THE EFFECT OF TWO DERIVED TEACHING VARIABLES ON THE ASSIGNMENT OF SECONDARY TEACHERS BETWEEN STUDENT TEACHERS

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THE EFFECT OF TWO IDENTIFIED TEACHING VARIABLES ON THE ASSIGNMENT OF SECONDARY TEACHERS BETWEEN STUDENT TRACKS

by

RICHARD KENT KNUTH

A dissertation to be submitted in partial fulfillment
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Abstract

THE EFFECT OF TWO IDENTIFIED TEACHING VARIABLES ON THE ASSIGNMENT OF SECONDARY TEACHERS BETWEEN STUDENT TRACKS

By Richard Kent Knuth

Chairperson of the Supervisory Committee: Professor Dale L. Bolton
College of Education

This study was designed to determine if such effective teaching behaviors as enthusiasm and verbal clarity impact decisions by administrators when they are faced with assigning teachers to high and low track classes. An experiment was conducted where subjects were presented two fictitious job descriptions (one low track and one high track) and asked to assign a fictitious teacher to one of the two positions. Nine fictitious teachers were created for the experiment.

Two hundred and eighty-eight subjects were selected and within present position were randomly assigned to treatment conditions. The sample was stratified according to present position held (practicing administrator; teacher; administrative trainee, and teacher trainee), allowing a 3x3x4x2 (enthusiasm x verbal clarity x position x track assignment) completely crossed design.

Dependent measures in addition to assignment to track were predicted teacher effectiveness in a low track position and predicted teacher effectiveness in a high track position. Methods of analysis employed included logit modeling, analysis of variance, and multiple regression.

The major findings of this study indicated that the enthusiasm of a teacher affected the assignment of that teacher. The nature of this effect was characterized by a tendency to assign teachers exhibiting higher levels of enthusiasm to low track positions. This effect is in the opposite direction of that which would account for the previously reported imbalance of student perceptions of teacher enthusiasm observed between student tracks. Teacher verbal clarity and the position of the decision-maker did not effect the decision-maker's subsequent assignment of the teacher.

While both teacher enthusiasm and verbal clarity were found to affect the predicted effectiveness of a teacher in a low track position, neither were found to affect the predicted effectiveness of a teacher in a high track position. Position of the decision-maker did not affect the predicted effectiveness of the teacher in either track. Based on subjects' responses to an open-ended question other variables identified as important to the assignment of teachers to high track positions are college GPA and coursework.

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CHAPTER I

INTRODUCTION

Statement of tne Problem

Among the most important decisions made by school administrators are those involving the allocation or assignment of teacners. The general significance of this assignment decision is determined by the need of educators to balance economic constraints with pedagogical interests and a basic concern for the equitable treatment of all students. Teacher assignment is a basic economic problem in that it involves the allocation of scarce resources, in the form of effective teaching behaviors, in an effort to maximize expected returns on student outcome variables. It is a pedagogical problem in that the effectiveness of various teaching behaviors is usually situationally dependent; and in order to maximize on such student outcomes as academic achievement and attitudinal gains, the decision-maker must be well versed in the differing learning styles of diverse student populations and their subsequently differing needs in terms of instructional strategies, methods, and materials.

Finally, teacher assignment is a decision that raises the issue of student equity. Because effective teaching behaviors represent scarce resources and because the very effectiveness of these behaviors is usually situationally dependent, the distribution of these resources

among diverse student populations is rarely proportionate. Thus, decisions as to which students are to receive these resources and in what amounts hold serious implications in relation to both pedagogical and student equity issues.

The central purpose of this study was to contribute to a basic understanding of the decision-making process underlying the assignment of teachers and the resultant distribution of effective teaching behaviors among diverse student populations. More specifically, this research was designed to determine whether certain identified teaching variables affect teacher-assignment decisions made by administrators when classrooms are divided according to student ability or curricular grouping. Such homogeneous grouping of students is commonly known as tracking.

Recognition of the need for this kind of study resulted from an examination of two current bodies of research: (1) process-product correlational studies on teacher effectiveness, and (2) studies exploring the relationship of tracking and student access to school resources. Teacher effectiveness studies constitute a presently burgeoning body of research concerned with uncovering the characteristics and behaviors of the effective teacher. Of all the teaching behaviors associated with effective teaching, verbal clarity and enthusiasm, along with teacher engendered relevant learning time, are probably the most generalizable, being applicable to multiple contexts determined by various subject content areas and diverse student populations (Rosenshine, 1971; Rosenshine & Furst, 1973; Good,

Biddle, & Brophy, 1975). Moreover, Gage (1979) argued that "generic" effective teaching behaviors exist (naming enthusiasm as an example), and that such behaviors make a difference with all grade levels, subject matters, and student types.

It would seem then that such "generic" teacher behaviors would constitute educational resources needed by all student groups. Given that these teacher behaviors do not exist in adequate provision in most educational environments, then student groups are left to compete for what are "scarce resources". Educators are presented with a resource allocation problem with very real pedagogical and student equity ramifications.

In fact, Goodlad in his "Study of Schooling Project" (1981, p. 22) concluded that students in high tracks rated their teachers as teaching with greater verbal clarity and greater enthusiasm. Further, Rosenbaum (1976) in a case study of a midwestern high school found that more than half of the students he surveyed perceived that college-track students received better teachers than lower-track students. However, a note of caution should be given in interpreting the Goodlad study. Goodlad compares low track students' perceptions of their teachers with high track students' perceptions of their teachers. He concluded that any significant differences in these perceptions were the result of differences in the teachers or teacher behaviors found in each track, and not the result of differences between the students.

In any case the origins of this perceived unbalanced distribution of resources are unclear. Goodlad's conclusions, if correct, might be

accounted for by: (1) the individual teacher's allocation of time and attention; (2) the differing types of teacher interactions with distinct and separate student populations; or (3) the teacher assignment decisions of administrators (Schafer & Olexa, 1971, pp. 66-67). This study contributes knowledge related to the role played by this third factor, teacher assignment decisions.

Rosenbaum (1976) asserted that the most important teaching bias between ability groups is not in the allocation of teachers but in the way that teachers allocate their attention. In other words, the discrepancy of teacher inputs is more the product of the teacher's and not the administrator's efforts to invest resources where they perceive them to make the most difference. Teachers who taught both high and low ability groups were found by Rosenbaum to devote disproportionate amounts of time and preparation to the higher tracks. It is not clear, however,to what degree this bias is endorsed and furthered by administrative decision-making processes, specifically in the formulation of teacher assignments. If administrators, like teachers, believe that resources are more efficiently invested in the nigher tracks, then it is likely that this belief would be manifested in the way they allocate teachers, the classroom's most prominent resource. Further, such allocation would serve as a reaffirmation of the teacher's biased allocation of time and preparation between ability groups.

However, it would be a mistake to assume immediately that a biased allocation of teachers between tracks is the product of a conscious

economical effort to maximize returns (as measured on student outcome variables) on invested resources. For example, one possible explanation for Goodlad's results is that strong teachers are rewarded by being assigned to high track classes which present the teacher with increased intellectual stimulation and fewer discipline problems. Conversely, weak or problem teachers are punished by being assigned to lower-track classes. This latter action is designed to encourage weak teachers to reassess their commitment to teaching as a career. Clearly, if evidence were presented that strongly supported this viewpoint, then both pedagogical responsibility and student equity are being undermined.

Another possible and equally cynical explanation is that school administrators are most afraid of conflict with the more educated and higher SES parent population whose children more predominantly occupy higher track status. As a result, a school's stronger teachers are assigned to the higher tracks.

However, it is important to note that an unequal distribution of inputs between tracks does not necessarily imply an unjust distribution. That tracking is the product of homogeneous grouping based on student ability or curricular interest results in an inherent inequality between groups; an inequality that is inescapably reflected in each group's respective need and consumption of various school resources.

Because tracking groups do not all manifest the same level of need of various school resources, inequity is not necessarily reflected in

dramatic disparities between the levels of particular inputs received by each group. For example, students in higner tracks may need more advanced texts than students in lower tracks, who receive significantly more general or basic texts. However, there are some inputs of which both groups have a basic need. Among these are "generic" effective teaching behaviors.

More indicative of the inequity of a distribution of resources would be the process by which allocation or assignment decisions are made. It would be more important to know whetner decision-makers benave predictably in making assignment decisions and whether this behavior is consistent with current educational knowledge and research.

All of this then calls for the investigation of the first order question, "Is there a systematic difference in the assignment of teachers between student tracks based on teacher characteristics?" In this study, the characteristics of concern are the "generic" behaviors of enthusiasm and verbal clarity. If a systematic difference in the decision-making behavior of administrators is evidenced, then logically, second order questions involving underlying assumptions and motives of the behavior next need addressing. Although the detailed investigation of these latter questions was not within the purview of this study, an effort was made through post treatment questions to obtain data that would provide insight into the rationale used by educators in making such assignment decisions.

Objectives

The research reported here was designed to answer the following questions:

1. Do the teaching behavior dimensions of enthusiasm and verbal clarity affect the assignment of teachers between high and low tracks?

2. Do different educators (i.e., student teacher, teacher, administrative student, practicing administrator) make differing assignment decisions involving high and low tracks?

3. Do the teaching behavior dimensions of enthusiasm and verbal clarity interact with the position of the decision-maker in determining the outcome of teacher assignment decisions involving high and low tracks?

4. Do the teaching behavior dimensions of enthusiasm and verbal clarity affect the effectiveness predicted for teachers by decision-makers?

5. Do different educators (i.e., student teacher, teacher, administrative student, practicing administrator) make differing predictions of teacher effectiveness?

6. Do the teaching behavior dimensions of enthusiasm and verbal clarity interact with the position of the decisionmaker in determining the effectiveness predicted for teachers by decisionmakers?

7. Is there a relationship between the predicted effectiveness of a teacher and the assignment of that teacher?

Method

To accomplish these objectives it was necessary to simulate a decision-making situation in order to manipulate and control variables. It was assumed that exercising this control would not change the behavior of administrators significantly from that in corresponding actual situations. Materials describing nine fictitious teachers who differed solely on the evaluative dimensions of enthusiasm and verbal clarity, and two hypothetical teaching positions were prepared for this study.

All subjects were presented with one of the nine teacher qualification summary sheets and identical pairs of teaching position descriptions. Based on the provided information subjects then were asked to assign the teacher to the position for which the teacher is perceived to be best suited. In addition, subjects were presented with two items concerning the predicted effectiveness of the teacher in each of the described positions. Finally, subjects were asked to respond to one open-ended question asking them to describe the rationale they employed in arriving at their decision. The major purpose of collecting these latter data was to complement the interpretation of the experimental data and begin a discussion involving assumptions and motives underlying teacher-assignment decisioning behavior. A detailed investigation of these assumptions and motives, however, was beyond the scope of this study.

Variables

The research reported here focused on five variables of major interest. Variables manipulated in this study were: (1) teacher enthusiasm and (2) teacher verbal clarity. A third, classification blocking variable, was the position of the decisionmaker. The dependent variables were teacher assignment and predicted effectiveness.

The significance of the independent variables of teacher enthusiasm and teacher verbal clarity is based on the now voluminous body of research on teacher effectiveness. Both of these teacher behaviors have been identified repeatedly in the literature as postively related to student achievement (Rosenshine, 1971; Rosenshine & Furst, 1973; Good, Biddle, & Brophy, 1975). Indeed, of all the teacher behaviors associated with effective teaching, verbal clarity and enthusiasm are among the most generalizable, representing what Gage (1979) labeled "generic" effective teaching behaviors that make a difference with all grade levels, subject matters and student types. In the experiment, the effect of these variables upon the assignment of teachers between high and low student tracks was studied.

The potential importance of the classification variable, position of the decisionmaker, is based on the view that differing work experience can affect the individual's decision-making process and subsequent decision. The focus of this study is on the school administrator. Prerequisite to becoming an administrator are the

experiences of student teaching, teaching, and administration student. Thus, this research is a cross-sectional study that examines all four of these groups, looking at the developmental stages of the administrator, and the underlying development of decision-making patterns. For example, if administrators demonstrated a systematic bias in the assignment of teachers between tracks, then one would want to know whether this decision-making behavior is unique to the administrator's position and perspective, or whether the hidden assumptions and causes of this behavior might be shared by educators representing a broad range of distinct combinations of experience and orientation.

The significance of the dependent variable, the assignment of teachers between student tracks, lies in the fact that tracking represents the co-existence within individual schools of two or more distinct student populations. According to Jencks (1972) "differences between schools are ... relatively small compared to ... differences within the same school" (p. 106). Jencks further concluded that while most factors representing differences between schools do not have any effect on school outcomes, the selection system within schools (tracking) "is the one measurable factor that influences (educational) attainment" (p. 159). Jencks, however, did not suggest how such tracking exercised its influence. This study explored possible social mechanisms underlying Jencks analysis, mechanisms related to the allocation of teacher inputs between tracks.

Finally, predicted teacher effectiveness is included as a dependent variable because one would expect teacher assignment decisions to be based on a prediction of overall effectiveness. Yet, the effect of enthusiasm and verbal clarity upon the predicted effectiveness of a teacher needs to be studied empirically. Further, the assumed relationship between the two dependent variables, predicted effectiveness and assignment, needs to be scrutinized. As already noted in the discussion of the research problem, teacher assignment decisions are subject to sundry political, social, and pedagogical influences.

Definition of Terms

Key terms will be briefly discussed here; however, operational definitions of variables appear in Chapter III.

Enthusiasm. In past studies teacher enthusiasm has been studied primarily through: (1) observer ratings on paired adjectives such as "dull versus stimulating" or on scales estimating teacher "vigor and power"; (2) student ratings of the teacher involvement or excitement in the lesson; and (3) observer counts of incidents of teacher animation and excitement as exemplified by teacher movements, gestures, and voice inflections (Rosenshine and Furst, 1973, p. 156). More generally, enthusiasm denotes an intense or eager interest which is often capable of arousing a similar interest in others.

Verbal Clarity. The term verbal clarity is more specific than the term "clarity" which pervades teacher effectiveness literature. In many previous studies, it has not always been clear just what is meant by clarity. For example, organization and the structuring of a lesson appear to be related to clarity. In recent years investigators have attempted to be more specific in separating behaviors which comprise a high rating on clarity. In the Goodlad study, for example, clarity of the teacher's verbal instructions and the organization of the learning in the classroom were separated (Oakes, 1981, p. 51).

Thus, teacher clarity as used by Goodlad and in this report refers specifically to verbal clarity. Verbal clarity has been studied primarily through student and/or observer ratings in response to such items as:

> The teacher uses words I can understand.
>
> The teacher gives clear directions.
>
> The students understand what the teacher is talking about.
>
> I understand what the teacher is talking about. (Oakes, 1981, p. 237).

The above items place an emphasis on the teacher's ability to communicate, to encode messages that are easily and accurately decoded by students. In this study, verbal clarity refers to the teacher's ability to clearly express him/herself through words, both oral and written.

Tracking. Tracking is a general term that encompasses both ability grouping and curriculum grouping. Ability grouping separates

students into homogeneous groups based on learning ability. This practice differentiates instruction by type, quantity and intensity of work in an attempt to teach students at a level thought appropriate to their potential. Curricular grouping, on the other hand, groups students according to interests, desires, and ambitions (Conant, 1967, p. 40). According to Rosenbaum (1976, p. 6) ability grouping and curricular grouping share two important social characteristics:

(1) Students are grouped with those who are similar to themselves and separated from those who are different.

(2) Grouping is based, at least in part, on a ranked criterion -- ability or post school plans (college is considered superior to jobs); the groups are unequal in status.

Furthermore, research indicates that student populations in the college tracks are predominantly high-ability students, and those in general and vocational tracks are of lower ability (Alexander and McDill, 1976, 1978; Heyns, 1974; Davis and Haller, 1981). Thus, for the purpose of this study tracking will be defined as "any school selection system that attempts to homogenize classroom placements in terms of students' personal qualities, performances, or aspirations" (Rosenbaum, 1976, p. 6).

Teacher Effectiveness. The term teacher effectiveness has been bandied about in the literature in a rather loose way and no doubt means many things to many people. For the purpose of this study, teacher effectiveness refers to the ability of the teacher to consistently obtain gains in student achievement and/or attitudes

within his or her classroom. Though there has been a myriad of criteria suggested in the literature for the measurement of teacher effectiveness, none are more basic or less immersed in controversy than student achievement and attitude gains.

Assumptions

The following assumptions are basic to the purposes and design of this study:

(1) Effective teaching behaviors and therefore effective teachers are a scarce resource, underscoring the importance of the process whereby these resources are allocated.

(2) While recognizing that teaching behaviors are situationally effective, they will nevertheless fall into a hierarchical model, ranging from the highly (if not completely) general to the highly specific. In other words, while some behaviors are so specific as to be effective in only very narrowly defined situations, others are so general as to be effective in situations involving virtually all grade levels, subject matters, and student types.

(3) Improving the efficiency and effectiveness with which educational resources are allotted is dependent upon an empirical understanding of the process underlying allocation decisions.

Limitations of the Study

This study is subject to the following limitations:

(1) The simulated teacher-assignment situations may not capture the complexity and many subtleties of real situations. Such complexity is often found in influential political, economical, and social forces that are uneven and difficult to replicate.

(2) Since teacher and job description information were presented through printed materials, any possible effects of the dynamics of interviewing and observing the teacher were omitted from the study.

(3) While an ancilliary task of this study is to collect data that would encourage the beginning of a discussion involving assumptions and motives underlying teacher allocation decision behaviors, detailed investigation of these assumptions and motives is not a prime focus of this study.

(4) The population from which the sample of decision-makers was drawn was limited to secondary administrators and teachers in an urban and suburban setting; therefore, generalizations beyond this population must be qualified.

Summary

The general purpose of this study was to examine whether certain teaching variables affect decisions made in the allocation or assignment of teachers between student tracks. The general

significance of the teacher assignment problem is determined by the need of educators to balance economic constraints with pedagogical interests and a basic concern for the equitable treatment of all students. This study was designed to respond primarily to the question, "Is there a systematic difference in the assignment of teachers between student tracks based on teacher characteristics?" To make this determination a decision-making situation was simulated in order to manipulate and control variables.

The variables involved in this study included two treatment variables (teacher verbal clarity and teacher enthusiasm) and one classification blocking variable (position of decisionmaker). The dependent variables were the assignment of teacher to tracks and predicted teacher effectiveness.

All subjects were presented with teacher summary sheets that were identical except for the manipulation of the ratings of teachers on enthusiasm and verbal clarity which distinguished each of nine conditions, and with identical pairs of job descriptions. Subjects then were asked, based on the information provided, to assign the teacher to the position for which he or she was best suited and to predict the teacher's effectiveness in each of the described positions. Each subject was then presented one open-ended question asking for a description of the rationale each employed in arriving at the decision.

Organization of Remainder of the Dissertation

This report consists of five chapters, references, and appendices. Chapter II presents theory and research on topics related to teacher assignment. Chapter III presents the method and design of the experiment, including the development of materials, the experimental procedures, and the analysis of the data. The results of the experiment are presented in Chapter IV. Chapter V includes a summary, conclusions, and recommendations.

CHAPTER II

REVIEW OF SELECTED RELATED RESEARCH

Over the past fifty years there has been a long-standing controversy among educators over the efficacy and equity of tracking in the public schools. The efficacy issue has resulted in the extensive examination of the effect of tracking upon achievement, resulting in a voluminous but quite contradictory body of literature (Findlay & Bryan, 1971; Borg, 1966; Goodlad, 1960).[1]

The most pronounced debate over tracking, however, has involved the issue of student equity. As a result over the past several decades numerous other studies have focused on the socioeconomic composition of student populations assigned to various tracks. Invariably these studies have found disproportionate numbers of students with middle and upper socioeconomic backgrounds in college or high ability tracks, and lower socioeconomic status students in vocational or lower-ability tracks (Jencks et al., 1972; Alexander & McDill, 1976; Alexander, Cook, & McDill, 1978).

Out of this debate, a modest but significant body of more specifically focused research has emerged. In recent years

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[1]E.g., compare Ekstrom, 1959, with Goldberg, Passow, and Justman, 1966; or Otto, 1950, with Heathers, 1969.

this research has examined the relationship between tracking and student access to school resources. Of all the school resources allocated between tracks, teachers are perhaps the most critical. Thus, it seemed almost inescapable that the now voluminous body of teacher effectiveness research be applied to the tracking equity issue; and indeed Goodlad in his "Study of Schooling Project" (1981) did just that.

Specifically, Goodlad reported that as compared to their lower track conterparts, high track English and mathematics classes on the junior high and high school levels experienced teachers who taught with greater clarity, expressed greater enthusiasm, and utilized more diverse instructional methods. All three of these behaviors have been identified in the teacher effectiveness literature as being associated with high student achievement, and in some cases, positive attitudinal outcomes. Goodlad's conclusions have added fuel to charges by critics that the education afforded lower track students is at least in part a result of ineffective and uninspired teaching (Shafer & Olexa, 1971; Rosenbaum, 1976; Heyns, 1974; Pearl, 1965, 1967; Shafer & Polk, 1967; Leacock, 1969; Keddie, 1971; Glasser, 1969).

Thus, for the purposes of this study two major strands of research are reviewed here: (1) studies related to the relationship of tracking and student access to school resources, and (2) teacher effectiveness process-product correlational studies. The on-going debate as to the effect of tracking upon achievement and as to the imbalanced socioeconomic composition of student populations relegated

to tracks has already generated ample attention in the literature and there is no need to recapitulate it here.

Tracking and Student Access to School Resources

In recent years a modest but significant body of research has emerged, examining the relationship between tracking and student access to school resources. A difference in the distribution of resources between tracks often results by design, engineered by those holding the perspective that resources should be allocated where they can achieve maximum returns (Parsons, 1959). Such reasoning dictates that highly able and motivated students should have access to an enriched learning environment in order to reach their potential. Students of lesser ability are relegated to non-college or lower tracks and taught at a level thought appropriate to their aptitude or past achievement. This rationale finds support in sociological theory (Davis & Moore, 1945; Turner, 1960), in popular articles (e.g., Hernnstein, 1971) and in philosophical writings ranging from Plato to Hamilton, all of which argue that efficiency requires the restriction of opportunity.

Conversely, critics argue that tracking channels scarce resources to those who have the least need for them, benefitting the advantaged rather than deprived students. Studies show that when compared to their higher track counterparts students in lower tracks receive less exposure to:

1. highly motivated, academically oriented peers (Alexander, Cook, & McDill, 1978; Rosenbaum, 1976);
2. counselors and vital college and curriculum related information (Cicourel & Kitsuse, 1963; Schafer & Olexa, 1971; Rosenbaum, 1976; Heyns, 1974);
3. encouraging and postive teacher relationships (Rosenbaum, 1976; Heller, 1973; Schwartz, 1981);
4. engagement in prestigious and rewarding activities, e.g, recitals, plays, field trips (Shafer & Olexa, 1971; Rosenbaum, 1976); and
5. physical resources such as lab equipment and new texts (Rosenbaum, 1976).

Further, Rosenbaum (1980) cited many of these findings as factors that partially explain the relationship between track assignment and student self-esteem, social attitudes, and social behavior; a relationship that is characterized by lower track students exhibiting a much higher incidence of negative social behavior and self-deprecating attitudes than higher track students. This relationship between track assignment and negative attitudes toward self and others has been found to be independent of sex, race, social class, aptitude, class rank, father's occupation, IQ, and grades (Rosenbaum, 1979; Kelly, 1974; Polk & Schafer, 1972).

Of course, when solely based on these findings direction of causality is far from certain, but when one analyzes the differences in track assignment in terms of student access to school resources,

persuasive theory and arguments emerge. Indeed, much of the discussion generated by such an analysis is reminiscent of the desegregation debate underlying the Brown decision of 1954. In this landmark decision the Supreme Court reasoned that even given that physical resources were distributed equally, if Black students were denied access to highly motivated, academically oriented peers, then this would inescapably stigmatize and demotivate students, affecting both their subsequent social and academic growth.

This sentiment has since been regularly echoed in the literature by researchers:

> To some degree, educational stratification ensures segregation and differential access to school resources and personnel. (Heyns, 1974, p. 1449).

> Although administrators claim that tracking treats all students equally, the tournament structure of tracking is apt to lead quite logically to unequal treatment. (Rosenbaum, 1976, p. 178).

> ...students in high tracks had interactions with others which were more positive and, therefore, more likely to enhance their classroom experiences than did low-track students who experienced more negative classroom relationships which, in turn, were more likely to alienate them from the classroom. ...Those who start out with the least success and satisfaction end up with the least. (Goodlad,1981, p. 23).

However, it should be noted that virtually all of the studies cited in this section heretofore were survey studies involving a number of schools or qualitative studies of individual schools. True experiments utilizing "control group" schools that do not manifest any formal or informal method of tracking are rare. This rarity is attributable to (1) the difficulty of finding schools that are comparable on all important variables other than tracking and (2) the infeasibility of randomly assigning tracking and non-tracking conditions to existent schools. In essence, the studies that pervade this strand of literature explore the relationship between tracking and access to school resources without examining student access to school resources in non-tracked schools.

Of all the resources allocated between tracks perhaps teacher inputs are the most critical; and as previously cited, critics charge that the teaching provided lower track students is often ineffective and uninspired. This criticism is interesting in that the plethora of studies in the area of tracking has concentrated on student achievement or on the imbalanced socioeconomic composition of student populations relegated to tracks. Rarely have instructional differences in different tracks been examined (Rosenbaum, 1980, p. 369).

Although research in this area has been modest, studies do reveal that teachers tend to make fewer demands on lower track students and apply less exacting standards to their performance (Keddie, 1971; Leacock, 1979; Rosenbaum, 1976). Further, there is some indication

that teachers exhibit behavioral differences between different tracks. Glick (1975) found that teachers modify the difficulty of their language for different ability groups, while Heller (1973) showed that teachers give disapproval more often in lower ablity classes than higher ability classes. Finally, as already noted, Goodlad (1981) reported that both high track English and math classes on the junior high and high school levels perceived their teachers as teaching with greater verbal clarity, expressing greater enthusiasm and utilizing more diverse instructional methods than lower track counterparts.

The arguments supporting the unequal distribution of school resources between tracks clearly revolves on the central belief in the scarcity of school resources and the necessity of efficiently investing these resources so as to realize maximum returns. Yet, this argument presumes that the gatekeepers of these resources demonstrate an acute awareness of the nature of educational inputs, the parameters of desired outcomes, and the intricacies of the process by which these inputs are transformed to outcomes. Some doubt has been cast as to the depth of this awareness by studies which found school administrators' responses to questions concerning their schools' tracking systems to be in direct contradiction with most teachers' and students' responses in the same schools (Coleman, 1966, p. 569; Jencks, 1972, p. 97). Such findings indicate a degree of either confusion, ignorance, or attempted deception by administrators in responding to such basic questions as whether their schools even possess a tracking system.

Further, the National Educational Association (1968) reported that most teachers prefer the homogeneous grouping of students. This advocacy of homogeneous grouping, however, falls under a cloud of suspected teacher self-interest, when one also notes that the same survey reports that most teachers show a strong preference not to teach lower track students. The purpose of citing these findings or those of the Jencks and Coleman studies is not to cast aspersions on the professional commitment of America's educators. Rather, they are presented as illustrations of the need to focus more clearly on the determinants of student accessibility to school resources.

Teacher Effectiveness Process-Product Research

Educators have long been concerned with uncovering the characteristics and behaviors of the effective teacher. As pointed out by Gage (1963), "There is no lack of practical justification for research on the question of how teacher effectiveness can be measured, predicted, and improved" (p. 114). Such research is needed in order to design teacher education programs, to provide a basis for teacher certification, to make better hiring and promotion decisions, and even to assign teachers to specified teaching positions.

The basic paradigm most often employed in this research takes the following form:

> Identify or select a criterion (or set of criteria) of teacher effectiveness. This criterion then becomes the dependent variable. The research task is then: (1) to measure this criterion, (2) to measure potential correlates of this criterion, and (3) to determine the actual correlations between this criterion and its potential correlates. (Gage, 1963, p. 114)

Gage further presented Mitzel's (1957) criterion of effectiveness paradigm which allows for the intermediating effects of contingency factors and particular classroom interaction variables. Contingency factors include environmental variables and pupil variables while classroom interaction variables include specific teacher and student behaviors brought to the classroom, resulting in particular kinds of student-teacher interactions. Finally, Gage (1978) stimulated by Doyle's (1978) comprehensive critique of the process-product paradigm, expanded the process-product paradigm to include the intermediating effects of student responses and psychological processes that govern learning (such mediating processes as attending, translating, rehearsing, and task persistence).

The effectiveness criteria most often employed in process-product correlational studies are measures of student achievement and/or attitudinal outcomes. These cognitive and affective outcomes represent the "products" of the educational enterprise. Correlates of effectiveness, on the other hand, can take the form of teacher characteristics and behaviors, or classroom activities and conditions;

all of which are aspects of the "process" through which the "product" is produced.

Research utilizing such a paradigm has advanced at an accelerated rate since its description by Gage in 1963. This fast advancement was made possible by educational psychologists who developed and modified observational instruments for the classroom during the 1960s. Probably best known of these classroom observational systems is "interaction analysis" developed by Flanders (1970) and Amidon and Flanders (1967). Ultimately, teacher effectiveness research has resulted in a rich body of literature which has in recent years been treated in a number of reviews (Rosensnine, 1971, 1976; Rosenshine & Furst, 1971, 1973; Dunkin & Biddle, 1974; Good, Biddle, & Brophy, 1975; Brophy & Evertson, 1976; and Medley, 1977).

Out of this body of research have emerged general characteristics of the effective teacher, i.e., a teacher who realizes desired student outcomes. Teacher characteristics and behaviors which appear to be effective in realizing desired student achievement outcomes in a variety of situations, and which have been documented by numerous studies, include clarity, enthusiasm, task orientation or time on task, and flexibility. Of special interest to this study are teacher verbal clarity and teacher enthusiasm.

The situational dependency and narrow scope of generalizability of many teacher behaviors identified in process-product correlational studies are well known. Yet, of all the teacher behaviors associated with effective teaching, verbal clarity and enthusiasm, along with

teacher engendered relevant learning time, are among the most generalizable. Indeed, Gage (1979) persuasively argues that "generic" effective teaching behaviors exist (naming enthusiasm as an example) and that they constitute the first level of a hierarchial model of teacher behaviors, a level that includes teacher behavioral dimensions that make a difference with all grade levels, subject matters, and student types.

Verbal Clarity. Rosenshine and Furst (1971, 1973) reported that the most consistent link between a teacher behavior (process) and student achievement (product) was teacher clarity. Unfortunately, however, Rosenshine and Furst (1973) also acknowledged that it is not clear just what is meant by clarity. For example, both "organization" and "verbal clarity" appeared to be related to "clarity". According to Rosenshine (1971) much of the research on teacher clarity to that time focused on high-inference teacher behaviors as the independent variables. Such high-inference behaviors are open to subjectivity.

Examples of early studies that employed low inference behaviors, however, found that effective teachers (1) phrased questions so that they were answered the first time without additional information or additional questions interspersed before the student responded (Wright & Nuthall, 1970,), and (2) used fewer "vagueness words" such as "some", "many", "of course", and a "little" (Hiller, Fisher, & Kaess, 1969, as cited by Rosenshine & Furst, 1971). More recently, Smith and Land (1982) reviewed a number of studies generated out of the work of

Hiller et al. Their review revealed that high frequencies of teacher vagueness terms and mazes[2] inhibited student achievement. Both mazes and vagueness terms are examples of the low inference verbal behaviors that Rosenshine and Furst (1973) perceived as being conspicously unidentified in the literature they reviewed.

Yet, both of these low inference behaviors are related to the verbal expression of the teacher. As already noted, general organization influences clarity ratings (Rosenshine & Furst 1973) as does enthusiasm or teacher dynamism (McCaleb, 1979). Teacher dynamism represents non-verbal expression which influences clarity ratings. These findings underscore the need for precision in dealing with the more general concept of "clarity". The distinction between clarity and delivery (dynamism) needs to be stressed as does the distinction between verbal clarity (semantic and syntactical sense) and lesson organization (structuring, sequencing, and pacing).

Enthusiasm. The enthusiastic teacher is described by McCaleb and White (1980, p. 29) as one who "appears more confident, uses fewer nonfluencies, appears more expressive non-verbally, has more eye contact, and uses greater vocal variety". Further significant results have been obtained in studies which examine the relationship between teacher mobility, gestures, and voice inflections to student

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[2]"Hunt (1965, 1968) referred to mazes as units of discourse that do not make semantic sense. Smith (1977) defined mazes to .be false starts or halts in speech, redundantly spoken words, and tangles of words". (Smith & Land, 1982, p. 38)

achievement (Rosenshine, 1970). However, these low inference behaviors compose only a part of the construct of enthusiasm and it is generally recognized that future studies should be conducted to determine others in order to define the constellation of behaviors perceived as enthusiasm. Despite this less than full explication of the construct enthusiasm, however, it is generally accepted that teacher enthusiasm, like clarity, is one of the most consistent links between teacher behavior and desired student outcomes.

Summary

A review of the literature in the areas of student access to school resources and teacher effectiveness process-product correlational studies established the following significant points:

(1) When compared to their higher track counterparts, lower track students receive less exposure to various school resources, including academically oriented peers, contact with counselors, positive relationships with teachers, prestigious activities, and such physical resources as lab equipment and new texts.

(2) This difference in exposure is thought to be negatively related to student self-esteem, social attitudes, and social behavior.

(3) Teachers interact differently with student populations of different tracks.

(4) Verbal clarity and enthusiasm, basic teacher behaviors known to be associated with academic achievement, are experienced differentially between student tracks.

(5) A distinction must be made between verbal clarity and clarity as the former is a dimension of the latter.

(6) Verbal clarity and enthusiasm are two of the most generalizable of all the teacher behaviors found to be associated with student achievement.

These points provide background for the focus and design of the study. However, this study made some unique contributions.

First, while the distinction in the literature between verbal clarity and clarity is often acknowledged, many educators continue to use the term clarity regardless of the wide range of ways in which the construct is operationalized and measured. This study qualifies the construct by labelling and defining it as verbal clarity. Such labelling is more precise. Second and more important, though previous studies speak to the differential allotment of teacher inputs between tracks, none have examined the role of the administrator in affecting this disparate allocation.

CHAPTER III

METHOD AND DESIGN OF THE EXPERIMENT PROCEDURES

The general purpose of this study was to determine whether certain identified teaching variables affect decisions made in the allocation or assignment of teachers between student tracks. To make this determination the study included three stages: (a) the contents of a simulated teacher-assignment situation were determined; (b) an experiment was conducted by presenting subjects with different treatments and having them make certain decisions regarding hypothetical teachers within the simulated situation; and (c) statistical analyses of the data obtained in the experiment were completed and the results were interpreted.

Experimental Materials Developed

Materials developed for the experiment included: (a) simulated job descriptions and teacher profiles; (b) an instruction sheet; (c) a response form; and (d) a personal data form.

Simulated Materials. A two-page summary sheet of professional qualifications was developed for a fictitious teacher.[1] The first

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[1]Summary sheets were prepared per Bolton, 1968, pp. 61-62.

page of this summary sheet included demographic, educational and pertinent background data on the teacher. The second page of the summary included evaluation ratings on a number of different evaluation dimensions. Nine different sets of ratings were developed, one for each teacher quality condition. However, the only ratings that varied between these nine different descriptions were on the dimensions of verbal clarity and enthusiasm. (See Appendix A for a complete reproduction of the teacher summary sheet.)

Ratings were expressed on a scale of 1-7 with 1 being low, 4 medium, and 7 high. The rating sheet constructed for subjects in the first condition included a high rating of 7 on enthusiasm (EH) and a low rating of 2 on verbal clarity (VL). Thus, the remaining nine conditions can be expressed as follows:

Condition	RATINGS
C_1	EH VL
C_2	EM VL
C_3	EL VL
C_4	EH VM
C_5	EM VM
C_6	EL VM
C_7	EH VH
C_8	EM VH
C_9	EL VH

Demographic data generated for the fictitious teacher excluded information that explicitly or implicitly suggested sex, ethnicity, or marital status. Although age was also excluded, degree dates and years of teaching experience were included. The name of the teacher was sexually ambiguous; and the teacher's training institution and places of previous employment were fictionalized and designed to bear no regional connotations. Other demographic data provided included graduate work, teaching certificate, secondary school activities prepared to direct, languages spoken, health, professional membership, scholastic average, and breadth and depth of coursework. All of these data were generated so as to be innocuous or slightly positive in order to portray the teacher as average or slightly above average on these dimensions.

Evaluation ratings, other than those on enthusiasm and verbal clarity, included measures on:

1. appearance
2. responsibility
3. sense of humor
4. breadth of general knowledge
5. knowledge of professional matters
6. knowledge of teaching methods
7. knowledge of subject matter
8. interest in children
9. organization and management
10. creativity
11. cooperation

Ratings on each of these evaluation dimensions were held constant between treatment conditions. All of these ratings were generated so as to portray an average to slightly above average teacher and were rated on a 7-point scale in the 4-6 range. See Figure 3.1 for a replication of the ratings presented subjects.

Thus, in essence, nine fictitious teachers were created. However, these nine teachers were identical except on the evaluation ratings of enthusiasm and verbal clarity. The teacher portrayed as the weakest of the nine was rated a 2 on both enthusiasm and verbal clarity while the teacher portrayed as the strongest was rated a 7 on the same two dimensions. The number of nine was reached by completely crossing the three levels (high, medium, low) of the independent variables of enthusiasm and verbal clarity.

The rating of 2 was selected to indicate a low presence of enthusiasm and/or verbal clarity because a rating of 1 was thought to present too much discrepancy between the controlled evaluation ratings and the manipulated ratings. It was important to minimize perceived incongruence between ratings. Further, it was acknowledged from the outset that evaluation ratings are generally perceived as being inflated and thus raise high expectations in those reviewing such ratings. As a result, it was felt that while a rating of 2 indicated a very low level of enthusiasm and/or verbal clarity, it also indicated that the teacher did not display a total absence of either teaching behavior and that a condition existed in which these two behaviors were even less in presence.

Figure 3.1

Evaluative Data Presented Subjects*

CHARACTERISTIC	HIGH			AVERAGE			LOW
	7	6	5	4	3	2	1
Personal appearance.	___	x	___	___	___	___	___
Responsibility and mature judgment	___	___	x	___	___	___	___
Enthusiasm*.	*	___	___	*	___	*	___
Cheerfulness, sense of humor .	___	___	x	___	___	___	___
Cooperation.	___	x	___	___	___	___	___
Creativity and resourcefulness	___	___	x	___	___	___	___
Breadth of general knowledge .	___	___	___	x	___	___	___
Knowledge of professional matters.	___	___	___	x	___	___	___
Knowledge of teaching methods.	___	___	___	x	___	___	___
Knowledge of subject matter and background	___	___	x	___	___	___	___
Interest in children (students)	___	___	x	___	___	___	___
Organization and management. .	___	___	x	___	___	___	___
Verbal clarity*.	*	___	___	*	___	*	___
_____. . .	___	___	___	___	___	___	___
_____. . .	___	___	___	___	___	___	___

*Note: Subjects were presented with ratings on Enthusiasm (2, 4, or 7) and verbal clarity (2, 4, or 7) depending on treatment condition.

In addition to the teacher summary sheets, a pair of job descriptions (Position A and Position B) were prepared (see Appendix A). The first description was of a high school teaching position involving the instruction of high ability students in advanced level social studies. The second description was of a position involving the instruction of low ability students in basic or remedial social studies. The construction of these job descriptions was almost entirely inspired by actual descriptions from four school districts near Seattle not participating in the study. Job descriptions included:

1. the job title;
2. the primary function of the position;
3. the person to whom the teacher was directly responsible;
4. major functions and responsibilities of the position;
5. minimum qualifications and preferred personal qualities.

The sole differences between the low track and high track job descriptions were incorporated within the Primary Function statement and Item 1 of the Major Functions and Responsibilities. These differences were reflected both in student ability and curricular emphasis. The low track position (Position A) was "geared toward insuring basic competency work in social studies among low-ability students in non-college tracks", while the high track position (Position B) was "geared toward insuring academic excellence (in western civilization studies, sociology, and other related social studies areas) among high-ability students preparing for college admission."

That the descriptions of the low track position and the high track position were identical except in the very fundamental areas of student ability and curricular emphasis was not found to be incongruent with actual job descriptions used by many school districts. An examination of more than 60 job descriptions from numerous districts near Seattle found it to be quite common for job descriptions to vary little, even in job title, when describing fundamentally differing positions.

Underlying the development of both the teacher summary sheets and job descriptions was the major aim to create a set of simulated materials that achieved a balance between the need to exercise a tight control over the situation and information provided subjects while replicating as much as possible the types of materials and information to which practicing administrators are actually exposed. An acknowledged shortcoming of the simulated situation is the failure to include an opportunity for subjects to interview or observe the teacher to be assigned. While the validity of interviewing techniques used in actual practice as a source of information for predicting the effectiveness of a teacher is questionable (Bolton, 1973; pp. 62-74), actual observance of the teacher can have a profound impact on the confidence with which a teaching candidate is selected and subsequently assigned. Further, other important considerations and sources of information confronting the practicing administrator were inescapably excluded. Possibly, most notable among alternative sources of information are formal and informal conversation with the

teacher's former supervisors. Among the many considerations facing practicing administrators that were excluded from the simulated situation are concerns related to intradepartmental staff seniority and status, availability of classrooms, and scheduling constraints.

Instructions. The instructions that accompanied the simulated materials directed subjects to read the two job descriptions and the teacher summary sheet. Then, utilizing the information obtained from these documents, they were to assign the described teacher to either a low track position or a high track position. Besides recording their teacher assignment, decision-makers were instructed to respond to all items on the response form, including one open-ended question which asked for a brief description of the rationale they employed in making their decision. In envisioning a context within which to place this hypothetical decision, subjects were instructed to draw as much as possible on the educational environment and student population with which they currently worked.

Subjects were specifically directed not to feel undue concern about the position which was not filled as a result of their assignment of the described teacher. They were to assume that this unfilled position would be given to an undescribed teacher who had demonstrated equal effectiveness in both low and high track positions. Thus, it was stressed that the importance of the subject's task was to assign the described teacher to the position for which he or she was best suited.

Response Form. The response form presented to subjects consisted of five items. Item 1 asked subjects to identify the essential differences between the job descriptions. This item was used as a check to insure that the differences between job descriptions were not so subtle as to go unnoticed by subjects. In only two cases (.7%) did respondents fail to identify the essential difference between the two positions in student ability and curricula emphasis.[2] Item 2 asked subjects to indicate which assignment he or she would make when faced with the dichotomous choice of assigning the fictitious teacher to either the low track or the high track position.

Items 3 and 4 asked for predictions by the subject of how the fictitious teacher would be rated at the end of one year of teaching in the low track position and the high track position respectively. An example of the Effectiveness Scale is shown below:

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[2]Because the intention of the check item was to insure that the differences in job descriptions were not so subtle as to go unnoticed, and not to screen cases, these two cases were included in the data analysis. Further, while both cases failed to clearly demonstrate that they perceived the differences between the job descriptions, they did not clearly demonstrate that they misperceived the differences. Rather, their responses were characterized by inferences made about the two described positions. Each case indicated that the difference between the positions was the motivation level of each position's respective students.

Very Very

Effective:_____:_____:_____:_____:_____:_____:_____: Ineffective

Finally, item 5 asked subjects to respond to an open-ended question seeking the reasons and information utilized in making their assignment decisions.

Two important points need to be made about the "effectiveness" items. First, the items did not specify what criteria should be used in defining overall "effectiveness", rather it was left to the subjects to employ his or her own criteria. This was done intentionally to allow subjects to make a statement about the assigned teacher's potential to be effective, without imposing upon the subject a definition which he or she might perceive to be too narrow or restrictive. In other words, it was desired that subjects make a statement regarding predicted effectiveness regardless of how they personally defined the term.

Second, the items asked for predictions of ratings of effectiveness rather than predictions of actual effectiveness. It was recognized that subjects harboring a deep-seated skepticism toward the evaluation process and the validity of such ratings might easily render two divergent responses depending on the phrasing of the question. Yet, predicted ratings were deemed preferrable to predicted actual effectiveness for two reasons. First, a predicted rating gave subjects a context in which to place their rating; and second, a

predicted rating normally would be influenced in any case by predicted actual effectiveness, revealing the relative relationship between predicted effectiveness in the low track and high track positions.

Personal Data Form. In addition to the Response Form, a Personal Data Form was also developed and presented to all subjects. This data form consisted of six demographic items:

1. state of residence
2. current position held
3. age
4. sex
5. years of administration experience
6. years of teaching experience

These data were collected for the purpose of describing the sample and to categorize subjects by position.

Field Testing. An initial draft of the simulated teacher assignment activity including the response and personal data forms was pretested in one Seattle and one Boise high school, on six administrators, six teachers, two student teachers, and two administrative interns. The activity was administered following specified procedures which allowed for a brief introduction of the study explaining the general scope of the research and citing the endorsements of the study by two Northwest professional organizations. Subjects were then allowed to complete the activity independently, following the written instructions provided. Subjects were observed and timed. Average time of completion was 17 minutes.

In none of the cases did the subject take more than 21 minutes. Comments were solicited from the participants after completion of the activity. The subjects indicated that the activity was sufficiently clear, but they suggested that the teacher summary sheet follow the job descriptions in the activity packet instead of preceding them as they did in the initial draft. The documents were reordered accordingly.

The Experiment

The purpose of the experimental study was to examine: (a) the effects of teacher enthusiasm, teacher verbal clarity, and decision-maker position on teacher assignment between tracks; (b) effects of enthusiasm, verbal clarity, and decision-maker position on predicted teacher effectiveness in high and low tracks, and (c) the relationsnip between predicted teacher effectiveness and teacher assignment between tracks. Subjects were presented with a packet of materials entitled Teacher Assignment Activity which included instructions, simulated job descriptions and teacher summary sheets, a response form, and a personal data form. Packets were designed so they could be completed by subjects independently without aid from an experimenter or treatment administrator.

A standard paragraph which briefly introduced the study and cited endorsements of the study by two Northwest professional organizations was read to those subjects contacted in person and included in a cover

letter for those contacted through the mail. Further a cover page was attached to each Teacher Assignment Activity packet which again stressed the scope of the study. All subjects except 23 administrative interns (8% of the total sample or 32% of the subgroup) were presented the Teacher Assignment Activity in person by either the principal investigator or his representives. A number of interns were contacted by mail because the cost of contacting each one in person was deemed prohibitive. While as many as four administrators and four teachers were contacted in one school, and teacher education students were contacted in groups as large as 25 in education classes, administration students/interns were much more dispersed and much fewer in number. Therefore in order to arrive at the desired number of subjects it was necessary to contact part of the administrative student/intern population through the mail. Because in most cases even those subjects who were contacted in person were allowed to take the experimental packet home to complete, it was assumed that responses were not affected due to the mode of initial subject contact.

The average length of time for completion of the activity was between 15 and 20 minutes. The experiment was conducted over a period of 10 weeks in January-March 1983. In all cases subjects received identical information except for that which was designed to be manipulated.

The design of the experiment was a 3x3 factorial randomized block design with three dependent measures available. All hypotheses for main effects and interactions were tested. In addition, correlational

analysis was undertaken to ascertain the relationship(s) between the three dependent measures: track assignment; predicted effectiveness in a low track position; and predicted effectiveness in a high track position.

Population. The 288 subjects in the experiment included: (a) high school principals and vice principals;(b) high school teachers; (c) secondary (7-12) administration students and interns; and (d) students in secondary (7-12) teacher training programs. Only practicing administrators and teachers from high schools were sampled because the simulated problem was couched in a high school setting and the basic research question was related to tracking in the high school. Students in pre-service administration and teaching programs were selected on the basis of whether they were preparing for secondary certification. Such certification makes candidates eligible for employment at the high school level; whether indeed these subjects secure eventual employment at the high school level, the junior high school level, or at all is beyond this study's ability to predict. Somewhat similarly, teachers were taken from all subject areas, just as building administrators come from all subject areas.

The practicing administrators and teachers in the sample were employed in 38 high schools from 29 districts in Oregon, Washington, and Idaho. The administration student/interns and teacher education students were from training institutions in the same three states (see Table 3.1).

Table 3.1

Decision-maker Position by State of Residence

Position	State: Idaho	Oregon	Washington	Row Total
Principal	12	21	39	72
	16.7%	29.2%	54.2%	
	17.6%	27.3%	27.3%	
	4.2%	7.3%	13.5%	25.0%
Administration	16	8	48	72
Student/Intern	22.2%	11.1%	66.7%	
	23.5%	10.4%	33.6%	
	5.6%	2.8%	16.7%	25.0%
Teacher	14	31	27	72
	19.4%	43.1%	37.5%	
	20.6%	40.3%	18.9%	
	4.9%	10.8%	9.4%	25.0%
Education Student/	26	17	29	72
Student Teacher	36.1%	23.6%	40.3%	
	38.2%	22.1%	20.3%	
	9.0%	5.9%	10.1%	25.0%
Column	68	77	143	288
	23.6%	26.7%	49.7%	100.0%

Numbers in cell equal:
Count
Row %
Column %
Total %

Of the 38 high schools involved in the study four were from the Boise, Idaho area, 10 from the Portland, Oregon area, 4 from Central-Eastern Washington, and 20 from the Seattle-Puget Sound area. Adminitrative students/interns were selected from two Idaho universities, two Oregon universities, and six Washington universities. Education students/student teachers were selected from one Idaho institution, one Oregon institution, and two Washington institutions. All practicing administrators and teachers were from high schools with enrollments not smaller than 780 students and not greater than 1900. Seventy-four percent (28) of the schools were between 950 and 1350 in student enrollment.

For a further description of the sample see Tables 3.2 and 3.3 which show a breakdown of sample subgroups by sex and age respectively.

Sampling Procedures. Since the purpose of the study was to determine the effect of identified teaching variables on the teacher assignment decisioning of public secondary educators in general, and specifically on administrators, subjects were stratified according to position (education student/student teachers, teachers, administration students/interns, and practicing administrators). The selection of subjects was limited to only those who were employed in public high schools or preparing for such employment.

Although subjects were not randomly selected, they were randomly assigned by stratification to nine treatment groups. No subject was in more than one treatment group. The random assignment of treatments was realized by ordering, based on numbers derived from a random

Table 3.2

Decision-maker Position by Sex

Position		Female	Male	Row Total
Principal		22	50	72
		30.6%	69.4%	
		21.2%	27.3%	
		7.7%	17.4%	25.1%
Administrative Student/Intern		23	48	71*
		32.4%	67.6%	
		22.1%	26.2%	
		8.0%	16.7%	24.7%
Teacher		25	47	72
		34.7%	65.3%	
		24.0%	25.7%	
		8.7%	16.4%	25.1%
Education Teacher/Student		34	38	72
Teacher		47.2%	52.8%	
		32.7%	20.8%	
		11.8%	13.2%	25.1%
	Column	104	183	287*
		36.2%	63.8%	100.0%

Numbers in cells equals: Count
Row %
Column %
Total %

*One subject did not respond to the personal demographic item asking for respondent's sex.

Table 3.3

Decision-maker Position By Age

	Age									
Position	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60 and over	Row Total
Principal	0	0	11	12	15	17	13	4	0	72
	0	0	15.3%	16.7%	20.8%	23.6%	18.1%	5.6%	0	
	0	0	20.8%	21.4%	36.6%	50.0%	59.1%	80.0%	0	
	0	0	3.8%	4.2%	5.2%	5.9%	4.5%	1.4%	0	25.2%
Administrative	2	8	18	18	14	7	3	0	0	70*
Student	2.9%	11.4%	25.7%	25.7%	20.0%	10.0%	4.3%	0	0	
	5.0%	23.5%	34.0%	32.1%	34.1%	20.6%	13.6%	0	0	
	.7%	2.8%	6.3%	6.3%	4.9%	2.4%	1.0%	0	0	24.5%
Teacher	1	4	16	22	11	10	6	1	1	72
	1.4%	5.6%	22.2%	30.6%	15.3%	13.9%	8.3%	1.4%	1.4%	
	2.5%	11.8%	30.2%	39.3%	26.8%	29.4%	27.3%	20.0%	100.0%	
	.3%	1.4%	5.6%	7.7%	3.8%	3.5%	2.1%	.3%	.3%	25.2%
Student Teacher	37	22	8	4	1	0	0	0	0	72
	51.4%	30.6%	11.1%	5.6%	1.4%	0	0	0	0	
	92.5%	64.7%	15.1%	7.1%	2.4%	0	0	0	0	
	12.9%	7.7%	2.8%	1.4%	.3%	0	0	0	0	25.2%
Column Total	40	34	53	56	41	34	22	5	1	286*
	14.0%	11.9%	18.5%	19.6%	14.3%	11.9%	7.7%	1.7%	.3%	100.0%

Number in cells equal: Count
Row %
Column %
Total %

*Two respondents did not respond to the personal demographic item asking for respondent's age.

numbers table, teacher assignment activity packets, which embodied each of the nine different treatments. Four stacks of packets were constructed, one for each stratification of the sample. Each stack contained thirteen teacher data sheets for each of the nine treatments. In administering treatments to subjects, data sheets were distributed from these randomly ordered stacks in a straightforward manner, giving each subject the data sheet at the top of his or her respective group's stack at the time of his or her treatment. This procedure was followed until the stacks were exhausted or a minimum of eight subject responses were obtained in each of the 36 sample cells.

In the case of practicing administrators and teachers, building principals first were contacted by phone or by letter. Contingent upon their agreement to participate in the study, they were then contacted in person. Generally, it was the building principal who sought other members of his/her staff (both teachers and assistant principals) besides himself to participate. The principal was instructed to try and achieve a representative cross section of his/her staff in finding participants. It was not uncommon for a principal to select one planning period from which to seek teacher participants, since the composition of teachers in a given planning period was considered relatively random and representative of the staff as a whole. In a minority of cases, central office personnel, teachers, or vice-principals filled the role of building liaison instead of the principal. In all cases the assignment of treatments was random.

In the case of administration and teacher trainees, the Deans of training institutions and individual instructors were contacted by phone and then in person. Contingent upon the permission of these Deans and instructors, student teachers and student administrators were contacted in their education classes and received treatments as a group. The only exception to this was in the case of a number of administrative students/interns who were contacted by mail. In limiting participants to only those preparing for secondary certification it was found that the numbers of remaining eligible administration student participants still taking classes was greatly reduced. Therefore, a number of interns were approached through the mail at their individual schools. Twenty-three responses were received through the mail resulting in a response rate of 58%.

One reason why this response rate was no greater than 58% was because no follow-up to the initial mailing of the assignment exercise was undertaken. Forty assignment packets were mailed out in an attempt to obtain 15 responses to fill administative intern cells with a minimum of 8 observations per cell. Twenty-three responses were received, and the targeted counts for each cell were met and in some cases surpassed. Therefore, a follow-up mailing to obtain more responses was not undertaken and the data collection was closed. An analysis of those responses received showed a relatively even distribution across the nine treatment groups. It would not be expected that the treatment would effect the response rate as the difference between treatments are subtle.

One could argue that those who responded exhibited more of a sense of volunteerism than those who did not, but this was not unlike the sample as a whole who were accessed upon the basis of voluntary participation and who, though not randomly selected, were randomly assigned to treatment conditions. Further, in comparing the 23 mail respondents to the 57 administrative students/interns contacted in person, no significant differences were found on the personal demographic items.

Finally, when the number of observations in a cell surpassed the desired cell total of 8, cases were randomly selected, using a random numbers table, and removed from the sample. Twenty-two of the 36 cells had cell totals greater than 8. In total, 33 cases were randomly selected and removed from the sample in order to insure equal n's in each cell and orthogonal effects of the manipulated variables.

The Experimental Task. The general experimental procedure was as follows: first, subjects filled out a short personal data form; second, subjects were provided information regarding a hypothetical teacher and two hypothetical teaching positions; third, subjects assigned the teacher to one of the two positions; fourth, subjects predicted how effective the hypothetical teacher would be rated in both positions at the end of one year; and fifth, subjects gave a brief description of the reasoning and types of information they utilized in arriving at their assignment decisions.

Controls. In the hypothetical situation, it was necessary to control certain factors in order to determine the effects of the

treatment variables. The following were held constant for all treatment conditions.

1. Assignment situation. All hypothetical teachers were already assigned to a given building and were candidates for two explicitly defined high school social studies positions.
2. Hypothetical teachers. Of the nine different teachers all were identical except for manipulated evaluation ratings on enthusiasm and verbal clarity. The sex, ethnicity, and age of the teachers were not provided. All other demographic and evaluation ratings of the teachers were held constant.
3. Format and instructions. The format and information provided all subjects was held constant. Each subject was presented with a self-contained, uniformly arranged packet of materials. In no cases did the content or ordering of materials vary between subjects.

Threats to Validity. Because it was the aim of this research to create a hypothetical situation that an educator might actually confront in his or her own educational setting, it was inescapable that tradeoffs be made in the design of this study. One of these tradeoffs was characterized by a need to achieve a tight control over the situation and information provided subjects while replicating as much as possible the actual types of materials, information, and decisions confronting practicing administrators. Further, tradeoffs were made in order to reach a balance between the quality of information obtained and the efficiency with which it is obtained. A

high priority in the designing of this experimental task was to maintain a simple clarity and mimimize the time investment of subjects, while preserving the integrity of the information collected. As a result of these tradeoffs, the study is vulnerable to certain threats to internal validity. However, it is the author's belief that the impact of these threats on the study's results was insignificant. Tne following are threats that tne reader should consider in evaluating this study.

1. Supervision situation. No a priori assumptions were made as to the quality or quantity of supervision that the nypothetical teacher would receive after being placed in the hypothetical situation.

2. Evaluation ratings. Utilizing evaluation ratings within which to couch the subject's measure of teacher effectiveness and to operationally define the two independent variables runs the risk of being undermined by a deep-seated skepticism harbored by subjects toward such ratings. If an identifiable sub-group of subjects believe that such ratings do not reflect the teacher performance dimensions they are designed to measure (as much as the educational context and inputs with which the teacher interacts or the bias of the supervisor with whom the teacher works), then the results are in danger of being at least in part a product of this skepticism.

3. Independence of decisions. Subjects were instructed to complete the task independently from all other subjects. However, the tasks generally were not administered in monitored situations. Therefore the degree to which the decision of subjects are independent is unknown, but there is no reason to believe the instructions were violated.

Analysis of Data

The variables involved in the study are summarized in Table 3.4.

On completion of the experiment, the following data were available on each subject for analyses:

1. Personal data regarding state of residence, position, age, gender, years of administrative experience, and years of teaching experience.
2. The teaching assignment given the hypothetical teachers.
3. A measure of predicted effectiveness of the hypothetical teacher in a low track position.
4. A measure of predicted effectiveness of the hypothetical teacher in a high track position.
5. A measure of reasons and types of information employed by subjects in arriving at their assignment decisions.

Loglinear and Logit Modeling. In order to assess the main and interactive effects of teacher quality (i.e., verbal clarity and enthusiasm) and the decision-maker's position on track assignment,

Table 3.4

Variables Involved in the Study

Independent Variables		Dependent Variables
Variables	Levels	
Manipulated:		
1. Teacher Enthusiasm	a. Low b. Medium c. High	1. Teacher assignment (between student tracks; high and low)
2. Teacher Verbal Clarity	a. Low b. Medium c. High	2. Predicted teacher effectiveness (scale values 1-7; 1 very ineffective, 7 very effective)
Classification:		
1. Position of Decisionmaker	a. Student Teachers b. Teachers c. Student Administrators d. Administrators	

loglinear techniques, or more specifically logit modeling methods, were applied to the 3x3x4x2 (enthusiasm x verbal clarity x position x track assignment) data. See Table 3.5.

Logit modeling was selected as an appropriate method of analysis because the dependent variable of track assignment was dichotomous. Traditionally it has often been assumed that underlying a dichotomous or even polytomous variable is a continuum, "even when the dichotomy of interest is dead-alive or employed-unemployed, and that it is reasonable to assume (further) that the probability distribution over such a dead-alive continuum is normal" (Fienberg, 1981, p. 4). Furthermore, regression and analysis of variance metnods are so robust that the impact of violations of such an assumption on the validity of these methods of analyses is dubious. On the other hand, loglinear and logit methods of analysis make such an assumption unnecessary by assuming that the categories of a cross classification are discrete and fixed.

Logit analysis consists of four basic steps. First, models against which the data are to be testeo must be identified. The simplest model for data in this study can be represented in an abbreviated notation as follows:

[PEV] [A]

where [P] is position, [E] enthusiasm, [V] verbal clarity, and [A] track assignment. Such a model represents no interactions or associations between the explanatory [P, E, and V] and dependent [A] variables. The analogue in analysis of variance would be a case in

Table 3.5

Cross Classification of Sample ascending to: (1) enthusiasm of hypothetical teacher, (2) verbal clarity of hypothetical teacher, (3) position of decision-maker, and (4) track assignment of teacher

Enthusiasm	Verbal Clarity	Principals		Teacher		Administrative Students		Teaching Students		Totals
		High Track	Low Track	High Track	Low Track	High Track	Low Track	High Track	Low Track	
High	High	2	6	0	8	3	5	2	6	32
	Average	2	6	4	4	1	7	4	4	32
	Low	4	4	1	7	5	3	6	2	32
Average	High	4	4	1	7	3	5	3	5	32
	Average	5	3	3	5	5	3	2	6	32
	Low	3	5	4	4	4	4	3	5	32
Low	High	5	3	4	4	6	2	5	3	32
	Average	5	3	5	3	5	3	3	5	32
	Low	5	3	4	4	3	5	3	5	32
Totals		35	37	26	46	35	37	31	41	288

which there are no main or interactive effects. A second example

[PEV] [EA]

represents the model where there is only an ethusiasm [E] main effect upon assignment [A]. A third example,

[PEV] [EVA]

represents a model in which there is an enthusiasm x verbal clarity interaction effect.[3]

The second step in logit analysis is to estimate expected cell values under each of the models. Like familiar two-dimensional chi square tests, these expected cell values are a function of the marginal totals of observed values. Unlike a two dimensional chi square, however, logit methods allow for the simultaneous examination of three or more dimensions of cross-classification data sensitive to the possibility of three factor and higher-order interactions among the variables. In most cases estimated expected values are generated using maximum likelihood estimates (MLE) and they are computed for each model to be tested (for MLE computational formulae see Fienberg, 1981, Chapters 3 and 4).

The third step involves taking a particular model and seeing if it yields expected values close to the observed values. Goodness-of-fit tests are used to test the degree to which these expected values

---

[3]Note this analogy between logit models and analysis of variance is dependent upon the a priori identification of explanatory (or independent) and response (or dependent) variables.

generated by a given model fit the data. Since several models are tested, goodness-of-fit tests are not independent and cannot be tested separately. In order to aid the selection of the terms to be included in the model the likelihood-ratio goodness-of-fit statistic for any given hierarchical logit model is partitioned into several additive parts.[4] This likelihood-ratio goodness-of-fit statistic is denoted by G^2.

The final step in logit analysis involves the selection of a model that "best" fits the data based on the likelihood ratio chi square statistics. In interpreting G^2 for the selection of a model it is important to look for ratios that are nonsignificant at whatever alpha level has been predesignated. In other words a significant G^2 ratio indicates a bad fit between the model's expected values and the data's actual observed values. Models are arranged in hierarchical order with those containing lower-order terms preceding those with higher-order terms. For example, the model

[PEV] [VA] [PA]

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[4]Hierarchical models are a set of models in which higher-order terms may not be included unless related lower order terms are also included. For example in this study the model [PEV] [EVA] cannot be tested unless the model [PEV] [EA] [VA] is also included. All hierarchial models must include the basic term [PEV] [A] (Fienberg, 1981; Chapters 3 and 5).

precedes [PEV] [VPA] in the hierarchy. Though there are several methods for selecting a model (see Fienberg, 1981, Chapter 5), generally one would proceed through the hierarchy of models from the bottom up in search of the lowest order or most parsimonious model that best fits the data.

Because this study is interested in models that assess the effects of categorized variables on a dichotomous "response" variable, logit models which are a specific "type" of loglinear models were formed for testing. Furthermore, as these explanatory variables were manipulated "design" variables, the three-dimensional marginal totals corresponding to the explanatory variables are taken as fixed. Thus, in this study all models tested must include the term [PEV] (see Fienberg, 1981, p. 97).

Effects Upon Track Assignment. Logit modeling methods of analysis were undertaken to answer the following questions regarding teacher assignment between tracks:

1. Do the teaching behavior dimensions of enthusiasm and verbal clarity affect the assignment of teachers between high and low tracks?

2. Do different educators (i.e., student teacher, teacher, administrative student, practicing administrator) make differing assignment decisions involving high and low tracks?

3. Do the teaching behavior dimensions of enthusiasm and verbal clarity interact with the position of the decision-maker in determining the outcome of teacher assignment decisions involving high and low tracks?

In order to respond to these questions 19 models were tested against the data and are presented in Figure 3.2.

The number of possible models that can be tested is a function of the number of dimensions in a cross classification and can grow to be quite large. The number of models initially constructed and tested is contingent on the theoretical basis of the hypotheses. In this study, three independent variables are orthogonal by design. Therefore association between variables are only of interest in relationship to the dependent variable. Thus, the nineteen models constructed for testing represent all of the relationships between the independent and dependent variables that are possible outcomes of a traditional three-way analysis of variance. The first model

[PEV] [A]

represents no associations between the independent variables and the dependent variable, while the nineteenth model

[PEVA]

represents a three-way interaction between all the two-way interactions, and all main effects of the independent variables on the dependent variable.

Effects Upon Predicted Effectiveness. Analysis of variance methods were undertaken to answer the following questions regarding the predicted effectiveness of the assigned teacher:

1. Do the teaching behavior dimensions of enthusiasm and verbal clarity affect the effectiveness predicted for teachers by decisionmakers?

Figure 3.2

Logit Models Applied to Data in Table 3.5 where [E] is Enthusiasm, [V] is Verbal Clarity, [P] is Decision-maker Position, and [A] is Track Assignment

Model	d.f.	G^2
No Relationships		
[PEV] [A]	35	
One Main Effect		
[PEV] [EA]	33	
[PEV] [VA]	33	
[PEV] [PA]	32	
Two Main Effects		
[PEV] [EA] [VA]	31	
[PEV[[EA] [PA]	30	
[PEV] [VA] [PA]	30	
Three Main Effects		
[PEV] [EA] [VA] [PA]	28	
One Two-Way Interaction		
[PEV] [EVA]	27	
[PEV] [EPA]	24	
[PEV] [VPA]	24	
One Two-Way Interaction and One Main Effect		
[PEV] [EVA] [PA]	24	
[PEV] [EPA] [EA]	22	
[PEV] [EPA] [VA]	22	
Two Two-Way Interactions		
[PEV] [EVA] [EPA]	18	
[PEV] [EVA] [VPA]	18	
[PEV] [EPA] [VPA]	16	
Three Two-Way Interactions		
[PEV] [EVA] [EPA] [VPA]	12	
One Three-Way Interaction		
[PEVA]	0	

2. Do different educators (i.e., student teacher, teacher, administrative student, practicing administrator) make differing predictions of teacher effectiveness?

3. Do the teaching behavior dimensions of enthusiasm and verbal clarity interact with the position of the decision-maker in determining the effectiveness predicted for teachers by decision-makers?

In order to test the effects of enthusiasm, verbal clarity, and decision-maker position on the predicted effectivness of the hypothetical teacher in both the low and high track positions, two three-way analyses of variance were computed as shown in Figures 3.3 and 3.4

Tukey's honestly significant difference (HSD) method of pairwise comparison of means was applied on a post hoc basis when F ratios were found significant at the .05 level.

Relationship Between Predicted Effectiveness and Assignment. Zero-order and multiple correlations were computed to answer the following question regarding the relationship between the dependent variables of the study:

Is there a relationship between the predicted effectiveness of a teacher and the assignment of that teacher?

In order to arrive at the magnitude and direction of the relationship between predicted effectiveness and assignment, two biserial correlations were computed; one for assignment and predicted effectiveness in the low track position and one for assignment and

Figure 3.3

Analysis of Variance for Enthusiasm, Verbal Clarity, and Decision-Maker position on Predicted Effectiveness of Teacher in Low Track Position

Sources	Sum of Squares	df	Mean Square	F
A: Enthusiasm		2		
B: Verbal Clarity		2		
C: Position		3		
A x B		4		
A x C		6		
B x C		6		
A x B x C		12		
Within Groups		252		
Total		287		

Figure 3.4

Analysis of Variance for Enthusiasm, Verbal Clarity, and Decision-Maker position on Predicted Effectiveness of Teacher in High Track Position

Sources	Sum of Squares	df	Mean Square	F
A: Enthusiasm		2		
B: Verbal Clarity		2		
C: Position		3		
A x B		4		
A x C		6		
B x C		6		
A x B x C		12		
Within Groups		252		
Total		287		

predicted effectiveness in the high track position. Further, a Pearson product-moment correlation was computed to measure the relationship between predicted effectiveness in the low track position and predicted effectiveness in the high track position.

Finally, a multiple correlation was computed utilizing predicted effectiveness in the low track position and predicted effectiveness in the high track position as predictor variables, and track assignment as a criterion variable. This multiple correlation was undertaken in order to assess the degree to which track assignment could be predicted better by knowing the predicted effectiveness of the teacher in both tracks.

Information and Arguments Utilized in Assignment Decisions. In order to begin a discussion of the reasoning employed by educators in making assignment decisions, subjects were presented with one open-ended question asking for a brief description of the rationale underlying their assignment decisions. Responses to this question were analyzed and coded in two separate ways. First, each response was examined for the types of information explicitly cited by the subject as contributing to the ultimate decision. Codes were developed and recorded for each information type cited in the response.

In total 20 coded categories were developed for the coding of the types of information used by decision-makers. In most cases subjects cited information provided in the teacher summary sheet, using the exact same terminology as the summary sheet. As a result, all except

three categories denoted information provided to subjects in the teacher summary sheet.

For example a respondant might cite the following information about the teacher as affecting his or her decision:

> Teacher lacks enthusiasm for low ability students.
>
> Teacher grade point average is strong.
>
> Shows strong interest in children which is important to low ability students.

Such a response would be coded as follows:

Information Cited	Code
Enthusiasm	1
Scholastic Average	7
Interest in Children	16

In addition to 17 categories of information that directly related to the teacher summary sheet, three other categories were developed. These were: (18) Inappropriate for Either Position; (19) Insufficient Information, and (20) Other. Codes (18) and (19) were more comments on the information than a kind of information, but these responses were found frequent enough to warrant recording. The "Other" category was reserved for information cited that did not fit in the first 19 data categories. Responses that were based on information that was seemingly invented or the product of speculation by the subject, or that were so vague and general as to be almost meaningless were coded

in this category. An example of information seemingly invented or based on speculation is exemplified in one response which labelled the hypothetical teacher as "not aggressive enough". Examples of overly general or vague statements would be "the teacher is too average" or "the teacher is a 'basic' type of teacher".[5]

A second coding of the open-ended question responses was undertaken in order to summarize the argument underlying assignment decisions of subjects. To achieve this end a rationale was developed that made it possible to categorize responses into six categories based on the use of "selectors" and "eliminators" by subjects. It was reasoned that the assignment decision could only have one of two outcomes: (1) The teacher is assigned to the low track position; or (2) the teacher is assigned to the high track position. Further, the reasons underlying this decision would generally fall into two categories: eliminators and selectors. Eliminators were those reasons why the teacher was not fit for one or both positions, while selectors were those reasons why the teacher was fit for one or both positions.

For example, the teacher might have been assigned to the low track position because he was not enthusiastic enough for the high track

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[5]For more specific information on the development of the coding scheme, including the final 20 coded categories used, see Appendix B.

position. This is a case of a high track position eliminator (lack of enthusiasm) driving the decision to assign the teacher in a low track position. This is in contrast to a situation where the teacher was assigned to the low track position because he exhibited the enthusiasm thought to be appropriate for effectiveness with low track students. This is a case of a low track position selector (desired enthusiasm) driving the decision to assign the teacher in a low track position.

Because underlying most decisions were a number of selectors and eliminators in various combinations, the coding of responses to this item had to account for: (1) the direction of the decision, i.e., either low or high track positions; and (2) the proportions of eliminators and selectors driving the decision. Thus, the coding matrix presented in Figure 3.5 was created.

To determine which of the three columns in Figure 3.5 a response fell into, it was decided that a response that cited one eliminator and one selector, a .5/.5 split, would fall into column 3, that is in either cell #3 or #6, depending on position assigned. Further, that any responses with combinations of eliminators and selectors up to a .67/.33 split also would fall into column 3. Those responses that included more than .67 eliminators were placed in column 1 and those that included more than .67 selectors were placed in column 2.[6]

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[6]For a more detailed description of the coding arguments underlying subject assignment decisions see Appendix B.

Figure 3.5

Eliminator-Selector Matrix

Assignment	Eliminators	Selectors	Selectors/Eliminators
	-	+	+/-
A	1	2	3
B	4	5	6

Where Cell #1 denotes a response that assigns the teacher to Position A (low track) based primarily on negative information that eliminated the teacher from Position B (high track).

Where Cell #2 denotes a response that assigns the teacher to Position A (low track) based primarily on positive information that "selects" the teacher for Position A (low track).

Where Cell #3 denotes a response that assigns the teacher to Position A (low track) based on almost an even balance of negative and positive information, both Position B (high track) eliminators and Position B selectors.

Where Cells #4, 5, and 6 represent responses that assign the teacher to Position B (high track) based primarily on Position A (low track) eliminator, Position B (high track) selectors, or a balance between the two, respectively.

Thus, in summary, each open-ended response was coded twice: once for the types of information and once for the type of selector-eliminator argument employed. While the first coding allowed for a multiple response by subjects (some subjects citing as many as ten pieces of information about teachers) the second mandated that the respondant's argument be characterized by one of six discrete categories based on the presence of position eliminators and selectors.

Training of Coders. A training session on the coding procedures for the open-ended responses was conducted for the study coding team. The session familiarized coders with the coding procedures and ensured that coding was uniform and reliable. Questions were raised and disagreements concerning the definition of variables and variable values were resolved. A "20%" sample of the cases was selected for check "coding" where a second coder made an independent analysis of the open-ended response. A record of differences between coders was kept and became the basis for computing an index of inter-coder agreement. Using Cohen's (1960) kappa coefficient of agreement for nominal scales, a coefficient of interjudge agreement of K = .953 was obtained for the coding of selector-eliminator arguments. Because the coding of types of information used by subjects allowed for subjects to make multiple responses (that is, subjects varied between citing zero to 10 types of information) and because the methodological literature relevant to the measurement of reliability of coding multiple response items is impoverished, a simple, and albeit primitive, measure of percentage or proportion of agreement (P_o) was

used as an index of intercoder agreement for the coding of types of information. This measurement (P_o = .90), however, is a very conservative estimate of intercoder reliability in that it does not account for the vast number of permutations of possible responses or subsequent classification categories (Scott, 1955).

Summarizing "Open-Ended" Response Data. For the types of information cited, and subsequently coded, multiple response frequencies and crosstabs were tabulated and reported. In addition, frequencies were tabulated and reported for types of arguments utilized.

Summary

The purpose of this study was to examine: (a) the effects of teacher enthusiasm, verbal clarity, and decision-maker position on teacher assignment between tracks; (b) the effects of teacher enthusiasm, verbal clarity, and decision-maker position on predicted teacher effectiveness in both high and low tracks; and (c) the relationship between predicted teacher effectiveness and teacher assignment between tracks.

This research was developed in three stages: (a) the contents of a simulated teacher assignment situation were determined; (b) an experiment was conducted by presenting subjects with different treatments and having them make certain decisions regarding hypothetical teachers; and (c) statistical analyses of the experimental data obtained were made.

The sample studied included 288 educators from 38 school districts in 29 different districts from the tri-state area of Idaho, Oregon, and Washington. The sample was stratified according to position (administrator, teacher, administrative student, teacher trainer) with each subject being randomly assigned to one of nine treatment groups.

Each subject completed a 15-20 minute simulated teacher assignment task and responded to five items on a subject response form. Collected data were then analyzed using logit modeling, analyses of variance, and correlational techniques to answer seven central questions posed by this research. In addition, responses to an open-ended question asking for the rationale employed in arriving at the teacher assignment decision were analyzed for the types of information and arguments used by subjects.

CHAPTER IV

RESULTS

The major objectives of this study were to examine: (a) the effects of teacher enthusiasm, verbal clarity, and decision-maker position on teacher assignment between tracks; (b) the effects of teacher enthusiasm, verbal clarity, and decision-maker position on predicted teacher effectiveness in both high and low tracks; and (c) the relationship between predicted teacher effectiveness and teacher assignment tracks. To accomplish these objectives, an experiment which simulated a teacher-assignment situation was conducted. The purpose of this chapter is to report the results of the experiment in terms of the effects on the dependent measures, to report relationships between the dependent measures, and to discuss these results in terms of the basic research questions posed. Further, the results of an analysis of subject responses to an open-ended question are reported. This question asked for a brief description of the rationale employed by respondents in arriving at their respective teacher assignment. The results reported here were obtained by following the procedures for data collection and analyses outlined in Chapter III.

Analysis of the data gathered in the experiment consisted of four general procedures. First, logit modeling methods were used to ascertain the effect(s) of three independent variables upon teacher

assignment between student tracks. Second, analyses of variance were used to examine the effects of the same three independent variables on the two dependent measures of predicted effectiveness. Third, correlations between the three dependent variables were computed. Fourth, frequencies and cross tabulations were computed for the types of information and types of selector-eliminator arguments utilized by respondents in describing the rationale they employed in making decisions involving teacher assignment between student tracks.

Assignment Between Student Tracks

Logit modeling methods of analysis were undertaken to answer the following questions regarding teacher assignment between tracks:

1. Do the teaching behavior dimensions of enthusiasm and verbal clarity affect the assignment of teachers between high and low tracks?

2. Do different educators (i.e., student teacher, teacher, administrative student, practicing administrator) make differing assignment decisions involving high and low tracks?

3. Do the teaching behavior dimensions of enthusiasm and verbal clarity interact with the position of the decision-maker in determining the outcome of teacher assignment decisions involving high and low tracks?

Nineteen logit models were tested for goodness-of-fit against actual observed cell values. These 19 models were selected because

they represent all of the possible combinations of relationships between variables that a more familiar three-way analysis of variance might report. These 19 models and their respective likelihood ratio chi-square statistics are reported in Table 4.1.

Table 4.1

Values of the Chi-Square Goodness-of-Fit Statistics G^2 for 19 Logit Models where P = Position, E = Enthusiasm, V = Verbal Clarity, and A = Assignment

Model	d.f.	G^2
[PEV] [A]	35	37.26
[PEV] [VA]	33	36.18
[PEV] [EA]	33	30.18
[PEV] [PA]	32	34.50
[PEV] [EA] [VA]	31	29.08
[PEV] [PA] [VA]	30	33.32
[PEV] [EA] [PA]	30	27.37
[PEV] [EA] [VA] [PA]	28	26.26
[PEV] [EVA]	27	22.88
[PEV] [VPA]	24	29.62
[PEV] [EPA]	24	22.41
[PEV] [EVA] [PA]	24	20.00
[PEV] [VPA] [EA]	22	22.83
[PEV] [EPA] [VA]	22	21.28
[PEV] [EVA] [VPA]	18	15.80
[PEV] [EVA] [EPA]	18	14.87
[PEV] [EPA] [VPA]	16	17.23
[PEV] [EVA] [EPA] [VPA]	12	10.29
[PEVA]	0	0*

*The model [PEVA] is known as the saturated model. By definition the expected values generated by such a model will equal the actual observed values.

An examination of Table 4.1 reveals that all of the G^2 values are non-significant, indicating that all of the models, including the basic model of no relationships between the independent and dependent variables "fit" the data. That is, the expected values generated by each model are not significantly different from the actual observed values. While all of the tested models generated expected values that were not significantly different from the actual observed values, there can still be significant differences between models. An examination of these differences allows one to select the model of "best fit". In order to partition the likelihood-ratio chi-square statistic and thus select the model that "best fits" the data, four hierarchical models were constructed. These hierarchical models and resultant G^2 components[1] are presented in Table 4.2.

In interpreting the hierarchical models presented in Table 4.2, one needs to examine the G^2 statistic for each individual model and the partitioned G^2 for each component. All individual models have non-significant G^2 statistics which means they all "fit" the data to

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[1]The term component refers to the difference in G^2 values and degrees of freedom for two adjacent models within a hierarchy. The advantage of the G^2 statistic is that it is additive and therefore can be partitioned into components. To test the G^2 statistic for significance, one would compare G^2 against the upper .05 tail value of the corresponding X^2 distribution (Fienberg, 1981).

Table 4.2

A Partitioning of the Likelihood-Ratio Chi-Square Statistics for Five Hierarchical Models Where P = Position, E = Enthusiasm, V = Verbal Clarity and A = Assignment

(1)

Component due to	G^2	d.f.
Model (1) [PEV] [A]	37.26	35
Differences between Models (1) and (2)	7.08*	2
Model (2) [PEV] [EA]	30.18	33
Differences between Models (2) and (3)	1.10	2
Model (3) [PEV] [EA] [VA]	29.08	31
Differences between Models (3) and (4)	2.82	3
Model (4) [PEV] [EA] [VA] [PA]	26.26	28
Differences between Models (4) and (5)	3.38	1
Model (5) [PEV] [EVA]	22.88	27
Differences between Models (5) and (6)	2.88	3
Model (6) [PEV] [EVA] [PA]	20.00	24
Differences between Models (6) and (7)	5.13	6
Model (7) [PEV] [EVA] [EPA]	14.87	18
Differences between Models (7) and (8)	4.58	6
Model (8) [PEV] [EVA] [EPA] [VPA]	10.29	12

*$p < .05$

Table 4.2, continued

(2)

Component due to	G^2	d.f.
Model (1) [PEV] [A]	37.26	35
Differences between Models (1) and (2)	7.08*	2
Model (2) [PEV] [EA]	30.18	33
Differences between Models (2) and (3)	2.81	3
Model (3) [PEV] [EA] [PA]	27.37	30
Differences between Models (3) and (4)	1.11	2
Model (4) [PEV] [EA] [VA] [PA]	26.26	28
Differences between Models (4) and (5)	3.85	4
Model (5) [PEV] [EPA]	22.41	24
Differences between Models (5) and (6)	1.13	2
Model (6) [PEV] [EPA] [VA]	21.28	22
Differences between Models (6) and (7)	4.05	6
Model (7) [PEV] [EPA] [VPA]	17.23	16
Differences between Models (7) and (8)	6.94	4
Model (8) [PEV] [EPA] [VPA] [EVA]	10.29	12

*$p < .05$

Table 4.2, continued

(3)

Component due to	G^2	d.f.
Model (1) [PEV] [A]	37.26	35
Differences between Models (1) and (2)	2.76	3
Model (2) [PEV] [PA]	34.50	32
Differences between Models (2) and (3)	7.13*	2
Model (3) [PEV] [PA] [EA]	27.37	30
Differences between Models (3) and (4)	1.11	2
Model (4) [PEV] [PA] [EA] [VA]	26.26	28
Differences between Models (4) and (5)	3.85	4
Model (5) [PEV] [EPA]	22.41	24
Differences between Models (5) and (6)	1.13	2
Model (6) [PEV] [EPA] [VA]	21.18	22
Differences between Models (6) and (7)	6.41	6
Model (7) [PEV] [EPA] [EVA]	14.87	18
Differences between Models (7) and (8)	4.58	6
Model (8) [PEV] [EPA] [EVA] [VPA]	10.29	12

*p < .05

Table 4.2, continued

(4)

Component due to	G^2	d.f.
Model (1) [PEV] [A]	37.26	35
Differences between Models (1) and (2)	1.08	2
Model (2) [PEV] [VA]	36.18	33
Differences between Models (2) and (3)	2.86	3
Model (3) [PEV] [VA] [PA]	33.32	30
Differences between Models (3) and (4)	3.70	6
Model (4) [PEV] [VPA]	29.62	24
Differences between Models (4) and (5)	7.24*	2
Model (5) [PEV] [VPA] [EA]	22.38	22
Differences between Models (5) and (6)	6.58	4
Model (6) [PEV] [VPA] [EVA]	15.80	18

(5)

Component due to	G^2	d.f.
Model (1) [PEV] [A]	37.26	35
Differences between Models (1) and (2)	1.08	2
Model (2) [PEV] [VA]	36.18	33
Differences between Models (2) and (3)	7.10*	2
Model (3) [PEV] [VA] [EA]	29.08	31
Differences between Models (3) and (4)	2.82	3
Model (4) [PEV] [VA] [EA] [PA]	26.26	28

*$p < .05$

a minimal degree and thus are all candidates for selection as the model of best fit. However, an examination of the partitioned G^2 statistics within each hierarchical model identifies four individual models over the others as the model of best fit. These models are: [PEV] [EA] (from both hierarchical models 1 and 2); [PEV] [PA] [EA] (from hierarchical model 3); model [PEV] [VPA] [EA] (from hierarchical model 4), and model [PEV] [VA] [EA] (from hierarchical model 4).

These models are selected by starting at the bottom of each hierarchy and working to the top in search of the first component to exceed the upper .05 tail value of the corresponding X^2 distribution. In the first hierarchical model, for example, while the model [PEV] [A] fits the data, so does the model [PEV] [EA] and the differences between these two models are significant. That [PEV] [EA] is a "better fit" than [PEV] [A] is reflected in the magnitude of each model's respective G^2 statistic. Further, other individual models within the first hierarchical model which include additional terms, such as [PEV] [EA] [VA] are not significantly different from the model [PEV] [EA]. In other words, the additional terms do not make a significant contribution in reducing the differences between the observed and the expected values of the data. Therefore, in the first hierarchical model [PEV] [EA] is selected as the most parsimonious model that best fits the data.

Of the four models

[PEV] [EA]

[PEV] [EA] [PA]

[PEV] [VPA] [EA]

[PEV] [EA] [VA]

all of which were identified as the models of "best fit" by partitioning the likelihood-ratio chi-square statistic within each hierarchical model, the model [PEV] [EA] is selected as the ultimate model of "best fit". This selection is based on a simple examination of hierarchical model 1 which indicates the difference between [PEV] [EA] and [PEV] [EA] [VA] is non-significant; and a similar examination of hierarchical model 2 which indicates that the difference between [PEV] [EA] and [PEV] [EA] [PA] is non-significant. In order to arrive at a comparison of the models [PEV] [EA] and [PEV] [VPA] [EA] a sixth hierarchical model was constructed and is presented in Table 4.3. An examination of the hierarchical model in Table 4.3 agains results in the selection of the model [PEV] [EA] as the model of "best fit".

This finding indicates that while enthusiasm has a main effect upon assignment, verbal clarity and the position of the decision-maker do not. Further, there are no interactions between the three independent variables affecting assignment. Interestingly, a 3-way analysis of variance of these same data (reported in Appendix C)

Table 4.3

A Partitioning of the Likelihood-Ratio Chi-Square Statistics for a Hierarchical Model Where P = Position, E = Enthusiasm, V = Verbal Clarity and A = Assignment

Component due to	G^2	d.f.
Model (1) [PEV] [A]	37.26	35
Differences between Models (1) and (2)	7.08*	2
Model (2) [PEV] [EA]	30.18	33
Differences between Models (2) and (3)	1.10	2
Model (3) [PEV] [EA] [VA]	29.08	31
Differences between Models (3) and (4)	2.82	3
Model (4) [PEV] [EA] [VA] [PA]	26.26	28
Differences between Models (4) and (5)	4.88	6
Model (5) [PEV] [VPA] [EA]	22.38	22

results in the same finding. The F ratio for an enthusiasm main effect upon assignment was 3.68, significant at the .05 level. All other main effects and interactions were non-significant.[2]

In order to better explicate the nature of the enthusiasm main effect or assignment, post hoc analysis was undertaken by collapsing the four dimensional table (enthusiasm x verbal clarity x position x assignment) into a two dimensional table (assignment x enthusiasm). Table 4.4 is a display of observed frequencies for a 2x3 cross classification of assignment and enthusiasm.

Table 4.4

Observed Frequencies of Assignment x Enthusiasm

	Enthusiasm			
Assignment	Low	Medium	High	Total
Low Track Position	43	56	62	161
High Track Position	53	40	34	127
Total	96	96	96	288

[2] See Appendix C for a more detailed comparison of the logit analysis and the 3-way analysis of variance where enthusiasm, verbal clarity, and position are independent (explanatory) variables and assignment is a dependent (response) variable.

An analysis of the data in Table 4.4 resulted in $X^2 = 7.972^*$ and C = -.176. The chi-square test, however, only reaffirms and does not add to the findings of the logit modeling analysis. It is possible, however, to partition X^2 into additive independent components analogous to the orthogonal comparisons or contrasts in analysis of variance (see Castellan, 1965). In order to subdivide X^2 into independent components it is necessary to subdivide the original contingency table into independent components. A 2x3 table such as Table 4.4 can only be partitioned into two independent tables one for each degree of freedom. One example of an appropriate partitioning of such a table follows:

(1)

n_{11}	n_{12}
n_{21}	n_{22}

and

(2)

$n_{11} + n_{12}$	n_{13}
$n_{21} + n_{22}$	n_{23}

where n_{11} equals the observed frequency in the first row of the first column of the original table. Of course, the ordering of rows and columns in a contingency table is arbitrary and it is the researcher's responsibility to order a table so that resulting partitions are meaningful.

By partitioning the original contingency table, one can better locate just where within the table discrepancies between observed and

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* $p < .02$

expected frequencies occur. For this analysis a chi-square statistic was computed for the 2x2 tables: (1) Enthusiasm (categories = low and medium) x Assignment (categories = low track position and high track position); and (2) Enthusiasm (categories = low + medium, and high) and assignment (categories = low track position and high track position). Results of this analysis is reported in Table 4.5.

An examination of Table 4.5 indicates that while the first partitioned table approaches significance, it is the second table which by collapsing low and medium enthusiasm into one category and adding the high enthusiasm category actually results in a significant chi-square value. Another pair of 2x2 partitioned tables that could have been selected for testing were Enthusiasm (nigh ano meaium) by Assignment and Enthusiasm (high + medium, and low) by assignment. Associated partitioned chi-square values for these tables are presented in Table 4.6.

An examination of Tables 4.5 and 4.6 indicate that the null hypothesis of independence is not rejected when only low and medium or only medium and high levels of enthusiasm are included in the partitioned tables. However, when all three levels of enthusiasm are included in the partitioned table (either by pooling low and medium enthusiasm or by pooling medium and high enthusiasm) the null hypothesis is rejected. In other words, it is primarily the differences between the assignment ratios (low track assignments/high track assignments) of the low enthusiasm group and the high enthusiasm

Table 4.5

X^2 Table for the Partitioning of the 2x3 (Assignment x Enthusiasm) Data Presented in Table 4.4[3]

Source	d.f.	X^2
(1) Enthusiasm (low and medium) x Assignment	1	3.5706
(2) Enthusiasm (low + medium, and high) x Assignment	1	4.4016*
Total	2	7.972**

*p < .05

**p < .02

[3]For computational formulae by which partitioned chi-square values were reached see Castellan, 1965.

Table 4.6

X^2 Table for the Partitioning of the 2x3 (Assignment x Enthusiasm) Data Presented in Table 4.4[3]

Source	d.f.	X^2
(1) Enthusiasm (high and medium) x Assignment	1	.7606
(2) Enthusiasm (medium + high and low) x Assignment	1	7.211***
Total	2	7.972**

** $p < .02$

*** $p < .01$

group that account for the relationship between enthusiasm and assignment found in the original 2x3 (assignment x enthusiasm) contingency table where X^2 equals 7.972 with 2 degrees of freedom.

The results of the logit modeling analysis and the post hoc partitioning of the chi-square for the collapsed two dimensional table indicate the following:

1. Teacher enthusiasm affected the assignment of teachers between tracks.
2. Neither verbal clarity nor the position of the decision-maker affected the assignment of teachers between tracks.
3. Subjects presented with hypothetical teachers exhibiting low enthusiasm assigned these teachers to high track positions at a significantly higher frequency than did subjects presented with teachers of medium and high enthusiasm.
4. The relationship between enthusiasm and assignment is a linear one whereby the higher the enthusiasm the increased likelihood that the teacher will be assigned to the low track position.

Predicted Effectiveness

Analysis of variance methods were undertaken to answer the following questions regarding the predicted effectiveness of the assigned teacher:

1. Do the teaching behavior dimensions of enthusiasm and verbal clarity affect the effectiveness predicted for teachers by decision-makers?

2. Do different educators (i.e., student teacher, teacher, administrative student, practicing administrator) make differing predictions of teacher effectiveness?

3. Do the teaching behavior dimensions of enthusiasm and verbal clarity interact with the position of the decision-maker in determining the effectiveness predicted for teachers by decision-makers?

Analyses of variance for predicted effectiveness of teachers, as measured by the ratings given hypothetical teachers by subjects on the predicted effectiveness scales presented on the Teacher Assignment Activity Response Form, are shown in Tables 4.7 and 4.8.[4] The results of these analyses indicate that while teacher enthusiasm and verbal clarity had a main effect on a teacher's predicted effectiveness with low track students, neither of these independent variables affected predicted teacher effectiveness with high track students. Further, the independent variable of decision-maker position did not affect the predicted effectiveness of a teacher with either low or high track students. However, the F ratio for a

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[4]For individual cell means and standard deviations of predicted effectiveness in the low track position and in the high track position see Appendix D.

Table 4.7

Analysis of Variance Showing Effect on
Predicted Effectiveness in Low Track Position

Source of Variation	Sum of Squares	d.f.	Mean Square	F
A: Enthusiasm	22.182	2	11.066	7.601**
B: Verbal Clarity	25.194	2	12.597	8.653**
C: Position of Decision-Maker	10.149	3	3.383	2.324#
A x B	10.139	4	2.535	1.741
A x C	6.090	6	1.015	.697
B x C	13.361	6	2.227	1.530
A x B x C	15.806	12	1.317	.905
Within Cells	366.875	252	1.456	
Total	469.747	287	1.637	

**p < .01

#p = .075

Table 4.8

Analysis of Variance Showing Effect on
Predicted Effectiveness in High Track Position

Source of Variation	Sum of Squares	d.f.	Mean Square	F
A: Enthusiasm	.396	2	.198	.115
B: Verbal Clarity	.583	2	.292	.170
C: Position of Decision-Maker	6.038	3	2.013	1.172
A x B	9.576	6	1.596	.929
A x C	15.146	4	3.786	2.204
B x C	16.639	6	2.773	1.614
A x B x C	23.215	12	1.935	1.126
Within Cells	432.875	252	1.718	
Total	504.469	287	2.758	

decision-maker position main effect on predicted effectiveness in the low track position does approach significance at p = .075.

Where F ratios were significant, group means of predicted effectiveness ratings for Position A were computed and compared using Tukey's HSD test. Groups were defined by factor levels. Both the means and the results of a pairwise comparison of these means using Tukey's HSD statistic are reported in Tables 4.9 and 4.10.

Table 4.9

Pairwise Comparison of Means of Predicted Teacher Effectiveness in the Low Track Position Where Groups are Defined by Treatment Level of Teacher Enthusiasm

Groups		I	II	III
Enthusiasm Level		Low $\bar{x}$ = 3.66	Medium $\bar{x}$ = 4.15	High $\bar{x}$ = 4.34
Low	$\bar{x}$ = 3.66	--	.49*	.68**
Medium	$\bar{x}$ = 4.15		--	.19
High	$\bar{x}$ = 4.34			--

* p < .05 using Tukey HSD
** p < .01 using Tukey HSD

Table 4.10

Pairwise Comparison of Means of Predicted Teacher Effectiveness in the Low Track Position Where Groups are Defined by Treatment Level of Teacher Verbal Clarity

Groups		I	II	III
Verbal Clarity Level		Low $\bar{x}$ = 3.65	Medium $\bar{x}$ = 4.18	High $\bar{x}$ = 4.38
Low	$\bar{x}$ = 3.65	--	.53*	.73**
Medium	$\bar{x}$ = 4.18		--	.20
High	$\bar{x}$ = 4.38			--

* p < .05 using Tukey HSD
**p < .01 using Tukey HSD

Because the F ratio for a main effect of position of decision-maker on predicted effectiveness in a low track position approached significance ($p = .075$) and because differences between such groups as teachers and administrators are of major practical interest, analysis of variance for the orthogonal comparisons of group means was undertaken. Table 4.11 shows an analysis-of-variance table where the between-group sum of squares has been divided into three independent additive parts with one degree of freedom associated with each part. The first comparison of administrators and administration students ($\bar{x}_1 - \bar{x}_2$) is not significant. Neither is the second comparison of teachers and student teachers ($\bar{x}_3 - \bar{x}_4$) significant. However, the third comparison, which pools administrators and administration students into one group, and teachers and teacher trainees into another ($\bar{x}_1+\bar{x}_2 - \bar{x}_3-\bar{x}_4$), is highly significant; $p < .01$. This clearly indicates that the between groups variation results because the means for administrators and administration students are substantially different from the means of teachers and teacher trainees. In other words, the partitioning of the main effect for position indicates that the group of teachers and teacher trainees predicted the hypothetical teachers to be significantly more effective in the low track position that did the group of administrators and administrative students.

Table 4.11

Analysis of Variance for Orthogonal Comparisons of Group Means of Predicted Effectiveness in Low Track Position Where Groups are Defined by Position of the Decision-Maker

Groups	I	II	III	IV
Position of Decision-Maker	Administrators $\bar{x} = 3.79$	Administration Students $\bar{x} = 4.00$	Teachers $\bar{x} = 4.19$	Teacher Trainees $\bar{x} = 4.28$

Source of Variation	Sum of Squares	d.f.	Mean Square	F
I,II	1.56	1	1.56	.95
III,IV	.25	1	.25	.15
I+II,III+IV	8.34	1	8.34	5.05**
Within	459.60	284	1.65	
Total	469.75	287	1.637	

**$p < .01$

The results of these analyses of variance and group comparisons indicate the following:

1. Teacher enthusiasm and verbal clarity affected the degree to which a teacher is predicted to be effective in a low track position.
2. Neither enthusiasm nor verbal clarity affected the degree to which a teacher is predicted to be effective in a high track position.
3. The position of the decision-maker did not affect the predicted effectiveness of teachers in either low or high track positions. However, the F ratio for a decision-maker position main effect on predicted effectiveness in the low track approached significance. An analysis of variance for orthogonal comparisons of group means indicated significant differences between the group which pooled administrators and administrative students and the group which pooled teachers and teacher trainees in the predicted effectiveness of the hypothetical teachers in the low track position. These differences are characterized by the group of teachers and teacher trainees predicting a higher level of effectiveness for the hypothetical teachers than that predicted by the group of administrators and administrative students.
4. Enthusiasm and verbal clarity did not interact in affecting the predicted effectiveness of teachers in low track positions.

5. The group presented with hypothetical teachers exhibiting low enthusiasm predicted significantly lower relative effectiveness for these teachers in a low track position than did each of the other two groups for teachers who exhibited medium and high enthusiasm.
6. Similarly, the group presented with hypothetical teachers with low verbal clarity predicted significantly lower relative effectiveness for teachers in a low track position than did each of the other two groups for teachers who exhibited medium and high verbal clarity.

Relationship Between Assignment and Predicted Effectiveness.

Zero order correlations were computed and a multiple regression was undertaken in order to answer the following question regarding the three dependent variables:

> Is there a relationship between the predicted effectiveness of a teacher and the assignment of that teacher?

Coefficients of correlation between the three dependent variables are presented in Table 4.12. In interpreting these coefficients, it is important to note that assignment was coded: Position A (low track) = 0 and Position B (high track) = 1. Predicted effectiveness measures were based on 7-point scales where 1 equals very ineffective and 7 equals very effective.

Table 4.12

Coefficients of Correlation Between Track Assignment,
Predicted Effectiveness in Low Track Position, and
Predicted Effectiveness in High Track Position

	Predicted Effectiveness in Low Track Position	Predicted Effectiveness in High Track Position
Assignment	-.65 (n = 288) p = .001	.48 (n = 288) p = .001
Predicted Effectiveness in Low Track Position		-.1303 (n = 288) p = .013

The coefficient of multiple correlation between assignment, predicted effectiveness in the low track position and predicted effectiveness in the high track position is R = .764 and p < .01. A multiple regression summary table where predicted effectivness in the low track position and predicted effectivness in the high track position are predictor variables and assignment is a criterion variable is presented in Table 4.13.

Table 4.13

Multiple Regression Summary Where Predicted Effectiveness in Low Track Position and Predicted Effectiveness in High Track Position are Predictor Variables and Track Assignment is the Criterion Variable

Variable Entered	Multiple R	R Square	R Square Change	Simple R
Predicted Effectiveness in Position A (Low Track)	-.65*	.43	--	-.65
Predicted Effectiveness in Position B (High Track)	.76*	.58	.15	.48

* p < .01

The results of these correlational and multiple regression analyses indicate the following:

1. As one would intuitively suspect there is a relatively strong relationship between the predicted effectiveness of a teacher in a given position and his subsequent assignment to that position. The coefficient of correlation between predicted effectiveness in the low track position and assignment is r = -.65 (where low track assignment equals 0, and a high track assignment equals 1), indicating that the more effective a teacher is predicted to be in the low track position the more likely he will be assigned to the low track position. Similarly, the coefficient of correlation between predicted effectiveness in the high track position and assignment (r = .48) indicates that the more effective a teacher is predicted to be in the high track position the more likely he will be assigned to the high track position.
2. Moreover, r^2 for predicted effectiveness in the low track position and assignment, and for predicted effectiveness in the high track position and assignment are .43 and .23 respectively. In other words, predicted effectiveness in the low track position and predicted effectiveness in the high track position when taken separately can account respectively for 43% and 23% of the total variance in assignment.

In fact, when predicted effectiveness in both low and high tracks are included in the same regression equation, 58% of the total variance of assignment is accounted for (R^2 = .584), making predicted effectiveness in both low track and high track positions strong, relatively non-redundant predictors of assignment.

3. Of further interest is the finding that predicted effectiveness in the low track position and predicted effectiveness in the high track position are almost entirely uncorrelated (r = -.13) and that the extent to which they are related is in a negative direction. In other words, it would seem that the variables that influence predicted effectiveness ratings for a teacher in a low track position are not necessarily the same variables that influence predicted effectiveness ratings for the same teacher in high track positions. Certainly, the magnitude, if not the direction, of the influence of these variables on the predicted effectiveness of a given teacher in these two different positions differs greatly. The correlation between the mean predicted effectiveness rating in the low track position and the mean predicted effectiveness rating in the high track position for each of the nine teachers is a miniscule r = .004. The old adage that "a good teacher is a good teacher is a good teacher" is certainly not supported by this absence of relationship between predicted effectiveness

with low track students and predicted effectiveness with high track students. A teacher predicted to be effective in a low track position might or might not be predicted to be effective in a high track position and vice versa. This finding suggests that subjects rated the hypothetical teachers in a manner consistent with previous research (Gage, 1973; Flanders & Simon, 1969) which " indicates that teachers behave more effectively in some situations than in others, and a given set of teacher behaviors will affect one group of students differently from another group; therefore, a teacher may exhibit more effective behavior in one situation than in another" (Bolton, 1973, p. 136).

Information and Arguments Underlying Assignment Decisions

In order to begin a discussion and possibly provide information for the future generation of theory and hypotheses, subjects were presented an open-ended question asking for a description of the rationale they employed in making decisions that resulted in the assignment of teachers to either a low track or high track position. Responses were analyzed and coded for the types of information and the type of selector-eliminator argument used in arriving at these decisions. Simple frequency counts and cross tabulations were computed to summarize these data.

Table 4.14 displays frequency counts of each of the 17 information categories coded and the three special response categories coded (Insufficient Information; Teachers Inappropriate for Either Position; and Other). It is important to note that the open-ended question represented a multiple response item to which subjects could respond by citing any number of types of information. The number of information types cited by subjects ranged from 0 to 10. Seven subjects (2.4%) chose not to respond to the open-ended question and their responses were subsequently coded as missing data. While two subjects (.69%) cited as many as ten of the coded information types, the average number of coded information types cited by subjects was 2.95.

An examination of Table 4.14 indicates that the five types of information most often cited by subjects are Enthusiasm, College Coursework, Verbal Clarity, College GPA, and Knowledge of Teaching Methods. It is not particularly surprising that enthusiasm and verbal clarity are so frequently cited given that these were the only two variables allowed to vary from the middle range to extreme values of high and low. Further, both enthusiasm and verbal clarity have long been established in the research literature as correlates of teacher effectiveness. Similarly, the use, and thus the knowledge, of diverse instructional methods also has long been associated with effective teaching.

Table 4.14

Frequencies of Information Types Employed by Subjects in Developing Rationales for Decisions Involving Teacher Assignment Between Student Tracks

Information Type	Count	Percentage of Responses	Percentage of Cases
Enthusiasm	149	18.7	53.0
College Coursework	119	14.9	42.3
Verbal Clarity	101	12.7	35.9
College GPA	57	7.2	20.3
Knowledge of Teaching Methods	56	7.0	19.9
General Knowledge	45	5.7	16.0
Creativity	38	4.8	13.5
Related Background Experience	30	3.8	10.7
Interest in Children	27	3.4	9.6
Organization and Management	25	3.1	8.9
Cooperation	23	2.9	8.2
Humor	16	2.0	5.7
Years of Experience	12	1.5	4.3
Extra Curricular School Activities (Debate and Track)	12	1.5	4.3
Judgement	10	1.3	3.6
Appearance	6	.8	2.1
Best Qualified to Teach (Social Studies)	5	.6	1.8
Inapproriate for Either Position	32	4.0	11.4
Insufficient Information	14	1.8	5.0
Other	19	2.4	6.8
Total	796	100.0	

Seventy-three (76%) of the subjects who were presented with teachers exhibiting low enthusiasm, cited enthusiasm as having an influence on their ultimate assignment decision. Forty-seven (49%) of the subjects presented with teachers who exhibited high enthusiasm cited enthusiasm as an important influence, while only 29 (30%) of the subjects presented with a teacher of medium enthusiasm, cited enthusiasm as a factor. In a similar pattern, 51 (53%) of those subjects presented with teachers of low verbal clarity, 32 (33%) of those subjects presented with teachers of high verbal clarity, and 18 (19%) of those subjects presented with teachers of medium verbal clarity cited verbal clarity as an important influence upon their ultimate assignment decisions. This would suggest that extreme values, and especially extreme low values, disproportionally affect tne frequency with which a type of information is cited as a major determinant of the ultimate assignment decision.

Table 4.15 presents a cross tabulation of information cited by teacher assignment decisions. A cursory examination of this table reveals that those who cited enthusiasm, verbal clarity, and knowledge of teaching methods as information used in arriving at their final decisions are split relatively evenly between assigning the hypothetical teacher to low and high track positions. Indeed a frequent comment by subjects was that both student groups are in almost equal need of these three teaching attributes.

The disproportionate split between track assignment based on information related to the extracurricular activities of the teachers

Table 4.15

Type of Information Cited by Assignment Decision

Information Type	Low Track Assignment Position A	High Track Assignment Position B	Row Total	Row (%)
Enthusiasm	77	72	149	(53.0)
College Coursework	77	42	119	(42.3)
Verbal Clarity	57	44	101	(35.9)
College GPA	23	34	57	(20.3)
Knowledge of Teaching Methods	28	28	56	(19.9)
General Knowledge	37	8	45	(16.0)
Creativity	24	14	38	(13.5)
Related Background Experience	9	3	12	(4.3)
Interest in Children	20	7	27	(9.6)
Organization and Management	17	8	25	(8.9)
Cooperation	17	6	23	(8.2)
Humor	14	2	16	(5.7)
Years of Experience	9	3	12	(4.3)
Extra Curricular School Activities (Debate and Track)	2	10	12	(4.3)
Judgement	6	4	10	(3.6)
Appearance	2	4	6	(2.1)
Best Qualified to Teach (Social Studies)	4	1	5	(1.8)
Inapproriate for Either Position	15	17	32	(11.4)
Insufficient Information	9	5	14	(5.0)
Other	10	9	19	(6.8)
Total Cases	158	123	281*	(100)

*Seven subjects did not respond to the open-ended item.

seemingly was based on the reasoning by subjects that the teachers' background in debate made them more qualified to teach high track students. Similarly, the disproportionate splits between track assignment based on information related to experience, cheerfulness and sense of humor, cooperation, creativity, interest in children, and organization and management seemingly is based on a general theme within the responses that these teacher attributes are more important to the effective teaching of low track students than high track students. Further, the general knowledge of the teacher was generally perceived as being too low for high track students and as a result was primarily used as an argument eliminating the teacher from consideration for assignment to the high track position.

More surprising than the frequency with which enthusiasm, verbal clarity, and knowledge of instructional methods are cited as major decision determinants is the incidence with which college coursework and GPA are cited. In most cases coursework and GPA were used as predictors of effectiveness and thus as selectors or eliminators for the high track position. Only in 5 (3.4%) of the 146 cases that cited either coursework, GPA, or both were the hypothetical teachers said to be inappropriate for low track students based on these factors.[4] In

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[4]Frequency counts show that coursework was cited by 119 subjects while GPA was cited by 57. A simple cross-tabulation shows that 30 of those who cited coursework also cited GPA, resulting in a total of only 146 subjects who cited coursework, GPA, or a combination of the two.

these five cases the argument given was that the teacher was probably too "achievement oriented" to relate to low ability students. The hypothetical teachers were in fact portrayed in the simulated materials as showing a relatively strong performance in their undergraduate college coursework. All the teachers had identical GPA's categorized as 3.3-4.0 in their major (history); 3.3-4.0 in educational coursework and 2.9-3.2 in their minor (English). Further, the breadth and depth of the teachers' coursework was rated above average in history and education, and standard in English.

Respondents who cited coursework and GPA information as important to the outcome of their ultimate assignment decisions were divided as to whether the teachers' coursework and GPA were adequate for teachers assigned to high track students. Fifty-four respondents used either coursework, GPA, or a combination of the two as arguments eliminating the teacher from consideration for a high track position, while 39 respondents used the same information as arguments for "selecting in" or assigning the teacher to a high track position. In either case it is evident that college coursework and scholastic average played a much more important role in the selection and elimination of teachers for the high track position than for the low track position. While only five respondents used college coursework and GPA as an argument eliminating the teacher from consideration for a low track position, 42 used the same information as arguments for "selecting in" or assigning the teacher to a low track position.

Table 4.16 presents a cross tabulation of cited information by position of the decision-maker. An examination of this table indicates a similarity between the administrator and the teacher groups in the types of information cited as important influences upon the formulation of their assignment decisions. Teachers and administrators differed very little in the frequency with which they cite enthusiasm, verbal clarity, coursework, and GPA. Interestingly, they more noticeably differed in the frequency with which they cited the knowledge of instructional methods and interest in children as important factors. Only 11 (16%) of the teachers, compared to 18 (25%) of the administrators, cited knowledge of instructional methods. Conversely, only 5 (7%) of the administrators, compared to 14 (20%) of the teachers, cited interest in children. These latter discrepancies in frequencies would tend to suggest a difference of emphasis between groups. While both groups might well hold both instructional methods and interest in children as important prerequisites to effective teaching, they might disagree on the adequacy of the hypothetical teachers in these important areas. However, in general the similarities between administrators and teachers in the types of information they used would seem to outweigh the differences.

One last difference between teachers and administrators is worthy of note. Only 5 (7%) of the teachers, compared to 14 (20%) of the administrators, stated that the hypothetical teachers were unfit or inappropriate for either position. This would seem to indicate that

Table 4.16

Type of Information Cited by Position of Decision-Maker

Information Type	Principal	Adminis. Student	Teacher	Teacher Trainee	Row Total	Row (%)
Enthusiasm	37	36	38	38	149	(53)
College Coursework	32	27	35	25	119	(42.3)
Verbal Clarity	25	27	30	19	101	(35.9)
College GPA	11	18	12	16	57	(20.3)
Knowledge of Teaching Methods	18	17	11	10	56	(19.9)
General Knowledge	10	14	13	8	45	(16.0)
Creativity	8	8	11	11	38	(13.5)
Related Background Experience	7	7	9	7	30	(10.7)
Interest in Children	5	6	14	2	27	(9.6)
Organization and Management	6	8	7	4	25	(8.9)
Cooperation	7	5	5	6	23	(8.2)
Humor	3	4	4	5	16	(5.7)
Years of Experience	0	3	2	7	12	(4.3)
Extra Curricular School Activities (Debate and Track)	5	5	1	1	12	(4.3)
Judgement	3	0	5	2	10	(3.6)
Appearance	4	2	0	0	6	(2.1)
Best Qualified to Teach (Social Studies)	2	2	0	1	5	(1.8)
Inapproriate for Either Position	14	10	5	3	32	(11.4)
Insufficient Information	6	4	3	1	14	(5.0)
Other	4	3	6	6	19	(6.8)
Total Cases	71	69	71	70	281*	(100)

*Seven subjects did not respond to the open-ended item.

more administrators found the hypothetical teachers to fall below their minimum expectations than did teachers.

Table 4.17 shows the frequencies of the types of arguments, as characterized by the use of selector-eliminator statements, used by respondents in supporting their assignment decisions. The six types of arguments coded were as follows:

1. Low Track Assignment. Argument dominated by high track eliminators.
2. Low Track Assignment. Argument dominated by low track selectors.
3. Low Track Assignment. Argument sustained by relative balance between low track position selectors and high track position eliminators.
4. High Track Assignment. Argument dominated by low track position eliminators.
5. High Track Assignment. Argument dominated by high track position selectors.
6. High Track Assignment. Argument sustained by relative balance between low track position eliminators and high track position selectors.

An examination of Table 4.17 reveals that 165 (58.7%) of all respondent arguments were negatively driven, that is they were dominated by eliminators or reasons why the teachers were unsuited for one position or the other as opposed to why they were particularly suited for one position or the other. Many subjects voiced the

Table 4.17

Frequencies of Types of Arguments Used by Respondents in Arriving at Teacher Assignment Decisions Involving High and Low Student Tracks

Assignment	Nature of Argument	Number	Percentage
Low Track	Elminator Dominated	86	30.6%
Low Track	Selector Dominated	26	9.3%
Low Track	Selector-Eliminator Balance	45	16.0%
High Track	Eliminator Dominated	79	28.1%
High Track	Selector Dominated	13	4.6%
High Track	Selector-Eliminator Balance	32	11.4%
Total		281*	100.0%

*Seven subjects did not respond to the open-ended item.

opinion in their responses that the assignment decision presented them was a choice between two evils. Interestingly, however, is that these arguments driven by eliminators resulted in an almost even split in assignments between tracks (86 assigned teachers to the low track and 79 assigned teachers to the high track). In many cases respondents presented comments as to why high or low track students would be more or less impervious to the perceived deficiencies of the teacher.

This number of negatively driven arguments (165 or 59%) should be compared to the 39 (13.9%) positively driven arguments, that is arguments dominated by selectors or reasons why the teachers are particularly suited to either low or high track positions. The remaining 77 (27.4%) cases utilized assignment rationales that reflected a relative balance between the use of selectors and eliminators. Obviously, subjects most often employed assignment strategies that relied heavily on the use of eliminators.

This is interesting in that the teachers were portrayed as average to above average on every evaluation and demographic dimension except enthusiasm and verbal clarity. The manipulation of these two variables, however, resulted in 55% of the subjects being exposed to a hypothetical teacher who was rated very low on at least one and possibly both variables. Knowing that raters tend to give disproportionate weight to negative information (Bolster & Springbett; 1961) and that verbal clarity and enthusiasm are commonly recognized correlates of effective teaching, it perhaps is not surprising that subjects relied heavily on this negative information in forming

elimination strategies. That the hypothetical teachers were perceived as possessing the potential to be moderately effective with both low and high track students is evident in the overall means of predicted effectiveness with each student population. The overall mean for the predicted effectiveness of the hypothetical teachers with low track students was 4.066 on a 7 point scale. The corresponding overall mean for predicted effectiveness with high track students was slightly lower at 3.76 on a 7 point scale. It would seem that when presented with applicant ratings that are closely grouped within narrow range of the evaluative scales, and where no dominant selectors are available, subjects seek even slight indicators for eliminators.

Finally, Table 4.18 presents a cross tabulation of the type of argument employed by position of the decision-maker. An examination of this table reveals a close similarity between all four groups in the frequency with which they employed eliminator arguments that resulted in the assignment of the hypothetical teachers to the low track position. However, there is a noticeable difference between the frequencies with which administrators and teachers employed eliminator arguments that resulted in the assignment of the hypothetical teachers to the high track position. Twenty-five (36%) of the administrators, compared to 15 (21%) of the teachers, assigned the hypothetical teacher to the high track position based on eliminator arguments. Further, an examination of the total eliminator arguments utilized by each group regardless of the ultimate placement of the hypothetical teachers shows that 45 (63%) of the administrators as compared to 37

Table 4.18

Type of Assignment Argument Employed
by the Position of the Decision-Maker

Assignment	Nature of Argument	Principal	Admin. Student	Teacher	Teacher Trainee	Column Total	(%)
Low Track	Eliminator Dominated	21	21	22	22	86	30.6%
Low Track	Selector Dominated	5	5	9	7	26	9.3%
Low Track	Selector-Eliminator	11	10	14	10	45	16.0%
High Track	Eliminator Dominated	25	22	15	17	79	28.1%
High Track	Selector Dominated	2	5	2	4	13	4.6%
High Track	Selector-Eliminator	7	6	9	10	32	11.4%
Column Total		71	69	71	70	281	
		25.3%	24.6%	25.3%	24.9%	100%	

(52%) of the teachers employed eliminator arguments. This would indicate that administrators either perceived the teachers more negatively tnan the teachers or that administrators relied more heavily on eliminator strategies for placing the hypothetical teachers.

Summary

This chapter has presented the results of the analysis of data in four parts. First, results of the logit modeling analysis, indicated that while teacher enthusiasm has an effect upon teacher assignment between tracks, teacher verbal clarity and decision-maker position do not. This analysis further indicated that teacher enthusiasm, teacher verbal clarity, and decision-maker position do not interact in effecting teacher assignment between tracks.

Second, results of two analyses of variance indicated that while teacher enthusiasm and teacher verbal clarity had main effects upon the predicted effectiveness of teachers in low track assignments, decision-maker position did not. Further, none of these three independent variables had an effect on tne predicted effectiveness of teachers in high track assignments. In neither case did these analyses indicate any interactive effects of the independent variables upon the dependent measures.

However, because the main effect of position on predicted effectiveness for the low track position approached signifjcance an analysis of variance for orthogonal comparison of group means was undertaken. This anaylsis indicated a significant difference between

an administrator-administration trainee group and a teacher-teacher trainee group in the levels of effectiveness predicted for the hypothetical teachers in the low track position.

Third, substantial correlations were obtained between assignment and the two dependent measures of predicted effectiveness, indicating a systematic relationship between a given teacher's predicted effectiveness in a position and his subsequent assignment to that position. Further, almost no relationship was found between a given teacher's predicted effectiveness in a high track position and his predicted effectiveness in a low track position.

Finally, frequency counts of types of information used by subjects in formulating their assignment decisions indicated that college coursework and GPA played an important role in influencing the final outcome of these decisions as did teacher enthusiasm, verbal clarity and knowledge of instructional methods. College coursework and GPA, however, were used primarily as selector and eliminator criteria for placement with high track students. Teachers and administrators differed very little in the frequency with which they cited enthusiasm, verbal clarity, coursework, and GPA as important influences on their assignment of the hypothetical teachers. However, they differed in the frequency with which they cited knowledge of instructional methods and interest in children. Further, the frequency counts of selector-eliminator arguments used by subjects in assigning the hypothetical teachers were for the most part driven by eliminators, indicating that subjects (administrators more than teachers) generally relied on the use of eliminator strategies in formulating assignment decisions.

CHAPTER V

SUMMARY, CONCLUSIONS, IMPLICATIONS

Among the most important decisions made by school administrators are tnose involving the assignment of teachers. The general significance of the teacher assignment problem is determined by the need of educators to balance economic constraints with pedagogical interests and a basic concern for the equitable treatment of all students. The central purpose of this study was to provide information that contributed to a basic understanding of the decision-making process underlying the assignment of teachers and the resultant distribution of effective teaching behaviors among diverse student populations.

More specifically, previous research has indicated that track assignment is related to student access to various school resources. Among these resources are "generic" effective teaching behaviors, including enthusiasm and verbal clarity. The origins of this imbalanced distribution of effective teaching behaviors are unclear. Such an imbalance might be accounted for by: (1) the individual teacher's allocations of time and attention; (2) the differing types of teacher interaction with separate and distinct student populations; or (3) the teacher assignment decisions of administrators. This study focused on the role of teacher assignment decisions in effecting this

distribution of teacher behaviors by addressing the question, "Is there a systematic difference in the assignment of teachers between student tracks based on teacher characteristics?".

Objectives

The research reported here was designed specifically to answer the following questions:

1. Do the teaching behavior dimensions of enthusiasm and verbal clarity affect the assignment of teachers between high and low tracks?

2. Do different educators (i.e., student teacher, teacher, administrative student, practicing administrator) make differing assignment decisions involving high and low tracks?

3. Do the teaching behavior dimensions of enthusiasm and verbal clarity interact with the position of the decision-maker in determining the outcome of teacher assignment decisions involving high and low tracks?

4. Do the teaching behavior dimensions of enthusiasm and verbal clarity affect the effectiveness predicted for teachers by decision-makers?

5. Do different educators (i.e., student teacher, teacher, administrative student, practicing administrator) make differing predictions of teacher effectiveness?

6. Do the teaching behavior dimensions of enthusiasm and verbal clarity interact with the position of the decisionmaker in determining the effectiveness predicted for teachers by decisionmakers?

7. Is there a relationship between the predicted effectiveness of a teacher and the assignment of that teacher?

Procedure

To accomplish these objectives, an experiment was conducted in a simulated situation. This permitted the investigator to control and manipulate variables and at the same time maintain administrative behavior relatively consistent with actual situations. The simulation consisted of presenting subjects with two job descriptions and teacher summary sheets that were identical except for the manipulation of teacher ratings on enthusiasm and verbal clarity which distinguished each of nine conditions. Subjects then were asked, based on the information provided, to assign the teacher to the position for which he or she was best suited and to predict the teacher's effectiveness in each of the described positions. Subjects were then presented one open-ended question asking them to describe the rationale they employed in arriving at their decision.

A 3x3 randomized block design was used. The variables involved in this study included two treatment variables (teacher verbal clarity

and teacher enthusiasm) and one classification blocking variable (position of decisionmaker). The dependent variables were teacher assignment and predicted teacher effectiveness.

The sample studied included 288 educators from 38 school districts in 29 different districts from the tri-state area of Idaho, Oregon, and Washington. The sample was stratified according to position (administrator, teacher, administrative student, teacher trainee) with each subject being randomly assigned to one of nine treatment groups.

Summary of Results

Under the experimental conditions it was found that while teacher enthusiasm had an effect upon teacher assignment between tracks, teacher verbal clarity and decision-maker position did not. The nature of this effect was characterized by the tendency of subjects to assign teachers with higher levels of enthusiasm to low track students while assigning teachers with lower levels of enthusiasm to high track students, and away from the lower tracks. Further, teacher enthusiasm, teacher verbal clarity, and decision-maker position did not interact in affecting teacher assignment between tracks.

While teacher enthusiasm and teacher verbal clarity had main effects upon the predicted effectiveness of teachers in low track assignments, decision-maker position did not. The nature of these main effects were characterized by the tendency of subjects to predict higher levels of predicted effectiveness for those teachers possessing

higher levels of enthusiasm and/or verbal clarity. Though the main effect of position on predicted effectiveness in a low track position was non-significant, it approached significance ($p = .075$). An orthogonal comparison of group means indicated a significant difference between the group which pooled administrators and administrative students and the group which pooled teachers and teacher trainees. The nature of these differences were characterized by the group of administrators and administrative students predicting lower levels of effectiveness for the hypothetical teachers than predicted by the group of teachers and teacher trainees. Further, none of these three independent variables had an effect on the predicted effectiveness of teachers in high track assignments. In neither case were there any interactive effects of the independent variables upon the dependent measures.

Substantial correlations were obtained between assignment and the two dependent measures of predicted effectiveness, indicating a systematic relationship between a given teacher's predicted effectiveness in a position and his subsequent assignment to that position. Almost no relationship was found between a given teacher's predicted effectiveness in a high track position and his predicted effectiveness in a low track position.

Finally, college coursework and GPA played an important role in influencing the final outcome of the subjects' assignment decisions, as did teacher enthusiasm, verbal clarity and knowledge of instructional methods. College coursework and GPA, however, were used primarily as selector and eliminator criteria for placement with high

track students. Administrators and teachers differed very little in the frequency with which they cited enthusiasm, verbal clarity, coursework, and GPA as important influences on their assignment of the hypothetical teachers. They more noticeably differed in the frequency with which they cited knowledge of instructional methods and interest in children. Further, the frequency counts of selector-eliminator arguments used by subjects in assigning the hypothetical teachers were for the most part driven by eliminators, indicating that subjects generally employed eliminator strategies in formulating their assignment decisions. Administrators relied more heavily on eliminator strategies than did teachers.

CONCLUSIONS

Results of this study failed to confirm the role of teacher assignment decisions as a contributor to an imbalanced distribution between student tracks of such effective teaching behaviors as enthusiasm and verbal clarity. Under the experimental conditions verbal clarity had no effect on the subjects' assignment decisions. Enthusiasm did have a main effect on assignment but in the opposite direction of that which would account for Goodlad's (1984) finding of significantly higher student perceptions of frequencies of teacher enthusiasm in high track classes. In other words, the effect of teacher enthusiasm on assignment in this study was characterized by a tendency to assign teachers exhibiting higher levels of enthusiasm to-

low track students and to assign teachers exhibiting lower levels of enthusiasm to high track students, away from low track students.

Further, under the experimental conditions, position of the decision-maker had no effect on assignment. In other words, there were no significant differences between groups as extreme as practicing administrators and student teachers in the way they assigned the hypothetical teachers. While this finding is not generalizable beyond the highly restricted simulated decision situation, it is noteworthy that the differences between teachers and administrators in assigning the hypothetical teachers were negligible. This finding and the further finding that decision-maker position had no main effect on the predicted effectiveness of teachers in the high track position tends to suggest that the similarities between the educational perspectives of administrators and teachers are greater than the differences. However, there were significant differences between the pooled group of administrators and administrative students and the pooled group of teachers and teacher trainees in the predicted effectiveness of hypothetical teachers in the low track position.

Seemingly, there was very little difference between the approaches taken by administrators and teachers in completing the assignment task set within the simulated situation. This is interesting in that at the root of the tracking issues discussed in Chapters I and II is a very basic split in educational philosophy, a split characterized by a disagreement in the prioritization of goals and thereby the prioritization of where resources are best invested. While many

educators believe that the enrichment of advanced learners should take precedence over that of less facile learners, others believe the exact opposite. Seemingly, administrators and teachers do not as groups line up on one side or the other of this debate. Further, it would seem that the differences within groups in arriving at the assignment decision for the hypothetical teachers far exceeds the differences between groups.

That administrators and teachers did not significantly differ in the predicted effectiveness ratings assigned hypothetical teachers in high track positions further underscores the lack of differences between the two groups. While such ratings are often a point of contention between administrators and teachers, it is evident, at least in the specific conditions of this experiment, that as a group teachers did not rate the predicted effectiveness of hypothetical teachers in the high track position significantly different than did administrators. These findings suggest that an individual's viewpoint concerning this decision may be formed early in one's career, and eventual training and experience have very little impact on this viewpoint.

However, the effect of decision-maker position on predicted effectiveness in the low track position approached significance, and a comparison of means revealed that the greatest differences occurred between the pooled group of administrators and administrative students and the pooled group of teachers and teacher trainees. This latter finding suggests that an individual's perspective upon the

prerequisites of effective teaching in a low track position is impacted by eventual training, experience, and change in orientation.

While both teacher enthusiasm and teacher verbal clarity affected the predicted effectiveness of teachers in the low track position, neither affected the predicted effectiveness of teachers in the high track positions. While Gage (1979) maintains that enthusiasm and verbal clarity are both "generic" effective teaching behaviors, he does not speak to whether different student groups are affected differentially by the presence or absence of minimal levels of each teacher behavior. Certainly, in this study enthusiasm and verbal clarity were cited more often an important factor in determining a teacher's effectiveness with low ability students than with high ability students. While enthusiasm and verbal clarity may be considered important in the instruction of high track students there appear to be other variables such as the teacher's academic preparation that overshadow this importance.

The finding of substantial correlations between a given teacher's predicted effectiveness in a position and subsequent assignment in that position is an empirical confirmation of what one would intuitively predict. Decision-makers charged with the responsibility of matching personnel and positions pay attention to how effective they predict a given worker will be in each position. This finding in conjunction with the earlier findings related to the effects of verbal clarity and enthusiasm on teacher assignment suggest when administrators are placed in situations where political and social

factors are minimized, they are driven primarily by a conscious economical effort to maximize expected returns (as measured on student outcome variables) on invested resources. In other words, the assignment of teachers by administrators seems to be influenced more by a desire to place teachers where they are predicted to be more effective than by various other ulterior motives related to the manipulation of teachers for social and political reasons. However, it must be noted that the simulated situation was placed in a restricted environment almost entirely purified of normal social and political considerations confronting the practicing school administrator.

Finally, responses to the open-ended question would suggest that teacher GPA and college coursework are important in the assignment of teachers to high track positions, as are such basic teacher attributes as enthusiasm, verbal clarity, and knowledge of instructional methods. Further, the open-ended responses indicated that subjects (administrators more than teachers) relied heavily on eliminator strategies in formulating assignment decisions. This heavy reliance upon negatively driven arguments is suspected to be a function of the "averageness" of the hypothetical teachers presented. One might hypothesize that if the teachers had been portrayed in a more positive light, that an increased use of selector strategies would have resulted.

In any case, it is interesting to note that those respondants who perceived the hypothetical teachers' credentials as inadequate or marginal at best for assignment to either position, divided almost

equally in assigning the teachers to either a high track or a low track position. Underlying this split was a basic disagreement as to which group of students would be less harmed by an inadequate teacher. This disagreement seems to be a prevalent argument that is characterized by two respondant statements: (1) "It does not matter who teaches the high track students, they'll learn in spite of the teacher"; and (2) "It does not matter who teaches the low track student, they won't learn much anyway."

RECOMMENDATIONS

This study failed to support the role of teacher assignment decisions as a contributor to an imbalanced distribution of the effective teaching behaviors of enthusiasm and verbal clarity between student tracks. This would suggest that future research should be directed toward the examination of: (1) the individual teacher's allocation of time and attention between tracks; and (2) the differing types of teacher-student interactions between student tracks.

Further, while it is clear that teacher enthusiasm and verbal clarity are perceived as prerequisites to the effective teaching of low track students, it is not clear which teaching variables are given the most weight in predicting effectiveness with high track students. The virtual lack of any relationship between the hypothetical teachers' predicted effectiveness in a low track position and a high track position tends to suggest that two very different sets of

criteria are employed in formulating these predictions. Thus, further research is needed to identify the teacher variables that are perceived as prerequisites to the effective teaching of high track students. Two variables that should be considered for examination are the teacher's college coursework and GPA.

Finally, alternative research designs, variables, or operational definitions of variables should be considered for the examination of further related research questions. The design and methods employed in this study result in only one way of approaching the problem. The shortcomings of this approach have been noted earlier. In the final analysis, the findings of a study like this one provide a very small part of the overall picture. Ultimately, this research reveals the behavior of educators in a narrowly defined simulated situation, a situation set in an environment purified of many of the very real every day technical, social, and political constraints facing practicing administrators. The findings of this study indicate how educators would behave if many of these other forces were removed. Therefore, future research needs to seek alternative approaches to the assignment problem, approaches that can better account for the relationships between these forces and the assignment behavior of administrators studied here. Alternative experimental designs and survey techniques should be considered in further examination of the assignment problem. However, in the absence of such research and based on the results of this study, one can only conclude that assignment decisions of administrators are not a major contributor to an imbalanced distribution between student tracks of such effective teaching behaviors as enthusiasm and verbal clarity.

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APPENDIX A
Teacher Assignment Activity Packet

TEACHER ASSIGNMENT ACTIVITY

This is not an ordinary survey asking your opinion; rather, it is a device which asks you how you would normally make decisions. Because of this, we think you will enjoy responding to the instrument.

The following data collection instrument is part of a research effort at the University of Washington, Seattle, Washington, to determine the effect of certain variables upon the teacher assignment decisions of educators. The significance of the teacher assignment problem is determined by the need of educators to balance a basic concern for the equitable treatment of all students and staff with economic constraints and pedagogical interests.

In order to gain a better insight into this teacher assignment process 288 educators from the Seattle, Eastern Washington, Portland, and Boise areas have been selected for this study. Each subject will be presented with making a decision concerning one of several hypothetical teacher assignment situations. The average time of participation required of each subject is 15-20 minutes.

This study has been approved by the Human Subjects Committee, University of Washington.

_____ _____

Signature of Investigator Date

Richard Knuth, Teaching Associate

Education Administration

(206) 543-1836

CONSENT FORM

We very much appreciate your filling out the attached forms. Your responses will be considered confidential and will be used only for research purposes. Your responses will remain in strict anonymity. Your participation in all aspects of this work is strictly voluntary. Please be sure to read and complete all forms. Thank you.

I voluntarily agree to complete the attached forms.

_____ _____

Subject's Signature Date

(Consent forms will be detached and filed separately from data collection forms.)

PERSONAL DATA FORM

Circle only one response for each item.

1. State of residence: (1) Idaho (2) Oregon (3) Washington

2. Current position: (1) Principal/Assistant Principal;
(2) Administration Student/Intern
(3) Teacher
(4) Student Teacher

3. Age range within which last birthday falls:
(1) 20-24 (2) 25-29 (3) 30-34 (4) 35-39 (5) 40-44 (6) 45-49
(7) 50-54 (8) 55-60 (9) 60 or over

4. Gender: (1) Female (2) Male

5. Years of administrative (principal/assistant principal) experience as of June 1983:
(1) 0 (2) 1-3 (3) 4-6 (4) 7-9 (5) 10-12 (6) 13-15 (7) 16-18
(8) 19 or more

6. Years of teaching experience (not including administrative experience as of June, 1982:
(1) 0 (2) 1-3 (3) 4-6 (4) 7-9 (5) 10-12 (6) 13-15 (7) 16-18
(8) 19 or more

TEACHER ASSIGNMENT TASK

On the following pages you will find:

A job description of Position A

A job description of Position B

A two-page summary sheet of a teacher's professional qualifications

A response form

Your task is to read the two job descriptions and the teacher summary sheets. Then, utilizing the information you obtain from these documents, you are to assign the described teacher to either position A or position B. Besides recording the assignment you have made, you need to respond to all items on the response form. To complete the response form, you need to reply to one open-ended question which asks for a brief description of the rationale you employed in making this decision.

In envisioning a context within which to place this hypothetical decision, you should draw as much as possible on the educational environment and student population with which you now work.

NOTE: You should not feel undue concern about the position that is not filled as a result of your assignment of the described teacher. Assume that this unfilled position will be given to an undescribed teacher who has demonstrated equal effectiveness in both position A and B. Thus, it should be stressed that the importance of your task is to assign the described teacher to the position for which he or she is best suited.

To Summarize Your Tasks:

(1) Read the two job descriptions and the teacher summary sheets.

(2) Record the assignment you made on the response form and respond to all other items.

(3) Provide a brief description of the rationale you employed in making this assignment decision.

JOB TITLE

High School Social Studies Teacher

JOB DESCRIPTION
POSITION A

PRIMARY FUNCTION

Provide a classroom educational program in knowledge, skills, and attitudes related to basic social studies areas. Instruction will be geared toward insuring basic compentency levels in social studies among low-ability students in non-college tracks.

DIRECTLY RESPONSIBLE TO: Principal

MAJOR FUNCTIONING & RESPONSIBILITIES:

(1) Provide a sequenced program of instruction in basic social studies.

(2) Maintain and evaluate the effectiveness of the educational program curriculum.

(3) Assist students in academic and personal growth.

(4) Continously develop educational curriculum and programs.

(5) Supervise the learning activities of students.

(6) Evaluate and keep records on the progress of students in the program curriculum.

(7) Contact and inform parents, students, teachers, and administrators about the educational progress of students and programs.

MINIMUM QUALIFICATIONS:

Credentials: Provisional Teaching Certificate

Education: Bachelor's Degree

Experience: Previous teaching experience desired at the secondary level.

Personal Qualities:
Abilities and willingness to develop favorable relationships with students, knowledge of current approaches to teaching, and willingness to model behavior deemed appropriate by the school district and community.

JOB TITLE

High School Social Studies Teacher

JOB DESCRIPTION
POSITION B

PRIMARY FUNCTION

Provide a classroom educational program in knowledge, skills, and attitudes related to western civilization studies, sociology, and other related social studies areas. Instruction will be geared toward insuring basic compentency levels in social studies among low-ability students in non-college tracks.

DIRECTLY RESPONSIBLE TO: Principal

MAJOR FUNCTIONING & RESPONSIBILITIES:

(1) Provide a sequenced program of instruction in western civilization studies, sociology, and related social studies areas.

(2) Maintain and evaluate the effectiveness of the educational program curriculum.

(3) Assist students in academic and personal growth.

(4) Continously develop educational curriculum and programs.

(5) Supervise the learning activities of students.

(6) Evaluate and keep records on the progress of students in the program curriculum.

(7) Contact and inform parents, students, teachers, and administrators about the educational progress of students and programs.

MINIMUM QUALIFICATIONS:

Credentials: Provisional Teaching Certificate

Education: Bachelor's Degree

Experience: Previous teaching experience desired at the secondary level.

Personal Qualities:
Abilities and willingness to develop favorable relationships with students, knowledge of current approaches to teaching, and willingness to model behavior deemed appropriate by the school district and community.

SUMMARY OF TEACHER QUALIFICATIONS

GENERAL INFORMATION

Name P. Turner

Colleges: BA at Glasser State Year 1975

Graduate work at Glasser State Degree if any ____ Year ____

Certificate Standard Secondary Expiration date January 1, 1984

Secondary school activities prepared to direct Debate, Track

____ Languages English only

Years of Experience 7 Level(s) 9-12

Best qualified to teacher Social Studies

BACKGROUND DATA

	Considerable	Beneficial Somewhat	None
Teaching experience.		x	
Youth activities		x	
Professional membershis and activities		x	
Hobbies related to teaching. .		x	
Honors and activities.		x	
Travel		x	
Special knowledge, skills, abilities.		x	
____		x	

	Considerable	Possible Problem Somewhat	None
Health			x
Work absenteeism			x
____			x

SUMMARY OF COLLEGE COURSEWORK SCHOLASTIC AVERAGE	4.00/ 3.30	3.29/ 2.90	2.89/ 2.40	2.39/ 2.15	2.14/ 2.00
Major History	x				
Minor English		x			
Minor ____					
Professional Education	x				
Total Courses Taken.		x			

BREADTH AND DEPTH OF COURSEWORK	Excep-tional	Above Average	Stan-dard	Very* Minimum	Defi-cient
Major History		x			
Minor English			x		
Minor ____					
Professional Education		x			
Total Courses Taken.			x		

EVALUATIVE DATA

The grid is a summary of the evaluations of the teacher's characteristics. Code: x-principal recommendation.

CHARACTERISTIC	HIGH			AVERAGE			LOW
	7	6	5	4	3	2	1
Personal appearance.		x					
Responsibility and mature judgment			x				
Enthusiasm							
Cheerfulness, sense of humor .			x				
Cooperation.		x					
Creativity and resourcefulness			x				
Breadth of general knowledge .				x			
Knowledge of professional matters.				x			
Knowledge of teaching methods.				x			
Knowledge of subject matter and background			x				
Interest in children (students)			x				
Organization and management. .			x				
Verbal clarity							
_____ . . .							
_____ . . .							

RESPONSE FORM

1. According to the job descriptions, the essential differences existing between Position A and Position B are:

_____

_____

2. Check the appropriate box to indicate which assignment you would make when faced with only the two following alternatives:

____ P. Turner is assigned to Position A.

____ P. Turner is assigned to Position B.

3. On the following seven-point scale indicate how effective you predict P. Turner will be rated in Position A at the end of one year of teaching.

Very Effective: ___: ___: ___: ___: ___: ___: ___: Very Ineffective

4. On the following seven-point scale indicate how effective you predict P. Turner will rated in Postion B at the end of one year of teaching.

Very Effective: ___: ___: ___: ___: ___: ___: ___: Very Ineffective

5. Please briefly describe below the reasons you employed in making the above assignment:

_____

_____

_____

APPENDIX B
Open-ended Response Coding

Coding Instructions

Response Form Item 5

A. Balance of Eliminators and Selectors Underlying Decision

The assignment decision can only have one of two outcomes: (1) Turner is assigned to Position A; or (2) Turner is assigned to Position B. Further, the reasons underlying this decision will generally fall into two categories: eliminators and selectors. Eliminators are those reasons why Turner is not fit for one or both positions, while selectors are those reasons why Turner is fit for one or both positions.

For example, Turner might be assigned to A because he is not enthusiastic enough for B. This is a case of a Position B eliminator (lack of enthusiasm) driving the decision to assign Turner in Position A. This is in contrast to a situation where Turner is assigned to Position A because he exhibits the enthusiasm thought to be appropriate for effectiveness in Position A. This is a case of a Position A selector (desired enthusiasm) driving the decision to assign Turner in Position A.

Because underlying most decisions are a number of selectors and eliminators in various combinations, the coding of responses to this item had to account for: (1) the direction of the decision -- A or B; and (2) the proportions of eliminators and selectors driving the decision. Thus, the following coding matrix was created.

Assignment	Eliminators -	Selectors +	Selectors/Eliminators +/-
A	1	2	3
B	4	5	6

Where Cell #1 denotes a response that assigns Turner to Position A based primarily on negative information that eliminated Turner from Position B.

Where Cell #2 denotes a response that assigns Turner to Position A based primarily on positive information that "selects" Turner for Position A.

Where Cell #3 denotes a response that assigns Turner to Position A based on almost an even balance of negative and positive information, both Position B eliminators and Position B selectors.

Where Cells #4, 5, and 6 represent responses that assign Turner to Position B based primarily on Position A eliminator, Position B selectors, or a balance between the two, respectively.

To determine which of the three columns a response falls into, it was decided that a response that cited one eliminator and one selector, a .5/.5 split, would fall in column three, that is in either cell #3 or #6, depending on Position assigned. Further, that any

responses with combinations of eliminators and selectors up to a .67/.33 split would fall in column 3. Those responses that included more than .67 elimintors were placed in column 1 and those that included more than .67 selectors were placed in column 2.

An illustration of the breakdown of most common responses is shown below.

Eliminators				Selector/Eliminator						Selectors			
Code 1 or 4				Code 3 or 6						Code 2 or 5			
-	-	-	-	-	-	-	+	+	+	+	+	+	+
	-	-	-	-	-	+	-	+	+	+	+	+	
		-	-	+	+			-	-	+	+		
			+	+					-	-			

B. Kinds of Information Utilized in Decision

Based on a reading of 60 (20%) of the responses, 20 categories were developed for the coding of types of information used by decisionmakers. Instructions for coding responses were to list codes

for each information type explicity cited in the resonse. Even if a type is mentioned more than once, it is coded only once.

In addition to 17 categories of information that directly relate to the teachers data summary sheet, three other categories were developed. These are: (18) inappropriate for either position; (19) insufficient information, and (20) other. Codes (18) and (19) are more comments on the information than a kind of information but these responses were found frequent enough to warrant recoding. The other category was reserved for information used that does not fit in the first 17 teacher data categories. Responses that are information that was seemingly invented by the subject or the product of speculation by the subject were coded here.

The full coding scheme is presented below.

Information Cited:

1 = Enthusiasm

2 = Verbal clarity

3 = School activities

4 = Experience

5 = Best qualified

6 = Background data

7 = Scholastic average

8 = Breadth and depth of coursework

9 = Personal appearance

10 = Responsibility and mature judgment

11 = Cheerfulness, sense of humor

12 = Cooperation

13 = Creativity and resourceful-
ness

14 = Breadth of general knowledge/
Knowledge of professional
matters

15 = Knowledge of teaching methods

16 = Interest in children (students)

17 = Organization and management

18 = Inappropriate for either
position

19 = Insufficient information

20 = Other

CODING SHEET

Columns	Variables	Code	Comments
1-3	ID#	000 - 999	
4	Blank		
5	State of Residence	1 = Idaho 2 = Oregon 3 = Washington	
6	Position	1 = Principal/asst. principal 2 = Principal intern/adm. student 3 = Teacher 4 = Student teacher/ed. student	
7	Age	1 = 20-24 2 = 25-29 3 = 30-34 4 = 35-39 5 = 40-44 6 = 45-49 7 = 50-54 8 = 55-60 9 = 60 and over	
8	Gender	1 = Male 2 = Female	
9	Administrative Experience	1 = 0 2 = 1-3 3 = 4-6 4 = 7-9 5 = 10-12 6 = 13-15 7 = 16-18 8 = 19 and over	
10	Blank		
11	Teaching Experience	1 = 0 2 = 1-3 3 = 4-6 4 = 7-9 5 = 10-12 6 = 13-15 7 = 16-18 8 = 19 and over	
12	Blank		
13	Treatment Group	1 = EH VL 2 = EM VL 3 = EL VL 4 = EH VM 5 = EM VM 6 = EL VM 7 = EV VH 8 = EM VH 9 = EL VH	

Columns	Variables	Code	Comments
14	Blank		
15	Job Description Differences	0 = Yes 1 = No	
16	Assignment	0 = A 1 = B	
17	Position A Effectiveness	7 = Very Effective 1 = Very Ineffective	
18	Position B Effectiveness	7 = Very Effective 1 = Very Ineffective	
19	Blank		
20	Positive/Negative Argument	1 = A Negative 2 = A Positive 3 = A Negative/Positive 4 = B Negative 5 = B Positive 6 = B Negative/Positive	
22-42	Information Cited	1 = Enthusiasm 2 = Verbal clarity 3 = School activities 4 = Experience 5 = Best qualified 6 = Background data 7 = Scholastic average 8 = Breadth and depth of coursework 9 = Personal appearance 10 = Responsibility and mature judgment 11 = Cheerfulness, sense of humor 12 = Cooperation 13 = Creativity and resourcefulness 14 = Breadth of general knowledge/ Knowledge of professional matters 15 = Knowledge of teaching methods 16 = Interest in children (students) 17 = Organization and management 18 = Inappropriate for either position 19 = Insufficient information 20 = Other	

APPENDIX C
Comparison of Logit Modeling and Analysis of Variance

In order to assess the main and interactive effects of teacher quality (i.e., verbal clarity and enthusiasm) and the decision-maker's position on track assignment, loglinear techniques, or more specifically logit modeling methods, were applied to the 3x3x4x2 (enthusiasm x verbal clarity x position x track assignment) data.

Logit modeling was selected as an appropriate method of analysis because the dependent variable of track assignment was dichotomous. Traditionally it has often been assumed that underlying a dichotomous or even polytomous variable is a continuum, "even when the dichotomy of interest is dead-alive or employed-unemployed, and that it is reasonable to assume (further) that the probability distribution over such a dead-alive continuum is normal" (Fienberg, 1981, p. 4). Furthermore, regression and analysis of variance methods are so robust that the impact of violations of such an assumption on the validity of these methods of analyses is dubious. On the other hand, loglinear and logit methods of analysis make such an assumption unnecessary by assuming that the categories of a dependent variable in a cross classification are discrete and fixed.

The results of the logit modeling analysis and the post hoc partitioning of the chi-square for the collapsed two dimensional (enthusiasm x assignment) table indicated the following:

1. Teacher enthusiasm affected the assignment of teachers between tracks.
2. Neither verbal clarity nor the position of the decision-maker affected the assignment of teachers between tracks.

3. Subjects presented with hypothetical teachers exhibiting low enthusiasm assigned these teachers to high track positions at a significantly higher frequency that did subjects presented with teachers of medium and high enthusiasm.

4. The relationship between enthusiasm and assignment is a linear one whereby the higher the enthusiasm the increased likelihood that the teacher will be assigned to the low track position.

The results of a three way analysis of variance utilizing the same independent and dependent variables are presented in Table C-1. An examination of this table reveals that an analysis of variance results in the same finding as an analysis using logit modeling techniques, viz., an enthusiasm main effect on assignment.

Group means of assignment (where assignment takes the values of either 0 or 1) were computed and compared using Tukey's HSD test. Groups were defined by factor levels. Both the means and the results of the pairwise comparison of these means are reported in Table C-2.

An examination of Table C-2 reveals there are significant differences between the low enthusiasm group and the medium enthusiasm group, and between the low enthusiasm group and the high enthusiasm group. The difference between the medium and high enthusiasm group is nonsignificant.

These findings parallel the findings produced by a partitioning of X^2 for the two dimensional table (enthusiasm x assignment). When only low and medium enthusiasm were included in the partitioned table

Table C-1

Analysis of Variance Showing Effect on Assignment

Source of Variation	Sum of Squares	d.f.	Mean Square	F
A: Enthusiasm	1.965	2	.983	4.035*
B: Verbal Clarity	.299	2	.149	.613
C: Position of Decision-Maker	.760	3	.253	1.041
A x B	1.312	4	.219	.898
A x C	.979	6	.163	.670
C x B	1.639	6	.410	1.682
A x B x C	2.667	12	.222	.912
Within Cells	61.375	252	.244	
Total	70.997	287	.247	

*p < .02

Table C-2

Pairwise Comparison of Means of Assignment

Where Groups are Defined by Treatment

Level of Teacher Enthusiasm

Groups		I	II	III
Enthusiasm Level		Low $\bar{x}$ = .552	Medium $\bar{x}$ = .417	High $\bar{x}$ = .354
Low	$\bar{x}$ = .552	--	.135*	.198**
Medium	$\bar{x}$ = .417		--	.064
High	$\bar{x}$ = .354			--

* p < .05 using Tukey HSD
**p < .01 using Tukey HSD

a significant X^2 value resulted. When medium and high enthusiasm were pooled and included with low enthusiasm in the partitioned table, significant X^2 value resulted. Finally, when only medium and high were included in the partitioned table, a nonsignificant X^2 value resulted. In essence, both the Tukey HSD test and the partitioning of chi-square point to the same conclusion; that is, the relationship between enthusiasm and assignment is best accounted for by the differences in the assignment ratios (low track assignment/high track assignment) between low and medium enthusiasm groups and between low and high enthusiasm groups.

In the final analysis, the findings of the analysis of variance and the post hoc comparison of means is the same as those for the logit modeling analysis and the post hoc partitioning of the chi-square for the collapsed two dimensional (enthusiasm x assignment) table. That the results of both methods of analysis are identical evidences the great robustness of analysis of variance methods. Further, it tends to suggest that analysis of variance and logit modeling are virtually interchangeable as methods of analyses when the dependent variable is dichotomous. Wilson (1980) did a similar comparison between loglinear modeling and multiple regression where the dependent variable was polytomous and dummy variables were created. She found that both methods produced the same result. At this time, based on data from this study, this author's conclusion is the same as that of Wilson's (p. 72): "No conclusive argument for or against either method can be based on these findings. At the most one

can conclude further stuoy is needed to determine if loglinear can provide a more appropriate method for the analysis of categorial data, or if multiple regression (or ANOVA) with its assumption of interval scaling is robust enough to fill the need".

Reference

Wilson, V. M. The log-linear alternative for multi-dimensional contingency table analysis. Paper presented at the American Psychological Association Convention, Montreal, September 1980.

APPENDIX D
Cell Means and Standard Deviations for the Dependent Measures of Predicted Effectiveness

Table D-1

Cell Means and Standard Deviations of Predicted Effectiveness in Low Track Position

Enthusiasm	Verbal Clarity	Principals		Teachers		Administrative Students		Teaching Students		Row	
		$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD
High	High	4.75	.71	5.38	.52	3.88	1.55	5.00	.76	4.75	1.08
	Average	4.50	1.07	4.38	1.51	5.25	.71	4.38	1.41	4.63	1.21
	Low	3.38	1.19	4.25	1.04	3.25	.87	3.75	1.28	3.66	1.30
Average	High	3.75	.89	5.25	1.17	4.50	.42	4.88	1.25	4.56	1.27
	Average	3.63	1.19	4.13	1.13	4.38	.74	4.50	.76	4.16	.99
	Low	3.88	1.64	3.75	1.04	3.50	.93	3.88	.99	3.75	1.34
Low	High	3.63	.74	3.75	1.49	3.25	1.28	4.13	1.81	3.69	1.36
	Average	3.75	1.17	3.63	1.30	4.00	1.20	3.88	1.73	3.81	1.31
	Low	3.88	1.36	3.25	1.28	4.00	1.41	4.13	.52	3.56	1.41
Column		3.79	1.20	4.19	1.32	4.00	1.26	4.28	1.31	4.06	1.28

Table D-2

Cell Means and Standard Deviations of Predicted Effectiveness in High Track Position

Enthusiasm	Verbal Clarity	Principals		Teachers		Administrative Students		Teaching Students		Row	
		$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD
High	High	3.86	.64	3.38	.52	3.13	1.25	3.75	1.58	3.53	1.07
	Average	3.63	.74	4.25	.89	3.50	.93	4.63	1.92	4.00	1.24
	Low	3.86	.99	3.50	.93	3.50	1.07	4.38	1.19	3.81	1.06
Average	High	3.00	.54	3.36	1.69	4.25	.71	4.50	1.70	3.78	1.39
	Average	3.50	1.20	3.75	1.49	3.88	1.64	3.25	.89	3.59	1.29
	Low	3.63	1.30	4.63	.92	3.63	1.93	4.13	1.25	4.00	1.39
Low	High	3.86	.52	3.38	1.51	4.38	1.60	4.50	1.69	4.03	1.56
	Average	3.75	1.28	4.75	1.28	3.50	1.07	3.25	1.60	3.28	1.49
	Low	3.75	1.75	2.75	2.58	3.00	.93	3.63	1.60	3.28	1.49
Column		3.65	1.13	3.75	1.34	3.64	1.29	4.00	1.51	3.76	1.33

VITA

Richard Kent Knuth, the son of Dorothy Eileen Anderson, was born September 9, 1951, in Canon City, Colorado. He was graduated from Walla Walla High School, Walla Walla, Washington, in 1968. He received Bachelor of Arts and Master of Education degrees from the University of Washington in 1975 and 1982, respectively.

His professional career includes two and a half years as a secondary teacher in Boise, Idaho (1976-1978, 1980); eighteen months as a headmaster of a secondary school in Kenya (1978-1980); and three years as a research and teaching associate in the College of Education, University of Washington (1980-1983). Currently, he is employed as an assistant high school principal in the University Place Public Schools, Tacoma, Washington.

University of Washington Correspondence

INTERDEPARTMENTAL

POLICY, GOVERNANCE AND ADMINISTRATION
309 Miller - DQ-12

February 19, 1984

TO: Charles Burgess

FROM: Dale Bolton

RE: Gordon C. Lee Award

I heartily welcome the opportunity to recommend the dissertation of Richard K. Knuth for the 1984 Gordon C. Lee award.

Mr. Knuth's dissertation is significant in both substance and scope, was carefully conducted, and utilized methods of analysis which are not widely known and used. I think the committee will enjoy the dissertation.

DB:md