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A STUDY OF THE RELATIONSHIP BETWEEN THE IMPORTANCE OF CERTAIN FEEDBACK SOURCES AND CLASSROOM TEACHER PERFORMANCE

A Dissertation

Presented to the

Faculty of the School of Education

The College of William and Mary in Virginia

In Partial Fulfillment

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Doctor of Education

by

Mary Tillotson Hellriegel

July 1978

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by

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APPROVED

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Dedication

To my husband, George, for his constant encouragement and to my mother, Ruby R. Tillotson, for her wisdom, patience, and love.

Acknowledgments

To Professor G. William Bullock, Jr., I express my sincere appreciation for the constructive criticism and insightful comments he has offered during this investigation. I am grateful to Professor Armand J. Galfo, Professor Royce W. Chesser, and Professor Robert B. Bloom for their guidance and suggestions.

I gratefully acknowledge Mr. David Reed for his technical assistance and especially the teachers, principals, and central office personnel in the school systems which were involved in the study.

ABSTRACT

A STUDY OF THE RELATIONSHIP BETWEEN THE IMPORTANCE OF CERTAIN FEEDBACK SOURCES AND CLASSROOM TEACHER PERFORMANCE

HELLIESEN, MARY R., Ed.D.
THE COLLEGE OF WILLIAM AND MARY IN VIRGINIA, 1978

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Purpose

This research examined the relationship between the importance attributed to certain sources of feedback by classroom teachers and principal ratings of their teaching effectiveness. The purpose of the study was to determine if highly effective teachers as rated by their principals attributed primary importance to certain sources of feedback which differed significantly from the sources of feedback considered primarily important by teachers rated low in effectiveness.

Method

A random sample of twenty-five teachers was interviewed to determine the sources of feedback which they utilized in accomplishing their teaching tasks. A compilation of the sources of feedback isolated in these interviews was established in the form of a questionnaire.

Questionnaire data was obtained from 177 classroom teachers in six different school divisions. Each member of this random sample was asked to rate the sources of feedback according to their importance to him/her. The principal in each school which had teachers involved in the study rated those teachers on six dimensions of teacher effectiveness. It was hypothesized that certain feedback sources would be considered more important by teachers rated highly effective. Other significantly different sources would be considered of primary importance by teachers rated low in effectiveness.

Results

Results showed that there were certain sources of feedback which discriminated between the highly effective group and the minimally effective group of teachers. These sources were Formal Evaluation by the Principal, Student Test Results, and Self-Evaluation. There was no statistically significant difference between the highly effective group of teachers, the minimally effective, the average effective group and the principals in their overall choice of feedback sources. Sex, years of experience and grade level taught produced no highly significant effects on choice of feedback source, although certain trends on particular sources did appear.

Conclusions and Implications

Teachers selected sources close to self, such as self-satisfaction, as most important. Secondary importance was attached to sources in the immediate job environment, such as the different forms of student feedback. Of tertiary importance were sources outside of the immediate job environment, such as parent feedback. Implications and suggestions for administrators and future researchers were included.

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A STUDY OF THE RELATIONSHIP BETWEEN THE IMPORTANCE OF CERTAIN FEEDBACK SOURCES AND CLASSROOM TEACHER PERFORMANCE

Chapter 1

Introduction

The fundamental importance of feedback in the study of human behavior is indicated by the proliferation of research studies investigating various aspects of this phenomenon. For example, in 1950, there was no feedback category provided in the Psychological Abstracts. In 1976, there were 195 studies published. The emphasis on feedback was broadened from knowledge of results to auditory, visual, delayed and biofeedback categories. Since Wiener (1948) assigned the engineering term to the process by which an individual obtains information concerning the correctness of his previous responses so that he can adjust his behavior to compensate for errors, the number of researchers investigating feedback has increased dramatically.

Feedback research in educational settings includes work by Bryan (1963, cited by Tuckman & Oliver, 1973) in which it was suggested that teachers will alter their behavior as a result of receiving feedback from their students. Tuckman and Oliver (1968) attempted to determine the relative effects of feedback to teachers from students and feedback to teachers from supervisors, controlling for years of teaching experience and found significant differences.

There has been an equally prolific accumulation of literature in the area of teacher effectiveness. This research has attempted to specify criteria of teacher effectiveness (Mitzel, 1960). Tolor

(1973) reported that attempts to assess the quality of teaching have a long history and are fraught with value judgments and measurement problems:

> Even a cursory analysis of the problem reveals its inherent complexity since the effectiveness of a teacher is likely to vary at least with a host of student characteristics, the subject matter being taught, and the teaching setting itself. Yet the search for the good teacher has continued unabated both in the research arena and in every community where educational facilities are staffed [p. 261].

However, Flanders and Simon (1969) offered some optimism for research on teacher effectiveness with the advent of new tools for analyzing the teaching process.

The purpose of this study of the relationship between the importance of certain feedback sources and classroom teacher performance was to analyze one aspect of the teaching process and to assess the possibility of a vinculum between the concept of feedback and teacher effectiveness. This investigation sought to determine the following:

1. the sources of feedback which teachers use in assessing how well they are doing their jobs,

2. the relative importance of these sources of feedback to different teachers in different teaching settings, and

3. the relationship of specific sources of feedback to a measure of teacher effectiveness.

The motivation of employees is a key to organizational success

(Herzberg, Mausner, & Snyderman, 1959). Annett (1969) described motivation as feedback in action. The ability to discern the source or sources of feedback, which a particular teacher relies upon in adjusting performance, has major implications for supervisors in their attempts to motivate subordinates. According to Wiles (1967), the supervisor's role has become one of supporting, assisting and sharing rather than directing. The supervisor not only must consciously monitor the feedback he receives from his subordinates, but also should be aware of the kinds of feedback his subordinates require in order to adjust and improve their performance on the job. A knowledge of the kinds of feedback relied upon by subordinates would be invaluable information for a supervisor who strives to maintain optimal performance of subordinates in order to meet organizational goals.

Theoretical Background

Feedback

Cybernetic theory has been the nucleus for the development of servosystems or servomechanism models, which depict human behavior by comparing it to the operation of a machine. Wiener (1950) stated as his thesis:

> The physical functioning of the living individual and the operation of some of the newer communication machines are precisely parallel in their analogous attempts to control entropy through feedback. Both of them have sensory receptors as one stage in their cycle of operation: that is, in both of them there exists a special apparatus for collecting information from the outer world at low energy levels, and for making it

> available in the operation of the individual or of the machine. In both cases, these external messages are not taken neat, but through the internal transforming powers of the apparatus, whether it be alive or dead. The information is then turned into a new form available for the further stages of performance. In both the animal and the machine this performance is made to be effective on the outer world. In both of them, their performed action on the outer world, not merely their intended action, is reported back to the central regulatory apparatus [pp. 26-27].

This reporting back or feedback is an integral factor in human communication, since it allows an individual to monitor his speech and to evaluate his success in getting desired responses from the listener. These feedback signals regulate the speaker. According to Brooks (1971), the speaker must adjust to the feedback he receives from his own speech mechanisms, as well as the feedback he receives from the listener in the form of smiles, frowns, inattention.

Fairbanks (1954) proposed an intrapersonal servosystem describing the production of speech. In his model, the sensor unit, comprised of the ear, kinesthetic and proprioceptive organs, provides constant feedback to the effector unit--the respiratory, vibratory, and articulatory systems--which produces speech. If the output does not match the input (if the spoken word is not in the desired form), an error signal is transmitted to the central nervous system and a new driving signal or input is initiated.

A close parallel exists between the function of feedback on

an individual dimension in the intrapersonal system and its function on an interpersonal and organizational level. Thayer (1968) described this relationship:

> As is true of the individual, any organization's effectiveness is some function of its past and present communication pattern both internal and external. As is true of the individual, the organization's external communication patterns determine its internal structure and functioning. The role of managing is therefore to design and implement those communication systems that will accomplish organizational goals and at the same time develop their further capabilities [p. 20].

In the realm of organizational literature, the term, feedback, is used frequently to describe a process in which the supervisor listens to the ideas and concerns of his subordinates or in which he checks to determine whether an order has been understood. Haire (1964) suggested the importance of finding out what the listener has heard as a check on what was communicated:

> It is essential for the communicator to provide an opportunity for "feedback" from the recipient. Unless one has some way of finding out what was heard either by observing subsequent behavior or by some kind of restatement, communication must remain pretty much a matter of shooting in the dark, with very uncertain results [p. 105].

Sigband (1969) stated that everyone depends on feedback to evaluate the clarity of their communications and to receive and interpret responses to what is said. He advised the communicator to keep in mind that the

message may not have been transmitted and suggested the design of various methods for securing feedback to determine as conclusively as possible that he was successful in transmitting what was in his mind to the listener's or reader's mind. Gaudet (1963) also suggested the importance of avoiding confusion by getting feedback and finding out from the employee himself whether or not he understood the order. Bassett (1968) suggested that building a feedback loop is the primary step in interpersonal problem solving. Unless there is some method for finding out how messages are being understood, "you may find yourself forever lost in a semantic wasteland. You will never find the problem, much less solve it [p. 137]."

According to Yoder (1970), it is a manager's responsibility to create and maintain facilities to provide feedback so that he can stay informed about organizational and individual performance. Dowling and Sayles (1971) also stressed the importance of feedback:

> Norbert Wiener, who did some of the key pioneer work in applying the principles of electronic communications to human communications, observed in words that deserve to be writ in gold, "I never know what I said until I hear the response to it." In other words, you can't really know what you've communicated until you've gotten feedback. What was true for Wiener is true for all of us. Only feedback can tell us what we're communicating or, in fact, whether we're communicating at all [p. 207].

A final example of this general interpretation of feedback which aids in establishing its value at interpersonal and organizational levels

is taken from Haimann and Hilgert (1972):

> Among the several methods available to improve communication, the feedback technique is by far the most important one. Feedback means that the sender utilizes questions, discussions, signals, or clues in order to determine whether or not he is understood [p. 87].

Another facet of feedback, which is more central to the theme of the present paper, is its function as a supplier of information regarding the appropriateness or inappropriateness of an action. Lillico (1972) suggested that after sending a message, an individual looks for some reaction in the receiver--some feedback. It is from the feedback that an individual decides how to frame or pitch his next communication act. Leavitt and Mueller (1951) performed a laboratory study in which four groups of students were required to assemble rectangles into a design using only the verbal description of the design provided by the researchers. The four groups were differentiated by the degree of feedback they were allowed. The importance of feedback in accuracy of performance was demonstrated.

In a discussion of job characteristics and their effect on motivation, Lawler (1973) advised that an employee cannot experience higher order need satisfaction when he performs effectively unless he obtains some feedback about how he is doing:

> Such feedback may come from doing the task itself (for example, when a telephone operator successfully completes a long distance person to person call), but performance feedback may come from some other person, such as an esteemed co-worker

> or a supervisor. The crucial condition is that feedback must be believable to the worker, so that a realistic basis exists for the satisfaction (or frustration) of needs [p. 160].

Greller and Herold (1975) investigated five sources of feedback which they considered to be commonly available sources of information about job requirements. These sources were the company, the supervisor, coworkers, the particular task, and the worker's own feelings and ideas. The researchers asked respondents to their survey to rate each of the five sources of feedback in two capacities; first, the role of each source as a provider of information--the amount of information it provided about the job requirements; second, on the extent to which the source provided information about how well the job requirements had been met. A 2 x 5, source by issue, factorial design with repeated measures was used in the analysis of the data. The results showed no main effect for issue ($F = 0.26$), but a highly significant main effect for source ($F = 23.84$ $p < .001$). According to Greller and Herold, this finding indicated that different sources tended to provide consistently different amounts of information. The issue by source interaction yielded an

$$F = 3.50 \quad p < .01$$

which the authors interpreted as indicative that differences in informativeness between sources is moderated by the issue to which the information pertains. The authors examined the data in a posteriori analysis, hypothesizing that the informativeness of the sources decreased with their distance from the individual. This test proved to be significant ($F = 54.60$ $p < .001$ Scheffe Test: $p < .001$),

indicating that sources of feedback increase in informativeness as one goes from the company to one's own feelings:

> The notion that intrinsically provided information is particularly valuable is consistent with a number of other notions about the feedback process. Knowledge based on one's own feelings or the task is immediately available: there is no delay or "latency." Second, there is less of a question of distrust or interpersonal evaluation than there is with a communication from the boss or co-workers. The information is also available to be used when the individual chooses to view it. This means that the worker can consider the intrinsic feedback when he feels ready to deal with it. Information coming from others is delivered when they are ready to provide it: this may not be the most propitious moment from the recipient's point of view [p. 249].

Greller and Herold (1975) obtained their data from questionnaires distributed to 150 evening college students. The majority of the students held full-time jobs. Approximately 43% of the questionnaires were sufficiently complete to use in their analysis. The mean age of the respondents was 25, and the mean time on the job was 2.2 years.

The limitations of a low-return rate on questionnaires, a sample which apparently had limited job experience and the possibility that a part of the sample was not in the work force may jeopardize the generalizability of their findings. In addition, their assumptions concerning the commonality of the five feedback sources used in their

study may have been too restrictive. In contrast, in the present study of feedback sources and teacher effectiveness, a wider range of years of experience, a larger sample, and an in-depth approach to sources of feedback of a specific setting was employed. Greller and Herold (1975) were interested primarily in the quantitative aspect of feedback. The amount of information each source provides is of interest, however, the importance which the individual attributes to that information is of greater consequence.

In a field experiment, Tuckman and Oliver (1968) separated 286 teachers by years of teaching experience and exposed them to one of four conditions, (a) feedback from students only; (b) from supervisors only; (c) from both students and supervisors; and (d) from neither, no feedback. According to the results of the experiment, student feedback led to a positive change in teacher behavior which was measured by changes in student ratings during a 12-week interval ($F = 5.941$, $df = 1/274$, $p < .025$). The presence of supervisor feedback produced no significant effect ($F = 1.064$, $df = 1/274$). There were no significant interactions and the years of experience variable was also insignificant.

A basic flaw in the study was their no feedback category. By limiting the definition of feedback to the student ratings of teachers on the Student Opinion Questionnaire and supervisor rating of teachers on the same measure, a variety of uncontrolled feedback was ignored. As was revealed in the above studies, feedback emanates from many sources. Indeed, the positive change in teacher behavior attributed to student feedback may have resulted from the reactivity of the

measure (Campbell & Stanley, 1963) which made the students more perceptive and sensitive to teacher behaviors. Although in the Tuckman and Oliver (1968) study, years of experience and receptivity to feedback did not produce a significant relationship, the least experienced group tended to show the least receptivity to feedback from their supervisor.

The limited number of sources used in the Tuckman and Oliver (1968) study and the lack of control on other sources affecting teachers diminished the importance of their findings. The particular method of using student ratings of teachers in two capacities--as a measure of teacher behavior change and as the feedback source for teachers--may have affected the clarity of the findings.

Although the literature is replete with studies of the effects of various forms of feedback on performance, those which are pertinent to the direction of this study are limited. The work of Greller and Herold (1975, 1977) in attempting to define feedback, appears to be the point of departure for further investigation into the complexities of the construct.

Teacher Effectiveness

Biddle (1964) reported that the literature available on teacher effectiveness was overwhelming and suggested that even bibliographies were becoming unmanageable. In spite of this abundance of literature, he stressed:

> Few if any "facts" seem to have been established concerning teacher effectiveness, no approved method of measuring competence has been accepted and no methods of promoting teacher

adequacy have been widely adopted [p. 2].

The necessity for increased understanding of teacher effectiveness has not diminished. Biddle attributed the lack of knowledge on teacher effectiveness to confusion about the definition of teacher competence and to the complexity of the problem, because the teacher is only one of many factors operating in the pupil's environment and it is difficult to isolate, observe and measure the degree of influence of this particular factor.

In a review of research on teacher effectiveness, Mitzel (1960) classified teacher effectiveness criteria into three categories: (a) product criteria, (b) process criteria, and (c) presage criteria. Product criteria are stated in terms of change in behavior on the part of the student. They are defined within the framework of the goals of teaching.

Process criteria are aspects of teacher and student behavior which are not necessarily directly related to the goals of education, but may have a mediating effect on the product criteria. According to Mitzel (1960), examples of teacher behavior which could be considered process criteria might be the extent to which teachers use effective discipline, maintain rapport, or individualize instruction. Student behavior process examples might include attentive listening and conformity to classroom rules.

Presage criteria which have been commonly used in research include teacher personality attributes, characteristics of teachers in training, and teacher knowledge and achievement. In concluding remarks, Mitzel (1960) summarized:

> For the past fifty years, most research and administrative practice seems to have been based on the assumption that teaching competence is a unitary trait. Although it has long been felt that there are degrees of effectiveness among teachers, many educators still act on the assumption that the teacher who stimulates the greatest student growth in one basic skill will stimulate the greatest growth in other skills, as well as in problem solving, social adjustment, and other educational objectives. It is also frequently assumed that the effective teacher, however defined, is equally effective with all children. The weight of the evidence, though fragmentary, preponderantly supports a multidimensional view of teaching effectiveness [p. 1485].

Morsh and Wilder (1954) concluded that evidence of student change appeared to be the most direct and reliable criterion of teacher competence, however, the problem of relating specific teacher influences--behavior or traits--to student achievement had not been resolved.

Perhaps the most comprehensive teacher characteristic study is the work of Ryans (1960). The total sample for all aspects of his study included 6,179 teachers. Ryans provided a list of personal qualities which appear to distinguish teachers selected as high or low with respect to overall classroom behavior. The characteristics of the high group, elementary and secondary teachers combined were:

1. Indicates greater enjoyment of pupil relationships (i.e., more favorable pupil opinions).

2. Indicates greater preference for non-directive classroom procedures.

3. Is superior in verbal intelligence.

4. Is more satisfactory with regard to emotional adjustment [p. 360].

Ryans (1960) listed these characteristics of outstanding teachers:

> Superior intellectual abilities, above-average school achievement, good emotional adjustment, attitudes favorable to pupils, enjoyment of pupil relationships, generosity in the appraisal of behavior and motives of other persons, strong interests in reading and literary matters, interest in painting and music, participation in social and community affairs, early experience in caring for children and teaching (such as reading to children and taking a class for the teacher), history of teaching in the family, family support of teaching as a vocation and strong social service interests [p. 366].

Drawing from a number of investigations, Gage (1965) listed the following desirable teacher behaviors which were shown to be related to desirable teacher outcomes:

1. Warmth. Good teachers, especially at the elementary grade levels, tend to be warm persons and to behave warmly toward pupils.

2. Cognitive organization. Good teachers tend to behave in ways that reflect a clear and valid cognitive organization of the subject matter or discipline they are attempting to teach.

3. Orderliness. Good teachers tend to be orderly, systematic, and business-like.

4. Indirectness. Good teachers tend more often than others to influence pupils indirectly, through asking questions and otherwise evoking participation in classroom activity on the part of pupils.

5. Ability to solve instructional problems. Good teachers tend to have greater ability to solve problems requiring technical knowledge of teaching methods [pp. 87-88].

In a study of the opinions of 3,725 high school seniors, Hart (1934) found that the teacher who was best liked was helpful in schoolwork, explained lessons clearly, used examples in teaching, and had a sense of humor. In a later more comprehensive study, Witty (1947) analyzed the contents of 12,000 compositions by students in grades 2 to 12. The compositions were entitled, "The Teacher Who Has Helped Me Most." According to Witty, 12 items were repeated again and again. The teacher traits mentioned by the students in order of their frequency are:

1. Cooperative, democratic attitude
2. Kindness and consideration for the individual
3. Patience
4. Wide interests
5. Personal appearance and pleasing manner
6. Fairness and impartiality
7. Sense of humor
8. Good disposition and consistent behavior

9. Interest in pupils' problems

10. Flexibility

11. Use of recognition and praise

12. Unusual proficiency in teaching a particular subject

[p. 663].

From his review of research on teacher effectiveness, Hamachek (1969) concluded that good teachers generally possess a more positive view of others, a more favorable view of democratic classroom procedures, and the ability to see things from the other person's point of view. They see others as potentially friendly and worthy. They see students as individuals capable of doing for themselves once they feel trusted, respected and valued.

The dimensions of teacher effectiveness used in the present study represented characteristics of teachers established by previous researchers. These dimensions were sense of humor, flexibility, knowledge of subject matter, optimism, positive attitude toward others and student achievement. In summary, from previous research based on personality theory, industrial and organizational psychology, general systems theory, communication theory and educational psychology, feedback emerges as a viable area for investigation.

Need for the Present Study

Feedback has been a concept studied in psychological laboratories and has been the focus of much experimental manipulation. However, there have not been adequate empirical studies investigating feedback in an organizational setting. Herold and Greller (1977) found that although the concept of feedback had bearing on many issues

in industrial and organizational psychology and was considered to be an important aspect in training, performance, motivation, and satisfaction, "there was a surprising lack of empirical rigor applied in an effort to better understand it [p. 244]." A closer scrutiny of the construct feedback in the school setting is warranted.

There are a variety of different strategies which organizations use in their attempts to manage feedback. Most focus on external rewards, some use goal setting to try to manipulate the individual's self evaluation (Greller, 1975). In a school setting, a knowledge of feedback sources and how the selection of particular sources by teachers may be related to performance would provide valuable information to principals and supervisors. If a relationship does exist, some clarification of the elusive definition of a highly effective teacher may be forthcoming. Through the present study, some questions about feedback in an educational setting will be addressed.

Statement of the Problem

The problem central to this study was to determine whether the dependence of classroom teachers upon certain sources of feedback was related to their overall job performance. Answers to the following specific questions were sought.

1. What are the sources of feedback which teachers use in adjusting and controlling their performance?

2. Are there differences among teachers in their perceptions of the importance of the different feedback sources?

3. What feedback sources do principals perceive as most important?

4. Is there a common set of feedback sources considered important by teachers who are rated highly effective by their principals?

5. Is there a common set of feedback sources considered of primary importance by teachers rated low in effectiveness which differs from the set used by the teachers rated highly effective?

6. Do the variables, sex, years of teaching experience, and grade level taught affect a classroom teacher's selection of feedback sources?

Definition of Terms

For the purpose of the present study, the following definitions applied.

Effectiveness

Effectiveness is an indicator of overall teaching performance as rated by the principal. The Highly Effective teacher was operationally defined as one who obtained a composite score of at least 29 on the Teacher Rating Scale (see Appendix A) which was based upon six characteristics of teacher behavior and personality. A Minimally Effective teacher was operationally defined as a teacher who obtained a composite rating score of 17 or less on the Teacher Rating Scale.

Feedback

Feedback is information an individual perceives about how well the job has been done. There appear to be at least two types of feedback. Extrinsic feedback includes information which is moderated by other people in the work environment or by the organization such as pay and appraisal. Intrinsic feedback consists of information the

individual can derive independently from observation of the job environment (Greller, 1975).

Sources of Feedback

These sources are persons, things, or occurrences in the job environment which provide information about how well the job has been done. Greller and Herold (1975) cited five potential sources of feedback: the company (formal organization), supervisor, coworkers, the task itself, and one's own feelings and ideas.

Hypotheses to Be Tested

Hypothesis 1

The teachers rated highly effective by their principal will differ significantly from those rated low in effectiveness with respect to their choice of important feedback sources. Greller and Herold (1975) suggested that job performance feedback, or information about the extent to which one has met job requirements, can be meaningfully thought of as emanating from different sources, and that these sources differ in their degree of informativeness. In their review of studies involving evaluative feedback as a function of self-assessment, Shrauger and Lund (1975) reported that there are differences in the ways people react to feedback:

> If the feedback received is unacceptable it may be avoided or distorted in some way. The validity of the feedback may be undercut by questioning the credibility of its source, either the source's general competence or his specific knowledge relevant to the feedback which is given [p. 94].

Hypothesis 2

The sources of feedback considered most important by the principal will differ significantly from those sources considered most important by teachers rated low in effectiveness.

Hypothesis 3

The sources of feedback considered most important by the principal will correlate highly with those sources considered most important by the teachers rated high in effectiveness. The basis for the inclusion of Hypotheses 2 and 3 is primarily exploratory. Biddle (1964) condemned the use of teacher rating forms in assessing teacher effectiveness. He suggested that they be eliminated until an understanding of their biases is available. The testing of these hypotheses provided some information on the nature of these biases as they relate to similarities in feedback source preferences.

Hypothesis 4

The demographic variables of sex, years of experience, and grade level taught differentiate teachers with respect to their use of certain sources of feedback. Tuckman and Oliver (1968), as noted previously, found that the most experienced teacher group tended to show less receptivity to feedback from their students and the least experienced teachers tended to show low receptivity to feedback from their supervisors. In the study cited, the relationships were not strong enough to prove significant. Ryans (1960) suggested that there is little doubt about the existence of important differences between teachers in varying age groups with respect to a number of characteristics. In support of this contention, he wrote:

> Among sixty different F tests computed from the data for the teachers participating in the teacher-characteristics study, forty-five were found to be significant at or beyond the .05 level [p. 81].

Ryans found that men and women teachers appeared to differ on the personal-social characteristics which he studied. Differences were often insignificant at the elementary school level, but were pronounced among secondary teachers. Women generally obtained significantly higher scores than men on the scales measuring understanding and friendly classroom behavior, responsible and businesslike classroom behavior, and favorable attitudes toward pupils, among others, at the secondary school level. At the elementary school level, as a group, men scored significantly lower than women on responsible and businesslike classroom behavior. The results suggested that male elementary school teachers may be more favorable in attitude toward democratic classroom practices and more inclined toward permissive, child-centered educational practices, according to Ryans' assessment.

The idea that cultural factors and expectations shape female behavior into a dependent mode and cast the male into a role of independence and self-reliance might indicate sexual differences in the sources of feedback which are part of the cultural orientation. The test of this hypothesis will provide information on sexual preferences for feedback sources.

Overview of the Remainder of the Study

A review of research which is relevant to the stated hypotheses is presented in Chapter 2. The methodology implemented in the

research study and the research design with appropriate statistical tests is presented in Chapter 3. The results of the study and an analysis of the findings are contained in Chapter 4. A discussion of the conclusions and implications for further research comprise Chapter 5.

Chapter 2

Relevant Research

No investigations of the relationship between teacher effectiveness and sources of feedback were located. Studies involving the effect of feedback on behavior in an educational setting were identified. Studies which isolated the dimensions of teacher effectiveness used in the present study are also discussed. The review of studies is organized into two sections. The first section reviews research on sources of feedback. The second section, on teacher effectiveness, includes studies dealing with the dimensions of teacher behavior and characteristics used in this study. They are sense of humor, flexibility, knowledge of subject matter, optimism, positive attitude toward others and student achievement.

Sources of Feedback

The concept of auditory feedback and its relationship to disfluent speech has been explored by speech pathologists (Van Riper, 1971). Yates (1963) studied the effects of delaying auditory feedback in experiments with stutterers. The use of delayed auditory feedback caused some stutterers to become fluent and had no effect on others. It was determined that the stutterers who relied upon bone-conducted and kinesthetic feedback demonstrated less change in speech pattern than those who relied primarily upon auditory feedback.

Annett (1969) viewed the servomechanism theory and the concept of feedback as it relates to basic perceptual-motor skills. He was

primarily concerned with knowledge of results, the term used to describe various forms of psychological feedback. Annett distinguished between intrinsic knowledge of results which is normally present and is not often subject to experimenter manipulation and extrinsic knowledge of results which represents feedback being supplied by the experimenter.

In a working paper on intrinsic and extrinsic performance feedback, Herold and Greller (1975) presented their findings in a laboratory experiment. The manipulation of the extrinsic feedback was accomplished by assigning one college student in a group of three the role of supervisor. The supervisor provided positive feedback to one subordinate and negative feedback to the other regardless of their performance on a specific task. The intrinsic feedback was obtained by having the subordinates rate themselves on the task. A measure of attitude toward the task was also obtained. The results demonstrated that intrinsic feedback was related to attitudes toward the task and the quality of performance. Extrinsic or supervisory feedback was related to attitudes toward the supervisor, but had no effect on task performance. This study was accomplished in a laboratory setting with 32 groups of 3 male college students. The classification of feedback into the extrinsic and intrinsic categories is important in light of Rotter's (1966) theory on internal and external locus of control and Deci's (1975) work on intrinsic motivation. Although the focus of the present research was not directly related to this aspect of feedback, some discussion on the extent of support for Herold and Greller's findings in this area will be afforded.

In an attempt to correct a weakness in previous studies, Greller (1976) surveyed 224 people in two organizations. The participants were asked to indicate how useful they found information from certain sources of feedback, which included the organization, the supervisor, the informal group and the individual's own observations. Greller's analysis of the results demonstrated that the participants perceived the sources as differing in importance ($F = 13.46$, $df = 5/1120$, $p < .001$). Greller noted that although the differences were interesting, a large portion of the variance was unexplained. He concluded:

> The complete set of results are consistent with the notion that feedback is not a passive experience for the recipient. Earlier work has shown that people actively gather information about how well they have done their jobs and regard such information as quite important. When feedback is provided by another person, it is influenced by the nature of the relationship between the provider and recipient (Greller, 1976; Greller & Herold, 1975). In the present study, the role feedback plays and its perceived value were shown to be subject to the individual's relationship to the job. All this raises new research questions about how feedback fits into a larger expectancy framework and in what way feedback fits with the individual's personal work objectives [pp. 7-8].

In Greller's (1976) study, the sources were again limited by the choice of the researcher. The sample used in the investigation comprised full-time employees in a large bank and in a research and

development firm. Perhaps by using a wider variety of feedback sources, more of the variance would be explained. In contrast, the study proposed and completed herein provided additional data on the value placed on certain sources of feedback by a population in an educational setting.

In a later study, Herold and Greller (1977) developed a taxonomy of feedback based on events in a worker's environment. Using Nunnally's (1967) stages for the development of a construct, the authors first sampled the domain of observables by interviewing approximately 38 working people in two metropolitan areas who represented a cross-section of backgrounds, jobs, and ages. These participants were asked, "How do you find out how well you are doing your job?" The process provided 58 items which were compiled into a questionnaire format. The questionnaires were administered to evening college students, full-time employees of a research and development firm and to a small group of college students who held full-time jobs. The total sample included 109 people. Participants were asked to indicate how frequently each of the instances of feedback occurred on their jobs, using a Likert scale anchored by "Never" and "Extremely Often" with a midpoint labeled "Ocasionally." The result of a factor analysis of the data was the isolation of five factors, (1) negative feedback, (2) positive feedback from above, (3) positive feedback from nonhierarchical others, (4) internal criteria feedback and (5) work flow feedback. Although their study centered on quantity of feedback, as had the previous work of these authors, it demonstrated that there are a variety of sources of feedback which individuals use in

assessing their job performance.

Hackman and Oldham (1975) distinguished between sources of feedback in their development of the Job Diagnostic Survey. They isolated feedback from the job itself which they defined as "the degree to which carrying out the work activities required by the job results in the employee obtaining direct and clear information about the effectiveness of his or her performance" and feedback from agents, which they defined as "the degree to which the employee receives clear information about his or her performance from supervisors or from co-workers [p. 162]."

Daw and Gage (1967) provided feedback to principals concerning their teachers' ratings of actual and ideal principal behaviors. The principals who had been provided feedback were later found to differ significantly, in the direction of their teachers' preferences, from principals in the control group who received no feedback. The significant results due to feedback did not seem to vary with age or experience of the principal.

In summary, research on feedback in job environments and particularly in educational job settings is minimal. Basically, a review of the literature on sources of feedback revealed:

1. there are different sources of job performance feedback,

2. the sources differ in both the amount and the importance of the information which they provide,

3. the sources of feedback may be intrinsic or extrinsic,

4. feedback may have either a positive or a negative valence, and

5. feedback does affect subsequent performance.

Teacher Effectiveness

The measure of teacher effectiveness used in this study was a composite of six dimensions of teacher characteristics and behaviors. Relevant research on each of these dimensions is reviewed here. The six dimensions used in the rating of teachers for the purposes stated previously were sense of humor, flexibility, knowledge of subject matter, optimism, positive attitude toward others, and student achievement.

In a review of research on teacher evaluation, Fattu (1963) noted pupil growth and achievement in relation to teacher performance has been reviewed by Ackerman (1954), McCall (1952), Medley and Mitzel (1957), Mitzel and Gross (1960), Morsh, Burgess, and Smith (1956), Taylor (1930), and Webb and Bowers (1957). On the basis of his review, Fattu concluded:

> If the purpose of teaching is to attain objectives by bringing about desired changes in pupils, the obvious measure of teacher effectiveness is the extent to which the teacher actually produces such changes. Unfortunately, some difficulties intrude upon this happy prospect: 1) It is difficult to measure pupil growth, and 2) it is difficult to determine precisely how much change can be attributed to a particular teacher. It is not surprising that the number of student gain studies is rather low. The great discrepancies in findings of the studies using student gains criteria emphasize the complexity of their relation to instructor performance [p. 25].

According to Mueller (1971), in spite of Fattu's (1963) concerns, most researchers feel that student achievement is the most reliable measure available at present. Mitzel (1960) supports this contention in his discussion of product criteria of teacher effectiveness:

> Product criteria depend for definition upon a set of goals toward which teaching is directed. These goals are most economically stated in terms of changes in behavior on the part of students. Rabinowitz and Travers (1953) and Ryans (1949, 1953), as well as the reports of the Committee on Teacher Effectiveness headed by Remmers (1952, 1953), have presented cogent arguments for assessing teaching competency in the light of effects on students. These effects are variously called student gains, student growth, or student changes, but they all involve measurement of change in student behavior, a portion of which can be attributed to the influence of individual teachers [p. 1483].

The use of student achievement as a criteria of teacher effectiveness was well-supported in previous research. Its inclusion as a dimension on the rating scale used in the present study was practicable.

Yourglich (1955), in a study of teacher and student evaluations of the qualities of an ideal teacher, isolated these factors of teacher efficiency: understanding, ability to communicate, integrity, ability to stimulate, maturity, academic background, responsibility, sense of dedication, sense of humor, cooperativeness, dominance, appearance, friendliness, meticulousness, intelligence, individuality,

healthiness, practicality, and diligence. Among the spontaneous responses obtained from a sample of college students and teachers as to what they considered to be an ideal teacher, the students ranked Understanding--first, Academic Background--sixth, Sense of Humor--ninth, and Friendly--twelfth. Teachers ranked these same characteristics: Understanding--third, Academic Background--fifth, Sense of Humor--eleventh, and Friendly--eighteenth (see Figure 1). The correlation coefficient between the rankings of students and teachers on ideal teacher was .592.

Webb and Bowers (1957) used student learning as a criteria for teacher effectiveness. Their sample consisted of navy flight training students and 12 flight instructors. They found significant differences ($p < .01$) between the performances of different instructors and concluded that these differences significantly affected the performance of their students. The researchers suggested that their findings could be generalized to public education learning situations.

Burkard (1962) administered the Thematic Apperception Test (TAT) to 300 nuns teaching grades 4 to 12, who had been rated by their students. The results supported her hypothesis that personality differences between teachers ranked high by their pupils and those ranked low could be found by the TAT:

> The teacher ranked high would appear to be an active person, a hard worker, who recognizes her own limitations and also the demands of achievements; a person who takes an objective, realistic view of things and whose judgment is not clouded by negative emotions. Her classroom behavior is probably

Trait	Rank	Trait	Rank
Students:		Teachers:	
1. Understanding	1	1. Integrity	1
2. Ability to communicate	2	2. Maturity	2
3. Integrity	3	3. Ability to communicate	3.5
4. Maturity	4	4. Understanding	3.5
5. Stimulating	5	5. Academic background	5
6. Academic background	6	6. Sense of dedication	6
7. Responsibility	7	7. Dominance	7
8. Sense of dedication	8	8. Individuality	8
9. Sense of humor	9.5	9. Intelligent	9
10. Cooperative	9.5	10. Pleasing appearance	10
11. Dominant	12	11. Sense of humor	11
12. Pleasing appearance	12	12. Diligence	13
13. Friendly	12	13. Cooperative	13
14. Meticulous	14	14. Responsibility	13
15. Intelligent	15	15. Meticulous	15
16. Individuality	16	16. Healthy	16.5
17. Healthy	17	17. Practical	16.5
18. Practical	18	18. Stimulating	18.5
19. Diligence	19	19. Friendly	18.5

(Yourglich, 1955)

Figure 1. Comparison of students' and teachers' ranking of "Ideal-Teacher" traits.

similarly objective, well organized, and efficient [p. 286]. Burkard concluded that the low-ranked teacher appeared to possess characteristics which were the reverse of those noted.

Heil and Washburn (1962) classified teachers into Type A (turbulent, impulsive, variable), Type B (self-controlling, orderly, work oriented), and Type C (fearful). They administered four instruments to teachers in order to identify their salient characteristics. These instruments were:

1. The Teacher Education Examination Program,

2. The Manifold Interest Schedule which gave an index of academic interest and personality,

3. The Brooklyn College Teacher Observation Forms, and

4. The Brooklyn College Interaction with Children Test.

There were four instruments administered to students to measure their growth and characteristics. These included an intelligence test, an achievement test, the Ohio Social Acceptance Scale and the Brooklyn College Test of Children's Feelings. A population of 55 teachers selected by the principal and their 55 classes of students took part in the experiment. Their data suggested that varying children's gains depends upon the teacher-child combination of personality. The Type A teacher did not significantly affect the growth of children classified as opposing or wavering. She did provide superior gains with children in mathematics and science. The Type C teacher who was depicted as fearful and unsure of herself got less gain from her pupils than Type A or B. The authors concluded:

It appears that the B type teacher is reasonably warm and

> empathetic with others but in contrast to the Type C teacher, she is not nearly so fearful about how others feel toward her. The most outstanding characteristic of the B type teacher, however, appears to be a leadership role coupled with work orientation.
>
> The essential point is that there are identifiable types of teachers and that different types have different effects on the children whom they teach; certain ones seemingly are much more generally effective than others [p. 350].

Bowers and Soar (1962) used canonical correlation to explore the influence of teacher personality on classroom interaction. They studied the relationships between the results of four attitude and personality inventories including the Minnesota Multiphasic Personality Inventory. Their interpretation of the data provides a picture of teacher personality resources basic to skillful interpersonal relationships:

> Skillful interaction with pupils requires on the part of the teacher, responsibility, and depth of affective relationships; it requires that she be well enough adjusted that much of her energy is not drained off in dealing with her own intrapersonal tensions; and she must be able to perceive herself and others clearly and represent herself honestly in communication with others. A teacher must, in short, care . . . [p. 311].

Hawkins and Stoops (1966) found very high concordance ($p < .001$) between 10 methods of identifying outstanding elementary teachers which included both objective and subjective measures. The

objective selection methods included determination of the highest paid, the most experienced, and the highest trained. The subjective selections were based on the opinions of principals, district administrators, nonteaching staff members, peer teachers, and informed parents. The researchers found that formal evaluation reports were the least discriminating of the 10 selection methods. Identification methods based on salary data were somewhat more discriminating. The subjective methods of teacher selection were the most discriminating, giving a wider range of ranking differences among teachers. Hawkins and Stoops observed:

> School associated groups, i.e., principals, district administrators, peer teachers, non-teaching staff members, and informed parents, generally agree on which elementary teachers are outstanding. There is substantial agreement in the identification of outstanding teachers by the formal evaluation process, and current salary determination practice. A battery of different methods of ranking teachers may, therefore, be merged to broaden the evaluation base [p. 346].

Ryans (1960), as a prelude to organizing a theoretical framework for his teacher characteristics study, defined teacher behavior as "the behavior, or activities, of persons as they go about doing whatever is required of teachers, particularly those activities which are concerned with the guidance or direction of the learning of others [p. 15]." Among the postulates and assumptions which he considered necessary for a theory of teacher behavior are several which are of interest to this study. His assumptions are listed:

1. Teacher behavior is social behavior. There must be communication between teacher and student. Teachers affect student behavior and students influence teacher behavior.

2. Teacher behavior is relevant. There is nothing inherently good or bad about the behavior of a teacher.

> Instead teacher behavior is good or bad, right or wrong, effective or ineffective, only to the extent that such behavior conforms or fails to conform to a particular culture's value system or set of objectives relating to 1) the activities expected of a teacher and 2) the kinds of pupil learning (attainment) desired and the methods of teaching to be employed to bring about this learning [p. 16].

3. Teacher behavior is a function of situational factors and characteristics of the individual teacher. Ryans explained that in attempting to delineate a theory of teacher behavior, there will be similarities to learning theory and personality theory since teacher behavior is a result of situational factors interacting with the characteristics of the individual teacher in processes which are difficult to define:

> The fact that little is known about such processes does not mean that persons interested in behavior theory have not been actively concerned with the problem. Certain groups of theorists have been both active and ingenious. One such group, which is interested in speculating upon the generality of behavior theory--whether the systems involved are atoms, viruses, cells, individual persons, society, solar systems,

> or what not--views the organism, or the teacher in our case, as an "open system" (a bounded region in space-time), with negative feedback which distributes information to subsystems to keep them in orderly balance [p. 17].

In Chapter 2, relevant research on sources of feedback and teacher effectiveness has been reviewed. The following chapter presents the methodology used in this study of the relationship between the choice of important feedback sources and principal ratings of teacher effectiveness.

Chapter 3

Methodology

The purpose of this study was to determine whether highly effective teachers as rated by their principals attributed primary importance to certain sources of feedback which differed significantly from the sources of feedback considered primarily important by teachers rated low in effectiveness.

This chapter presents a description of the methodology used in this study. The description includes a discussion of (a) research site and sample selection, (b) instruments, (c) data collection methods, and (d) data analysis methods.

Research Site and Sample Selection

There were six public school divisions located in the Middle and Lower Peninsula regions of Tidewater, Virginia, that were selected for participation in the study. The six school divisions represented urban, suburban and rural populations. There were approximately 72 schools--elementary, junior high and high schools--and approximately 2,800 classroom teachers in the population selected for the study.

From a complete listing of all of the schools in these six school divisions, a random sample of 30 schools was selected. In a meeting with a contact person at each of the schools, a random sample of not more than 10 teachers from each school was chosen to take part in the study. The total number of teachers in the sample was 225 (see Table 10, Appendix B and Table 11, Appendix C).

Description of Instrumentation

Feedback Instrument

The feedback instrument was developed using procedures similar to those employed by Herold and Greller (1977). A random sample of 23 classroom teachers in a Tidewater, Virginia, school system were asked in "man on the street" type interviews, "How do you know how well you are doing your job?" The responses obtained and the demographic data on this sample are provided in Table 12, Appendix D. These responses were reviewed. Redundant items were deleted. The responses obtained from the sample of classroom teachers conformed to the broad categories isolated by Herold and Greller in their study, which sampled a wide variety of jobs. Their categories included feedback from above (primarily supervisors), feedback from coworkers, work flow feedback (from the job itself) and internal criteria (such as meeting your own goals). The sources of feedback isolated in the teacher interviews which paralleled Herold and Greller's "feedback from above" were formal evaluation by the principal and principal's comments. The feedback source, comments from fellow teachers, was consistent with their category of feedback from coworkers. Sources which related to work flow feedback were student written performance, student comments, parent comments, student verbal performance, achievement of teaching objectives and student test results. The internal criteria sources mentioned by teachers were self-satisfaction, one's own feelings and self-evaluation. Therefore, there was a consistency of findings in the kinds of feedback relied upon by workers in industrial or private business settings and in the educational environment.

The teacher responses were condensed into the 12 sources of feedback on the Feedback Information Sheet (see Appendix E). A Likert-type scale was used to assess the importance attributed to each of the sources by a teacher (1--Not Important, 2--Of Some Importance, 3--Of Average Importance, 4--Very Important, 5--Of Great Importance).

To obtain a measure of reliability on the instrument, a test-retest procedure was used. A group of teachers from the sample was requested to complete the feedback rating sheet again after a 2-week interval. The mean reliability coefficient which resulted from the application of Spearman's Coefficient of Correlation Formula was

$$r = .63$$

$$N = 26$$

$$p < .002.$$

Table 1 provides the correlation coefficient for each item, since there was no total score on this instrument. The overall correlation between the two instrument administrations was considered acceptable.

Teacher Rating Scale

The Teacher Rating Scale (see Appendix A) evolved from dimensions described by Hamachek (1969) in his review of teacher effectiveness measures. Each dimension on the scale has been accepted as a common characteristic associated with teacher effectiveness by other researchers. On the teacher rating scale, each of the six dimensions, was followed by a 5-point scale (1--Low, 2--Below Average, 3--Average, 4--Above average, 5--High). The teachers were rated according to the position on the scale which best described him or her according to the principal. To obtain a test-retest reliability on the particular

Table 1

Coefficients of Reliability for the

Feedback Instrument by Item

Item	r^a	$p <$
Student written performance	.72	.001
Parent comments	.55	.002
Self-satisfaction	.48	.008
Student comments	.67	.001
Formal evaluation by the principal	.88	.001
Student verbal performance	.64	.001
Your own feelings	.49	.005
Principal's comments	.87	.001
Comments from fellow teachers	.60	.001
Achievement of teaching objectives	.63	.001
Student test results	.52	.003
Self-evaluation	.52	.003
Mean	.63	.002

[a] n equals 26 for each group

instrument used in the present study, 26 teachers were rated again by their principals after a 2-week interval. The results of the application of the Spearman Formula to the total rating scores were

$$r = .89$$

$$N = 26$$

$$p < .001.$$

Table 2 provides the correlation coefficients for each dimension and for the total score.

Data Collection

During the meeting with the contact person in each of the 30 schools over the six division area, the procedures for the completion of the information requested were discussed. The contact person was provided with a packet of materials which included:

1. Feedback and demographic information sheets for teacher use, number coded so that teacher 9-1, for example, would be the same teacher rated on Teacher Rating Scale sheet 9-1 (see Appendix E).

2. Teacher Rating Scale sheets which were number coded to correspond to the number assigned the particular teacher to be rated (see Appendix A).

3. A letter which contained written instructions on the procedures to be followed (see Appendix F).

4. A feedback and demographic information sheet for the administrator to complete (see Appendix G).

Usable responses were received from 25 of the 30 schools contacted. The final sample consisted of 177 teachers from the six school divisions in the population.

Table 2

Coefficients of Reliability for the

Teacher Rating Scale by Item

Item	r^a	$p <$
Sense of humor	.87	.001
Flexibility	.83	.001
Knowledge of subject matter	.85	.001
Optimism	.63	.001
Positive attitude toward others	.87	.001
Student achievement	.76	.001
Total score	.89	.001

[a] *n equals 26 for each group*

Data Analysis

Discriminant Analysis

The assumption that the teachers rated highly-effective would select as important significantly different sources of feedback from those selected by teachers rated low in effectiveness was tested using discriminant analysis. The discriminating variables were the sources of feedback. The discriminant equation provides some indication of the predictive ability of certain sources of feedback in isolating highly effective teachers. For this aspect of the analysis, the total effectiveness score of the teacher was used to differentiate the two groups. This score was obtained by totaling the six subscores. A stepwise procedure using the MINRESID (computer term) method outlined in Statistical Package for the Social Sciences (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975) was employed in the discriminant analysis. It was anticipated that the groups would be close together, therefore, the MINRESID stepwise method would tend to separate them and minimize the residual variation.

Analysis of Variance

The difference between the sources of feedback considered highly important by the ineffective teacher and those considered highly important by the teacher receiving a high rating on effectiveness, as well as differences between the choices of important feedback sources selected by the principal and the ineffective teacher group were tested using analysis of variance. An F-ratio was obtained to determine if there was a statistically significant amount of variability between the groups. A Duncan Multiple Range Test was performed to

determine the source of the variance between the groups.

Analysis of Covariance

Analysis of covariance was the statistical method employed to determine if the choice of important sources of feedback was affected by sex, years of experience, and/or grade level taught. Analysis of covariance statistically controlled for the effects of nonmetric factors.

Canonical Correlation

The data obtained in this study were also analyzed through the use of canonical correlation. There were two sets of variables, the set of feedback sources, and the set of dimensions of teacher effectiveness, as well as demographic data on the participants. The purpose of the research was to examine the teacher effectiveness variable as it related to the feedback sources chosen. The manipulation of the variables through the use of canonical correlation determined if certain patterning existed in the data on the 12 feedback sources and the 6 individual teacher effectiveness dimensions. This analysis provided additional information on possible implications for further research on sources of feedback in an educational setting.

In summary, the analysis of the data was completed using discriminant analysis to determine if the selection of certain sources of feedback discriminated highly effective from minimally effective teachers, analysis of variance to determine the variability in choice of important feedback sources among the groups, analysis of covariance to assess the effects of sex, years of experience, and grade level taught on choice of feedback source and canonical correlation to

provide an indication of any pattern of interaction between the 6 teacher effectiveness dimensions and the 12 sources of feedback.

Chapter 4

Results

The results of the statistical analysis of the data obtained in this study of relationships between the choice of important feedback sources and a measure of teacher effectiveness are presented in Chapter 4. The results are reported as they applied to the hypotheses stated in Chapter 1. A section on each hypothesis is presented.

Hypothesis 1

Hypothesis 1 predicted that the teachers rated highly effective by their principal would differ significantly from those rated low in effectiveness in respect to their choice of important feedback sources. If a discriminant analysis of the data isolated sources of feedback which predicted membership in either the highly effective or minimally effective group, the hypothesis would be supported.

There were 21 teachers in the sample who received total effectiveness scores of 29 or 30. This group was classified as highly effective. There were 12 teachers who received total effectiveness scores of less than 17. These teachers were classified as minimally effective.

Discriminant Analysis was performed to determine if the groups differed significantly in their choices of important feedback sources. There was a significant ($p < .05$) difference between the highly effective and minimally effective teachers in their choice of three of the feedback sources. The three discriminating feedback sources were

Feedback Source 5--formal evaluation by the principal ($p < .03$), Feedback Source 11--student test results ($p < .03$) and Feedback Source 12--self evaluation ($p < .02$), with discriminating function coefficients of .53, -1.1, and .66, respectively. Before any functions were removed, Wilks' lambda was .7016, with a chi-square of 10.455, which was significant ($p < .015$). This indicated that some discriminating power existed in the variables. The discriminant function coefficient represented the relative contribution of that particular variable in the equation to the discriminant function. An eigenvalue of .43 was obtained in the analysis. This value was a measure of the relative importance of the discriminant function. In this case, approximately 43% of the variance in choice of feedback sources was explained by these three sources. The discriminant analysis yielded centroids for Group 1 (Highly Effective) and Group 2 (Minimally Effective) of .406 and -.711, respectively. These centroids summarized the groups' location in the space defined by the discriminant function.

The percentage of highly effective and minimally effective teachers who were correctly classified by the discriminant function was 63.45%. The selection of highly effective teachers based upon the importance which they attributed to certain sources of feedback was accomplished in this particular study, with approximately 64% accuracy of prediction. Therefore, Hypothesis 1, was supported, since three of the sources of feedback did serve as discriminating variables.

Hypothesis 2 and Hypothesis 3

Hypothesis 2 predicted that the sources of feedback considered most important by the principals would differ significantly from those

sources considered most important by teachers rated low in effectiveness and Hypothesis 3 stated that the sources considered most important by the principals would correlate highly with those sources considered most important by the teachers rated high in effectiveness. To test these hypotheses, the sample was divided into four groups:

1. Highly Effective Teachers
2. Minimally Effective Teachers
3. Teachers Receiving Average Total Effectiveness Scores
4. Principals.

A One-Way Analysis of Variance demonstrated some statistically significant differences between the groups on Feedback Source 5 ($p < .09$) and Source 12 ($p < .04$). The results of these analyses are presented in Table 3. The application of the Duncan Multiple Range Test established homogeneous subsets of the groups based on responses on Feedback Sources 5, 11, and 12. The subsets were groups in which no set of pairs had means that differed by more than the shortest significant range for a subset of that size. The results of the Duncan Test on these three sources are provided in Table 4. On Feedback Source 5--formal evaluation by the principal, Group 1--highly effective teachers and Group 3--average effectiveness teachers were separated into a subset. On Feedback Source 11--student test results--the differences in means between highly effective teachers and Group 4--the principals--was evidenced. On Feedback Source 12--self-evaluation--the minimally effective teachers group was separated from the other groups and principals and highly effective teachers had similar means.

Table 3

Analysis of Variance

Source of variation	Sum of squares	Degrees of freedom	Mean square	F ratio
Feedback Source 5 Formal Evaluation by Principal				
Between groups	5.8395	3	1.9465	2.138**
Within groups	179.3640	197	0.9105	
Total	185.2034	200		
Feedback Source 12 Self-evaluation				
Between groups	4.2611	3	1.4202	2.800*
Within groups	99.9471	197	0.5073	
Total	104.2082	200		

*$p < .04$

**$p < .09$

Table 4

Duncan Multiple Range Test: Feedback Sources and Teacher Effectiveness

Homogeneous subsets	Group[a]	Mean
Feedback Source 5 Formal Evaluation by Principal (range equals 0.6747)		
Subset 1	AET	3.8125
	P	3.9600
	MET	4.2727
Subset 2	P	3.9600
	MET	4.2727
	HET	4.2857
Feedback Source 11 Student Test Results (range equals 0.6377)		
Subset 1	HET	3.2857
	AET	3.6458
	MET	3.8182
Subset 2	AET	3.6458
	MET	3.8182
	P	3.8400

Table 4 (continued)

Homogeneous subsets	Group[a]	Mean
	Feedback Source 12 Self-evaluation (range equals 0.5037)	
Subset 1	MET	3.9091
Subset 2	AET	4.3403
	HET	4.3810
Subset 3	HET	4.3810
	P	4.6400

[a]Group: AET (average effective teacher); MET (minimally effective teacher); HET (highly effective teacher); and P (principal).

There was no consistent separation of the groups into the hypothesized subsets. A difference between the highly effective group and the principals on Feedback Source 11 did not support the hypothesis. The results obtained on Feedback Source 12 provided the only support for Hypotheses 2 and 3.

Since the analysis of variance proved to be at low significance levels, the support for differences in the choice of certain sources of feedback defined by the Duncan procedure was considered weak. Therefore, the data obtained in this study did not support the hypotheses that there would be differences in the choice of feedback sources considered important by highly effective and minimally effective teachers, and/or principals.

Hypothesis 4

Hypothesis 4 predicted that sex, years of experience, and grade level taught differentiated teachers in respect to their use of certain feedback sources. Analysis of Covariance for each of these independent variables was performed.

A significant F ratio was an indicator that the attribute variables (in this case, sex, years of experience, and grade level) were statistically related to choice of feedback source. For the purposes of this aspect of the study, F ratios which yielded significance levels of $p < .06$ were included in the statement of results.

The Eta value squared indicated the proportion of variance in choice of feedback explained by the interaction of sex or grade level and the total effectiveness score. A survey of the Eta values suggested much unexplained variance.

The Beta value indicated the strength of the relationship between choice of a particular feedback source and sex, grade level, or teaching experience. The analysis provided relatively low Beta coefficients indicating a weak although significant relationship between sex and choice of certain feedback sources and grade level and choice of certain feedback sources.

Sex

The results of the analysis indicated that sex was a factor in the selection of some of the feedback sources. For Feedback Source 3--self-satisfaction--sex was a source of variation ($p < .057$). The multiple classification analysis which provided deviations from the mean indicated that males considered self-satisfaction of less importance as a source of feedback than females.

Choice of Feedback Source 5--formal evaluation by the principal--demonstrated a significant effect for sex ($p < .027$), with males valuing the formal evaluations less than females. A significant relationship to sex was also demonstrated in the choice of Feedback Source 8--principal's comments ($p < .031$). This source was considered of less importance by males.

Choice of Feedback Source 11--student test results--was significantly related to sex ($p < .010$) with males attributing greater importance to that source of feedback on how well they were doing their jobs. Table 5 provides the analysis of covariance data on these particular sources of feedback.

Grade Level

The grade level taught appeared to be related to the selection

Table 5

Analysis of Covariance: Choice of Feedback Source and Sex

Source of variation	Sum of squares	Degrees of freedom	Mean square	F ratio
Feedback Source 3 Self-satisfaction				
(Beta = .14; Eta = .15; multiple r squared = .04)				
(*p < .060; **p < .057)				
Covariates				
Total effectiveness				
score	2.107	1	2.107	3.595*
Main effects				
sex	2.144	1	2.144	3.657**
Residual	101.996	174	0.586	
Total	106.247	176	0.604	
Feedback Source 5 Formal Evaluation by Principal				
(Beta = .17; Eta = .17; multiple r squared = .029)				
(*p < .725; **p < .027)				
Covariates				
Total effectiveness				
score	.117	1	.117	.124*

Table 5 (continued)

Source of variation	Sum of squares	Degrees of freedom	Mean square	F ratio
Main effects				
sex	4.730	1	4.730	5.002**
Residual	164.519	174	.946	
Total	169.366	176	.962	
Feedback Source 8 Principal's Comments				
(Beta = .16; Eta = .17; multiple r squared = .04)				
(*p < .105; **p < .031)				
Covariates				
Total effectiveness				
score	1.920	1	1.920	2.660*
Main effects				
sex	3.422	1	3.422	4.740**
Residual	125.606	174	0.722	
Total	130.948	176	0.744	
Feedback Source 11 Student Test Results				
(Beta = .19; Eta = .21; multiple r squared = .065)				
(*p < .023; **p < .010				

Table 5 (continued)

Source of variation	Sum of squares	Degrees of freedom	Mean square	F ratio
Covariates				
Total effectiveness score	4.156	1	4.156	5.238*
Main effects				
sex	5.433	1	5.433	6.848**
Residual	138.048	174	0.793	
Total	147.637	176	0.839	

of certain feedback sources. Source 3--self-satisfaction showed a significant relationship ($p < .033$). An analysis of the multiple classification table suggested that there was a linear trend. Special education and elementary teachers considered this source as more important than did the intermediate and high school teachers.

Feedback Source 5--formal evaluation by the principal--also had a significant relationship to grade level ($p < .012$). There appeared to be a division by grade levels with intermediate and high school teachers valuing formal evaluation by the principal less than the elementary and special education teachers.

Choice of Feedback Source 6--student verbal performance--demonstrated a significant relationship to grade level ($p < .055$). Less importance was attributed to this source by high school teachers and special education teachers. Table 6 provides the analysis of variance data on these sources of feedback controlling for grade level.

Teaching Experience

There were no significant relationships between teaching experience and the selection of important feedback sources. A review of the multiple classification analysis tables suggested trends for several of the feedback sources.

Feedback Source 2--parent comments--was valued more highly by teachers with more experience. On Feedback Source 4--student comments, data suggested that the beginning teacher and the teacher with more than 26 years of experience placed less value on this form of feedback than teachers between the 5- and 25-years experience levels.

Table 6

Analysis of Covariance: Choice of Feedback Source and Grade Level Taught

Source of variation	Sum of squares	Degrees of freedom	Mean square	F ratio
Feedback Source 3 Self-satisfaction				
(Beta = .22; Eta = .22; multiple r squared = .068)				
(*p < .057; **p < .033)				
Covariates				
Total effectiveness score	2.107	1	2.107	3.662*
Main effects				
grade level	5.162	3	1.721	2.990**
Residual	98.978	172	0.575	
Total	106.247	176	0.604	
Feedback Source 5 Formal Evaluation by Principal				
(Beta = .25; Eta = .25; multiple r squared = .062)				
(*p < .722; **p < .012)				
Covariates				
Total effectiveness score	.117	1	.117	0.127*

Table 6 (continued)

Source of variation	Sum of squares	Degrees of freedom	Mean square	*F* ratio
Main effects				
grade level	10.447	3	3.482	3.772**
Residual	158.802	172	0.923	
Total	169.366	176	0.962	

Feedback Source 6 Student Verbal Performance

(*Beta* = .21; *Eta* = .21; multiple r squared = .052)

(*p < .194; **p < .055)

Covariates				
Total effectiveness				
score	1.088	1	1.088	1.704*
Main effects				
grade level	4.947	3	1.649	2.582**
Residual	109.873	172	0.639	
Total	115.909	176	0.659	

Feedback Source 5 which was formal evaluation by the principal appeared to be less important to teachers in their first 15 years and more important to teachers beyond 16 years of experience. The deviation from the mean of the different categories was minimal, therefore, this trend was not a strong one. Data on Feedback Source 7--your own feelings--suggested that teachers who are relatively inexperienced rely on this source of feedback less than do the more experienced teachers.

In summary, the analyses of covariance as a test of Hypothesis 4 yielded significant results on some of the feedback sources for sex and grade level variables. Years of experience appeared to have no significant effect on selection of important feedback sources. Therefore, Hypothesis 4 received limited and relatively weak support.

Canonical Correlation

This statistical analysis was performed to determine if there was any pattern of interaction between the 6 teacher effectiveness dimensions and the 12 sources of feedback. Table 7 lists the correlation coefficients between the two sets of variables. There was a .46 coefficient of correlation between sense of humor and student verbal performance and a .44 coefficient of correlation between sense of humor and student test results. Flexibility ratings appeared to depend to a great extent on importance attributed to self-satisfaction and your own feelings. In other words, teachers rated high on flexibility by their principals, considered self-satisfaction and their own feelings as important sources of feedback. Knowledge of subject matter was negatively correlated with most of the feedback sources and

Table 7

Canonical Correlations

Sources of feedback	Sense of humor	Flexibility	Knowledge of subject matter	Optimism	Positive attitude	Student achievement
1. Student written performance	.11	-.44	-.22	.28	.26	.38
2. Parent comments	.15	.05	-.33	.18	-.10	-.21
3. Self-satisfaction	.07	.72	-.26	-.08	.55	.05
4. Student comments	-.21	-.04	-.16	-.18	.27	.12
5. Formal evaluation by principal	-.09	.28	-.48	-.26	-.25	-.24
6. Student verbal performance	.46	-.28	-.31	-.34	.06	.49
7. Your own feelings	.30	.65	.29	-.15	.18	.29
8. Principal's comments	.26	.23	-.12	-.61	-.03	-.27
9. Comments from fellow teachers	.04	-.03	-.20	-.30	.46	.007
10. Achievement of teaching objectives	-.27	.28	-.34	-.14	.15	.17
11. Student test results	.44	.09	-.39	.35	.07	.06
12. Self-evaluation	-.27	.22	-.002	-.36	.06	.59

especially with formal evaluation by the principal which might indicate that teachers who had a substantial knowledge of subject matter placed little value on the formal evaluation of the principal as a source of feedback. Optimism was negatively related to most of the sources of feedback. A positive attitude toward others was positively correlated with self-satisfaction and comments from fellow teachers. The rating on student achievement was positively correlated with the selection of student verbal performance as an important source of feedback as well as self-evaluation. This might indicate that the teacher whose students learned considered student verbal interaction important and was, through self-evaluation, attempting to find ways of improving performance.

This chapter focused on the results obtained from an analysis of the data. In Chapter 5, a discussion of these results is presented.

Chapter 5

Discussion and Conclusions

The relationship between the importance attributed to certain sources of feedback by classroom teachers and a measure of teacher effectiveness was investigated in this study. The predicted relationships did not receive conclusive support. The findings of this investigation and the conclusions drawn on the basis of these findings are discussed in Chapter 5. The chapter is divided into six sections: (a) Sources of Teacher Feedback and Principal Ratings of Teacher Effectiveness, (b) Differences in Choice of Feedback Sources, (c) Choice of Feedback Source and Sex, Years of Experience and Grade Level Taught, (d) Implications for Educational Administrators, and (e) Implications for Future Research.

Sources of Teacher Feedback and Principal Ratings of Teacher Effectiveness

The relationship between the selection of certain feedback sources by teachers and the effectiveness rating which they received from the principal was supported to a limited degree by the findings of this study. However, the differences between the highly effective and the minimally effective groups was not highly significant. The principal ratings of effectiveness were not a significant factor in the choice of feedback sources. There was a large portion of unexplained variance. This indicated that other factors were operating in the relationship which had not been taken into account in the analysis.

Although there are differences in their effectiveness levels, teachers' choices of feedback sources did not differ significantly when the measure of their effectiveness was a principal rating. The sources which served as discriminants between highly effective and minimally effective teachers in this study were formal evaluation by the principal, student test results and self-evaluation.

Differences in Choice of Feedback

The findings of this study lent support to the earlier work of Greller and Herold (1975, 1977). There were differences in the importance attributed to different sources of feedback. The source obtaining the largest percentage (63%) of Of Great Importance ratings from teachers was self-satisfaction (see Table 8). Comments from fellow teachers received the fewest (10%) of Of Great Importance ratings. The sources of feedback which were related to Greller and Herold's (1975) internal criteria received consistently higher percentages of choice in the Of Great Importance category. This supported their findings that feedback increases in informativeness as one goes from the organization to one's own feelings. In the Very Important category, the source emphasis shifted from internal or intrinsic sources to extrinsic sources in the job environment. The source receiving high percentages of choice were student verbal performance, principal comments, achievement of teaching objectives and student comments--sources associated with the work itself. In the Of Average Importance and Of Some Importance categories, the trend away from self continued with parent comments and comments from fellow teachers receiving the greater percentages of choice for those levels

Table 8

Feedback Source Frequency of Choice

by Teachers

Feedback source	Level of importance				
	1 not important	2 of some importance	3 of average importance	4 very important	5 of great importance
1. Student written performance	(4)[a] 6	(5) 8	(22) 38	(37) 64	(32) 54
2. Parent comments	(0) 0	(14) 24	(35) 62	(38) 68	(13) 23
3. Self-satisfaction	(1) 1	(3) 5	(6) 10	(27) 50	(63) 111
4. Student comments	(2) 3	(10) 18	(30) 53	(39) 69	(19) 34
5. Formal evaluation by the principal	(0) 0	(9) 15	(22) 39	(37) 66	(32) 56
6. Student verbal performance	(0) 0	(3) 5	(12) 21	(61) 106	(25) 43
7. Your own feelings	(1) 1	(3) 5	(12) 21	(33) 59	(51) 91

Table 8 (continued)

Feedback source	Level of importance 1 not important	2 of some importance	3 of average importance	4 very important	5 of great importance
8. Principal's comments	(0) 0	(5) 9	(23) 40	(41) 73	(31) 55
9. Comments from fellow teachers	(2) 3	(16) 29	(44) 78	(28) 50	(10) 17
10. Achievement of teaching objectives	(1) 2	(1) 1	(11) 19	(40) 72	(47) 83
11. Student test results	(2) 3	(5) 8	(38) 68	(38) 67	(17) 30
12. Self-evaluation	(0) 0	(2) 4	(10) 17	(42) 75	(46) 81

[a]Parenthetical numbers express percentages.

of importance. These findings indicated that generally, teachers relied primarily upon their own feelings and ideas in determining how well they were doing their jobs. Their secondary source of feedback came from factors in their job environment and of least importance were the comments of parents and fellow teachers--sources which can be considered external to the immediate job environment.

The principals in the study were requested to rate the sources of feedback according to what they believed teachers should consider as important. The principals' choices for the Of Great Importance category were consistent with the teachers' selections. However, achievement of teaching objectives received a substantially higher percentage as a choice. The student was the focus of the principals' choices for very important. Student written performance, verbal performance, test results and principal comments received high percentages of choice. The trend from self to immediate task was evident. The principals indicated that parent comments and comments from fellow teachers should be of average importance to teachers. The results of this study supported previous efforts on the topic and indicated that teachers viewed themselves and principals viewed teachers as attributing the greatest importance to sources of feedback which could be considered as intrinsic--the teacher's own feelings and self-satisfaction; secondary importance to job feedback from the immediate environment--the classroom and student learning behaviors; and tertiary importance to feedback from outside of the immediate job environment--from parents and fellow teachers (see Table 9).

Table 9

Feedback Source Frequency of Choice

by Principals

Feedback source	Level of importance				
	1 not important	2 of some importance	3 of average importance	4 very important	5 of great importance
1. Student written performance	(4)[a] 1	(4) 1	(4) 1	(64) 16	(24) 6
2. Parent comments	(0) 0	(4) 1	(48) 12	(32) 8	(16) 4
3. Self-satisfaction	(0) 0	(0) 0	(8) 2	(24) 6	(68) 17
4. Student comments	(0) 0	(12) 3	(32) 8	(36) 9	(20) 5
5. Formal evaluation by the principal	(0) 0	(4) 1	(24) 6	(44) 11	(28) 7
6. Student verbal performance	(4) 1	(0) 0	(8) 2	(68) 17	(20) 5
7. Your own feelings	(0) 0	(4) 1	(12) 3	(40) 10	(44) 11

Table 9 (continued)

Feedback source	Level of importance				
	1 not important	2 of some importance	3 of average importance	4 very important	5 of great importance
8. Principal's comments	(0) 0	(00) 0	(24) 6	(56) 14	(20) 5
9. Comments from fellow teachers	(0) 0	(20) 5	(40) 10	(36) 9	(4) 1
10. Achievement of teaching objectives	(0) 0	(00) 0	(00) 0	(36) 9	(64) 16
11. Student test results	(0) 0	(8) 2	(20) 5	(52) 13	(20) 5
12. Self-evaluation	(0) 0	(00) 0	(00) 0	(36) 9	(64) 16

[a]Parenthetical numbers express percentages.

Choice of Feedback and Sex, Years of Experience, and Grade Level Taught

Previous research on differences in orientation toward feedback sources and teacher characteristics due to differences in sex, years of experience and grade level taught was not supported to any statistically significant degree ($p < .01$) by this study. In a review of a breakdown of the data into descriptions of the subpopulations, some differences in the means of the groups were evident. The sources of feedback and specific trends or differences in means are noted.

Student Written Performance

Teachers of special education classes valued student written performance substantially less than teachers of other grade levels. A possible explanation may be that these students are often handicapped in verbal and writing tasks.

Teachers with more experience tended to value student written performance more highly than those with lesser experience. This may be indicative of a more traditional approach to teaching followed by the older or more experienced teacher.

Self-Satisfaction

The mean responses of the teachers on different grade levels indicated that the special education and elementary teachers considered self-satisfaction to be of greater importance than the intermediate and high school teachers. These data may deserve further exploration since it would seem that the high school teacher would be more self-reliant than the elementary teacher who would appear to have more opportunity for reliance on other sources because of the smaller

size of most elementary schools and the less structured atmosphere.

Student Comments

The trend on student comments appeared to be an increase in importance to teachers as their experience levels increased and a drop in importance at the highest experience level. The special education and elementary teachers placed more importance on these comments than did their counterparts in the intermediate and high schools.

Formal Evaluation by the Principal

Of the few sources which showed some variation due to sex, one was the formal evaluation by the principal. It was considered of less importance by males than females. Its importance appeared to increase with experience which is a questionable finding since once tenure has been acquired, the possibilities of dismissal become somewhat remote. Teachers at the elementary and special education levels appeared to place higher importance on the principals' evaluations. An explanation could be that in the smaller elementary school settings, the teacher was more confident that the principal was knowledgeable about teachers' capabilities.

Student Verbal Performance

Teachers of special education were below the mean on the importance attributed to student verbal performance. As noted, the students in these classes may be less able to function in verbal areas.

Your Own Feelings

A trend toward an increase in dependence on one's own feelings

as experience increased was evidenced. Teachers in the elementary and special areas placed higher value on their own feelings. In the absence of substantial student written and verbal feedback, these teachers may have depended more upon intuitive kinds of feedback.

Principal's Comments

The principal's comments are considered of less importance by males. The preponderance of females at the elementary level may be related to this phenomenon. That is, the indication is that females value principal comments and evaluation more than males. Teachers at the elementary level value the principal's comments and evaluation more than teachers at other levels. Whether this occurred because the teachers are female or because they are at the elementary level or because of a combination of these factors was uncertain.

Comments from Fellow Teachers

Special education teachers appeared to value comments from fellow teachers. If the children in their classes also attend regular classes, it may be important for them to communicate with the regular classroom teachers to determine areas of need.

Achievement of Teaching Objectives

There appeared to be a trend toward increasing importance of the achievement of teaching objectives as a source of feedback as experience increased. There was also a decreasing importance attached to the source as grade level increased. Perhaps the earlier grades are more basic-skill-oriented and mastery of certain skills is a prerequisite to the acquisition of other skills. At the upper levels,

more time may be devoted to exploration and involvement in areas of special interest.

Student Test Results

Males appeared to value student test results more highly than females. There were trends which show increasing importance with increasing experience as well as increasing importance with increasing grade levels.

Self-Evaluation

There was a decrease in importance attributed to self-evaluation with an increase in grade level. This trend was evident in the other internal or intrinsic sources listed.

Implications for Administrators

The dependence of individuals on feedback in assessing the quality of their performance on the job should be of particular interest to educational administrators. The findings of this study provided some support for the importance of feedback. Since one of the functions of an administrator is to develop positive relationships and morale so that the group will work together in the achievement of the goals of the organization, it is essential that the administrator have an understanding of the feedback needs of his subordinates.

If a particular teacher relies heavily on feedback from the principal in the form of his comments and evaluations, a flow of feedback from the principal might improve that teacher's performance. If a teacher relies primarily on intrinsic feedback, such as self-satisfaction, the administrator should provide a job environment that affords opportunities for creativity, self-evaluation and

self-realization. Finding the optimal balance of intrinsic and extrinsic feedback for his subordinates is a task of the administrator.

The data acquired in this study indicated that teachers do not place high value on feedback from their peers. Teachers may enlist the aid of colleagues in dealing with daily instructional problems, but they do not consider fellow teachers as a valued feedback source with respect to job performance. They tend to rely more heavily on themselves and the principal in determining the quality of teaching performance. On the other hand, feedback from principals and intrinsic feedback were considered to be of substantial importance. These findings support the use of principal evaluations in conjunction with a form of self-evaluation as a performance appraisal method.

Implications for Future Research

Experimentation in an educational setting is one area for further investigation of sources of feedback. Field experiments would provide opportunities for the manipulation of the sources of feedback considered important by teachers. The effect of the increase or decrease in availability of certain feedback sources upon teacher performance could then be determined.

An extensive study of the job feedback patterns in one school setting might provide more specific information on the function of feedback. The patterns of one school could then be compared to other schools. This would result in the isolation of similarities and differences in job feedback characteristics between schools.

The relationship between intrinsic and extrinsic feedback and Rotter's (1966) internal and external locus of control theory would be

another facet of feedback worthy of additional investigation. Research on this relationship would aid in determining whether the use of certain sources of feedback depends upon differences in the way individuals perceive events or upon situational factors. For example, some teachers may place importance on feedback from the principal whether or not he has expertise in evaluating their performance. If these teachers have an external locus of control, they may perceive themselves to be under the principal's control. In contrast, the teachers with internal loci of control perceive their performance as contingent on their own behavior and hence may devalue feedback from the principal.

The present study focused on sources of feedback and to a certain extent on the intrinsic and extrinsic forms of feedback. The future researcher may wish to explore the positive and negative forms of intrinsic and extrinsic feedback and their effect on teacher performance.

APPENDIX

Appendix A

Teacher Rating Scale

Teacher Code Number _____

Please rate this teacher on each of the dimensions listed below. Circle one number on the five-point scale which best describes him/her. Please be sure that the code number on this sheet and the code number assigned the teacher to be rated correspond.

		Below		Above	
	Low	Average	Average	Average	High
Sense of Humor	1	2	3	4	5
Flexibility	1	2	3	4	5
Knowledge of Subject Matter	1	2	3	4	5
Optimism	1	2	3	4	5
Positive Attitude toward Others	1	2	3	4	5
Student Achievement	1	2	3	4	5

Appendix B

Composition of Teacher Sample

Table 10

Analysis of Teacher Sample

	Number	Percent
Sex		
Male	35	20
Female	142	80
Race[a]		
Black	64	37
White	108	62
Other	1	1
Teaching Experience (years)		
0 to 5	60	34
6 to 10	59	33
11 to 15	33	19
16 to 20	14	8
21 to 25	5	3
26 plus	6	3

Table 10 (continued)

	Number	Percent
Grade Level Taught		
Kindergarten through 6	107	60
7 and 8	34	20
9 through 12	32	18
Other	4	2

[a]Information not provided by four participants

Appendix C

Composition of Principal Sample

Table 11

Analysis of Principal Sample

	Number[a]	Percent
Sex		
Male	16	67
Female	8	33
Race		
Black	5	23
White	17	77
Other	0	0
Administrative Experience (years)		
0 to 5	6	25
6 to 10	8	33
11 to 15	5	21
16 to 20	3	13
21 to 25	2	2

Table 11 (continued)

	Number[a]	Percent
26 plus	0	0

[a]Demographic data not completed by one principal

Appendix D

Responses to Interview on Feedback Sources

("How do you know how well you are

doing your job?"

Table 12

Analysis of Responses with Qualifying Data

Subject	Responses	Sex	Race	Experience (years)	Grade
1	Student performance	Female	Black	30	3
	Self-satisfaction				
2	Student performance:				
	verbal				
	written	Female	White	3	3
	Fellow teachers				
	Parent comments				
3	Formal evaluation	Female	White	11	4
	Parent comments				
	Student response				
	How fast they cover material				
	Keeping within the framework				
	of expectations				

Table 12 (continued)

Subject	Responses	Sex	Race	Experience (years)	Grade
4	My own feelings Kids reactions	Female	White	8	Special education
5	Self knowledge Daily progress of students in terms of objectives Tests Positive comments from fellow teachers	Female	White	3	Special education
6	Student performance Self knowledge Students can work independently	Female	Black	5	Special education
7	How well they do in the next grade	Female	Black	31	3
8	Student growth	Female	White	16	High school
9	Self Internal checks Organization--staying on schedule	Female	White	7	High school

Table 12 (continued)

Subject	Responses	Sex	Race	Experience (years)	Grade
	Reactions of good students				
	Support from fellow teachers				
10	Student response	Female	White	21	High school
	Comments from students who have come back--both college and noncollege				
	Compare notes with fellow teachers				
11	Mostly internal	Female	White	9	High school
	Meeting stated objectives				
	Student response				
12	When students come back from college	Male	White	15	9 and 10
	State test scores				
13	Self-satisfaction	Male	White	14	9 and 10
	Student feedback				
	Principal's evaluation				
14	Student reactions	Male	White	18	7 and 8
15	Gut reactions	Male	White	8	7 and 8
	Performance testing				

Table 12 (continued)

Subject	Responses	Sex	Race	Experience (years)	Grade
16	Student performance Administration	Male	White	5	7 and 8
17	Test results Student cooperation Positive change in student attitude and work habits Parents	Male	White	1	6
18	Student attitude Parent comments Observation of administrative attitude	Female	White	5	5
19	Daily work Parent feedback Student response Feelings	Female	White	2	5
20	Self-examination Comments--administrators and teachers	Male	White	1	5
21	Parent comments Self-evaluation	Female	Black	4	5

Table 12 (continued)

Subject	Responses	Sex	Race	Experience (years)	Grade
	Self-knowledge				
22	Student progress and performance	Male	Black	4	6
	Tests				
23	Parent comments	Male	White	5	6
	Principal evaluation				
	Student success--met expectations				

Appendix E

Feedback Information Sheet

Teacher Code Number _____

Dear Teacher,

As part of my doctoral work at the College of William and Mary, I am conducting a study of the sources of feedback which teachers use in determining how well they are doing their jobs. Sources of feedback may be persons, things, or occurrences on the job that give you some information about how well you are doing. When you have completed this form, please return it to the envelope provided in the school office. The forms should be returned by Friday of this week. Thank you for your assistance in this study.

Mary R. Hellesen

****

General Information: Please circle your response.

SEX: Male Female RACE: Black White Other

YEARS OF TEACHING EXPERIENCE: 0-5 6-10 11-15 16-20 21-25 26+

GRADE LEVEL(S) CURRENTLY TEACHING: K 1 2 3 4 5 6 7 8 9 10 11 12

Feedback Information

In your job environment, there are certain sources which provide you with information about how well you are doing your job. Please rate the following list of sources according to their IMPORTANCE to you in determining how well you are doing your job.

Rate the sources on the five-point scale described below.

1	2	3	4	5
Not Important	Of Some Importance	Of Average Importance	Very Important	Of Great Importance

Source	Rating
Student Written Performance	_____
Parent Comments	_____
Self-Satisfaction	_____
Student Comments	_____
Formal Evaluation by the Principal	_____
Student Verbal Performance	_____
Your Own Feelings	_____
Principal's Comments	_____
Comments from Fellow Teachers	_____
Achievement of Teaching Objectives	_____
Student Test Results	_____
Self-Evaluation	_____
Other (Please specify) _____	_____

_____

Appendix F

Letter of Instruction

Dear Principal,

As a part of my doctoral work at the College of William and Mary, I am conducting a study on the sources of feedback which teachers use in determining how well they are doing their jobs. I would greatly appreciate your assistance in this study. The teachers in your school who are involved in the study are listed on a separate sheet which is enclosed. Please rate each teacher on the Teacher Rating Scale provided. The rating sheet is very brief. Hopefully, the entire process will take only a few minutes of your time. After you have rated each teacher, place the rating sheets in the envelope provided for return mailing. Please note that the teacher code number after each teacher's name should correspond to the code number on the rating sheet which you use for that particular teacher. After rating the teachers, please dispose of the teacher identification list.

I am also requesting that you complete the attached General Information and Feedback Information sheet, which again is very brief.

I have obtained permission for this study from your central office. All information will be used only for the purpose of the dissertation.

Please place the return envelope in the mail by Friday of this week unless another method for collection has been specified below. Thank you for your time and interest.

Sincerely,

Mary R. Hellriegel

Appendix G

Administrators Feedback Information Sheet

School Code Number _____

General Information: Please circle your response.

SEX: Male Female RACE: Black White Other

YEARS OF ADMINISTRATIVE EXPERIENCE: 0-5 6-10 11-15 16-20 21-25 26+

Feedback Information

In a teacher's job environment, there are certain sources which provide him/her with information about how well he/she is doing the job. Please rate the following sources on the five-point scale described below according to the IMPORTANCE teachers should attribute to each source, in your opinion.

1	2	3	4	5
Not Important	Of Some Importance	Of Average Importance	Very Important	Of Great Importance

Source	Rating
Student Written Performance	_____
Parent Comments	_____
Teacher's Self-Satisfaction	_____
Student Comments	_____
Formal Evaluation by the Principal	_____
Student Verbal Performance	_____
Teacher's Own Feelings	_____
Principal's Comments	_____

Comments from Fellow Teachers _____

Achievement of Teaching Objectives _____

Student Test Results _____

Teacher Self-Evaluation _____

Other (Please specify) _____ _____

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