines performance evaluation instrument has been revised and validated. Each administrator has had over 75 hours of training; therefore, a replication could be based upon a more discriminating evaluation instrument in the hands of more reliable raters.
- (8) Finally, it is recommended that additional research could be conducted which would include correlating student achievement gains with the mean scores of subjects on the 16 PF.

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