

THE EXPECTED AND PERFORMED ROLES OF SCIENCE DEPARTMENT HEADS
IN MANITOBA SECONDARY SCHOOLS

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Victor Andrew Johnson

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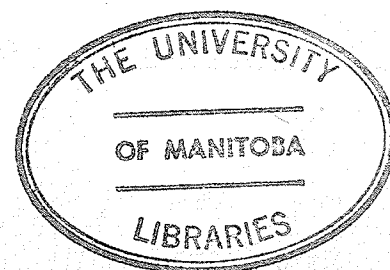
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ABSTRACT

The study examined the role that science department heads are expected to perform, the role that they are actually performing, and some of their working conditions, from the viewpoints of science teachers, science department heads, and principals. Data were collected via questionnaires that were mailed to science teachers, science department heads, and principals in thirty-four secondary schools in Manitoba. The results of the study indicate that: (1) science teachers, science department heads, and principals expect science department heads to perform a comprehensive leadership role in the improvement of instruction and in the professional development of teachers; (2) science teachers, science department heads, and principals generally agree as to the role that science department heads should perform and as to the role that science department heads are currently performing; (3) science department heads and principals perceive the leadership of science department heads as being more effective in terms of their expected role than do science teachers; (4) science teachers and principals view the amount of released time from teaching that science department heads have to carry out their headship responsibilities as being adequate for this purpose whereas science department heads do not; (5) there is a widespread lack of job descriptions for the position of department head.

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Chapter 1

INTRODUCTION

Following 1870, compulsory attendance produced dramatic increases in the enrolments of secondary schools in the United States. Principals soon became overburdened with numerous responsibilities characteristic of large organizations. Consequently they began to use experienced teachers to supervise other teachers in the same subject fields.¹

Since the practice of employing department heads in schools became popular, department heads have carried out a variety of functions ranging from supervising instruction and curricular programs to administering clerical and secretarial duties. For example, the department heads in the high schools of New York City are expected to train teachers through such practices as observation of lessons, conferences, and written reports. Candidates for the position of department head in New York must prove through specialized training and rigorous examinations their ability to supervise teachers.² In contrast, many department heads in some other school systems have no real supervisory functions and have few opportunities to provide

¹Jim L. Kidd, "The Department Headship and the Supervisory Role," The Bulletin of the National Association of Secondary School Principals, XLIX (October, 1965), 71.

²Joseph B. Orleans, "A Chairman Looks Back," High Points, XLV (December, 1963), 7.

educational leadership to their departments. The Association for Supervision and Curriculum Development³ describes the plight of these department heads:

Those who condemn the department headship as a useless appendage of school organization, fail to remember that the headship only represents what the administration has created it to be. The department head has become a full time teacher with routine administrative chores assigned to him, with few opportunities to have a real voice in instructional planning, and with practically no time to observe what is being done in the classrooms of his department.

The position of science department head is well established in the administrative structures of many large Manitoba secondary schools. An examination of the role of department heads in Manitoba will provide insight into the nature of this position in these schools.

PROBLEM

The purpose of the study was to answer the following questions:

- (1) As conceived by science teachers, science department heads, and principals, what is the expected role of science department heads?
- (2) How do science teachers, science department heads, and principals compare in their conceptions of the expected role of science department heads?
- (3) As perceived by science teachers, science department heads, and principals, what is the performed role of science department heads?

³ Association for Supervision and Curriculum Development, The Department Head And Instructional Improvement, (Washington, D.C., N.E.A., 1948), 28.

- (4) How do science teachers, science department heads, and principals compare in their perceptions of the performed role of science department heads?
- (5) From the viewpoints of science teachers, science department heads, and principals, to what extent does the performed role of science department heads conform to their expected role?
- (6) How do science teachers, science department heads, and principals compare in their opinions with respect to selected working conditions of science department heads?

TREATMENT OF THE PROBLEM

Answering questions one to five of the problem required each science teacher, science department head, and principal who participated in the study to rate on an expected role rating scale and on a performed role rating scale respectively, the degree to which:

- (1) he expected the science department head of his school to perform each of forty-five job behaviors during the 1972-1973 school year;
- (2) he perceived the science department head of his school performing each of these job behaviors during that year. With respect to each job behavior, an assessment was made of the extent of any disagreement:
 - (1) among the responses of the three groups on the expected role rating scale and also on the performed role rating scale;
 - (2) between the responses on the expected role rating scale and the responses on the performed role rating scale for each group.

Answering question six of the problem required assessing the degree of any disagreement among the responses of science teachers, science department heads, and principals to questions dealing with: (1) the amount of released time from teaching that science department heads had in their 1972-1973 timetables to devote to their responsibilities and duties as science department heads; (2) the existence and desirability of job descriptions for the position of department head.

DELIMITATIONS OF THE STUDY

The study population consisted of all science teachers, science department heads, and principals in forty-two Manitoba secondary schools. In each of these schools the entire science department was under a single department head who received a stipend above his regular teaching salary in recognition of his headship responsibilities. Membership in the study population was restricted to science teachers, science department heads, and principals listed in the 1972-1973 "MEDIA Division-School Alphabetical Teacher Listing" of the Manitoba Department of Education. Study instruments were mailed to a sample of the study population. The sample consisted of all science teachers, science department heads, and principals in thirty-four schools selected randomly from the schools of the study population.

The study instrument used to collect data from the sample of the study population was designed by the writer. Each of the forty-five job behaviors described in Part B was selected on the basis of

its frequency of mention in (1) the review of the related literature and research, (2) tape-recorded interviews with teachers, department heads, and principals, and (3) correspondence with science supervisors of large Canadian and American school districts. While these job behaviors are representative of those that are commonly associated with department heads, they are not intended to be an all inclusive list of such job behaviors.

LIMITATIONS OF THE STUDY

The limitations of the study included:

A. Limitations related to sampling and statistical analysis

- I. Approximately thirty-one per cent of the science teachers, nine per cent of the science department heads, and twelve per cent of the principals either did not return study instruments or did not return usable study instruments.
- II. Forty-five 't' tests and ninety analyses of variance were performed on the data from Part B of the study instruments. With $p \leq 0.01$, one per cent of these tests would have produced significant results on the basis of chance alone.

B. Limitations related to the study instrument

- I. The instructions for completing Part B of the study instrument may have been ambiguous, causing some respondents to rate their perceptions of the degree to which their administrators expected department heads to perform each of the forty-five job behaviors. The letter which accompanied the study

instrument clarified the instructions, explaining that the respondent was to rate the degree to which he personally expected the science department head to perform each job behavior.

- II. Part B is a lengthy section of the study instrument. Many respondents, while completing it, may have suffered from fatigue which affected their responses.
- III. Although the letter that accompanied each study instrument explained the purpose of the identifying numbers on the study instruments, stating that no school, teacher, department head, or principal would be identified individually in the study, the knowledge that their responses would not be anonymous may have discouraged some potential respondents from returning their study instruments or may have induced some respondents to record dishonest responses.

C. Limitations related to the administration of the study instruments

- I. The expected and performed roles of science department heads may have changed considerably since the study instruments were administered two years ago. Therefore the roles described in this study may not accurately represent the roles that science department heads are currently expected to perform and have been performing recently.
- II. Since the study instruments were mailed to the sample of the study population, they were not completed under controlled conditions. Each respondent had the opportunity to discuss

the study instrument with his colleagues before completing it. Possibly many respondents completed their study instruments together.

- III. The study instruments were administered in June, a month in which many teachers are busy preparing, administering, and grading examinations, attending promotion meetings, and completing year-end records and report cards. As a result of their preoccupation with these tasks, many respondents may not have been as careful in completing their study instruments as they might have been at another time.

ASSUMPTIONS

Each respondent was assumed to have completed his study instrument independently. Each response on the expected role rating scale was assumed to represent the degree to which the respondent expected the science department head of his school to perform the corresponding job behavior during the 1972-1973 school year. Each response on the performed role rating scale was assumed to represent the degree to which the respondent perceived the science department head of his school performing the corresponding job behavior during the 1972-1973 school year. The analysis of the data was based on the assumption that the respondents were representative of the study population.

DEFINITIONS

1. expectations: "an evaluative standard applied to an incumbent of a position."⁴

2. expected role: a set of expectations for the job behaviors of an incumbent of a position.⁵

3. expected role rating scale: a rating scale consisting of the following categories- "to a very great extent," "to a considerable extent," "to some extent," "to a very little extent," and "not at all."

4. job behavior: "an actual performance of an incumbent of a position which can be referred to an expectation for an incumbent of that position."⁶

5. job description: a written statement that lists the responsibilities and duties of an incumbent of a position.

6. performed role: a set of job behaviors demonstrated by an incumbent of a position.

7. performed role rating scale: a rating scale consisting of the following categories- "to a very great extent," "to a considerable extent," "to some extent," "to a very little extent," and "not at all."

8. principal: the officially-designated "head teacher" who is the supervisory and administrative officer in charge of a school.

⁴Neil Gross, Ward S. Mason, and Alexander W. McEachern, Explorations in Role Analysis: Studies Of The School Superintendency Role, (New York: John Wiley & Sons, 1958), 67.

⁵Ibid.

⁶Ibid.

9. science department: a sub-unit of a school, consisting of its science teachers and its officially-designated "head science teacher."

10. science department head: the officially-designated "head science teacher" who receives extra financial remuneration above his regular teaching salary for assuming his headship responsibilities.

11. science teacher: a teacher who teaches science to at least one class or group of pupils per day or per cycle.

12. secondary school: a junior high school, a senior high school, a combination junior high school-senior high school, or the junior high school section of a combination elementary school-junior high school.

13. study instrument: the questionnaire used to collect data from the sample of the study population.

Chapter 2

REVIEW OF RELATED LITERATURE AND RESEARCH

Information on the role of the department head is meager. Books on school administration and on supervision of instruction occasionally devote one or two paragraphs or pages to the responsibilities and duties of department heads. Since many of the journal articles on the role of the department head are based on the same primary sources of information, they tend to be repetitious in content.

The review of the related literature and research is organized under the headings of (1) Qualities of Effective Department heads, (2) Responsibilities and Duties of Department Heads, (3) Job Descriptions and the Department Headship, (4) Released Time for Department Heads, and (5) Summary.

QUALITIES OF EFFECTIVE DEPARTMENT HEADS

Mawson¹ viewed the role of the department head mainly as one of leadership. Thorum² contended that leadership ability is the most important qualification that individuals should possess to become

¹K. W. Mawson, "The Leadership Role of the Head of a Department," The Bulletin of the Ontario Secondary School Teachers' Federation, XLIX (October, 1969), 191.

²Reho F. Thorum, "The Department Head in the Large Senior High School," The Clearing House, XLIII (January, 1969), 265.

department heads. Manlove and Buser³ reported that teachers, principals, and department heads consider leadership ability to be the most important single characteristic of effective department heads.

Bourdeau⁴ maintained that lack of leadership qualities in department heads will produce confusion and frustration within their departments.

Stephenson⁵ recommended that administrators evaluate each prospective department head for these qualities: (1) masterful teaching ability; (2) familiarity with each subject taught in the department; (3) recognition in the department as a leader in curriculum development; (4) ability to work with people; (5) interest in the improvement of the department.

Clement⁶ viewed department heads as possessing: (1) knowledge of subject matter; (2) classroom effectiveness; (3) administrative ability; (4) professional outlook; (5) leadership ability; (6) ability to work with people.

³Donald C. Manlove and Robert Buser, "The Department Head: Myths and Reality," in James E. Heald, Louis G. Romano, and Nicholas P. Georgiady, eds., Selected Readings on General Supervision, (London: The Macmillan Company, 1970), 175.

⁴Ronald M. Bourdeau, "What a New Teacher Expects From His Department Head," The Bulletin of the Ontario Secondary School Teachers' Federation, XLIX (October, 1969), 207.

⁵Claude E. Stephenson, "Departmental Organization for Better Instruction," The Bulletin of the National Association of Secondary School Principals, XLV (December, 1961), 10.

⁶Stanley L. Clement, "Choosing the Department Head," The Bulletin of the National Association of Secondary School Principals, XLV (October, 1961), 50.

According to Gwynn,⁷ effective department heads are well-trained and successful teachers in their subject matter areas. They are able to get along with adults and possess the characteristics of leadership. They keep up to date on new instructional materials and new teaching methods.

In the estimation of Altimari,⁸ department heads should demonstrate leadership ability and a desire to update and strengthen their knowledge in: (1) the specific subject matter fields of their departments; (2) general education; (3) curriculum development within their subject matter fields; (4) instructional methods; (5) supervisory techniques.

According to Maczuga,⁹ department heads should demonstrate professional attitudes and leadership abilities. They should have the ability to make decisions, to work with others, and to exercise judgment.

In addition to being competent in their subject matter fields, Byrd¹⁰ maintained that department heads should possess the ability to: (1) get along with people; (2) work with groups to derive and accomplish

⁷J. Minor Gwynn, Theory and Practice of Supervision, (New York, Toronto: Dodd, Mead, and Company, 1964), 233-235.

⁸William G. Altimari, "The Department Chairmanship in Large High Schools of the North Central Association," The North Central Association Quarterly, XLII (Spring, 1968), 310-311.

⁹Paul Maczuga, "Selecting Department Heads," The Clearing House, XXXVII (December, 1962), 240

¹⁰L. Brian Byrd, "The Role of the Department Head," Peabody Journal of Education, XLIII (July, 1965), 21.

goals; (3) evaluate criticism; (4) motivate others; (5) help others develop leadership qualities.

Many department heads may lack the personal qualities needed to bring about instructional improvements within their departments. Based on their reviews of and participation in several studies of the department headship, Manlove and Buser¹¹ reported that many teachers do not believe that department headships are filled by the most qualified person within the department. Clement¹² suggested that the practice of appointing department heads solely on the basis of longevity of teaching service is prevalent in many schools.

RESPONSIBILITIES AND DUTIES OF DEPARTMENT HEADS

In 1948, the Association for Supervision and Curriculum Development¹³ of the National Education Association surveyed 124 department heads in twenty secondary schools in the states of Washington, Oregon, Illinois, Iowa, Wyoming, and Minnesota. The survey¹⁴ revealed

¹¹Donald C. Manlove and Robert Buser, "The Department Head: Myths and Reality," in James E. Heald, Louis G. Romano, and Nicholas P. Georgiady, eds., Selected Readings on General Supervision, (London: The Macmillan Company, 1970), 175.

¹²Stanley L. Clement, "Choosing the Department Head," The Bulletin of the National Association of Secondary School Principals, XLV (October, 1961), 48.

¹³Association for Supervision and Curriculum Development, The Department Head and Instructional Improvement, (Washington, D.C., N.E.A., 1948), 4.

¹⁴Ibid., 11-12.

that at least one-third of these department heads engaged in, in order of frequency, the following activities:

- (1) selecting textbooks; (2) selecting supplies and equipment; (3) initiating new teachers into the program; (4) surveying instructional materials available to schools and community; (5) appraising and reorganizing courses offered in the department; (6) requisitioning instructional supplies for the department; (7) planning for efficient use of supplies and equipment; (8) preparing instructional materials; (9) planning for some phase of remedial instruction; (10) requisitioning for repair and replacement of equipment; (11) developing and trying out new courses.

When the department heads in the preceding study were asked, "What are the five most important activities you promote?", their paraphrased responses,¹⁵ in order of frequency of mention, were as follows:

- (1) providing materials and giving assistance in the use of the instructional materials; (2) planning courses of study; (3) holding departmental meetings; (4) promoting better teaching practices; (5) selecting texts; (6) making provision for individual differences; (7) scheduling classes in the department; (8) coordinating classes in the department; (9) providing personal assistance for students; (10) selecting and constructing tests; (11) visiting classes; (12) planning for remedial instruction; (13) participating in whole school planning; (14) coordinating work with other departments; (15) directing departmental clubs; (16) orientating new teachers.

The 1948 study¹⁶ of the Association for Supervision and Curriculum Development reported that department heads used the following supervisory techniques to increase the professional growth of teachers:

¹⁵ Ibid., 12.

¹⁶ Ibid., 13-14.

(1) informal individual conferences; (2) group conferences of individuals teaching the same subject; (3) departmental meetings; (4) special committees; (5) research in curriculum; (6) directed observation and intervisitation; (7) demonstration teaching; (8) research in methods; (9) development of a professional library; (10) post-visitation conferences; (11) classroom visitation; (12) supervisory bulletins; (13) announcements; (14) directed professional reading; (15) pre-visitation conferences; (16) directed study in: correspondence courses, extension courses, summer school courses.

Shouse wrote that department heads should provide continuous leadership in their departments. He¹⁷ described the leadership style of effective department heads in this way:

There should not be department heads if they are permitted to deal in a dictatorial or autocratic manner with well-qualified, experienced teachers. Good teachers need freedom to work on their own initiative in order to do their best work and to be happy in their work. If a department head is to be of value to the school in the supervisory capacity, he must be a friendly, helping colleague who makes no pretense of having official prerogatives.

According to Shouse,¹⁸ department heads should visit the classrooms of teachers to observe teaching usually only upon invitation and never for the purpose of inspection. They should not: (1) dictate to teachers the content of courses beyond the minimum objectives set forth in syllabi; (2) compare the effectiveness of their colleagues as teachers; (3) encourage their colleagues to adopt methodologies which are unnatural and unsuitable to their personalities and abilities.

¹⁷R. D. Shouse, "The Status and Duties of Department Heads," The Bulletin of the National Association of Secondary School Principals, XXXIV (January, 1950), 165.

¹⁸Ibid., 165.

Rinker¹⁹ suggested that department heads should offer direct assistance to students by listening to their problems. They should refer students with serious or unresolvable problems to the principal or the guidance counselor. They should develop close friendships with teachers through informal gatherings as well as through departmental meetings.

In 1953, Goldstein conducted a study of the duties, responsibilities, and opportunities of 219 business education department heads in public secondary schools where from three to thirty-eight business teachers were employed. The following duties²⁰ were rated "of great importance" by more than sixty-nine per cent of these department heads:

- (1) initiating new teachers into the program;
- (2) conferring with the administration about school matters;
- (3) participating in curriculum development and course revision;
- (4) requisitioning and keeping records of materials and supplies, equipment, and books;
- (5) working closely with guidance counselors to improve guidance functions in relation to business education;
- (6) integrating the various subjects in business education into a functioning unified program;
- (7) developing with teachers a sound philosophy of business education;
- (8) evaluating the effectiveness of the entire department;
- (9) working with school counselors and the administration in student selection procedures;
- (10) taking responsibility for seeing that students, administrators, and teachers understand and are fully conversant with the objectives of the field and of the department of the school.

¹⁹Floyd Rinker, "The Department Head," The Bulletin of the National Association of Secondary School Principals, XXXIV (December, 1950), 48.

²⁰Takeshi Fukushima, "Significance of Activities of Business Department Chairmen in Selected Senior High Schools," Business Education Forum, XXIII (October, 1968), 22-23.

Owings²¹ declared that many department heads are merely handlers of administrative routine. He emphasized the need for defining the responsibilities of department heads within the total supervisory program of the school. He pointed out that when department heads are given the opportunity to engage in supervision of instruction, they tend to stress the improvement of teaching processes rather than the development of individuals.

According to Satlow,²² a department head should practice democracy in the administration of his department. The teachers of the department should decide all matters affecting departmental policy and should share in the implementation of these decisions. The department head should inform his colleagues of the significance of their decisions and should facilitate the decision-making process. He should communicate the point of view of the department to the principal and the point of view of the principal to the department.

Grant²³ described the function of the "Principal's Cabinet." He suggested that this committee, composed of all the department heads of a school, should meet frequently to solve problems related to improving the school curriculum. According to Grant, such a committee

²¹Ralph S. Owings, Supervising Instruction In Secondary Schools, (New York: McGraw-Hill Book Company, Inc., 1955), 81-82.

²²I. David Satlow, "Democracy In The Supervision Of A High School Department," The Journal Of Educational Sociology, XXXII (January, 1959), 222-223.

²³Lester J. Grant, "The Principal Studies His Leadership Role," The Bulletin of the National Association of Secondary School Principals, XLIII (February, 1959), 63.

affords the principal the opportunity to achieve total staff participation in the resolution of curricular problems.

In 1959, the Rochester, Minnesota, Public School System, conducted a survey in 183 high schools. As revealed by this survey,²⁴ the most common activities of department heads included: (1) selecting textbooks with the teachers of the department; (2) scheduling departmental meetings; (3) building courses of study; (4) making annual requisitions for instructional materials.

In the Rochester study, the returned questionnaires included many additional activities of department heads. Some of these activities,²⁵ in order of frequency of mention, are:

(1) assisting in the preparation of the budget; (2) advising new teachers; (3) studying methods of teaching; (4) advising the principal; (5) attending curriculum meetings; (6) interviewing teacher candidates; (7) attending coordination meetings with junior high school staff; (8) directing the use of supplementary books; (9) helping in the assignment of classes to the teachers; (10) coordinating the work of the teachers within the department.

The Rochester study investigated the functions of the "Principal's Cabinet"- a school committee consisting of the principal and his department heads. Approximately thirty per cent of the schools reporting on this topic had such committees. The activities²⁶ of these committees, in order of frequency of mention, were:

²⁴Fred M. King and James V. Moon, "The Department Head in the Public Secondary School," The Bulletin of the National Association of Secondary School Principals, XLIV (March, 1960), 20-23.

²⁵Ibid., 23.

²⁶Ibid., 23-24.

(1) coordinating the work of the school with the principal; (2) considering items relating to the curriculum; (3) assisting with deciding school policy; (4) formulating policies in regard to the curriculum; (5) planning faculty meetings; (6) serving on the administrative council; (7) serving as the line of communication in instruction improvement; (8) supervising classes within the department; (9) meeting once a month for planning; (10) working out ways to interpret the total program to the public; (11) studying the problem of coordinating the work of all departments; (12) providing guidance for projects such as working with the talented or developmental reading program.

Jacobson, Reavis, and Logsdon²⁷ were of the opinion that department heads are not supervisory officers. They claimed that many department heads do not have the authority from their principals and sufficient released time from teaching duties to engage in effective supervision.

According to Clements,²⁸ the department head should occupy the same role within his department as the principal does within the school. In fulfilling this role, a department head should: (1) plan the departmental organization; (2) preside at departmental meetings; (3) aid in the selection of teachers; (4) aid in making the teaching assignments of teachers; (5) secure adequate supplies and equipment for the department; (6) work closely with the department heads in other schools through visitations and professional meetings; (7) prepare the departmental budget.

²⁷Paul B. Jacobson, William C. Reavis, and James D. Logsdon, The Effective School Principal in Elementary And Secondary Schools, (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1960), 109.

²⁸Stanley L. Clement, "Choosing the Department Head," The Bulletin of the National Association of Secondary School Principals, XLV (October, 1961), 49.

Stephenson²⁹ described the main purpose of departmental organizations as providing students with better educational programs. The role of department heads is to provide leadership that improves the quality of classroom instruction. He recommended that department heads: (1) hold departmental meetings several times a month; (2) help teachers find and circulate materials and equipment; (3) work with teachers to develop devices for evaluating learnings; (4) clarify the duties and responsibilities of teachers; (5) assist the administration in making teaching assignments; (6) supervise the ordering and distributing of books, equipment, and supplies within the department; (7) obtain secretarial assistance for the department; (8) conduct class visitations; (9) encourage teachers to visit each other's classes and other schools; (10) promote in-service education projects within the department; (11) orient new and substitute teachers; (12) help new teachers to develop lesson plans and units of study; (13) establish and maintain an effective channel of communications between the department and the principal.

According to Maczuga,³⁰ principals become less effective as supervisors of instruction as schools increase in size. Principals would have more time for administrating the entire school if they would delegate some of their supervisory responsibilities to department

²⁹Claude E. Stephenson, "Departmental Organization for Better Instruction," The Bulletin of the National Association of Secondary School Principals, XLV (December, 1961), 9-12

³⁰Paul Maczuga, "Selecting Department Heads," The Clearing House, XXXVII (December, 1962), 239-240.

heads. These responsibilities might include: (1) conducting departmental meetings; (2) budgeting supplies and instructional materials; (3) visiting and rating teachers; (4) conferring with teachers; (5) selecting textbooks; (6) recommending teachers for appointment; (7) engaging in curriculum revisions; (8) coordinating the work of the department with other departments; (9) orienting new teachers; (10) selecting books for the school library; (11) maintaining departmental moral; (12) evaluating achievement.

Grieder³¹ contended that a secondary school principal can take the lead in promoting instructional improvement only in his own area of subject matter specialization. Consequently, he cannot provide effective supervision of the entire school program. Therefore he should establish a departmental organization which will provide a department head, and thus a supervisor, for each subject matter area of the school curriculum.

Stern³² conducted a study of the supervisory behaviours of department heads. In 1963, and again in 1964, he mailed questionnaires to ten teachers and ten department heads in each of twenty-five Los Angeles City high schools. He obtained 674 usable replies.

³¹Calvin Grieder, "Let High School Department Heads Be Responsible for Supervision of Instruction," The Nation's Schools, LXXI (April, 1963), 8.

³²Hans Georg Stern, The Role of the Secondary School Department Head in the Improvement of Instruction, an unpublished doctoral thesis on micro-film, Los Angeles: University of California, 1966, 59-61, 73.

Stern³³ listed the following as effective department head behaviours:

- (1) arranging the "buddy" system for new teachers;
- (2) arranging for substitute teachers; (3) arranging for substitute teachers for new teachers to allow them to observe experienced teachers; (4) giving each teacher as many subject matter preferences as possible; (5) helping teachers get the supplies they need; (6) visiting the classes of teachers; (7) asking for teacher preferences before assigning classes; (8) giving demonstration lessons; (9) arranging for classroom observations by other teachers; (10) advising teachers about proper textbook choices; (11) scheduling teachers and classes equitably; (12) showing teachers how to reorganize class routines and reschedule daily programs; (13) taking new teachers on conducted tours of the premises; (14) consulting with teachers about grading standards; (15) providing teaching materials; (16) balancing overloaded classes with others; (17) establishing rotational systems for teaching.

Stern³⁴ listed the following as ineffective department head behaviours:

- (1) furnishing unsuitable assistance with respect to the curriculum; (2) offering no suggestions on teaching methods, curriculum, or courses of study; (3) holding useless department meetings; (4) violating teacher confidences; (5) doing nothing about inefficient department; (6) taking sides in personality clashes; (7) failing to adjust overcrowded classes; (8) being discourteous to speakers; (9) wasting departmental meeting time by reading bulletins; (10) operating a wasteful and inequitable distribution system for supplies; (11) making the master program without consulting department members; (12) failing to counsel new teachers; (13) failing to communicate with new teachers; (14) calling useless weekly meetings; (15) making sarcastic comments during department meetings; (16) failing to issue courses of study; (17) assigning exceptionally difficult room schedules to teachers.

³³Ibid., 85.

³⁴Ibid., 86-87.

According to Byrd,³⁵ a department head is a supervisor of instruction. In this role his duties include: (1) encouraging teachers to visit his classes; (2) circulating departmental mail throughout the department; (3) holding a scheduled conference with each teacher every two weeks; (4) visiting the classes of teachers to observe teaching; (5) helping teachers to solve discipline problems; (6) encouraging teachers to subscribe to professional journals and to join professional organizations; (7) conferring with the principal about curricular change and orders for materials and equipment; (8) serving on the curriculum council of his school; (9) attending department head meetings with the supervisor of his subject matter area.

In the estimation of Martin,³⁶ a department head should have a voice in the planning of the entire school program. He should be given the responsibility of administrating his own department. In managing the department, he should: (1) recruit and select teaching personnel; (2) promote a continuous study of the existing departmental curriculum; (3) formulate recommendations for revising the existing departmental curriculum; (4) direct a continuous study and evaluation by his faculty of the objectives of departmental programs; (5) observe and evaluate the teaching of departmental members; (6) encourage departmental members to use course syllabi, to utilize community

³⁵L. Brian Byrd, "The Role of the Department Head," Peabody Journal of Education, XLIII (July, 1965), 21-23.

³⁶Thomas B. Martin, "The Business Education Department Head In The Changing Secondary School," The Balance Sheet, XLVII (September, 1965), 12-16.

resources, to develop and use audiovisual aids, and to engage in research and experimentation; (7) plan the agendas for departmental meetings; (8) participate in the activities of professional organizations; (9) prepare a departmental budget and participate in the formulation of the school budget; (10) provide for the proper maintenance of instructional equipment.

Kidd³⁷ pointed out that the main functions of a department head are to coordinate the work of the school within his department and to help plan for improvement of the school curriculum. He perceived the responsibilities and duties of department heads as having changed little since 1930.

In 1965, Easterday conducted a study of the responsibilities and duties of department heads in twenty high schools in Illinois, Indiana, Michigan, and Ohio. Superintendents, principals, and department heads ranked thirty-one duties of department heads in terms of both desired and current importance. Sixteen of these duties³⁸ are as follows:

- (1) calls meetings of the department;
- (2) organizes and preplans meetings;
- (3) inventories and requisitions materials;
- (4) aids principal in scheduling;
- (5) aids in selection or selects new teachers;
- (6) forms committees to review and select tests and supplementary materials;
- (7) advises the principal on problems in the department;
- (8) forms committees to prepare, evaluate, and maintain

³⁷Jim L. Kidd, "The Department Headship and the Supervisory Role," The Bulletin of the National Association of Secondary School Principals, XLIX (October, 1965), 71.

³⁸Kenneth Easterday, "The Department Chairman: What Are His Duties and Qualifications?", The Bulletin of the National Association of Secondary School Principals, XLIX (October, 1965), 82.

a course of study; (9) acts as a liaison agent between department and administration; (10) coordinates program with other schools and departments in the system; (11) evaluates the department program; (12) assists substitute teachers; (13) is responsible for orientating new teachers; (14) develops short and long range goals of the courses in the department; (15) performs normal teaching duties; (16) participates actively in state and national subject matter organizations.

Both administrators and department heads ranked each of the above duties in the upper fifty per cent of current importance except for item four which was ranked seventeenth by the administrators and items five and ten which were ranked twenty-eighth and eighteenth respectively by department heads. Both administrators and department heads ranked each of the above duties in the upper fifty per cent of desired importance except for items five and ten which were ranked twentieth and seventeenth respectively by administrators and item one which was ranked seventeenth by department heads. Since only one department head indicated any additional duties of department heads, the sixteen duties listed should be of major importance.³⁹

In 1966, Buser investigated the functions and characteristics of department heads as perceived by the principals of 273 high schools that were members of the North Central Association of Colleges and Secondary Schools. In this study, over ninety per cent of the principals indicated that the following responsibilities should be assigned to department heads. With the exception of developing and

³⁹Ibid., 82-83.

implementing in-service training programs, the study⁴⁰ revealed that seventy-five per cent of the principals indicated that their department heads were assigned these responsibilities:

- (1) to provide leadership in the selection of textbooks and other instructional materials; (2) to call attention to new ideas and developments within the field; (3) to exercise leadership in the development of departmental course objectives, syllabi, and content, as well as in the development of the total school curriculum; (4) to preside at departmental meetings; (5) to orientate new teachers into the system; (6) to prepare written evaluations of the achievement and activities of the department; (7) to conduct research and experimentation within their respective fields; (8) to work with teachers in improving their procedures for student evaluation; (9) to familiarize staff with community resources and facilities; (10) to develop and implement in-service training programs for the members of the department; (11) to order department supplies and equipment.

The study by Buser⁴¹ also showed that a considerable number of principals held the opinion that the following responsibilities were not, but should be, assigned to department heads:

- (1) to conduct demonstration lessons for teachers of the department; (2) to prepare written evaluations of the teachers of the department; (3) to supervise the teachers of the department through classroom visits and observations; (4) to develop and implement in-service training programs for members of the department; (5) to develop and maintain a professional library; (6) to recommend the teachers of the department for promotion, continued employment, or dismissal.

⁴⁰ Donald C. Manlove and Robert Buser, "The Department Head: Myths and Reality," in James E. Heald, Louis G. Romano, Nicholas P. Georgiady, eds., Selected Readings on General Supervision, (London: The Macmillan Company, 1970), 174-176.

⁴¹ Ibid., 176

Brenner⁴² and Ciminillo⁴³ conducted separate studies in 1966 using the questionnaire devised by Buser and choosing their samples from the high schools in his sample. Brenner studied the functions and characteristics of department heads as perceived by high school teachers whereas Ciminillo studied the functions and characteristics of department heads as perceived by the department heads themselves. Upon comparing the findings of Brenner, Ciminillo, and Buser, Manlove and Buser⁴⁴ discovered that teachers, department heads, and principals generally agreed as to the responsibilities that should be assigned department heads.

According to Shuman,⁴⁵ in order to bring increased coordination into its program, a small school of less than one thousand students should establish division heads instead of department heads. For an example, he cited the Rich Township High School of Park Forest, Illinois, which replaced eleven department heads with four division heads, one each in mathematics and science, humanities, health and physical education, and related arts.

⁴²Kenneth W. Brenner, "Functions And Characteristics Of Department Heads As Perceived By Public High School Teachers," Dissertation Abstracts- The Humanities and Social Sciences, XXVII (April, 1967), 3246-A.

⁴³Lewis M. Ciminillo, "The Department Heads' Perception Of The Functions And Characteristics Of Their Position," Dissertation Abstracts- The Humanities and Social Sciences, XXVII (April, 1967), 3218-A.

⁴⁴Donald C. Manlove and Robert Buser, "The Department Head: Myths and Reality," in James E. Heald, Louis G. Romano, and Nicholas P. Georgiady, eds., Selected Readings on General Supervision, (London: The Macmillan Company, 1970), 174-176.

⁴⁵R. Baird Shuman, "Departmental Chairmen or Heads of Divisions?", The Clearing House, XL (March, 1966), 431.

Ovard⁴⁶ stated that departments are organized to improve teaching techniques and curricular programs, and to coordinate activities within the curricular area. He was of the opinion that a department head should: (1) be responsible for the in-service education of his teachers; (2) develop courses of study; (3) coordinate the work of the department with the work of other departments; (4) investigate new textbooks, curriculum materials, and audiovisual aids; (5) recommend to the principal the teaching assignments of teachers; (6) organize and plan departmental meetings; (7) examine and evaluate standards and measurements used within the department; (8) assist new teachers; (9) supervise the instruction within the department.

In 1967, Altimari⁴⁷ surveyed 442 heads of the departments of English, foreign language, mathematics, science, and social science in 112 high schools accredited by the North Central Association. He found that the responsibilities of these heads were in the general areas of curriculum, coordination, leadership, supervision, and liaison. He⁴⁸ discovered that approximately one-half of the department heads were involved with the principal in teacher recruitment and assignment. He⁴⁹ stated that:

⁴⁶Glen F. Ovard, Administration of the Changing Secondary School, (New York: The Macmillan Company, 1966), 197.

⁴⁷William G. Altimari, "The Department Chairmanship in Large High Schools of the North Central Association," The North Central Association Quarterly, XLII (Spring, 1968), 307.

⁴⁸Ibid., 309.

⁴⁹Ibid., 311.

The role of the department chairman should be designed to facilitate and improve instruction. The principal and district administrators should use the chairman in an advisory capacity appropriate to the chairman's training, experience, and ability, including the recruitment for and the assignment of teachers in his department.

According to Borden,⁵⁰ the responsibility for providing leadership within a department should be shared by each departmental member. Within this context of leadership, the role of the department head is one of coordinator rather than director or dictator of policy. All changes in departmental programs or policies should be made with the cooperation and participation of the entire department.

Knezevich questioned the usefulness of the department head position. He declared that the most serious problem of departmental organizations is the communication difficulty due to lack of coordination among departments. He recommended the formation of a "Principal's Cabinet" composed of department heads to improve communications within the school. He⁵¹ listed the duties of department heads as:

- (1) participation in budget planning at the building level by submitting needs of the department to the principal;
- (2) detailed supervision of instruction primarily by working with central-office supervisors;
- (3) organization and conduct of departmental meetings;
- (4) recommendations of courses or educational experiences to be offered within the department;
- (5) orientation of teachers within the department who are new to the system;
- (6) investigation and recommendation of texts and other instructional materials;
- (7) procurement, coordination, and distribution of departmental equipment and supplies.

⁵⁰Lynn D. Borden, "The Role Of The High School Business Department Chairman," The Balance Sheet, L (January, 1969), 198-199.

⁵¹Stephen J. Knezevich, Administration of Public Education, (New York: Harper and Row, Publishers, 1969), 281.

Bingaman⁵² stated that a department head can serve a useful function within the school only when his role is consistently supported by the principal and the superintendent. The principal has the responsibility of officially delegating authority to the department head. The rapport that a principal hopes to have with the superintendent should exist between the principal and the department head.

Mawson⁵³ recommended that department heads and teachers visit each other's classes to observe and evaluate teaching. Department heads should not grade or rate observed lessons. They should not submit written evaluations or reports to third parties. They should hold discussions with each teacher subsequent to observing his teaching. Other practices that department heads should follow include: (1) holding interesting departmental meetings; (2) keeping the minutes of departmental meetings; (3) allowing teachers to participate in planning the agendas of departmental meetings; (4) encouraging teachers to visit their colleagues in other schools; (5) developing a professional library for the department; (6) allowing teachers to participate in spending the money allotted to the department.

Knudson⁵⁴ argued for the elimination of the department head position. He was convinced that a group of well-qualified and

⁵²Paul R. Bingaman, "Consider Department Chairmen," Pennsylvania School Journal, CXVIII (September, 1969), 27.

⁵³K. W. Mawson, "The Leadership Role of the Head of a Department," The Bulletin of the Ontario Secondary School Teachers' Federation, XLIX (October, 1969), 192-195.

⁵⁴Richard L. Knudson, "Help Stamp Out Department Chairmen," English Journal, LX (March, 1971), 378.

dedicated teachers could make a department work better without a department head. He proposed this argument:

If a department chairman is effective then he is extremely democratic and involves everyone in decision-making. He is sensitive to human beings and realizes that any individual has the right to be involved in making those decisions which have an effect on his life. In this democratic situation the chairman becomes, in a very real sense, unnecessary. If he is unnecessary, then why not eliminate the position?

Miller and Brown⁵⁵ surveyed 208 social studies department heads within the nineteen-state area of the North Central Association. Their major concern was to discover the responsibilities that social studies department heads assumed for providing instructional leadership for and supervision of their departments. They reported that many department heads were responsible for holding departmental meetings, recommending to their teachers specific teaching strategies, aiding teachers in lesson preparation and presentation, and articulating and sequencing the content of the social studies courses in their schools. A minority of department heads indicated that they hired new teachers for their departments. A majority of department heads did not help teachers handle discipline problems and were reluctant to offer help to teachers when evaluating and grading students.

⁵⁵Harry G. Miller and Sheldon L. Brown, "Social Studies Chairmanship in Secondary Schools," The Bulletin of the National Association of Secondary School Principals, LVI (December, 1972), 99-101.

JOB DESCRIPTIONS AND THE DEPARTMENT HEADSHIP

The 1948 study⁵⁶ by the Association for Supervision and Curriculum Development revealed that, of the many handicaps under which department heads work, ". . . it appears that the most serious one is the lack of definition of duties, responsibilities, and lines of authority."

Stephenson⁵⁷ and Borden⁵⁸ considered lack of written job descriptions for department heads a major limitation of the department head position.

Buser and Humm,⁵⁹ in their 1969 follow-up study of 273 large North Central Association high schools, found that almost one-third of these schools did not have ". . . job descriptions or written statements of responsibilities to direct the department head in the implementation of assigned functions." After comparing this finding to its equivalent in his original 1965 study, Buser found no significant increase in the number of schools developing job descriptions. Commenting on these findings, Buser and Humm⁶⁰ remarked:

⁵⁶Association for Supervision and Curriculum Development, The Department Head And Instructional Improvement, (Washington, D.C., N.E.A., 1948), 21.

⁵⁷Claude E. Stephenson, "Departmental Organization for Better Instruction," The Bulletin of the National Association of Secondary School Principals, XLV (December, 1961), 13.

⁵⁸Lynn D. Borden, "The Role Of The High School Business Department Chairman," The Balance Sheet, L (January, 1969), 226.

⁵⁹Robert L. Buser and William L. Humm, "The Department Head Revisited," Journal of Secondary Education, XLV (October, 1970), 284.

⁶⁰Ibid., 284.

The failure of those concerned including teachers, administrators, and department heads to understand their functions, roles, and positional expectations can only lead to reduced efficiency in the instructional processes.

In 1964, in order to discover the current role of the English department head, The National Council of Teachers of English Committee on the Organization and Supervision of the High School English Department conducted a survey in over two hundred high schools. The committee⁶¹ reported that:

Only 12 percent of the English department chairmen could report that their jobs were formally described with specific duties and that their place in the organizational pattern of their schools was clear. This phenomenon suggests that many chairmen work in a sphere of influence as indefinite as a perimeter of a fog bank.

Altimari,⁶² in his study based on data from 112 high schools accredited by the North Central Association, found a significant lack of clarification in writing of the responsibilities of the chairmen and the line of authority between the chairmen and their principals. He was of the opinion that such a situation ". . . could contribute to misunderstandings and misinterpretations between the chairmen and their administrators."⁶³

It is apparent from the preceding information that many educators believe that job descriptions for department heads should be

⁶¹Charles B. Ruggless, "The Nominal High School English Department Chairman," English Journal, LIV (May, 1966), 375.

⁶²William G. Altimari, Jr., "The Department Chairmanship in Large High Schools of the North Central Association," The North Central Association Quarterly, XLII (Spring, 1968), 309.

⁶³Ibid., 311.

available in all schools. What information should a job description contain? According to Altimari,⁶⁴ a written statement of the role and status of the department head should include:

- (1) the responsibilities of the chairman in his school;
- (2) the responsibilities of the chairman in his school district;
- (3) the responsibilities of the chairman in updating and strengthening his knowledge in: the subject-matter field of his department, general education, curriculum developments within his and related subject-matter fields, instructional methods, and in supervisory techniques;
- (4) the relationship of the chairman with pupils in his department, teachers within his department, administrators within his building and within the school district, subject-matter coordinators or supervisors, and the central office staff;
- (5) the procedures and criteria used in the evaluation of the chairman's performance, and the relationship of this performance to his term of office.

According to Buser and Manlove,⁶⁵ an effective job description should:

- (1) provide direction for the chairman;
- (2) identify the tasks to be performed by the chairman;
- (3) communicate performance expectations to teachers, administrators and supervisors;
- (4) explain authority relationships between chairmen, administrators, teachers, and supervisors;
- (5) aid administrators in the identification of skill and competency requisites essential for the position;
- (6) provide information to aspirants for the job relative to their own personal qualifications;
- (7) serve as the basis for the orientation and training of those newly assigned to the position;
- (8) establish performance standards on which those functioning in the chairmanship can and will be evaluated;
- (9) guide the administration in the realistic allocation of resources (time and personnel) necessary to accomplish the responsibilities outlined in the position description.

⁶⁴Ibid., 311.

⁶⁵Robert L. Buser and Donald C. Manlove, "The Department Chairman: A Model Job Description," Journal of Secondary Education, XLV (January, 1970), 10.

Buser and Manlove stated that the entire teaching faculty of a school should design the job description for the department head position. They remarked that ". . . the process of formulating, evaluating, or revising job descriptions may contribute as much to improved communication and understanding as does the job description itself."⁶⁶

RELEASED TIME FOR DEPARTMENT HEADS

In 1948, the Association for Supervision and Curriculum Development⁶⁷ reported that many department heads believe that their most serious handicap is insufficient time to perform their duties. It revealed that many department heads have full teaching loads in addition to their responsibilities as department heads.

The 1959 study⁶⁸ by the Rochester, Minnesota, Public School System, discovered that fifty-two per cent of the department heads in the 125 schools surveyed had lighter teaching assignments than the teachers in their respective departments. The study also reported that the size of the department, the amount of work required of the department, and the seniority of the department head are factors that

⁶⁶ Ibid., 12.

⁶⁷ Association for Supervision and Curriculum Development, The Department Head And Instructional Improvement, (Washington, D.C., N.E.A., 1948), 21-22.

⁶⁸ Fred M. King and James V. Moon, "The Department Head in the Public Secondary School," The Bulletin of the National Association of Secondary School Principals. XLIV (March, 1960), 21.

administrators use to determine the teaching loads of department heads.⁶⁹ In opposition to part of this latter finding, Thorum⁷⁰ contended that there seems ". . . to be little relationship between the number of duties assigned a department head and the amount of time necessary to perform them."

Based on their 1965 and 1969 studies, in which they surveyed the opinions of 271 and 255 principals respectively, Buser and Humm⁷¹ discovered that "Almost one-third of all schools and approximately 50 per cent of the small schools are not providing released time for department heads to administer and supervise instruction."

The 1964 study⁷² by the National Council of Teachers of English found that only twenty-two per cent of all department heads surveyed had a lighter teaching load in order to meet their responsibilities as department heads.

Altimari⁷³ discovered that ". . . chairmen were assigned a mean number of three class-free periods each week for their chairmanship responsibilities, however the chairmen felt that a mean number

⁶⁹Ibid., 22.

⁷⁰Reho F. Thorum, "The Department Head in the Large Senior High School," The Clearing House, XLIII (January, 1969), 265.

⁷¹Robert L. Buser and William L. Humm, "The Department Head Revisited," Journal of Secondary Education, XLV (October, 1970), 284.

⁷²Charles B. Ruggless, "The Nominal High School English Department Chairman," English Journal, LIV (May, 1966), 376.

⁷³William G. Altimari, Jr., "The Department Chairmanship in Large High Schools of the North Central Association," The North Central Association Quarterly, XLII (Spring, 1968), 309.

of six class-free periods per week was necessary." He was of the opinion that these chairmen ". . . were attempting to perform their chairmanship responsibilities with an inadequate number of class-free periods assigned for the performance of these responsibilities."⁷⁴

In the 1967-1968 school year, Thorum⁷⁵ conducted a survey in 291 high schools located in large metropolitan areas of the United States. He reported that ". . . lack of sufficient released time was the most limiting factor in preventing a department head from functioning effectively."

Many department heads receive financial compensation in addition to their regular teaching salaries for assuming the responsibilities of their department headships.⁷⁶ Some school districts have established the practice of rewarding their department heads with freedom from extra-curricular duties.⁷⁷ The attitude of Thorum⁷⁸ toward these practices is revealed in this comment:

The department head's effectiveness is in direct relation to the amount of time in which he is allowed to perform his assigned duties. Financial remuneration has little influence on the ability of the department head to perform the functions of his position. Time to perform

⁷⁴Ibid., 310.

⁷⁵Reho F. Thorum, "The Department Head in the Large Senior High School," The Clearing House, XLIII (January, 1969), 264-265.

⁷⁶Robert L. Buser and William L. Humm, "The Department Head Revisited," Journal of Secondary Education, XLV (October, 1970), 284.

⁷⁷Ibid., 284.

⁷⁸Reho F. Thorum, "The Department Head in the Large Senior High School," The Clearing House, XLIII (January, 1969), 266.

his duties, rather than extra pay, should be one of the most important considerations in assigning an individual to the position of department head.

Gwynn,⁷⁹ Mawson,⁸⁰ and Bingaman⁸¹ recommended that department heads be given reduced teaching assignments. Easterday⁸² suggested that department heads should be relieved of one-third of their teaching duties. According to Manlove and Buser,⁸³ teachers and principals believe that department heads would generally provide effective supervision of instruction if they were given the time and authority to do so. Stephenson⁸⁴ suggested that department heads could obtain more time for supervising instruction by using coordinators to handle the clerical duties of the department.

⁷⁹J. Minor Gwynn, Theory and Practice of Supervision, (New York, Toronto: Dodd, Mead, and Company, 1964), 233.

⁸⁰K. W. Mawson, "The Leadership Role of the Head of a Department," The Bulletin of the Ontario Secondary School Teachers' Federation, XLIX (October, 1969), 195.

⁸¹Paul R. Bingaman, "Consider Department Chairmen," Pennsylvania School Journal, CXVIII (September, 1969), 27.

⁸²Kenneth Easterday, "The Department Chairman: What Are His Duties and Qualifications?", The Bulletin of the National Association of Secondary School Principals, XLIX (October, 1965), 84.

⁸³Donald C. Manlove and Robert Buser, "The Department Head: Myths and Reality," in James E. Heald, Louis G. Romano, and Nicholas P. Georgiady, eds., Selected Readings on General Supervision, (London: The Macmillan Company, 1970), 175.

⁸⁴Claude E. Stephenson, "Departmental Organization for Better Instruction," The Bulletin of The National Association of Secondary School Principals, XLV (December, 1961), 13.

Manlove and Buser⁸⁵ were of the opinion that the amount of released time from teaching duties for a department head should be directly proportional to his assigned responsibilities as department head and to the number of teachers in his department. They⁸⁶ remarked that:

It is difficult to understand the rationale of establishing heads of departments if they are not provided released time. It is equally difficult to understand the rationale of assigning time for supervision unless the time is used in classroom observations, teacher conferences, and other supervisory techniques.

SUMMARY

The literature describes a qualified department head as being an academically well-prepared teacher who has successful teaching experience and leadership ability. The consensus among authorities is that leadership ability is the most important quality that a department head should possess.

The literature suggests that many department heads may lack leadership ability. Apparently many teachers are appointed to headship positions primarily on the basis of lengthy teaching experience. Many teachers appear to view their department heads as being less qualified to occupy the headship position than are other teachers in the department.

⁸⁵Donald C. Manlove and Robert Buser, "The Department Head: Myths and Reality," in James E. Heald, Louis G. Romano, and Nicholas P. Georgiady, eds., Selected Readings on General Supervision. (London: The Macmillan Company, 1970), 178.

⁸⁶Ibid., 178.

Most writers and researchers agree that the prime responsibility of a department head should be to work with the teachers of the department to improve the quality of their instruction. However, the opinions of these writers and researchers are divided as to how the department head should fulfill this responsibility. One group recommends that the department head should perform primarily a leadership role. In carrying out this role, the department head is expected to encourage, to motivate, and to inspire teachers to work together, cooperatively and democratically, to solve departmental problems and to identify, define, and achieve goals that are designed to improve departmental programs. Another group recommends that the department head function as a supervisor of instruction. In this capacity, the department head is expected to visit classes to observe and evaluate teaching, to rate teachers, and to recommend them for promotion, transfer, or dismissal.

Many writers and researchers are of the opinion that the working conditions of department heads prevent them from fulfilling their headship responsibilities. Many department heads appear to be burdened with administrative routines such as ordering, receiving, and distributing equipment and supplies. Many department heads appear to lack sufficient released time from teaching to devote to their headship responsibilities. Some department heads have no released time and carry teaching loads equal to those of other departmental members. Many department heads have only a limited knowledge of their headship responsibilities and of the duties that teachers and principals expect

them to perform due to a widespread lack of job descriptions for the position of department head.

Most authorities agree, that to be of value in his headship capacity, a department head should be provided with a written job description which outlines his responsibilities and duties as department head. In addition, the department head should be given a reduced teaching load to give him adequate time during the school day to carry out these responsibilities and duties.

Chapter 3

RESEARCH PROCEDURES

The research procedures described in this chapter are organized under the headings of (1) Validation of the Study Instrument, (2) Identification of the Study Population, (3) Sources of Data, (4) Collection of Data, and (5) Statistical Treatment of Data.

VALIDATION OF THE STUDY INSTRUMENT

The validity of the content of the study instrument was established by the following procedures.

Prior to the design of the study instrument, five science teachers, five science department heads, and four principals, randomly selected and each of whom worked in a different school in the City of Winnipeg, were interviewed with respect to the role of the science department head. The interviewees were asked to comment on the activities that science department heads should perform to fulfill their headship responsibilities and on how staffs of schools might make science department heads more effective in carrying out these responsibilities.¹ Twelve of the interviews were tape recorded.

¹A questionnaire was used in conducting these interviews. Refer to page 115 of Appendix A.

Using information obtained from the interviews and from the related literature and research, a study instrument² containing fifty descriptions of job behaviors was designed. The study instrument, accompanied by a stamped self-addressed envelope, a letter³ to the superintendent, and directions⁴ for his science supervisor, was mailed to each of forty-two superintendents of large urban school districts in Alberta, British Columbia, Ontario, and Minnesota. Each superintendent was asked to obtain comments from his science supervisor in reference to the following: (1) Which of these job behaviors should be performed by the science department heads in your school district? (2) Which of these job behaviors should not be performed by the science department heads in your school district? (3) Which of these job behaviors are unimportant or trivial and should not be included in the study instrument? (4) Which important job behaviors that should be performed by the science department heads in your school division are not included in the study instrument?

Replies were received from twenty-nine science supervisors, eighteen of whom provided useful comments relating to the above questions. Forty-six of the job behaviors were endorsed by a majority of

²The preliminary form of the study instrument appears on pages 116-122 of Appendix A.

³The letter to the superintendent appears on page 123 of Appendix A.

⁴The directions for the science supervisors are presented on page 124 of Appendix A.

the latter supervisors as being job behaviors that science department heads should perform.⁵

Opinions and comments from the science supervisors resulted in seventeen rewordings, eleven deletions, and six additions of job behaviors. The product was a list of forty-five job behaviors appearing in Part B of the final form⁶ of the study instrument. Several science supervisors suggested that the expected and performed roles of science department heads should be studied within the context of the working conditions of science department heads. In response to these suggestions, Part A and Part C were added to the study instrument.

IDENTIFICATION OF THE STUDY POPULATION

The study population consisted of two hundred and thirty science teachers, forty-two science department heads, and forty-two principals, representing forty-two Manitoba schools each of which employed exactly one science department head. Their names, residential addresses, and the names of their schools were obtained from the Manitoba Department of Education.

⁵A summary of the comments of the science supervisors as to the validity of the job behaviors described in the preliminary form of the study instrument is presented on pages 139-140 of Appendix B.

⁶The final form of the study instrument appears on pages 126-135 of Appendix A.

SOURCES OF DATA

Study instruments were mailed to one hundred and seventy-nine science teachers, thirty-four science department heads, and thirty-four principals, most of whom were from schools located in the City of Winnipeg. Twelve teachers, four department heads, and four principals worked in schools located in other centers of the province. Usable study instruments were returned by one hundred and twenty-four teachers, thirty-one department heads, and thirty principals, providing the data on which the solution to the thesis problem was based.

COLLECTION OF DATA

A numbered ticket corresponding to each of the schools of the study population was placed in a paper bag from which thirty-four tickets were selected at random. The science teachers, science department heads, and principals in the schools selected were mailed study instruments each accompanied by a stamped self-addressed envelope and a letter⁷ describing the purpose of the study, introducing Part B of the study instrument, and requesting that the completed study instrument be returned before June 10, 1973. The mailing was followed by telephone calls and letters⁸ of reminder to increase the percentage of returns.

⁷A copy of the letter that was mailed to each member of the sample is on page 136 of Appendix A.

⁸Consult page 137 of Appendix A for a copy of the letter of reminder.

STATISTICAL TREATMENT OF DATA

The expected and performed role rating scales were converted into interval scales by assigning the numbers one, two, three, four, and five respectively to the rating scale categories- "to a very great extent," "to a considerable extent," "to some extent," "to a very little extent," "not at all." The quantification of these scales permitted the calculation of the means of the responses of science teachers, science department heads, and principals on each of these scales for each job behavior described in Part B of the study instrument.

Seven null hypotheses and seven alternative hypotheses were formulated for the purpose of statistical inference.

List of Symbols Used

ST	science teachers
SDH	science department heads
R	principals
e	expected role rating scale
p	performed role rating scale
μ	population mean

Hypotheses

- (1) $H_0: ST \mu_e = SDH \mu_e = R \mu_e$
 $H_1: \text{The means are not all equal.}$
- (2) $H_0: ST \mu_p = SDH \mu_p = R \mu_p$
 $H_1: \text{The means are not all equal.}$

- (3) $H_0: ST \mu_e = ST \mu_p$
 $H_1: ST \mu_e \neq ST \mu_p$
- (4) $H_0: SDH \mu_e = SDH \mu_p$
 $H_1: SDH \mu_e \neq SDH \mu_p$
- (5) $H_0: R \mu_e = R \mu_p$
 $H_1: R \mu_e \neq R \mu_p$
- (6) $H_0: ST \mu = SDH \mu = R \mu$
 $H_1: \text{The means are not all equal.}$
- (7) $H_0: \text{The two criteria of classification are independent.}$
 $H_1: \text{The two criteria of classification are not independent.}$

Testing the Null Hypotheses

Null hypotheses one, two, and six were each tested with the one-way analysis of variance for fixed effects and unequal sample sizes.⁹ The criterion for rejection of the null hypothesis was $p \leq 0.01$. The Scheffé method¹⁰ for post-hoc comparisons was applied to all pair-wise differences among the means of the responses of science teachers, science department heads, and principals whenever the null hypothesis was rejected. The significance level in using the Scheffé method was $p \leq 0.10$ as recommended by Scheffé.¹¹

⁹H. T. Hayslett, Statistics made Simple, (New York: Doubleday & Company, 1968), 168-173.

¹⁰William L. Hays, Statistics for Psychologists, (New York: Holt, Rinehart, and Winston, 1963), 484.

¹¹Henry Scheffé, The Analysis of Variance, (New York: John Wiley & Sons, 1959), 71.

Null hypotheses three, four, and five were each tested with a 't' test for testing the significance of the difference between two means, with $p \leq 0.01$ used as the criterion for rejection. To determine whether to apply a 't' test for correlated data or a 't' test for uncorrelated data, a Pearson product-moment correlation coefficient¹² was calculated. Whenever the null hypothesis that the value of the correlation coefficient is equal to zero was rejected at $p \leq 0.01$, a 't' test for correlated data¹³ was applied. Whenever this hypothesis was not rejected at $p \leq 0.01$, a 't' test for uncorrelated data¹⁴ was applied.

Null hypothesis seven was tested with a chi-square test of independence between two nominal variables.¹⁵ The null hypothesis was rejected at $p \leq 0.01$. Whenever the null hypothesis was rejected, further chi-square tests were made within all possible pairings of the groups as recommended by Downie and Heath.¹⁶ Yates's correction for continuity was applied in each chi-square test whenever the degrees of freedom were less than two.¹⁷

¹²George A. Ferguson, Statistical Analysis in Psychology and Education, (New York: McGraw-Hill Book Company, 1966), 111.

¹³Ibid., 169-171.

¹⁴Ibid., 167-168.

¹⁵Ibid., 200-204.

¹⁶N. M. Downie and R. W. Heath, Basic Statistical Methods, (New York: Harper & Row, Publishers, 1970), 206.

¹⁷George A. Ferguson, Statistical Analysis in Psychology and Education, (New York: McGraw-Hill Book Company, 1966), 207.

Chapter 4

FINDINGS

The results of the analysis of data and the inferences based on these results are presented under the headings of (1) The Expected and Performed Roles of Science Department Heads, (2) A Comparison of the Expected and Performed Roles of Science Department Heads, and (3) Working Conditions of Science Department Heads.

THE EXPECTED AND PERFORMED ROLES OF SCIENCE DEPARTMENT HEADS

Frequency distributions of the responses of science teachers, science department heads, and principals on the expected role rating scale and on the performed role rating scale for each of the forty-five job behaviors of science department heads are presented in Tables XX, XXI, and XXII of Appendix B. Percentage frequency distributions of these responses are presented in Tables XXIII, XXIV, and XXV of this appendix.

The expected and performed role rating scales were converted into interval scales by assigning the numbers one, two, three, four, and five to the rating scale categories "to a very great extent," "to a considerable extent," "to some extent," "to a very little extent," and "not at all," respectively. Following the quantification of the rating scale categories, the mean of the responses of each group on

each of these scales was calculated with respect to each of the forty-five job behaviors. These means are presented in Table I. Since the means for each group on the expected role rating scales represent the degrees to which the group expected science department heads to perform the corresponding job behaviors, they may be considered as the expected role of science department heads as conceived by the group. Since the means for each group on the performed role rating scales represent the degrees to which the group perceived science department heads performing the corresponding job behaviors, they may be considered as the performed role of science department heads as perceived by the group.

TABLE I

MEANS OF RESPONSES OF SCIENCE TEACHERS(I), SCIENCE DEPARTMENT HEADS(II), AND PRINCIPALS(III) ON THE EXPECTED AND PERFORMED ROLE RATING SCALES FOR EACH JOB BEHAVIOR OF SCIENCE DEPARTMENT HEADS

Job Behavior	Expected Role Rating Scale			Performed Role Rating Scale		
	I	II	III	I	II	III
Section I: Instruction						
1. provide leadership that improves the instruction given within his department;	2.228	1.968	1.900	3.203	2.767	2.793
2. provide direct supervisory assistance to departmental members by observing and evaluating their teaching;	3.415	3.548	3.600	4.293	4.000	4.241
3. conduct a supervisory conference with each departmental member subsequent to observing his teaching to discuss his teaching in a positive vein;	3.429	3.633	3.630	4.390	4.276	4.231
4. work with the principal to determine the teaching assignments of departmental members;	2.385	2.000	2.333	2.901	2.586	2.759
5. assist the principal in selecting new departmental members;	2.558	2.419	2.786	3.574	3.600	2.963

TABLE I (Continued)

Job Behavior	Expected Role Rating Scale			Performed Role Rating Scale		
	I	II	III	I	II	III
6. work with departmental members to plan and implement in-services designed to meet departmental needs within the instructional process as identified by the entire department in conference;	2.048	2.258	2.276	2.871	2.833	2.786
7. work with departmental members to plan and carry out visitations to other schools to observe methodologies, programs, and facilities;	2.756	2.806	2.828	3.756	3.533	3.500
8. make recommendations to the principal concerning the tenure, promotion, transfer, or dismissal of departmental members;	3.190	3.355	3.138	4.060	4.100	3.893
9. Assist departmental members in solving problems involving student behavior;	3.372	2.935	3.103	3.793	3.300	3.536
10. provide departmental leadership that develops and establishes a departmental policy to be used in evaluating student progress;	2.154	1.903	1.966	3.041	2.500	2.679
11. encourage departmental members to observe each other's teaching;	3.415	3.161	3.069	4.333	3.867	3.893
12. assist departmental members in solving problems involving lesson preparation and lesson presentation;	3.169	2.774	2.103	3.846	3.367	3.179

TABLE I (Continued)

Job Behavior	Expected Role Rating Scale			Performed Role Rating Scale		
	I	II	III	I	II	III
Section II: Curriculum						
13. provide leadership that improves the curriculum offered within his department;	2.194	1.839	1.724	3.226	2.567	2.679
14. recommend to the principal on the advice of his department the courses to be offered within his department;	2.074	1.968	1.733	2.833	2.333	2.655
15. work with departmental members to align the aims and goals of his department with the aims and goals of the school;	2.205	1.935	1.833	3.090	2.467	2.828
16. work with departmental members to develop for each departmental course long-range and short-range objectives that are consistent with the aims and goals of the department;	2.347	2.258	2.000	3.279	2.933	3.138
17. work with departmental members to plan and implement some form of remedial instruction within his department;	2.811	2.548	2.100	3.713	3.467	3.069
18. work with departmental members to adapt instruction to the individual differences among students;	2.805	2.613	2.067	3.669	3.300	3.103
19. facilitate and plan for efficient utilization of departmental facilities, equipment, and materials by departmental members;	1.968	1.677	1.600	2.740	1.967	2.000

TABLE I (Continued)

Job Behavior	Expected Role Rating Scale			Performed Role Rating Scale		
	I	II	III	I	II	III
20. encourage departmental members to use field trips and guest speakers to enrich the curriculum by familiarizing departmental members with community resources and facilities;	2.528	2.323	2.333	3.634	3.000	3.379
21. work with departmental members to investigate new textbooks, new instructional materials, and new instructional programs;	2.105	1.742	1.700	2.960	2.400	2.552
22. work with departmental members to select and procure adequate amounts and kinds of instructional materials, equipment, and supplies;	1.813	1.387	1.633	2.358	1.700	2.000
23. work with departmental members to develop and establish safety standards and safety procedures to be used in departmental laboratories;	2.533	2.069	1.967	3.549	2.679	2.655
Section III: Communications						
24. help to plan and to improve the work of his school by serving along with other department heads on his school's "Principal's Council";	1.855	1.833	1.552	2.188	2.103	2.071
25. attend regular meetings at the district level of the department heads in his subject area;	2.427	2.267	2.464	3.140	3.034	2.852

TABLE I (Continued)

Job Behavior	Expected Role Rating Scale			Performed Role Rating Scale		
	I	II	III	I	II	III
26. hold regular meetings of all departmental members to discuss departmental and school matters and to exchange ideas on teaching;	2.190	1.933	1.933	2.909	2.552	2.483
27. allow and encourage departmental members to participate in the planning of the agendas of departmental meetings;	2.562	2.567	2.333	3.217	3.138	3.103
28. work with departmental members to coordinate departmental activities to avoid duplications of effort by departmental members in the preparation of tests, worksheets, and other instructional materials;	2.689	2.267	2.167	3.549	2.828	2.862
29. act as a liaison agent to communicate information, ideas, and suggestions between his department and the principal;	1.854	1.633	1.633	2.463	1.966	2.276
30. obtain student opinion on the status of each departmental course;	3.115	3.133	2.900	4.165	3.966	3.966
31. prepare with the assistance of departmental members an annual report to the principal of departmental programs and activities;	2.957	3.100	3.069	3.897	3.517	3.714

TABLE I (Continued)

Job Behavior	Expected Role Rating Scale			Performed Role Rating Scale		
	I	II	III	I	II	III
32. act as a liaison agent to communicate information on courses and teaching in his subject area between departmental members and teachers in the elementary and senior high schools (or elementary and junior high schools);	2.739	2.867	3.034	3.684	3.448	3.500
Section IV: Professionalism						
33. provide leadership that increases the professional growth of departmental members;	2.400	2.034	1.862	3.425	3.172	3.214
34. work with his school librarian to develop and maintain a departmental library of teaching journals and reference books;	2.345	1.800	2.034	3.145	2.241	2.821
35. demonstrate exemplary teaching;	2.381	2.667	2.111	2.874	3.107	2.538
36. participate in the activities of professional and subject area organizations;	2.390	2.267	1.931	2.897	2.793	2.609
37. maintain his professional knowledge and his subject area knowledge at high levels;	1.908	1.667	1.414	2.314	2.071	2.214
38. encourage departmental members to attend professional meetings (seminars, workshops, conventions);	2.250	2.067	2.172	2.975	2.448	3.071

TABLE I (Continued)

Job Behavior	Expected Role Rating Scale			Performed Role Rating Scale		
	I	II	III	I	II	III
39. encourage departmental members to join and/or participate in professional and subject area organizations;	2.615	2.233	2.250	3.333	2.724	3.143
Section V: Administration						
40. submit to his principal an annual statement for budget purposes of the instructional materials, equipment, and supplies required by his department;	1.451	1.387	1.300	1.620	1.467	1.552
41. utilize assistants (students, departmental members, laboratory aides) to perform the clerical duties associated with his department headship;	2.450	2.355	2.345	3.142	2.900	2.714
42. maintain an accurate and complete record of departmental business transactions (purchase orders and receipts, requisition orders, invoices);	1.941	1.774	2.241	2.246	1.933	2.857
43. compile annually an inventory of all departmental materials, equipment, and supplies by obtaining from departmental members lists of the materials, equipment, and supplies in their classrooms and laboratories;	2.317	1.900	2.133	2.647	2.276	2.586
44. assist the principal in the placement and orientation of student teachers within the department;	2.229	1.806	1.900	2.718	2.500	2.310

TABLE I (Continued)

Job Behavior	Expected Role Rating Scale			Performed Role Rating Scale		
	I	II	III	I	II	III
45. maintain for the use of departmental members files of the instructional materials (tests, worksheets) used by departmental members in each departmental course of study;	2.683	2.467	2.233	3.612	3.172	2.966

Note: The possible range of each mean is from one to five inclusive. With respect to the expected role rating scale, the smaller the mean the greater the extent that the group expected science department heads to have performed the corresponding job behavior. With respect to the performed role rating scale, the smaller the mean the greater the extent that the group perceived science department heads to have performed the corresponding job behavior.

The analysis of variance for fixed effects and unequal sample sizes¹ was used to test the following null hypotheses with respect to each of the forty-five job behaviors:

$$H_0: ST \mu_e = SDH \mu_e = R \mu_e$$

$$H_0: ST \mu_p = SDH \mu_p = R \mu_p$$

where $ST \mu_e$, $SDH \mu_e$, and $R \mu_e$ represent the means of the responses of science teachers, science department heads, and principals respectively on the expected role rating scale and where $ST \mu_p$, $SDH \mu_p$, and $R \mu_p$ represent the means of the responses of science teachers, science department heads, and principals respectively on the performed role rating scale. If $p \leq 0.01$, the null hypothesis was rejected and the alternative hypothesis that the means are not all equal was accepted.

The result of applying the analysis of variance to the responses of science teachers, science department heads, and principals on the expected role rating scale for each of the forty-five job behaviors of science department heads is presented in Table XXVI of Appendix B. A difference significant at $p \leq 0.01$ occurred among the means for the three groups for each of four job behaviors. These job behaviors are listed in Table II. The null hypothesis that there would be no difference among the means of the responses of science teachers, science department heads, and principals on the expected role rating

¹H. T. Hayslett, Statistics Made Simple, (New York: Doubleday, 1968), 171-172.

scale for a job behavior of science department heads was rejected with respect to each of these job behaviors and the alternative hypothesis that there is a difference among these means was accepted. No difference significant at $p \leq 0.01$ occurred among the means for the three groups for each of forty-one job behaviors. Therefore, the null hypothesis was accepted with respect to each of these job behaviors.

The result of applying the analysis of variance to the responses of science teachers, science department heads, and principals on the performed role rating scale for each of the forty-five job behaviors of science department heads is presented in Table XXVII of Appendix B. A difference significant at $p \leq 0.01$ occurred among the means for the three groups for each of seven job behaviors. These job behaviors are listed in Table III. The null hypothesis that there would be no difference among the means of the responses of science teachers, science department heads, and principals on the performed role rating scale for a job behavior of science department heads was rejected with respect to each of these job behaviors and the alternative hypothesis that there is a difference among these means was accepted. No difference significant at $p \leq 0.01$ occurred among the means for the three groups for each of thirty-eight job behaviors. Therefore, the null hypothesis was accepted with respect to each of these job behaviors.

The Scheffé method² for post-hoc comparisons was applied to all pair-wise differences among the means for science teachers, science

²William L. Hays, Statistics for Psychologists, (New York: Holt, Rinehart and Winston, 1963), 484.

department heads, and principals whenever the alternative hypothesis that there is a difference among these means was accepted. The significance level in using this method was $p \leq 0.10$ as recommended by Scheffé.³ The value of 'F' used in all applications of the Scheffé method was 2.33- the 0.10 critical value of 'F' associated with two and two hundred degrees of freedom for the greater and lesser mean squares respectively.⁴

The result of applying the Scheffé method to the means of the responses of science teachers, science department heads, and principals on the expected role rating scale of each job behavior for which the alternative hypothesis that there is a difference among these means was accepted is presented in Table II.

³Henry Scheffé, The Analysis of Variance, (New York: John Wiley, 1959), 71.

⁴B. J. Winer, Statistical Principles in Experimental Design, (New York: McGraw-Hill, 1962), 646.

TABLE II

RESULT OF SCHEFFÉ METHOD APPLIED TO MEANS OF RESPONSES OF SCIENCE TEACHERS(I), SCIENCE DEPARTMENT HEADS(II), AND PRINCIPALS(III) ON EXPECTED ROLE RATING SCALE OF EACH JOB BEHAVIOR FOR WHICH ANALYSIS OF VARIANCE YIELDED A SIGNIFICANT VALUE OF 'F'

Job Behavior	Comparison	Corresponding Means	Difference Between Means	Confidence Interval
12. assist departmental members in solving problems involving lesson preparation and lesson presentation;	I,II I,III II,III	3.169 2.774 3.169 2.103 2.774 2.103	0.395 1.066 0.671	(-0.091, 0.881) (0.567, 1.565)* (0.046, 1.296)*
18. work with departmental members to adapt instruction to the individual differences among students;	I,II I,III II,III	2.805 2.613 2.805 2.067 2.613 2.067	0.192 0.738 0.546	(-0.289, 0.673) (0.251, 1.225)* (-0.067, 1.159)
34. work with his school librarian to develop and maintain a departmental library of teaching journals and reference books;	I,II I,III II,III	2.345 1.800 2.345 2.034 1.800 2.034	0.545 0.311 -0.234	(0.155, 0.935)* (-0.084, 0.706) (-0.263, 0.731)

TABLE II (Continued)

Job Behavior	Comparison	Corresponding Means	Difference Between Means	Confidence Interval
37. maintain his professional knowledge and his subject area knowledge at high levels;	I,II	1.908 1.667	0.241	(-0.095, 0.577)
	I,III	1.908 1.414	0.494	(0.153, 0.835)*
	II,III	1.667 1.414	0.253	(-0.176, 0.682)

* $p \leq 0.10$

Note: The possible range of each mean is from one to five inclusive. The smaller the mean the greater the extent that the group expected science department heads to have performed the corresponding job behavior.

There are only five differences significant at $p \leq 0.10$ among the means of the responses of science teachers, science department heads, and principals on the expected role rating scales for the forty-five job behaviors: one between the means for science department heads and principals, one between the means for science teachers and science department heads, and three between the means for science teachers and principals (Table II).

The sole significant difference between the means for science department heads and principals occurred with respect to job behavior twelve: assist departmental members in solving problems involving lesson preparation and lesson presentation. The mean for principals is lower than the corresponding mean for science department heads indicating that principals expect science department heads to perform this job behavior to a greater extent than that expected by science department heads themselves.

The sole significant difference between the means for science teachers and science department heads occurred with respect to job behavior thirty-four: work with his school librarian to develop and maintain a departmental library of teaching journals and reference books. The mean for science department heads is lower than the corresponding mean for science teachers indicating that science department heads expect themselves to perform this job behavior to a greater extent than that expected by science teachers.

The three significant differences between the means for science teachers and principals occurred with respect to job behaviors twelve, eighteen, and thirty-seven: assist departmental members in solving

problems involving lesson preparation and lesson presentation, work with departmental members to adapt instruction to the individual differences among students, and maintain his professional knowledge and his subject area knowledge at high levels. All the means for principals are lower than the corresponding means for science teachers indicating that principals expected science department heads to perform these job behaviors to a greater extent than that expected by science teachers.

The result of applying the Scheffé method for post-hoc comparisons to the means of the responses of science teachers, science department heads, and principals on the performed role rating scale of each job behavior for which the alternative hypothesis that there is a difference among these means was accepted is presented in Table III.

TABLE III

RESULT OF SCHEFFÉ METHOD APPLIED TO MEANS OF RESPONSES OF SCIENCE TEACHERS(I), SCIENCE DEPARTMENT HEADS(II), AND PRINCIPALS(III) ON PERFORMED ROLE RATING SCALE OF EACH JOB BEHAVIOR FOR WHICH ANALYSIS OF VARIANCE YIELDED A SIGNIFICANT VALUE OF 'F'

Job Behavior	Comparison	Corresponding Means	Difference Between Means	Confidence Interval
12. assist departmental members in solving problems involving lesson preparation and lesson presentation;	I,II I,III II,III	3.846 3.846 3.367	0.479 0.667 0.188	(-0.037, 0.995) (0.136, 1.198)* (-0.478, 0.854)
13. provide leadership that improves the curriculum offered within his department;	I,II I,III II,III	3.226 3.226 2.567	0.659 0.547 -0.112	(0.169, 1.149)* (0.063, 1.031)* (-0.521, 0.745)
19. facilitate and plan for efficient utilization of departmental facilities, equipment, and materials by departmental members;	I,II I,III II,III	2.740 2.740 1.967	0.773 0.740 -0.033	(0.292, 1.254)* (0.252, 1.228)* (-0.583, 0.649)
22. work with departmental members to select and procure adequate amounts and kinds of instructional materials of equipment, and supplies;	I,II I,III II,III	2.358 2.358 1.700	0.658 0.358 -0.300	(0.239, 1.077)* (-0.067, 0.783) (-0.236, 0.836)

TABLE III (Continued)

	Job Behavior	Comparison	Corresponding Means	Difference Between Means	Confidence Interval
23.	work with departmental members to develop and establish safety standards and safety procedures to be used in departmental laboratories;	I,II I,III II,III	3.549 2.679 3.549 2.655 2.679 2.655	0.870 0.894 0.024	(0.299, 1.441)* (0.331, 1.457)* (-0.699, 0.747)
28.	work with departmental members to coordinate departmental activities to avoid duplications of effort by departmental members in the preparation of tests, work-sheets, and other instructional materials;	I,II I,III II,III	3.549 2.828 3.549 2.862 2.828 2.862	0.721 0.687 -0.034	(0.168, 1.274)* (0.134, 1.240)* (-0.669, 0.737)
34.	work with his school librarian to develop and maintain a departmental library of teaching journals and reference books;	I,II I,III II,III	3.145 2.241 3.145 2.821 2.241 2.821	0.904 0.324 -0.580	(0.430, 1.378)* (-0.157, 0.805) (-0.026, 1.186)

*p ≤ 0.10

Note: The possible range of each mean is from one to five inclusive. The smaller the mean the greater the extent that the group perceived science department heads to have performed the corresponding job behavior.

Eleven differences significant at $p \leq 0.10$ occurred among the means of the responses of science teachers, science department heads, and principals on the performed role rating scales of the forty-five job behaviors: none between the means for science department heads and principals, five between the means for science teachers and principals, and six between the means for science teachers and science department heads (Table III).

The five significant differences between the means for science teachers and principals occurred with respect to the following job behaviors: (a) assist departmental members in solving problems involving lesson preparation and lesson presentation; (b) provide leadership that improves the curriculum offered within his department; (c) facilitate and plan for efficient utilization of departmental facilities, equipment, and materials by departmental members; (d) work with departmental members to develop and establish safety standards and safety procedures to be used in departmental laboratories; (e) work with departmental members to coordinate departmental activities to avoid duplications of effort by departmental members in the preparation of tests, worksheets, and other instructional materials. The means for principals are lower than the corresponding means for science teachers indicating that principals perceived science department heads performing these job behaviors to a greater extent than that perceived by science teachers.

The six significant differences between the means for science teachers and science department heads occurred with respect to the following job behaviors: (a) provide leadership that improves the

curriculum offered within his department; (b) facilitate and plan for efficient utilization of departmental facilities, equipment, and materials by departmental members; (c) work with departmental members to select and procure adequate amounts and kinds of instructional materials, equipment, and supplies; (d) work with departmental members to develop and establish safety standards and safety procedures to be used in departmental laboratories; (e) work with departmental members to coordinate departmental activities to avoid duplications of effort by departmental members in the preparation of tests, worksheets, and other instructional materials; (f) work with his school librarian to develop and maintain a departmental library of teaching journals and reference books. The means for science department heads are lower than the corresponding means for science teachers indicating that science department heads perceived themselves performing these job behaviors to a greater extent than that perceived by science teachers.

A COMPARISON OF THE EXPECTED AND PERFORMED ROLES OF SCIENCE DEPARTMENT HEADS

A 't' test for testing the significance of the difference between two means was used to test the following null hypotheses with respect to each of the forty-five job behaviors.

$$H_0: ST \mu_e = ST \mu_p$$

$$H_1: ST \mu_e \neq ST \mu_p$$

$$H_0: SDH \mu_e = SDH \mu_p$$

$$H_1: SDH \mu_e \neq SDH \mu_p$$

$$H_0: R \mu_e = R \mu_p$$

$$H_1: R \mu_e \neq R \mu_p$$

where $ST \mu_e$, $SDH \mu_e$, and $R \mu_e$ are the means for science teachers, science department heads, and principals respectively on the expected role rating scale and where $ST \mu_p$, $SDH \mu_p$, and $R \mu_p$ are the means for science teachers, science department heads, and principals respectively on the performed role rating scale. The criterion for rejecting the null hypothesis was $p \leq 0.01$. Whenever the null hypothesis was rejected, the corresponding alternative hypothesis was accepted.

The Pearson product-moment correlation⁵ between the responses of each group on the expected role rating scale and its responses on the performed role rating scale was used to determine whether to apply a 't' test for correlated data⁶ or a 't' test for uncorrelated data.⁷ If the correlation coefficient was different from zero at $p \leq 0.01$, the test for correlated data was used. If the correlation coefficient was not different from zero at $p \leq 0.01$, the test for uncorrelated data was used. The results appear in Tables XXVIII, XXIX, and XXX of Appendix B. Due to the matched-pairs method of performing the 't'

⁵George A. Ferguson, Statistical Analysis in Psychology and Education, (New York: McGraw-Hill, 1966), 111.

⁶Ibid., 170.

⁷Ibid., 168.

test for correlated data, many means in these tables differ slightly from the corresponding means in Table I.

The result of applying a 't' test to the difference between the means for science teachers on the expected and performed role rating scales for each of the forty-five job behaviors is presented in Table XXVIII of Appendix B. A difference significant at $p \leq 0.01$ occurred between the mean on the expected role rating scale and its corresponding mean on the performed role rating scale for each of the forty-five job behaviors. Therefore, the null hypothesis that there is no difference between the means of the responses of science teachers on the expected and performed role rating scales for a job behavior of science department heads was rejected with respect to each of these job behaviors and the alternative hypothesis that there is a difference between these means was accepted. The Pearson product-moment correlation coefficient differed significantly from zero at $p \leq 0.01$ with respect to each of forty-three job behaviors.

The result of applying a 't' test to the difference between the means for science department heads on the expected and performed role rating scales for each of the forty-five job behaviors is presented in Table XXIX of Appendix B. The Pearson product-moment correlation coefficient differed significantly from zero at $p \leq 0.01$ with respect to each of forty-three job behaviors. A difference significant at $p \leq 0.01$ occurred between the mean on the expected role rating scale and the corresponding mean on the performed role rating scale for each of thirty-five job behaviors. Therefore, the null hypothesis that there is no difference between the means of the

responses of science department heads on the expected and performed role rating scales for a job behavior of science department heads was rejected with respect to each of these job behaviors and the alternative hypothesis that there is a difference between these means was accepted. The null hypothesis was accepted with respect to each of the following job behaviors:

provide direct supervisory assistance to departmental members by observing and evaluating their teaching;

assist departmental members in solving problems involving student behavior;

facilitate and plan for efficient utilization of departmental facilities, equipment, and materials by departmental members;

help to plan and to improve the work of his school by serving along with other department heads on his school's "Principal's Council";

allow and encourage departmental members to participate in the planning of the agendas of departmental meetings;

maintain his professional knowledge and his subject area knowledge at high levels;

encourage departmental members to attend professional meetings (seminars, workshops, conventions);

submit to his principal an annual statement for budget purposes of the instructional materials, equipment, and supplies required by his department;

maintain an accurate and complete record of departmental business transactions (purchase orders and receipts, requisition orders, invoices);

compile annually an inventory of all departmental materials, equipment, and supplies by obtaining from departmental members lists of the materials, equipment, and supplies in their classrooms and laboratories.

The result of applying a 't' test to the difference between the means for principals on the expected and performed role rating scales for each of the forty-five job behaviors is presented in Table XXX of Appendix B. The Pearson product-moment correlation coefficient differed significantly from zero at $p \leq 0.01$ for each of twenty-eight job behaviors. A difference significant at $p \leq 0.01$ occurred between the mean on the expected role rating scale and the corresponding mean on the performed role rating scale for each of thirty-two job behaviors. Therefore, the null hypothesis that there is no difference between the means of the responses of principals on the expected and performed role rating scales for a job behavior of science department heads was rejected with respect to each of these job behaviors and the alternative hypothesis that there is a difference between these means was accepted. The null hypothesis was accepted with respect to each of the following job behaviors:

- work with the principal to determine the teaching assignments of departmental members;

- assist the principal in selecting new departmental members;

- assist departmental members in solving problems involving student behavior;

- facilitate and plan for efficient utilization of departmental facilities, equipment, and materials by departmental members;

- attend regular meetings at the district level of the department heads in his subject area;

- act as a liaison agent to communicate information on courses and teaching in his subject area between departmental members and teachers in the elementary and senior high schools (or elementary and junior high schools);

- demonstrate exemplary teaching;

participate in the activities of professional and subject area organizations;

submit to his principal an annual statement for budget purposes of the instructional materials, equipment, and supplies required by the department;

utilize assistants (students, departmental members, laboratory aides) to perform the clerical duties associated with the department headship;

compile annually an inventory of all departmental materials, equipment, and supplies by obtaining from departmental members lists of the materials, equipment, and supplies in their classrooms and laboratories;

assist the principal in the placement and orientation of student teachers within the department;

provide departmental leadership that develops and establishes a departmental policy to be used in evaluating student progress.

WORKING CONDITIONS OF SCIENCE DEPARTMENT HEADS

In each contingency table in this section, the respondents are classified according to two nominal variables- their present positions and their responses to a selected question. The numbers in parentheses are the expected cell frequencies that one should expect to obtain if the two variables were independent of each other given the marginal totals of the rows and columns.⁸ The expected frequency in each cell was calculated by multiplying the total of the row in which the cell appeared by the total of the column in which the cell

⁸George A. Ferguson, Statistical Analysis in Psychology and Education, (New York: McGraw-Hill, 1966), 201.

appeared and then dividing the resulting product by the total number of respondents.⁹

The statistic used to test the significance of the difference between the observed and expected cell frequencies in each contingency table was χ^2 . When χ^2 was significant at $p \leq 0.01$, the null hypothesis that the two criteria of classification in the contingency table are independent was rejected and the alternative hypothesis that the two criteria of classification in the contingency table are not independent was accepted. Upon rejection of the null hypothesis, further chi-square tests were made taking the responses of one position at a time versus the responses of another position in order to determine the pairs of positions between which a significant difference occurred.¹⁰

Released Time from Teaching

The responses of science teachers, science department heads, and principals to the question, "Does your science department head have scheduled non-teaching time in his/her timetable to devote to his/her responsibilities and duties as science department head?" are presented in Table IV.

⁹H. T. Hayslett, Statistics Made Simple, (New York: Doubleday, 1968), 143.

¹⁰N. M. Downie and R. W. Heath, Basic Statistical Methods, (New York: Harper & Row, 1970), 206.

TABLE IV

CONTINGENCY TABLE SHOWING RELATIONSHIP BETWEEN POSITIONS OF RESPONDENTS AND THEIR RESPONSES TO- "DOES YOUR SCIENCE DEPARTMENT HEAD HAVE SCHEDULED NON-TEACHING TIME IN HIS/HER TIMETABLE TO DEVOTE TO HIS/HER RESPONSIBILITIES AND DUTIES AS SCIENCE DEPARTMENT HEAD?"

	Yes	No	Total
Science Teachers	98 (98.3)	25 (24.7)	123
Science Department Heads	19 (24.8)	12 (6.2)	31
Principals	30 (24.0)	0 (6.0)	30
Total	147	37	184

2 D.F., $\chi^2 = 14.23$, $p \leq 0.001$

A difference, significant at $p \leq 0.001$, occurred between the observed and expected cell frequencies for Table IV. Therefore, the null hypothesis that the two criteria of classification in Table IV are independent was rejected and the alternative hypothesis that the two criteria of classification in Table IV are not independent was accepted.

The result of applying a chi-square test to each pair-wise comparison of the responses of science teachers, science department heads, and principals to the question, "Does your science department head have scheduled non-teaching time in his/her timetable to devote to his/her responsibilities and duties as science department head?" is presented in Table V.

TABLE V

RESULTS OF CHI SQUARE TEST FOR EACH PAIR-WISE COMPARISON OF RESPONSES OF SCIENCE TEACHERS(I), SCIENCE DEPARTMENT HEADS(II), AND PRINCIPALS(III) TO QUESTION IN TABLE IV

Comparison	Chi Square	df	p
I,II	3.63	1	$> .05$
I,III	5.88	1	$> .01$
II,III	12.11	1	$\leq .001$

Table V shows that the responses of science department heads differ significantly from the responses of principals at $p \leq 0.001$.

Adequacy of Released Time to Carry Out Expected Role

The responses of science teachers, science department heads, and principals to the question, "Was your department head given adequate scheduled non-teaching time in his/her timetable to carry out the many jobs listed in Part B that you thought he/she should have performed?" are presented in Table VI

TABLE VI

CONTINGENCY TABLE SHOWING RELATIONSHIP BETWEEN POSITIONS OF RESPONDENTS AND THEIR RESPONSES TO- "WAS YOUR DEPARTMENT HEAD GIVEN ADEQUATE SCHEDULED NON-TEACHING TIME IN HIS/HER TIMETABLE TO CARRY OUT THE MANY JOBS LISTED IN PART B THAT YOU THOUGHT HE/SHE SHOULD HAVE PERFORMED?"

	Yes	No	Total
Science Teachers	62 (57.0)	54 (59.0)	116
Science Department Heads	5 (15.2)	26 (15.8)	31
Principals	20 (14.7)	10 (15.3)	30
Total	87	90	177

$$2 \text{ D.F.}, \chi^2 = 18.07, p \leq 0.001$$

A difference, significant at $p \leq 0.001$, occurred between the observed and expected cell frequencies for Table VI. Therefore, the null hypothesis that the two criteria of classification in Table VI are independent was rejected and the alternative hypothesis that the two criteria of classification in Table VI are not independent was accepted.

The result of applying a chi-square test to each pair-wise comparison of the responses of science teachers, science department heads, and principals to the question, "Was your department head given adequate scheduled non-teaching time in his/her timetable to carry out the many jobs listed in Part B that you thought he/she should have performed?" is presented in Table VII.

TABLE VII

RESULTS OF CHI SQUARE TEST FOR EACH PAIR-WISE COMPARISON OF RESPONSES OF SCIENCE TEACHERS(I), SCIENCE DEPARTMENT HEADS(II), AND PRINCIPALS(III) TO QUESTION IN TABLE VI

Comparison	Chi Square	df	p
I,II	12.27	1	$\leq .001$
I,III	1.20	1	$> .100$
II,III	14.08	1	$\leq .001$

Table VII shows that the responses of science teachers and principals are similar both differing significantly from the responses of science department heads at $p \leq 0.001$.

Existence of Divisional Job Descriptions

The responses of science teachers, science department heads, and principals to the question, "Does your school division have an established job description or a written statement that lists the responsibilities and duties of its department heads?" are presented in Table VIII.

TABLE VIII

CONTINGENCY TABLE SHOWING RELATIONSHIP BETWEEN POSITIONS OF RESPONDENTS AND THEIR RESPONSES TO- "DOES YOUR SCHOOL DIVISION HAVE AN ESTABLISHED JOB DESCRIPTION OR A WRITTEN STATEMENT THAT LISTS THE RESPONSIBILITIES AND DUTIES OF ITS DEPARTMENT HEADS?"

	Yes	No	Total
Science Teachers	54 (58.3)	48 (43.7)	102
Science Department Heads	18 (17.1)	12 (12.9)	30
Principals	20 (16.6)	9 (12.4)	29
Total	92	69	161

2 D.F., $\chi^2 = 2.49$, $p > 0.05$

No difference, significant at $p \leq 0.01$, occurred between the observed and expected cell frequencies for Table VIII. Therefore, the null hypothesis that the two criteria of classification in Table VIII are independent was accepted.

Existence of School Job Descriptions

The responses of science teachers, science department heads, and principals to the question, "Has your school staff (and/or your principal) developed and established a job description or a written statement that lists the responsibilities and duties of its department heads?" are presented in Table IX.

TABLE IX

CONTINGENCY TABLE SHOWING RELATIONSHIP BETWEEN POSITIONS OF RESPONDENTS AND THEIR RESPONSES TO- "HAS YOUR SCHOOL STAFF (AND/OR YOUR PRINCIPAL) DEVELOPED AND ESTABLISHED A JOB DESCRIPTION OR A WRITTEN STATEMENT THAT LISTS THE RESPONSIBILITIES AND DUTIES OF ITS DEPARTMENT HEADS?"

	Yes	No	Total
Science Teachers	41 (46.3)	69 (63.7)	110
Science Department Heads	12 (13.1)	19 (17.9)	31
Principals	19 (12.6)	11 (17.4)	30
Total	72	99	171

$$2 \text{ D.F.}, \chi^2 = 6.75, p > 0.01$$

No difference, significant at $p \leq 0.01$, occurred between the observed and expected cell frequencies for Table IX. Therefore, the null hypothesis that the two criteria of classification in Table IX are independent was accepted.

Desirability of Divisional Job Descriptions

The responses of science teachers, science department heads, and principals to the question, "Should your school division make available to its instructional staff a job description or a written statement that lists the responsibilities and duties of its department heads?" are presented in Table X.

TABLE X

CONTINGENCY TABLE SHOWING RELATIONSHIP BETWEEN POSITIONS OF RESPONDENTS AND THEIR RESPONSES TO- "SHOULD YOUR SCHOOL DIVISION MAKE AVAILABLE TO ITS INSTRUCTIONAL STAFF A JOB DESCRIPTION OR A WRITTEN STATEMENT THAT LISTS THE RESPONSIBILITIES AND DUTIES OF ITS DEPARTMENT HEADS?"

	Yes	No	Total
Science Teachers	93 (93.6)	26 (25.4)	119
Science Department Heads	25 (23.6)	5 (6.4)	30
Principals	22 (22.8)	7 (6.2)	29
Total	140	38	178

$$2 \text{ D.F.}, \chi^2 = 0.54, p > 0.05$$

No difference, significant at $p \leq 0.01$, occurred between the observed and expected cell frequencies for Table X. Therefore, the null hypothesis that the two criteria of classification in Table X are independent was accepted.

Desirability of School Job Descriptions

The responses of science teachers, science department heads, and principals to the question, "Should your school staff (and/or your principal) develop and establish a job description or a written statement that lists the responsibilities and duties of its department heads?" are presented in Table XI.

TABLE XI

CONTINGENCY TABLE SHOWING RELATIONSHIP BETWEEN POSITIONS OF RESPONDENTS AND THEIR RESPONSES TO- "SHOULD YOUR SCHOOL STAFF (AND/OR YOUR PRINCIPAL) DEVELOP AND ESTABLISH A JOB DESCRIPTION OR A WRITTEN STATEMENT THAT LISTS THE RESPONSIBILITIES AND DUTIES OF ITS DEPARTMENT HEADS?"

	Yes	No	Total
Science Teachers	94 (96.3)	23 (20.7)	117
Science Department Heads	25 (24.7)	5 (5.3)	30
Principals	25 (23.0)	3 (5.0)	28
Total	144	31	175

$$2 \text{ D.F.}, \chi^2 = 1.27, p > 0.05$$

No difference, significant at $p \leq 0.01$, occurred between the observed and expected cell frequencies for Table XI. Therefore, the null hypothesis that the two criteria of classification in Table XI are independent was accepted.

Amount of Daily Released Time from Teaching

The means of the responses of science teachers, science department heads, and principals to the question, "How many scheduled non-teaching periods does your science department head typically have each school day to carry out his/her responsibilities and duties as science department head?" are presented in Table XII.

TABLE XII

MEAN OF RESPONSES OF EACH GROUP TO- "HOW MANY SCHEDULED NON-TEACHING PERIODS DOES THE SCIENCE DEPARTMENT HEAD OF YOUR SCHOOL TYPICALLY HAVE EACH SCHOOL DAY TO CARRY OUT HIS RESPONSIBILITIES AND DUTIES AS SCIENCE DEPARTMENT HEAD?"

Group	Mean
Science Teachers	1.13
Science Department Heads	0.63
Principals	1.44

The null hypothesis that there is no difference among the means in Table XII was tested with the analysis of variance for fixed effects and unequal sample sizes at $p \leq 0.01$.

TABLE XIII

ANALYSIS OF VARIANCE OF RESPONSES OF SCIENCE TEACHERS, SCIENCE DEPARTMENT HEADS, AND PRINCIPALS TO QUESTION IN TABLE XII

Source of Variation	Sum of Squares	Degrees of Freedom	Variance Estimate
Between	10.17	2	5.09
Within	123.37	158	0.78
Total	133.54	160	F=6.51*

* $p \leq 0.01$

A difference, significant at $p \leq 0.01$, occurred among the means in Table XII (Table XIII). Therefore, the null hypothesis that there is no difference among the means of the responses of science

teachers, science department heads, and principals to the question in Table XII was rejected and the alternative hypothesis that there is a difference among these means was accepted.

The Scheffé method for post-hoc comparisons was used to determine which pair-wise differences among the means for Table XII are significant. The results are presented in Table XIV.

TABLE XIV

RESULTS OF SCHEFFÉ METHOD APPLIED TO ALL PAIR-WISE COMPARISONS OF MEANS FOR SCIENCE TEACHERS(I), SCIENCE DEPARTMENT HEADS(II), AND PRINCIPALS(III) IN TABLE XII

Comparison	Difference Between Means	Confidence Interval
I,II	0.499	(0.396, 0.602)*
I,III	0.311	(0.208, 0.414)*
II,III	0.810	(0.650, 0.970)*

* $p \leq 0.01$

The Scheffé method revealed that there is a difference, significant at $p \leq 0.01$, between each pair of means in Table XII (Table XIV).

The ratio of the mean for each group in Table XII to its mean in Table XV represents the fraction of each school day that the group perceived science department heads to have as scheduled non-teaching time to devote to their headship responsibilities and duties. From the viewpoints of science teachers, science department heads, and principals, these fractions are 0.164, 0.093, and 0.212 respectively.

Number of Periods in the School Day

The means of the responses of science teachers, science department heads, and principals to the question, "How many periods are there in your school's instructional day?" are presented in Table XV.

TABLE XV

MEAN OF RESPONSES OF EACH GROUP TO- "HOW MANY PERIODS ARE THERE IN YOUR SCHOOL'S INSTRUCTIONAL DAY?"

Group	Mean
Science Teachers	6.89
Science Department Heads	6.74
Principals	6.80

The null hypothesis that there is no difference among the means in Table XV was tested with the analysis of variance for fixed effects and unequal sample sizes at $p \leq 0.01$.

TABLE XVI

ANALYSIS OF VARIANCE OF RESPONSES OF SCIENCE TEACHERS, SCIENCE DEPARTMENT HEADS, AND PRINCIPALS TO QUESTION IN TABLE XV

Source of Variation	Sum of Squares	Degrees of Freedom	Variance Estimate
Between	0.61	2	0.30
Within	623.15	182	3.42
Total	623.76	184	F=0.09*

* $p > 0.05$

No difference, significant at $p \leq 0.01$, occurred among the means in Table XV (Table XVI). Therefore, the null hypothesis that there is no difference among the means of the responses of science teachers, science department heads, and principals to the question in Table XV was accepted.

Amount of Daily Released Time Needed
to Carry Out Expected Role

The means of the responses of science teachers, science department heads, and principals to the question, "How many scheduled non-teaching periods would your department head have required during each school day in the past year to have carried out the many jobs listed in Part B that you thought he should have performed?" are presented in Table XVII.

TABLE XVII

MEAN OF RESPONSES OF EACH GROUP TO- "HOW MANY SCHEDULED NON-TEACHING PERIODS WOULD YOUR DEPARTMENT HEAD HAVE REQUIRED DURING EACH SCHOOL DAY IN THE PAST YEAR TO HAVE CARRIED OUT THE MANY JOBS LISTED IN PART B THAT YOU THOUGHT HE SHOULD HAVE PERFORMED?"

Group	Mean
Science Teachers	1.56
Science Department Heads	1.94
Principals	1.68

The null hypothesis that there is no difference among the means in Table XVII was tested with the analysis of variance for fixed effects and unequal sample sizes at $p \leq 0.01$.

TABLE XVIII

ANALYSIS OF VARIANCE OF RESPONSES OF SCIENCE TEACHERS, SCIENCE DEPARTMENT HEADS, AND PRINCIPALS TO QUESTION IN TABLE XVII

Source of Variation	Sum of Squares	Degrees of Freedom	Variance Estimate
Between	3.40	2	1.70
Within	145.93	166	0.88
Total	149.33	168	F=1.93*

* $p > 0.05$

No difference, significant at $p \leq 0.01$, occurred among the means in Table XVII (Table XVIII). Therefore, the null hypothesis that there is no difference among the means of the responses of science teachers, science department heads, and principals to the question in Table XVII was accepted.

The ratio of the mean for each group in Table XVII to its mean in Table XV represents the fraction of each school day that science department heads would have required as scheduled non-teaching time to carry out their expected role as conceived by the group. From the viewpoints of science teachers, science department heads, and principals, these fractions are 0.226, 0.288, and 0.247 respectively.

Chapter 5

CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

This chapter presents (1) conclusions organized under headings corresponding to the questions of the thesis problem, (2) implications of the conclusions for educational practice, and (3) recommendations for further research.

CONCLUSIONS

As Conceived by Science Teachers, Science Department Heads, and Principals, What is the Expected Role of Science Department Heads?

Science teachers, science department heads, and principals expect science department heads to fulfill leadership roles in the general areas of instruction, curriculum, professionalism, communications, and business administration. In carrying out these roles, they expect science department heads to work cooperatively and closely with science teachers. They do not expect science department heads to perform supervisory activities such as observing and evaluating lessons, conducting supervisory conferences, and making recommendations regarding the tenure, promotion, transfer, or dismissal of departmental members.

Science department heads are expected to provide leadership in the improvement of instruction through assisting their principals in the selection of departmental personnel and making teaching assignments

within their departments. They are expected to work with science teachers in planning and implementing professional development activities designed to meet departmental needs, in solving problems involving the preparation and presentation of lessons, and in developing and establishing departmental policies to be used in evaluating the progress of students.

Science department heads are expected to provide leadership in the improvement of the curriculum. They are expected to work with science teachers to procure new instructional materials, to align the goals of the department with the goals of the school, to develop instructional objectives, to adapt science instruction to individual differences among students, to develop and establish safety standards and safety procedures for use in departmental laboratories, and to plan and implement programs of remedial instruction within the department. They are expected to recommend to their principals, with advice from the science teachers in their departments, the science courses to be offered, to coordinate the use of equipment and materials by science teachers, and to encourage science teachers to enrich their teaching through the use of outside resources such as field trips and guest speakers.

Science department heads are expected to facilitate intra- and inter-departmental communication and communication between their departments and administrative and support staff. They are expected to involve science teachers in the planning of the agendas of regularly scheduled departmental meetings, attend meetings of science department heads at the district level, coordinate departmental activities to

avoid duplications of effort by science teachers in the preparation of instructional materials, and serve with other department heads on the "Principal's Council" of their respective schools.

Science department heads are expected to provide leadership in the professional development of science teachers. They are expected to be exemplary science teachers who maintain their professional and subject area knowledge at high levels. They are expected to work with their respective school librarians to develop and maintain departmental libraries of teaching journals and reference books. They are expected to encourage science teachers to attend professional meetings such as seminars, conventions, and workshops and to participate in the activities of professional and subject area organizations.

Science department heads are expected to administer departmental business affairs in a manner that facilitates instruction. They are expected to submit to the principals of their respective schools lists of the instructional materials required by the science teachers, compile, annually, inventories of departmental materials, maintain records of departmental business transactions and files of tests and worksheets used by science teachers, assist their principals in the placement and orientation of student teachers within their departments, and utilize assistants such as students to perform some non-teaching duties of their departments.

The role described above closely resembles that recommended by Shouse,¹ Satlow,² and Borden³ who view the department head as an instructional leader rather than as a supervisor.

How do Science Teachers, Science Department Heads, and Principals Compare in their Conceptions of the Expected Role of Science Department Heads?

The expectations of science teachers, science department heads, and principals for the headship behaviors of science department heads are similar, differing with respect to only four out of the forty-five job behaviors listed in the study instrument. In comparison with the expectations of science teachers and science department heads, principals expect greater leadership by science department heads in solving instructional problems involving the preparation and presentation of lessons by individual science teachers. Principals appear to view science department heads as having the expertise to carry out this function. Science department heads expect to play a greater role in the development of library resources for science instruction than is expected of them by science teachers. The implication of this difference seems to be that science department heads place a greater value than do other science teachers on libraries as resources for teaching

¹R. D. Shouse, "The Status and Duties of Department Heads," The Bulletin of the National Association of Secondary School Principals, XXXIV (January, 1950), 165.

²I. David Satlow, "Democracy In The Supervision Of A High School Department," The Journal Of Educational Sociology, XXXII (January, 1959), 222-223.

³Lynn D. Borden, "The Role Of The High School Business Department Chairman," The Balance Sheet, L (January, 1969), 198-199.

and professional development. Principals expect science department heads to play a greater role in maintaining their professional and subject area knowledge at high levels than that expected of science department heads by science teachers. Principals appear to view science department heads as requiring this knowledge in order to fulfill their leadership role in the improvement of the curriculum. In comparison with the expectations of science teachers, principals expect a more active role by science department heads in working with science teachers to adapt the curriculum and instruction to individual differences among students.

The results of the study are consistent with the findings of Manlove and Buser⁴ who reported that teachers, department heads, and principals generally agree as to the responsibilities that should be assigned department heads.

As Perceived by Science Teachers, Science Department Heads, and Principals, What is the Performed Role of Science Department Heads?

Science department heads appear to be engaging in leadership activities in their attempts to improve instruction. They frequently work with science teachers to plan and implement in-services and to develop and establish policies to be used in evaluating the progress of students. Consistent with expectations, science department heads do not appear to be functioning as supervisors of instruction. They infrequently visit science teachers to observe and evaluate their

⁴Donald C. Manlove and Robert Buser, "The Department Head: Myths and Reality," in James E. Heald, Louis G. Romano, and Nicholas P. Georgiady, eds., Selected Readings on General Supervision, (London: The Macmillan Company, 1970), 174-176.

teaching, rarely conduct formal supervisory conferences with them, and only occasionally make recommendations concerning their tenure, promotion, transfer, or dismissal.

Science department heads are attempting to improve the curriculum mainly by ensuring that students have adequate amounts and kinds of science materials available to them for use within the instructional process. They meet frequently with science teachers to order textbooks, equipment, and supplies. However, they infrequently work with science teachers in the development of programs involving remedial instruction, individualization of instruction, and the use of community resources such as field trips and guest speakers. To some extent they work with science teachers in developing and revising the objectives of their science courses and in developing and establishing safety standards to be used in departmental laboratories.

Science department heads are attempting to facilitate intra- and inter-departmental communication and communication between the science teachers and the administrative and support staff. They frequently hold departmental meetings in which science teachers have the opportunities to discuss school and departmental matters and to exchange ideas on teaching. They frequently serve on the "Principal's Council" of their respective schools. This council is usually composed of department heads who assist the principal of their school in planning and improving school programs.

Science department heads appear to be playing a minor role in inter-school communication. They attend meetings of science department heads at the district level to some extent but seldom provide the

teachers in their departments with opportunities to learn about the science programs of other schools.

Science department heads are attempting to provide leadership in the professional development of science teachers. They frequently are perceived as maintaining their professional and subject area knowledge at high levels and to some extent are perceived as exhibiting the practices and qualities of exemplary teachers. To some extent they are perceived as participating in the activities of professional and subject area organizations, as encouraging science teachers to join these organizations, and as encouraging them to attend professional meetings such as seminars, workshops, and conventions. From time to time they work with their respective school librarians in developing departmental libraries of teaching journals and reference books.

Science department heads are attempting to manage the business affairs of their departments. They appear to be spending considerable time preparing lists of equipment, materials, and supplies to be ordered, compiling inventories of existing equipment, materials, and supplies, and maintaining accurate and complete records of departmental business transactions. To some extent they utilize assistants such as students, laboratory aides, and science teachers in the performance of these clerical activities.

How do Science Teachers, Science Department
Heads, and Principals Compare in their Perceptions
of the Performed Role of Science Department Heads?

Science teachers, science department heads, and principals have similar perceptions of the role performed by science department heads.

There are no differences between the perceptions of science department heads and principals. The perceptions of science teachers differ from the perceptions of science department heads or principals with respect to only seven out of the forty-five job behaviors described in the study instrument. In comparison to science teachers, science department heads perceived a greater degree of performance by science department heads in working with science teachers to select and procure adequate amounts and kinds of instructional materials, equipment, and supplies and in working with their respective school librarians to develop and maintain departmental libraries of teaching journals and reference books. In comparison to science teachers, principals perceived a greater degree of performance by science department heads in assisting science teachers to solve problems involving the preparation and presentation of lessons. In comparison to science teachers, science department heads and principals perceived a greater degree of performance by science department heads in providing leadership to their departments designed to bring about improvements in departmental curricula, in planning for efficient utilization of departmental facilities, equipment, and materials by science teachers, in working with science teachers to coordinate their activities to avoid duplications of effort in the preparation of tests, worksheets, and other instructional materials, and in working with science teachers to develop and establish safety standards and safety procedures to be used in departmental laboratories.

From the Viewpoints of Science Teachers, Science
Department Heads, and Principals, to What Extent
does the Performed Role of Science Department
Heads conform to their Expected Role?

From the viewpoint of science teachers, the performed role of science department heads does not conform to their expected role. The degree to which science teachers expect science department heads to perform each of the forty-five job behaviors described in the study instrument is greater than the degree to which they perceived science department heads perform the job behavior, suggesting that many science teachers generally evaluate the performed role of their respective science department heads as being inadequate. Many factors may have contributed to this result. Science teachers may have perceived their science department heads as ineffective leaders. Heavy teaching assignments and the burdens of administrative duties may have prevented many science department heads from meeting frequently with their respective science teachers for the purpose of discussing curricular and instructional problems. Many science department heads may have lacked the authority to pursue an active leadership role. Their departmental duties may have been restricted to clerical chores such as ordering, receiving, and distributing equipment and supplies. Many science department heads may have been unable to fulfill the expectations of science teachers because they were not cognizant of these expectations. This factor appears plausible in view of the fact that many school staffs have not developed and established their own job descriptions for the position of department head. Although the majority of science teachers were of the opinion that their respective

science department heads had sufficient scheduled released time from teaching to have been able to perform their expected role, they may have perceived their science department heads as not making the best possible use of this time. Many science department heads may lack leadership ability. Consequently they may fail to motivate the science teachers to work together to bring about curricular and instructional improvements.

Science teachers appear to view science department heads as most effective in the performance of clerical duties such as preparing lists of equipment and materials to be ordered, maintaining records of business transactions, and compiling inventories of departmental supplies. They appear to view science department heads as least effective in providing departmental leadership in the improvement of the curriculum and in the professional development of science teachers.

From the viewpoints of science department heads and principals, there is conformity between portions of the expected and performed roles of science department heads. Science department heads perceived themselves as having fulfilled expectations with respect to ten out of the forty-five job behaviors described in the study instrument. Principals perceived science department heads as having fulfilled expectations with respect to thirteen job behaviors. Several factors may have contributed to these results. Many science department heads and principals may have overrated the role performed by the science department heads of their respective schools. A more plausible factor is that science department heads and principals probably viewed these science department heads as having exerted genuine efforts in

attempting to carry out many of their headship responsibilities.

While science department heads and principals appear to view science department heads as effectively performing many of the clerical duties of their departments, they appear to view science department heads as providing inadequate departmental leadership in the improvement of the science curriculum. Science department heads appear to view their departmental leadership in the improvement of instruction as effective mainly in the area of assisting science teachers in solving problems involving the behavior of students. In contrast, principals appear to view science department heads as effectively demonstrating a more comprehensive leadership role in the improvement of instruction. In addition to viewing science department heads as effectively working with science teachers in solving problems involving the behavior of students, principals view science department heads as effectively working with science teachers in developing and establishing departmental policies to be used in evaluating the academic progress of students. Principals also view science department heads as effectively assisting principals in determining the teaching assignments of science teachers and in selecting new departmental members. Science department heads appear to view themselves as effective in promoting inter-departmental communication among the various departments of their respective schools; principals appear to view science department heads as effective in facilitating inter-school communication among science departments. Both science department heads and principals appear to view science department heads as fulfilling a

minor leadership role in the professional development of science teachers.

Science teachers and science department heads tend to use only one criterion in evaluating the performed role of science department heads. The correlation between the ratings of each group on the expected role rating scales and its ratings on the corresponding performed role rating scales is significantly different from zero at $p \leq 0.01$ with respect to forty-three out of the forty-five job behaviors. However, principals appear to use a variety of criteria in appraising the role performed by science department heads. The correlation between their ratings on the expected role rating scales and their ratings on the corresponding performed role rating scales is not significantly different from zero at $p \leq 0.01$ with respect to twenty-seven job behaviors.

How do Science Teachers, Science Department Heads, and Principals compare in their Opinions with respect to Selected Working Conditions of Science Department Heads?

Science department heads differ from principals in their responses with respect to whether science department heads had scheduled non-teaching periods in their timetables to devote to their headship responsibilities. Principals reported that their respective science department heads had these periods in their timetables. Many science department heads reported that their timetables had none of these periods. Principals appear to have interpreted the term, "scheduled non-teaching time in their timetables to devote to their headship

responsibilities," as including preparation periods. Many science department heads appear to have interpreted this term as including only periods assigned to science department heads exclusively for the performance of their headship responsibilities. However, the responses of the science department heads do support the finding of Buser and Humm⁵ that department heads are frequently not provided with released time to carry out their headship responsibilities.

Science teachers, science department heads, and principals differ from each other in their opinions with respect to the amount of time that science department heads typically had each school day to carry out their headship responsibilities. From the viewpoints of science teachers, science department heads, and principals respectively, science department heads had 16.4%, 9.3% and 21.2% of each school day as scheduled non-teaching time to devote to these responsibilities.⁶

Science department heads differ from science teachers and principals in their opinions with respect to whether science department heads had adequate scheduled non-teaching time in their timetables to have allowed them to perform their expected role. The vast majority of science department heads were of the opinion that the amount of scheduled non-teaching time in their timetables was inadequate for this purpose. However, many science teachers and principals were of the

⁵Robert L. Buser and William L. Humm, "The Department Head Revisited," Journal of Secondary Education, XLV (October, 1970), 284.

⁶Refer to page 85 for an explanation of these percentages.

opinion that their respective science department heads had adequate scheduled non-teaching time in their timetables to have allowed them to carry out their expected role. These science teachers and principals may have reasoned that their respective science department heads would have sufficient time to carry out their expected role if they used their existing released time from teaching effectively. Many science department heads may have based their opinions on the view that the role they expect themselves to perform as department heads is far more extensive than the role they are currently performing.

Science teachers, science department heads, and principals do not differ from each other in their opinions with respect to the amount of scheduled non-teaching time that science department heads would have required each school day to have been able to carry out their expected role. From the viewpoints of science teachers, science department heads, and principals respectively, science department heads would have required 22.6%, 28.8%, and 24.7% of each school day for this purpose.⁷ The differences among these percentages are minor which one would expect in view of the great similarity among science teachers, science department heads, and principals with respect to their conceptions of the expected role of science department heads. On the basis of these percentages, department heads should be relieved of approximately one-quarter of their teaching duties. As a result of studying

⁷Refer to page 88 for an explanation of these percents.

the department headships in twenty American high schools, Easterday⁸ recommended that department heads should have their teaching responsibilities reduced by one-third.

Science teachers, science department heads, and principals do not differ from each other in their responses with respect to whether their school divisions possess established job descriptions for the position of department head and with respect to whether their school staffs have developed and established their own job descriptions for the position of department head. 42.9% of the respondents reported the lack of divisional job descriptions while 57.9% reported the lack of staff-designed job descriptions. These results suggest that many department heads have an inadequate knowledge of their headship responsibilities and of the expectations of supervisors, principals, and teachers for their behavior as department heads. These results are not unique to the secondary schools of Manitoba. The research by Buser and Humm,⁹ Altimari,¹⁰ and the Association for Supervision and Curriculum Development¹¹ reveals that the lack of job descriptions for

⁸Kenneth Easterday, "The Department Chairman: What Are His Duties and Qualifications?" The Bulletin of the National Association of Secondary School Principals, XLIX (October, 1965), 84.

⁹Robert L. Buser and William L. Humm, "The Department Head Revisited," Journal of Secondary Education, XLV (October, 1970), 284.

¹⁰William G. Altimari, Jr., "The Department Chairmanship in Large High Schools of the North Central Association," The North Central Association Quarterly, XLII (Spring, 1968), 309.

¹¹Association for Supervision and Curriculum Development, The Department Head And Instructional Improvement, (Washington, D.C., N.E.A., 1948), 21.

the position of department head is widespread in other regions of North America as well.

Science teachers, science department heads, and principals do not differ from each other in their opinions with respect to whether their school divisions should make job descriptions for the position of department head available to their instructional staffs and with respect to whether their school staffs should develop and establish their own job descriptions for the position of department head. 78.7% of the respondents viewed the establishment of divisional job descriptions as desirable while 82.3% favored the establishment of staff-designed job descriptions. These results suggest that many teachers, department heads, and principals recognize a need to clarify the functions of department heads. They apparently view written job descriptions as valuable not only in assisting department heads in the performance of their assigned functions but also in clarifying the relationship between teachers, department heads, and principals in a departmental system of school organization.

IMPLICATIONS FOR EDUCATIONAL PRACTICE

As a result of the organizational hierarchy in the departmental system of school administration, the teacher, the department head, and the principal tend to use different criteria in evaluating the role performed by the department head. Because he is at the bottom of this hierarchy, the teacher appears to view the department head as an ineffective leader who fails to carry out his leadership role in spite

of the fact that he has adequate released time from teaching to do so. At the top is the principal who seems to view the department head as an effective leader in the improvement of instruction with sufficient time released from teaching to perform a more comprehensive leadership role than he in fact does perform. In the middle is the department head who feels frustrated as he tries to fulfill an extensive leadership role with insufficient time to meet and work with the teacher in a leadership capacity, with inadequate knowledge of the expectations of the teacher and the principal for his leadership role, and with the burdens of many non-teaching duties. These interpretations of the results of the study have implications for the practices of school divisions for selecting department heads, their training, tenure, and working conditions.

Since many teachers appear to perceive their respective department heads as lacking leadership ability, there is a need to investigate the criteria and procedures for selecting new department heads. Perhaps many department heads have been appointed to their positions mainly on the basis of lengthy or successful teaching experience without sufficient concern for leadership ability.

The tenure of department heads should be reviewed yearly and should be extended for an additional year only if they have demonstrated effective and consistent leadership to their respective departments. The criteria for evaluating the effectiveness of the department head in fulfilling his expected role should be established at the beginning of the school year by the teachers, the department head, and the principal. The teachers, to whom the leadership of the department

head is mainly directed, should play an important role in any decision to retain the department head in, or to remove him from, his headship position.

Unfavorable working conditions may have caused many department heads to appear as ineffective leaders. The widespread absence of job descriptions, the extent to which department heads are performing clerical duties, and the view of most department heads that they lack sufficient released time suggest that many department heads are confused and frustrated. Administrators, who are largely responsible for the working conditions of department heads, should examine their own roles in the failure of many department heads to attain the level of leadership expected of them by teachers.

The working conditions of the department head should facilitate the performance of his leadership role. If the department head is expected to carry out a comprehensive leadership role, he should know at the beginning of the school year the nature of this role, his headship responsibilities, and the duties that the teachers and the principal expect him to perform to fulfill these responsibilities. Newly-appointed department heads should receive special orientation with respect to their leadership roles and training in the techniques of group leadership. Both the teachers and the department head should be provided with sufficient time released from teaching to meet together to discuss and solve the instructional and curricular problems of the department. Clerical assistants might relieve department heads of many sub-professional responsibilities such as ordering, receiving, and distributing new equipment and supplies.

There appears to be a need in many schools for improved communication between the teachers, the department head, and the principal with respect to the role that the department head should perform, the amount of time released from teaching that should be allotted to him for its performance, and the criteria that should be employed to evaluate his actual headship performance. These groups should meet early in the school year to discuss these topics and to define in explicit terms the expected role of the department head and the criteria and procedures for evaluating his performed role. Realistic adjustments should be made to the nature and scope of his expected role to place it in direct relation to the amount of time released from teaching that can be allotted to him. Toward the end of the school year, the teachers, the department head, and the principal should meet again to discuss the adequacy of this time in terms of the role that the department head was expected to perform and in terms of the role that he may be expected to perform the next year. They should also evaluate the role performed by the department head in terms of the criteria and procedures established by them at the beginning of the school year. Any evaluation of this role should probably include a detailed assessment of the degree to which the teachers and the principal have met their obligations to the department head.

RECOMMENDATIONS FOR FURTHER RESEARCH

The present study investigated the role of the science department head. The role of department heads in other subject matter areas

such as mathematics, social studies, and physical education should also be studied.

The current study assumes that a need exists for the leadership of the department head. A study should be undertaken to assess the effect of this leadership on the quality of instruction.

Unfavorable working conditions may have prevented many science department heads from fully exercising their leadership abilities. The validity of the assumption that adequate working conditions for the department head increase his effectiveness as a leader in instructional change should be tested.

The present study implies that only teachers with proven leadership ability should be appointed as department heads. A study identifying the characteristics of leadership in teaching would assist administrators in the identification of potential department heads.

The present study suggests possible poor communication between the teachers, the department head, and the principal with respect to the expected role of the department head and the criteria for evaluating his performed role. A study should be undertaken to test the validity of the assumption that the departmental system of school administration facilitates the communication of information on teaching between teachers and administrators.

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APPENDIX A

Interview Questionnaire

The purpose of the interview is to obtain your opinions on the activities that science department heads should perform to fulfill their responsibilities. These opinions will be used later in the construction of a study instrument. The study instrument will be used to investigate the expected and performed roles of science department heads in Manitoba secondary schools.

Questions

1. What should a science department head do to:
 - (a) improve the science curriculum?
 - (b) improve the classroom instruction of science teachers?
 - (c) increase the professional growth of science teachers?
 - (d) provide science teachers with the proper working conditions (facilities, materials, equipment) that are required for science instruction?
 - (e) establish and maintain effective communications between the principal and the science department?
 - (f) establish and maintain effective communications within the science department?
2. What should a school do to make its science department head more effective at fulfilling his responsibilities?
3. What should be the overall responsibility of a science department head?

THE EXPECTED AND PERFORMED ROLES OF DEPARTMENT HEADS

DIRECTIONS:

1. Within each section of this study instrument rate the extent that your department head should have performed each job behavior during the past school year by circling one category of the expected role rating scale opposite the job behavior.
2. Within each section of this study instrument rate the extent that your department head performed each job behavior during the past school year by circling one category of the performed role rating scale opposite the job behavior.

A = to a very great extent
 B = to a considerable extent
 C = to some extent
 D = to a very little extent
 E = not at all

Section I: Instruction

Job Behavior	Expected Role Rating Scale	Performed Role Rating Scale
1. provide leadership that improves the instruction given within his department;	A B C D E	A B C D E
2. provide direct supervisory assistance to departmental members by observing and evaluating their teaching;	A B C D E	A B C D E
3. conduct supervisory conferences with departmental members subsequent to observing their teaching;	A B C D E	A B C D E
4. plan and coordinate in-services that expose departmental members to new instructional methodologies, new instructional programs, and new instructional materials;	A B C D E	A B C D E
5. demonstrate exemplary teaching;	A B C D E	A B C D E

A = to a very great extent
 B = to a considerable extent
 C = to some extent
 D = to a very little extent
 E = not at all

Job Behavior	Expected Role Rating Scale	Performed Role Rating Scale
6. recommend to the principal the teaching assignments of departmental members;	A B C D E	A B C D E
7. assist the principal in selecting new departmental members;	A B C D E	A B C D E
8. arrange for departmental members to visit other schools to observe methodologies, programs, and facilities;	A B C D E	A B C D E
9. make recommendations to the principal concerning the tenure, promotion, transfer, or dismissal of departmental members;	A B C D E	A B C D E
10. prepare for the principal written evaluations of the teaching performances and teaching practices of departmental members;	A B C D E	A B C D E
11. assist departmental members in solving problems involving student behavior;	A B C D E	A B C D E
12. work with departmental members to improve their methods for evaluating students;	A B C D E	A B C D E
13. confer with the principal about the teaching problems and teaching practices of departmental members;	A B C D E	A B C D E
14. arrange for departmental members to observe each other's teaching;	A B C D E	A B C D E

A = to a very great extent
 B = to a considerable extent
 C = to some extent
 D = to a very little extent
 E = not at all

Job Behavior	Expected Role Rating Scale	Performed Role Rating Scale
15. assist departmental members in solving problems concerned with lesson preparation and lesson presentation;	A B C D E	A B C D E

Section II: Curriculum

16. provide leadership that improves the curriculum offered within his department;	A B C D E	A B C D E
17. recommend to the principal the courses to be offered within the department;	A B C D E	A B C D E
18. work with departmental members to develop long-range and short-range objectives for departmental courses;	A B C D E	A B C D E
19. work with departmental members to plan and implement some form of remedial instruction within his department;	A B C D E	A B C D E
20. work with departmental members to adapt instruction to the individual differences of students;	A B C D E	A B C D E
21. facilitate and plan for efficient utilization of departmental facilities, equipment, and materials by departmental members;	A B C D E	A B C D E

A = to a very great extent
 B = to a considerable extent
 C = to some extent
 D = to a very little extent
 E = not at all

Job Behavior	Expected Role Rating Scale	Performed Role Rating Scale
22. encourage departmental members to use field trips and guest speakers to enrich the curriculum by familiarizing departmental members with community resources and facilities;	A B C D E	A B C D E
23. work with departmental members to investigate new textbooks, new instructional materials, and new instructional programs;	A B C D E	A B C D E
24. work with departmental members to select and procure adequate amounts and kinds of instructional materials, equipment, and supplies;	A B C D E	A B C D E
25. work with departmental members to plan, develop, and implement courses and programs that meet the needs of students and the needs of society;	A B C D E	A B C D E

Section III: Communications

26. help to plan and to improve the work of his school by serving along with other department heads on his school's "Principal's Council";	A B C D E	A B C D E
27. develop a team spirit among departmental members;	A B C D E	A B C D E
28. coordinate the work of his department with the work of the school;	A B C D E	A B C D E

A = to a very great extent
 B = to a considerable extent
 C = to some extent
 D = to a very little extent
 E = not at all

Job Behavior	Expected Role Rating Scale	Performed Role Rating Scale
29. hold regular meetings of all departmental members to discuss departmental and school matters and to exchange ideas on teaching;	A B C D E	A B C D E
30. plan the agendas of departmental meetings;	A B C D E	A B C D E
31. allow and encourage departmental members to participate in the planning of the agendas of departmental meetings;	A B C D E	A B C D E
32. coordinate departmental activities to avoid duplications of effort by departmental members in the preparation of tests, worksheets, and other instructional materials;	A B C D E	A B C D E
33. act as a liaison agent to communicate information, ideas, and suggestions between his department and the principal;	A B C D E	A B C D E
34. meet informally with departmental members outside of regular school hours to discuss departmental matters and to exchange ideas on teaching;	A B C D E	A B C D E
35. prepare annually a written evaluation of departmental programs and activities;	A B C D E	A B C D E

A = to a very great extent
 B = to a considerable extent
 C = to some extent
 D = to a very little extent
 E = not at all

Job Behavior	Expected Role Rating Scale	Performed Role Rating Scale
Section IV: Professionalism		
36. provide leadership that increases the professional growth of departmental members;	A B C D E	A B C D E
37. develop and maintain a departmental library of teaching journals and reference books;	A B C D E	A B C D E
38. encourage departmental members to enroll in academic and professional courses;	A B C D E	A B C D E
39. participate in the activities of professional and subject area organizations;	A B C D E	A B C D E
40. maintain his professional and his subject area knowledge at high levels;	A B C D E	A B C D E
41. arrange for departmental members to attend professional meetings (seminars, workshops, conventions);	A B C D E	A B C D E
42. encourage departmental members to join professional and subject area organizations;	A B C D E	A B C D E

Section V: Administration

43. submit to his principal an annual statement for budget purposes of the instructional materials, equipment, and supplies required by his department;	A B C D E	A B C D E
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A = to a very great extent
 B = to a considerable extent
 C = to some extent
 D = to a very little extent
 E = not at all

Job Behavior	Expected Role Rating Scale	Performed Role Rating Scale
44. utilize assistants (students, departmental members, laboratory or secretarial assistants) to perform most of the clerical duties associated with his department headship;	A B C D E	A B C D E
45. maintain an accurate and complete record of all departmental business transactions (purchase orders and receipts, requisition orders, invoices);	A B C D E	A B C D E
46. arrange for departmental members to share in such responsibilities as the inventory and distribution of equipment, materials, and supplies;	A B C D E	A B C D E
47. maintain an up-to-date inventory of departmental equipment, materials, and supplies;	A B C D E	A B C D E
48. arrange for damaged departmental equipment and materials to be repaired or replaced;	A B C D E	A B C D E
49. supervise departmental members in the maintenance and care of departmental facilities, storage areas, equipment, materials, and supplies;	A B C D E	A B C D E
50. devote most of his scheduled "department head duty time" to managing the business and clerical affairs of his department;	A B C D E	A B C D E

Victor A. Johnson.

May 4, 1973.

Winnipeg, Manitoba,
R.

Dear Sir:

As a Master of Education candidate at the University of Manitoba, I am currently preparing a thesis on "The Expected and Performed Roles of Science Department Heads." Enclosed is a copy of the study instrument that I plan to administer to random samples of all science teachers, science department heads, and principals in Manitoba secondary schools.

The purpose of the study instrument is to measure science teachers', science department heads', and principals' opinions of: (1) the extent that their science department heads should have performed certain job behaviors during the past school year; and, (2) the extent that their science department heads performed these job behaviors during the past school year.

My purpose in writing you is to obtain your opinions on the validity of the content of my study instrument. The study instrument lists fifty job behaviors. Which of these job behaviors should be performed by the science department heads in your school district? Which of these job behaviors should not be performed by the science department heads in your school district? Which of these job behaviors are unimportant or trivial and should not be included in my study instrument? Which important job behaviors that should be performed by the science department heads in your school district are not included in my study instrument?

If you choose to assist me in the validation of my study instrument, please follow the "Directions For Supervisors" that are attached to the study instrument. Please use the stamped self-addressed envelope to return the study instrument before May 24, 1973.

I hope that you will assist me. If you require further information, please write me.

Sincerely yours,

Victor A. Johnson

Winnipeg, Manitoba,

May 14, 1973.

Dear Sir:

In my letter of May 4, 1973, I requested your assistance in validating a study instrument dealing with the expected and performed roles of science department heads. If you still intend to assist me, please return the study instrument before May 24, 1973.

Please disregard this reminder if you have already returned the study instrument.

Sincerely yours,

Victor A. Johnson.

THE EXPECTED AND PERFORMED ROLES OF SCIENCE DEPARTMENT HEADS

DIRECTIONS: There are three parts to this study instrument. Please complete each part. Please use the stamped self-addressed envelope to return the completed study instrument to Victor A. Johnson, , Winnipeg R , before June 10th, 1973.

PART A: Please answer each of the following questions.

1. What is your present position? (Check one blank space only.)
 ___ science teacher ___ science department head ___ principal
2. How many years of experience have you accumulated in your present position? (Place your answer into the square.)
3. How many years of teaching experience have you accumulated? (Place your answer into the square.)
4. What grades do you teach and/or supervise? (Circle the numbers corresponding to the grades that you teach and/or supervise.)
 1 2 3 4 5 6 7 8 9 10 11 12
5. Does your science department head receive extra financial remuneration above his/her regular salary for assuming the responsibilities of science department head? (Circle either "yes" or "no".)
 yes no
6. Does your science department head have scheduled non-teaching time in his/her timetable to devote to his/her responsibilities and duties as science department head? (Circle either "yes" or "no".)
 yes no
7. How many scheduled non-teaching periods does your science department head typically have each school day to carry out his/her responsibilities and duties as science department head? (Place your answer into the square.)

PART A: (Continued)

8. How many periods are there in your school's instructional day?
(Place your answer into the square.)

9. Does your school division have an established job description or a written statement that lists the responsibilities and duties of its department heads? (Circle either "yes" or "no".)
- yes no
10. Has your school staff (and/or your principal) developed and established a job description or a written statement that lists the responsibilities and duties of its department heads?
(Circle either "yes" or "no".)
- yes no

PART B: Please respond to the following directions.

1. Within each section of this part rate the extent that your science department head should have performed each job behavior during the past school year by circling one category of the expected role rating scale opposite the job behavior.
2. Within each section of this part rate the extent that your science department head performed each job behavior during the past school year by circling one category of the performed role rating scale opposite the job behavior.

A = to a very great extent
B = to a considerable extent
C = to some extent
D = to a very little extent
E = not at all

Section I: Instruction

Job Behavior	Expected Role Rating Scale					Performed Role Rating Scale				
1. provide leadership that improves the instruction given within his department;	A	B	C	D	E	A	B	C	D	E

PART B: (Continued)

A = to a very great extent
 B = to a considerable extent
 C = to some extent
 D = to a very little extent
 E = not at all

Job Behavior	Expected Role Rating Scale	Performed Role Rating Scale
2. provide direct supervisory assistance to departmental members by observing and evaluating their teaching;	A B C D E	A B C D E
3. conduct a supervisory conference with each departmental member subsequent to observing his teaching to discuss his teaching in a positive vein;	A B C D E	A B C D E
4. work with the principal to determine the teaching assignments of departmental members;	A B C D E	A B C D E
5. assist the principal in selecting new departmental members;	A B C D E	A B C D E
6. work with departmental members to plan and implement inservices designed to meet departmental needs within the instructional process as identified by the entire department in conference;	A B C D E	A B C D E
7. work with departmental members to plan and carry out visitations to other schools to observe methodologies, programs, and facilities;	A B C D E	A B C D E
8. make recommendations to the principal concerning the tenure, promotion, transfer, or dismissal of departmental members;	A B C D E	A B C D E

PART B: (Continued)

A = to a very great extent
 B = to a considerable extent
 C = to some extent
 D = to a very little extent
 E = not at all

Job Behavior	Expected Role Rating Scale	Performed Role Rating Scale
9. assist departmental members in solving problems involving student behavior;	A B C D E	A B C D E
10. provide departmental leadership that develops and establishes a departmental policy to be used in evaluating student progress;	A B C D E	A B C D E
11. encourage departmental members to observe each other's teaching;	A B C D E	A B C D E
12. assist departmental members in solving problems involving lesson preparation and lesson presentation;	A B C D E	A B C D E

Section II: Curriculum

13. provide leadership that improves the curriculum offered within his department	A B C D E	A B C D E
14. recommend to the principal on the advice of his department the courses to be offered within his department;	A B C D E	A B C D E
15. work with departmental members to align the aims and goals of his department with the aims and goals of the school;	A B C D E	A B C D E

PART B: (Continued)

A = to a very great extent
 B = to a considerable extent
 C = to some extent
 D = to a very little extent
 E = not at all

Job Behavior	Expected Role Rating Scale	Performed Role Rating Scale
16. work with departmental members to develop for each departmental course long-range and short-range objectives that are consistent with the aims and goals of the department;	A B C D E	A B C D E
17. work with departmental members to plan and implement some form of remedial instruction within his department;	A B C D E	A B C D E
18. work with departmental members to adapt instruction to the individual differences among students;	A B C D E	A B C D E
19. facilitate and plan for efficient utilization of departmental facilities, equipment, and materials by departmental members;	A B C D E	A B C D E
20. encourage departmental members to use field trips and guest speakers to enrich the curriculum by familiarizing departmental members with community resources and facilities;	A B C D E	A B C D E
21. work with departmental members to investigate new textbooks, new instructional materials, and new instructional programs;	A B C D E	A B C D E
22. work with departmental members to select and procure adequate amounts and kinds of instructional materials, equipment, and supplies;	A B C D E	A B C D E

PART B: (Continued)

A = to a very great extent
 B = to a considerable extent
 C = to some extent
 D = to a very little extent
 E = not at all

Job Behavior	Expected Role Rating Scale	Performed Role Rating Scale
23. work with departmental members to develop and establish safety standards and safety procedures to be used in departmental laboratories;	A B C D E	A B C D E

Section III: Communications

24. help to plan and to improve the work of his school by serving along with other department heads on his school's "Principal's Council";	A B C D E	A B C D E
25. attend regular meetings at the district level of the department heads in his subject area;	A B C D E	A B C D E
26. hold regular meetings of all departmental members to discuss departmental and school matters and to exchange ideas on teaching;	A B C D E	A B C D E
27. allow and encourage departmental members to participate in the planning of the agendas of departmental meetings;	A B C D E	A B C D E
28. work with departmental members to coordinate departmental activities to avoid duplication of effort by departmental members in the preparation of tests, worksheets, and other instructional materials;	A B C D E	A B C D E

PART B: (Continued)

A = to a very great extent
 B = to a considerable extent
 C = to some extent
 D = to a very little extent
 E = not at all

Job Behavior	Expected Role Rating Scale	Performed Role Rating Scale
29. act as a liaison agent to communicate information, ideas, and suggestions between his department and the principal;	A B C D E	A B C D E
30. obtain student opinion on the status of each departmental course;	A B C D E	A B C D E
31. prepare with the assistance of departmental members an annual report to the principal of departmental programs and activities;	A B C D E	A B C D E
32. act as a liaison agent to communicate information on courses and teaching in his subject area between departmental members and teachers in the elementary and senior high schools (or elementary and junior high schools);	A B C D E	A B C D E

Section IV: Professionalism

33. provide leadership that increases the professional growth of departmental members;	A B C D E	A B C D E
34. work with his school librarian to develop and maintain a departmental library of teaching journals and reference books;	A B C D E	A B C D E

PART B: (Continued)

A = to a very great extent
 B = to a considerable extent
 C = to some extent
 D = to a very little extent
 E = not at all

Job Behavior	Expected Role Rating Scale	Performed Role Rating Scale
35. demonstrate exemplary teaching;	A B C D E	A B C D E
36. participate in the activities of professional and subject area organizations;	A B C D E	A B C D E
37. maintain his professional knowledge and his subject area knowledge at high levels;	A B C D E	A B C D E
38. encourage departmental members to attend professional meetings (seminars, workshops, conventions);	A B C D E	A B C D E
39. encourage departmental members to join and/or participate in professional and subject area organizations;	A B C D E	A B C D E

Section V: Administration

40. submit to his principal an annual statement for budget purposes of the instructional materials, equipment, and supplies required by his department;	A B C D E	A B C D E
41. utilize assistants (students, departmental members, laboratory aides) to perform the clerical duties associated with his department headship;	A B C D E	A B C D E

PART B: (Continued)

A = to a very great extent
 B = to a considerable extent
 C = to some extent
 D = to a very little extent
 E = not at all

Job Behavior	Expected Role Rating Scale	Performed Role Rating Scale
42. maintain an accurate and complete record of departmental business transactions (purchase orders and receipts, requisition orders, invoices);	A B C D E	A B C D E
43. compile annually an inventory of all departmental materials, equipment, and supplies by obtaining from departmental members lists of the materials, equipment, and supplies in their classrooms and laboratories;	A B C D E	A B C D E
44. assist the principal in the placement and orientation of student teachers within the department;	A B C D E	A B C D E
45. maintain for the use of departmental members files of the instructional materials (tests, worksheets) used by departmental members in each departmental course of study;	A B C D E	A B C D E

PART C: Please answer these questions.

1. Was your department head given adequate scheduled non-teaching time in his/her timetable to carry out the many jobs listed in Part B that you thought he/she should have performed? (Circle either "yes" or "no".)

yes

no

PART C: (Continued)

2. How many scheduled non-teaching periods would your department head have required during each school day in the past year to have carried out the many jobs listed in Part B that you thought he should have performed? (Place your answer into the square.)

3. Should your school division make available to its instructional staff a job description or a written statement that lists the responsibilities and duties of its department heads? (Circle either "yes" or "no".)

yes

no

4. Should your school staff (and/or your principal) develop and establish a job description or a written statement that lists the responsibilities and duties of its department heads? (Circle either "yes" or "no".)

yes

no

PLEASE USE THE STAMPED SELF-ADDRESSED ENVELOPE TO RETURN THE STUDY INSTRUMENT TO VICTOR A. JOHNSON,
R , BEFORE JUNE 10, 1973. , WINNIPEG

THANK YOU VERY MUCH FOR YOUR ASSISTANCE

Winnipeg, Manitoba,
R
June 1, 1973.

To fulfill a partial requirement for the degree Master Of Education, I am preparing a thesis entitled "The Expected And Performed Roles Of Science Department Heads." To collect the data for this thesis, a group of science teachers, science department heads, and principals in a random sample of Manitoba secondary schools has been mailed copies of the enclosed questionnaire. Since you are a member of this group, your cooperation in completing and returning the questionnaire is essential for the success of the thesis.

In Part B of the questionnaire I am asking that you rate the extent that your science department head should have performed certain jobs during the past year. In other words, rate the extent that you expected him to have performed these jobs. Also in Part B of the questionnaire I am asking that you rate the extent that he actually performed these jobs.

A number has been placed on the first page of each questionnaire only so that I can monitor the return of the questionnaires.

The responses to the questionnaires will be "pooled" and grouped so that comparisons can be made among science teachers, science department heads, and principals. Schools, teachers, department heads, and principals will not be identified individually in this study.

Please use the stamped self-addressed envelope to return the completed questionnaire before June 10, 1973.

Your cooperation will be greatly appreciated. If you require further information please write or phone () me.

Sincerely yours,

Victor A. Johnson.

Winnipeg R
June 11, 1973.

Dear Sir/Madam:

Just a reminder. Please return the completed questionnaire on "The Expected And Performed Roles Of Science Department Heads" as soon as possible.

If you have already returned the questionnaire, please disregard this reminder.

Sincerely yours,

Victor A. Johnson.

APPENDIX B

TABLE XIX

OPINIONS OF EIGHTEEN SCIENCE SUPERVISORS AS TO THE CONTENT VALIDITY
OF THE PRELIMINARY STUDY INSTRUMENT

Key: A = the job behavior should be performed by science department heads
B = the job behavior should not be performed by science department heads
E = the job behavior is not important and should not be included in the final form of the study instrument
N/O = no opinion

Job Behavior	A	B	E	N/O	Job Behavior	A	B	E	N/O
1	18	0	0	0	18	18	0	0	0
2	11	6	0	1	19	17	0	0	1
3	10	6	0	2	20	18	0	0	0
4	16	1	0	1	21	18	0	0	0
5	16	1	0	1	22	17	0	0	1
6	16	1	0	1	23	18	0	0	0
7	16	1	0	1	24	18	0	0	0
8	16	1	1	0	25	18	0	0	0
9	8	8	1	1	26	17	0	0	1
10	3	13	1	1	27	18	0	0	0
11	16	2	0	0	28	16	1	0	1
12	18	0	0	0	29	18	0	0	0
13	9	7	0	2	30	15	2	1	0
14	16	0	1	1	31	18	0	0	0
15	17	0	0	1	32	16	1	1	0
16	18	0	0	0	33	18	0	0	0
17	15	3	0	0	34	12	6	0	0

TABLE XIX (Continued)

Job Behavior	A	B	E	N/O	Job Behavior	A	B	E	N/O
35	14	3	0	1	43	17	1	0	0
36	17	0	0	1	44	16	1	0	1
37	15	3	0	0	45	16	2	0	0
38	15	3	0	0	46	18	0	0	0
39	17	0	1	0	47	16	2	0	0
40	18	0	0	0	48	17	1	0	0
41	17	1	0	0	49	16	1	0	1
42	16	0	2	0	50	7	10	1	0

TABLE XX

NUMBER OF SCIENCE TEACHERS CHOOSING EACH CATEGORY AND NOT CHOOSING (N/C)
 ANY CATEGORY OF EXPECTED AND PERFORMED ROLE RATING SCALES FOR EACH
 JOB BEHAVIOR IN PART B OF THE STUDY INSTRUMENT

Job Behavior	Expected Role Rating Scale						Performed Role Rating Scale					
	A	B	C	D	E	N/C	A	B	C	D	E	N/C
1	29	49	35	8	2	1	11	17	46	34	15	1
2	8	19	42	22	32	1	5	3	22	14	79	1
3	8	24	35	13	39	5	4	4	14	16	80	6
4	33	45	20	12	12	2	20	32	31	16	22	3
5	30	36	28	9	17	4	11	12	32	20	40	9
6	43	45	26	7	3	0	21	32	36	12	23	0
7	16	39	42	11	15	1	9	12	31	19	52	1
8	14	29	31	14	33	3	6	6	19	29	56	8
9	12	12	42	29	26	3	9	9	28	27	48	3
10	40	44	25	8	6	1	14	28	40	21	20	1
11	7	20	43	21	32	1	3	5	13	29	73	1

TABLE XX (Continued)

Job Behavior	Expected Role Rating Scale					Performed Role Rating Scale						
	A	B	C	D	E	N/C	A	B	C	D	E	N/C
12	12	19	49	24	20	0	9	10	20	36	48	1
13	36	47	26	11	4	0	11	19	44	31	19	0
14	38	51	21	7	4	3	19	36	24	28	13	4
15	38	40	33	3	8	2	12	29	37	24	20	2
16	25	44	40	9	3	3	11	19	42	25	25	2
17	17	40	34	11	20	2	10	13	27	24	48	2
18	13	38	47	10	15	1	5	14	38	27	40	0
19	43	49	28	1	3	0	19	36	39	16	13	1
20	18	45	44	9	7	1	9	13	29	35	37	1
21	33	55	29	4	3	0	13	29	44	26	12	0
22	51	47	23	1	1	1	28	42	38	11	4	1
23	23	38	43	9	9	2	11	17	27	28	39	2
24	56	33	21	3	4	7	42	29	34	6	6	7
25	30	36	24	7	13	14	21	17	23	18	28	17

TABLE XX (Continued)

Job Behavior	Expected Role Rating Scale					Performed Role Rating Scale						
	A	B	C	D	E	N/C	A	B	C	D	E	N/C
26	35	44	29	10	3	3	16	31	34	28	12	3
27	23	40	37	9	12	3	20	14	36	20	30	4
28	22	40	31	12	17	2	11	20	22	29	40	2
29	48	50	22	1	2	1	29	38	32	18	6	1
30	10	26	49	14	23	2	4	4	23	27	63	3
31	12	36	35	13	21	7	7	11	22	24	53	7
32	16	37	38	9	15	9	5	13	29	33	34	10
33	24	42	43	4	7	4	7	20	34	33	26	4
34	21	51	36	7	4	5	9	27	35	30	16	7
35	24	48	25	6	10	11	18	29	31	15	18	13
36	23	39	46	7	3	6	16	28	37	24	12	7
37	38	58	20	2	1	5	24	47	34	12	1	6
38	27	46	39	6	2	4	11	25	52	20	12	4
39	17	37	44	12	7	7	7	18	42	29	21	7

TABLE XX (Continued)

Job Behavior	Expected Role Rating Scale						Performed Role Rating Scale					
	A	B	C	D	E	N/C	A	B	C	D	E	N/C
40	80	31	10	0	1	2	69	33	16	2	1	3
41	33	37	25	13	12	4	20	26	20	25	29	4
42	48	41	23	3	4	5	42	29	28	14	5	6
43	34	41	27	9	9	4	29	28	32	16	14	5
44	39	37	26	8	8	6	25	27	36	14	15	7
45	23	39	28	13	17	4	14	12	24	28	43	3

TABLE XXI

NUMBER OF SCIENCE DEPARTMENT HEADS CHOOSING EACH CATEGORY AND NOT CHOOSING
(N/C) ANY CATEGORY OF THE EXPECTED AND PERFORMED ROLE RATING SCALES
FOR EACH JOB BEHAVIOR IN PART B OF THE STUDY INSTRUMENT

Job Behavior	Expected Role Rating Scale						Performed Role Rating Scale					
	A	B	C	D	E	N/C	A	B	C	D	E	N/C
1	11	11	8	1	0	0	2	6	19	3	0	1
2	3	3	11	2	12	0	2	0	7	8	13	1
3	3	3	8	4	12	1	1	1	2	10	15	2
4	15	8	4	1	3	0	10	6	4	4	5	2
5	6	14	6	2	3	0	1	7	6	5	11	1
6	7	14	7	1	2	0	1	14	8	3	4	1
7	7	3	12	7	2	0	2	1	11	11	5	1
8	3	5	10	4	9	0	1	1	6	8	14	1
9	7	3	11	5	5	0	3	4	9	9	5	1
10	11	14	4	2	0	0	6	9	11	2	2	1
11	4	7	10	0	10	0	1	3	9	3	14	1
12	3	10	13	1	4	0	1	5	12	6	6	1

TABLE XXI (Continued)

Job Behavior	Expected Role Rating Scale						Performed Role Rating Scale					
	A	B	C	D	E	N/C	A	B	C	D	E	N/C
13	14	11	4	1	1	0	5	10	9	5	1	1
14	14	10	3	2	2	0	7	12	7	2	2	1
15	12	12	4	3	0	0	6	10	8	6	0	1
16	8	15	3	2	3	0	3	7	13	3	4	1
17	5	9	13	3	1	0	1	3	11	11	4	1
18	5	12	6	6	2	0	2	3	13	8	4	1
19	15	12	3	1	0	0	9	15	4	2	0	1
20	6	14	7	3	1	0	2	8	10	8	2	1
21	14	13	2	2	0	0	5	12	9	4	0	1
22	19	12	0	0	0	0	12	15	3	0	0	1
23	12	6	9	1	1	2	5	8	9	3	3	3
24	16	9	2	0	3	1	13	8	4	0	4	2
25	12	7	6	1	4	1	9	5	2	2	11	2
26	10	13	6	1	0	1	3	10	13	3	0	2

TABLE XXI (Continued)

Job Behavior	Expected Role Rating Scale					Performed Role Rating Scale						
	A	B	C	D	E	N/C	A	B	C	D	E	N/C
27	7	7	11	2	3	1	3	5	10	7	4	2
28	10	9	5	5	1	1	3	9	8	8	1	2
29	15	11	4	0	0	1	9	13	6	1	0	2
30	2	6	13	4	5	1	1	2	5	10	11	2
31	5	7	7	2	9	1	2	5	8	4	10	2
32	4	6	13	4	3	1	0	6	10	7	6	2
33	9	11	8	1	0	2	3	3	13	6	4	2
34	9	18	3	0	0	1	4	16	7	2	0	2
35	5	11	7	3	4	1	3	5	11	4	5	3
36	7	12	8	2	1	1	3	9	10	5	2	2
37	14	13	2	1	0	1	8	12	6	2	0	3
38	9	13	6	1	1	1	8	7	10	1	3	2
39	7	13	7	2	1	1	5	7	11	3	3	2
40	23	6	1	0	1	0	21	7	0	1	1	1

TABLE XXI (Continued)

Job Behavior	Expected Role Rating Scale						Performed Role Rating Scale					
	A	B	C	D	E	N/C	A	B	C	D	E	N/C
41	11	8	6	2	4	0	9	2	8	5	6	1
42	18	5	6	1	1	0	15	6	6	2	1	1
43	13	10	4	3	0	1	10	7	7	4	1	2
44	17	8	2	3	1	0	11	6	5	3	5	1
45	9	6	10	2	3	1	4	6	6	7	6	2

TABLE XXII

NUMBER OF PRINCIPALS CHOOSING EACH CATEGORY AND NOT CHOOSING (N/C)
 ANY CATEGORY OF EXPECTED AND PERFORMED ROLE RATING SCALES FOR
 EACH JOB BEHAVIOR IN PART B OF THE STUDY INSTRUMENT

Job Behavior	Expected Role Rating Scale						Performed Role Rating Scale					
	A	B	C	D	E	N/C	A	B	C	D	E	N/C
1	9	15	6	0	0	0	2	8	13	6	0	1
2	2	7	4	5	12	0	0	0	5	12	12	1
3	1	6	7	1	12	3	0	0	6	8	12	4
4	7	12	5	6	0	0	6	6	7	9	1	1
5	7	5	6	7	3	2	4	6	7	7	3	3
6	6	15	3	4	1	1	2	11	7	7	1	2
7	3	12	5	5	4	1	0	7	5	11	5	2
8	4	7	6	5	7	1	1	0	9	9	9	2
9	3	4	11	9	2	1	0	4	9	11	4	2
10	10	13	4	1	1	1	2	13	7	4	2	2
11	5	4	9	6	5	1	0	1	9	10	8	2
12	7	14	7	0	1	1	1	5	12	8	2	2

TABLE XXII (Continued)

Job Behavior	Expected Role Rating Scale					Performed Role Rating Scale						
	A	B	C	D	E	N/C	A	B	C	D	E	N/C
13	14	10	4	1	0	1	2	12	8	5	1	2
14	15	9	5	1	0	0	5	7	11	5	1	1
15	13	12	2	3	0	0	2	11	7	8	1	1
16	12	10	4	4	0	0	1	5	13	9	1	1
17	10	11	6	2	1	0	1	5	15	7	1	1
18	9	13	5	3	0	0	0	6	15	7	1	1
19	16	10	4	0	0	0	10	10	8	1	0	1
20	7	11	7	5	0	0	0	2	15	11	1	1
21	15	10	4	1	0	0	2	12	12	3	0	1
22	16	10	3	1	0	0	8	15	4	2	0	1
23	12	8	9	1	0	0	5	7	11	5	1	1
24	20	6	1	0	2	1	12	6	8	0	2	2
25	12	4	4	3	5	2	7	4	6	6	4	3
26	14	8	4	4	0	0	5	11	7	6	0	1

TABLE XXII (Continued)

Job Behavior	Expected Role Rating Scale					Performed Role Rating Scale						
	A	B	C	D	E	N/C	A	B	C	D	E	N/C
27	8	10	7	4	1	0	1	6	12	9	1	1
28	10	7	11	2	0	0	2	7	14	5	1	1
29	17	8	4	1	0	0	9	6	11	3	0	1
30	4	10	6	5	5	0	0	2	7	10	10	1
31	5	6	8	2	8	1	4	2	3	8	11	2
32	3	8	7	7	4	1	0	4	12	6	6	2
33	12	10	6	1	0	1	1	5	13	5	4	2
34	8	13	7	1	0	1	2	7	13	6	0	2
35	11	7	6	1	2	3	6	8	8	0	4	4
36	10	12	6	1	0	1	6	5	12	4	1	2
37	19	8	2	0	0	1	8	9	9	1	1	2
38	7	13	6	3	0	1	0	7	13	7	1	2
39	6	10	11	1	0	2	1	3	15	9	0	2
40	22	7	1	0	0	0	17	9	2	1	0	1

TABLE XXII (Continued)

Job Behavior	Expected Role Rating Scale						Performed Role Rating Scale					
	A	B	C	D	E	N/C	A	B	C	D	E	N/C
41	9	7	8	4	1	1	8	3	8	7	2	2
42	12	5	6	5	1	1	6	6	5	8	3	2
43	14	5	5	5	1	0	7	7	8	5	2	1
44	14	10	3	1	2	0	11	5	8	3	2	1
45	12	7	5	4	2	0	5	4	10	7	3	1

TABLE XXIII

PERCENTAGE OF SCIENCE TEACHERS CHOOSING EACH CATEGORY AND NOT CHOOSING
(N/C) ANY CATEGORY OF EXPECTED AND PERFORMED ROLE RATING SCALES FOR
EACH JOB BEHAVIOR IN PART B OF THE STUDY INSTRUMENT

Job Behavior	Expected Role Rating Scale							Performed Role Rating Scale						
	A	B	C	D	E	N/C	A	B	C	D	E	N/C	A	N/C
1	23.4	39.5	28.2	6.5	1.6	0.8	8.9	13.7	37.1	27.4	12.1	0.8		
2	6.5	15.3	33.9	17.7	25.8	0.8	4.0	2.4	17.7	11.3	63.7	0.8		
3	6.5	19.4	28.2	10.5	31.5	4.0	3.2	3.2	11.3	12.9	64.5	4.8		
4	26.6	36.3	16.1	9.7	9.7	1.6	16.1	25.8	25.0	12.9	17.7	2.4		
5	24.2	29.0	22.6	7.3	13.7	3.2	8.9	9.7	25.8	16.1	32.3	7.3		
6	34.7	36.3	21.0	5.6	2.4	0.0	16.9	25.8	29.0	9.7	18.5	0.0		
7	12.9	31.5	33.9	8.9	12.1	0.8	7.3	9.7	25.0	15.3	41.9	0.8		
8	11.3	23.4	25.0	11.3	26.6	2.4	4.8	4.8	15.3	23.4	45.2	6.5		
9	9.7	9.7	33.9	23.4	21.0	2.4	7.3	7.3	22.6	21.8	38.7	2.4		
10	32.3	35.5	20.2	6.5	4.8	0.8	11.3	22.6	32.3	16.9	16.1	0.8		
11	5.6	16.1	34.7	16.9	25.8	0.8	2.4	4.0	10.5	23.4	58.9	0.8		
12	9.7	15.3	39.5	19.4	16.1	0.0	7.3	8.1	16.1	29.0	38.7	0.8		

TABLE XXIII (Continued)

Job Behavior	Expected Role Rating Scale					Performed Role Rating Scale						
	A	B	C	D	E	N/C	A	B	C	D	E	N/C
13	29.0	37.9	21.0	8.9	3.2	0.0	8.9	15.3	35.5	25.0	15.3	0.0
14	30.6	41.1	16.9	5.6	3.2	2.4	15.3	29.0	19.4	22.6	10.5	3.2
15	30.6	32.3	26.6	2.4	6.5	1.6	9.7	23.4	29.8	19.4	16.1	1.6
16	20.2	35.5	32.3	7.3	2.4	2.4	8.9	15.3	33.9	20.2	20.2	1.6
17	13.7	32.3	27.4	8.9	16.1	1.6	8.1	10.5	21.8	19.4	38.7	1.6
18	10.5	30.6	37.9	8.1	12.1	0.8	4.0	11.3	30.6	21.8	32.3	0.0
19	34.7	39.5	22.6	0.8	2.4	0.0	15.3	29.0	31.5	12.9	10.5	0.8
20	14.5	36.3	35.5	7.3	5.6	0.8	7.3	10.5	23.4	28.2	29.8	0.8
21	26.6	44.4	23.4	3.2	2.4	0.0	10.5	23.4	35.5	21.0	9.7	0.0
22	41.1	37.9	18.5	0.8	0.8	0.8	22.6	33.9	30.6	8.9	3.2	0.8
23	18.5	30.6	34.7	7.3	7.3	1.6	8.9	13.7	21.8	22.6	31.5	1.6
24	45.2	26.6	16.9	2.4	3.2	5.6	33.9	23.4	27.4	4.8	4.8	5.6
25	24.2	29.0	19.4	5.6	10.5	11.3	16.9	13.7	18.5	14.5	22.6	13.7
26	28.2	35.5	23.4	8.1	2.4	2.4	12.9	25.0	27.4	22.6	9.7	2.4

TABLE XXIII (Continued)

Job Behavior	Expected Role Rating Scale					Performed Role Rating Scale						
	A	B	C	D	E	N/C	A	B	C	D	E	N/C
27	18.5	32.3	29.8	7.3	9.7	2.4	16.1	11.3	29.0	16.1	24.2	3.2
28	17.7	32.3	25.0	9.7	13.7	1.6	8.9	16.1	17.7	23.4	32.3	1.6
29	38.7	40.3	17.7	0.8	1.6	0.8	23.4	30.6	25.8	14.5	4.8	0.8
30	8.1	21.0	39.5	11.3	18.5	1.6	3.2	3.2	18.5	21.8	50.8	2.4
31	9.7	29.0	28.2	10.5	16.9	5.6	5.6	8.9	17.7	19.4	42.7	5.6
32	12.9	29.8	30.6	7.3	12.1	7.3	4.0	10.5	23.4	26.6	27.4	8.1
33	19.4	33.9	34.7	3.2	5.6	3.2	5.6	16.1	27.4	26.6	21.0	3.2
34	16.9	41.1	29.0	5.6	3.2	4.0	7.3	21.8	28.2	24.2	12.9	5.6
35	19.4	38.7	20.2	4.8	8.1	8.9	14.5	23.4	25.0	12.1	14.5	10.5
36	18.5	31.5	37.1	5.6	2.4	4.8	12.9	22.6	29.8	19.4	9.7	5.6
37	30.6	46.8	16.1	1.6	0.8	4.0	19.4	37.9	27.4	9.7	0.8	4.8
38	21.8	37.1	31.5	4.8	1.6	3.2	8.9	20.2	41.9	16.1	9.7	3.2
39	13.7	29.8	35.5	9.7	5.6	5.6	5.6	14.5	33.9	23.4	16.9	5.6
40	64.5	25.0	8.1	0.0	0.8	1.6	55.6	26.6	12.9	1.6	0.8	2.4

TABLE XXIII (Continued)

Job Behavior	Expected Role Rating Scale						Performed Role Rating Scale					
	A	B	C	D	E	N/C	A	B	C	D	E	N/C
41	26.6	29.8	20.2	10.5	9.7	3.2	16.1	21.0	16.1	20.2	23.4	3.2
42	38.7	33.1	18.5	2.4	3.2	4.0	33.9	23.4	22.6	11.3	4.0	4.8
43	27.4	33.1	21.8	7.3	7.3	3.2	23.4	22.6	25.8	12.9	11.3	4.0
44	31.5	29.8	21.0	6.5	6.5	4.8	20.2	21.8	29.0	11.3	12.1	5.6
45	18.5	31.5	22.6	10.5	13.7	3.2	11.3	9.7	19.4	22.6	34.7	2.4

TABLE XXIV

PERCENTAGE OF SCIENCE DEPARTMENT HEADS CHOOSING EACH CATEGORY AND NOT CHOOSING (N/C) AND CATEGORY OF THE EXPECTED AND PERFORMED ROLE RATING SCALES FOR EACH JOB BEHAVIOR IN PART B OF THE STUDY INSTRUMENT

Job Behavior	Expected Role Rating Scale						Performed Role Rating Scale					
	A	B	C	D	E	N/C	A	B	C	D	E	N/C
1	35.5	35.5	25.8	3.2	0.0	0.0	6.5	19.4	61.3	9.7	0.0	3.2
2	9.7	9.7	35.5	6.5	38.7	0.0	6.5	0.0	22.6	25.8	41.9	3.2
3	9.7	9.7	25.8	12.9	38.7	3.2	3.2	3.2	6.5	32.3	48.4	6.5
4	48.4	25.8	12.9	3.2	9.7	0.0	32.3	19.4	12.9	12.9	16.1	6.5
5	19.4	45.2	19.4	6.5	9.7	0.0	3.2	22.6	19.4	16.1	35.5	3.2
6	22.6	45.2	22.6	3.2	6.5	0.0	3.2	45.2	25.8	9.7	12.9	3.2
7	22.6	9.7	38.7	22.6	6.5	0.0	6.5	3.2	35.5	35.5	16.1	3.2
8	9.7	16.1	32.3	12.9	29.0	0.0	3.2	3.2	19.4	25.8	45.2	3.2
9	22.6	9.7	35.5	16.1	16.1	0.0	9.7	12.9	29.0	29.0	16.1	3.2
10	35.5	45.2	12.9	6.5	0.0	0.0	19.4	29.0	35.5	6.5	6.5	3.2
11	12.9	22.6	32.3	0.0	32.3	0.0	3.2	9.7	29.0	9.7	45.2	3.2
12	9.7	32.3	41.9	3.2	12.9	0.0	3.2	16.1	38.7	19.4	19.4	3.2

TABLE XXIV (Continued)

Job Behavior	Expected Role Rating Scale						Performed Role Rating Scale					
	A	B	C	D	E	N/C	A	B	C	D	E	N/C
13	45.2	35.5	12.9	3.2	3.2	0.0	16.1	32.3	29.0	16.1	3.2	3.2
14	45.2	32.3	9.7	6.5	6.5	0.0	22.6	38.7	22.6	6.5	6.5	3.2
15	38.7	38.7	12.9	9.7	0.0	0.0	19.4	32.3	25.8	19.4	0.0	3.2
16	25.8	48.4	9.7	6.5	9.7	0.0	9.7	22.6	41.9	9.7	12.9	3.2
17	16.1	29.0	41.9	9.7	3.2	0.0	3.2	9.7	35.5	35.5	12.9	3.2
18	16.1	38.7	19.4	19.4	6.5	0.0	6.5	9.7	41.9	25.8	12.9	3.2
19	48.4	38.7	9.7	3.2	0.0	0.0	29.0	48.4	12.9	6.5	0.0	3.2
20	19.4	45.2	22.6	9.7	3.2	0.0	6.5	25.8	32.3	25.8	6.5	3.2
21	45.2	41.9	6.5	6.5	0.0	0.0	16.1	38.7	29.0	12.9	0.0	3.2
22	61.3	38.7	0.0	0.0	0.0	0.0	38.7	48.4	9.7	0.0	0.0	3.2
23	38.7	19.4	29.0	3.2	3.2	6.5	16.1	25.8	29.0	9.7	9.7	9.7
24	51.6	29.0	6.5	0.0	9.7	3.2	41.9	25.8	12.9	0.0	12.9	6.5
25	38.7	22.6	19.4	3.2	12.9	3.2	29.0	16.1	6.5	6.5	35.5	6.5
26	32.3	41.9	19.4	3.2	0.0	3.2	9.7	32.3	41.9	9.7	0.0	6.5

TABLE XXIV (Continued)

Job Behavior	Expected Role Rating Scale					Performed Role Rating Scale						
	A	B	C	D	E	N/C	A	B	C	D	E	N/C
27	22.6	22.6	35.5	6.5	9.7	3.2	9.7	16.1	32.3	22.6	12.9	6.5
28	32.3	29.0	16.1	16.1	3.2	3.2	9.7	29.0	25.8	25.8	3.2	6.5
29	48.4	35.5	12.9	0.0	0.0	3.2	29.0	41.9	19.4	3.2	0.0	6.5
30	6.5	19.4	41.9	12.9	16.1	3.2	3.2	6.5	16.1	32.3	35.5	6.5
31	16.1	22.6	22.6	6.5	29.0	3.2	6.5	16.1	25.8	12.9	32.3	6.5
32	12.9	19.4	41.9	12.9	9.7	3.2	0.0	19.4	32.3	22.6	19.4	6.5
33	29.0	35.5	25.8	3.2	0.0	6.5	9.7	9.7	41.9	19.4	12.9	6.5
34	29.0	58.1	9.7	0.0	0.0	3.2	12.9	51.6	22.6	6.5	0.0	6.5
35	16.1	35.5	22.6	9.7	12.9	3.2	9.7	16.1	35.5	12.9	16.1	9.7
36	22.6	38.7	25.8	6.5	3.2	3.2	9.7	29.0	32.3	16.1	6.5	6.5
37	45.2	41.9	6.5	3.2	0.0	3.2	25.8	38.7	19.4	6.5	0.0	9.7
38	29.0	41.9	19.4	3.2	3.2	3.2	25.8	22.6	32.3	3.2	9.7	6.5
39	22.6	41.9	22.6	6.5	3.2	3.2	16.1	22.6	35.5	9.7	9.7	6.5
40	74.2	19.4	3.2	0.0	3.2	0.0	67.7	22.6	0.0	3.2	3.2	3.2

TABLE XXIV (Continued)

Job Behavior	Expected Role Rating Scale						Performed Role Rating Scale					
	A	B	C	D	E	N/C	A	B	C	D	E	N/C
41	35.5	25.8	19.4	6.5	12.9	0.0	29.0	6.5	25.8	16.1	19.4	3.2
42	58.1	16.1	19.4	3.2	3.2	0.0	48.4	19.4	19.4	6.5	3.2	3.2
43	41.9	32.3	12.9	9.7	0.0	3.2	32.3	22.6	22.6	12.9	3.2	6.5
44	54.8	25.8	6.5	9.7	3.2	0.0	35.5	19.4	16.1	9.7	16.1	3.2
45	29.0	19.4	32.3	6.5	9.7	3.2	12.9	19.4	19.4	22.6	19.4	6.5

TABLE XXV

PERCENTAGE OF PRINCIPALS CHOOSING EACH CATEGORY AND NOT CHOOSING (N/C)
 ANY CATEGORY OF THE EXPECTED AND PERFORMED ROLE RATING SCALES FOR EACH
 JOB BEHAVIOR IN PART B OF THE STUDY INSTRUMENT

Job Behavior	Expected Role Rating Scale						Performed Role Rating Scale					
	A	B	C	D	E	N/C	A	B	C	D	E	N/C
1	30.0	50.0	20.0	0.0	0.0	0.0	6.7	26.7	43.3	20.0	0.0	3.3
2	6.7	23.3	13.3	16.7	40.0	0.0	0.0	0.0	16.7	40.0	40.0	3.3
3	3.3	20.0	23.3	3.3	40.0	10.0	0.0	0.0	20.0	26.7	40.0	13.3
4	23.3	40.0	16.7	20.0	0.0	0.0	20.0	20.0	23.3	30.0	3.3	3.3
5	23.3	16.7	20.0	23.3	10.0	1.1	13.3	20.0	23.3	23.3	10.0	10.0
6	20.0	50.0	10.0	13.3	3.3	3.3	6.7	36.7	23.3	23.3	3.3	6.7
7	10.0	40.0	16.7	16.7	13.3	3.3	0.0	23.3	16.7	36.7	16.7	6.7
8	13.3	23.3	20.0	16.7	23.3	3.3	3.3	0.0	30.0	30.0	30.0	6.7
9	10.0	13.3	36.7	30.0	6.7	3.3	0.0	13.3	30.0	36.7	13.3	6.7
10	33.3	43.3	13.3	3.3	3.3	3.3	6.7	43.3	23.3	13.3	6.7	6.7
11	16.7	13.3	30.0	20.0	16.7	3.3	0.0	3.3	30.0	33.3	26.7	6.7
12	23.3	46.7	23.3	0.0	3.3	3.3	3.3	16.7	40.0	26.7	6.7	6.7

TABLE XXV (Continued)

Job Behavior	Expected Role Rating Scale					Performed Role Rating Scale						
	A	B	C	D	E	N/C	A	B	C	D	E	N/C
13	46.7	33.3	13.3	3.3	0.0	3.3	6.7	40.0	26.7	16.7	3.3	6.7
14	50.0	30.0	16.7	3.3	0.0	0.0	16.7	23.3	36.7	16.7	3.3	3.3
15	43.3	40.0	6.7	10.0	0.0	0.0	6.7	36.7	23.3	26.7	3.3	3.3
16	40.0	33.3	13.3	13.3	0.0	0.0	3.3	16.7	43.3	30.0	3.3	3.3
17	33.3	36.7	20.0	6.7	3.3	0.0	3.3	16.7	50.0	23.3	3.3	3.3
18	30.0	43.3	16.7	10.0	0.0	0.0	0.0	20.0	50.0	23.3	3.3	3.3
19	53.3	33.3	13.3	0.0	0.0	0.0	33.3	33.3	26.7	3.3	0.0	3.3
20	23.3	36.7	23.3	16.7	0.0	0.0	0.0	6.7	50.0	36.7	3.3	3.3
21	50.0	33.3	13.3	3.3	0.0	0.0	6.7	40.0	40.0	10.0	0.0	3.3
22	53.3	33.3	10.0	3.3	0.0	0.0	26.7	50.0	13.3	6.7	0.0	3.3
23	40.0	26.7	30.0	3.3	0.0	0.0	16.7	23.3	36.7	16.7	3.3	3.3
24	66.7	20.0	3.3	0.0	6.7	3.3	40.0	20.0	26.7	0.0	6.7	6.7
25	40.0	13.3	13.3	10.0	16.7	6.7	23.3	13.3	20.0	20.0	13.3	10.0
26	46.7	26.7	13.3	13.3	0.0	0.0	16.7	36.7	23.3	20.0	0.0	3.3

TABLE XXV (Continued)

Job Behavior	Expected Role Rating Scale					Performed Role Rating Scale						
	A	B	C	D	E	N/C	A	B	C	D	E	N/C
27	26.7	33.3	23.3	13.3	3.3	0.0	3.3	20.0	40.0	30.0	3.3	3.3
28	33.3	23.3	36.7	6.7	0.0	0.0	6.7	23.3	46.7	16.7	3.3	3.3
29	56.7	26.7	13.3	3.3	0.0	0.0	30.0	20.0	36.7	10.0	0.0	3.3
30	13.3	33.3	20.0	16.7	16.7	0.0	0.0	6.7	23.3	33.3	33.3	3.3
31	16.7	20.0	26.7	6.7	26.7	3.3	13.3	6.7	10.0	26.7	36.7	6.7
32	10.0	26.7	23.3	23.3	13.3	3.3	0.0	13.3	40.0	20.0	20.0	6.7
33	40.0	33.3	20.0	3.3	0.0	3.3	3.3	16.7	43.3	16.7	13.3	6.7
34	26.7	43.3	23.3	3.3	0.0	3.3	6.7	23.3	43.3	20.0	0.0	6.7
35	36.7	23.3	20.0	3.3	6.7	10.0	20.0	26.7	26.7	0.0	13.3	13.3
36	33.3	40.0	20.0	3.3	0.0	3.3	20.0	16.7	40.0	13.3	3.3	6.7
37	63.3	26.7	6.7	0.0	0.0	3.3	26.7	30.0	30.0	3.3	3.3	6.7
38	23.3	43.3	20.0	10.0	0.0	3.3	0.0	23.3	43.3	23.3	3.3	6.7
39	20.0	33.3	36.7	3.3	0.0	6.7	3.3	10.0	50.0	30.0	0.0	6.7
40	73.3	23.3	3.3	0.0	0.0	0.0	56.7	30.0	6.7	3.3	0.0	3.3

TABLE XXV (Continued)

Job Behavior	Expected Role Rating Scale						Performed Role Rating Scale					
	A	B	C	D	E	N/C	A	B	C	D	E	N/C
41	30.0	23.3	26.7	13.3	3.3	3.3	26.7	10.0	26.7	23.3	6.7	6.7
42	40.0	16.7	20.0	16.7	3.3	3.3	20.0	20.0	16.7	26.7	10.0	6.7
43	46.7	16.7	16.7	16.7	3.3	0.0	23.3	23.3	26.7	16.7	6.7	3.3
44	46.7	33.3	10.0	3.3	6.7	0.0	36.7	16.7	26.7	10.0	6.7	3.3
45	40.0	23.3	16.7	13.3	6.7	0.0	16.7	13.3	33.3	23.3	10.0	3.3

TABLE XXVI

ANALYSIS OF VARIANCE OF RESPONSES OF SCIENCE TEACHERS, SCIENCE
DEPARTMENT HEADS, AND PRINCIPALS ON THE EXPECTED ROLE RATING
SCALE FOR EACH JOB BEHAVIOR OF SCIENCE DEPARTMENT HEADS

Job Behavior	SS _b	df _b	SS _w	df _w	MS _b	MS _w	F
1	3.5764	2	145.2940	181	1.7882	0.8027	2.2276
2	1.0735	2	292.7314	181	0.5367	1.6173	0.3319
3	1.5886	2	306.4063	173	0.7943	1.7711	0.4485
4	3.6865	2	273.5601	180	1.8433	1.5198	1.2128
5	2.0232	2	301.8545	176	1.0116	1.7151	0.5898
6	1.9316	2	189.4383	181	0.9658	1.0466	0.9228
7	0.1549	2	255.6598	180	0.0775	1.4203	0.0545
8	0.8489	2	335.1736	178	0.4244	1.8830	0.2254
9	5.4854	2	264.8254	178	2.7427	1.4878	1.8435
10	2.0311	2	197.7404	180	1.0155	1.0986	0.9244
11	3.7085	2	287.9097	180	1.8542	1.5995	1.1593
12	27.6656	2	227.5526	181	13.8328	1.2572	11.0029*

TABLE XXVI (Continued)

Job Behavior	SS _b	df _b	SS _w	df _w	MS _b	MS _w	F
13	7.0014	2	187.3416	181	3.5007	1.0350	3.3822
14	2.8348	2	187.1652	179	1.4174	1.0456	1.3556
15	4.3154	2	203.9148	180	2.1577	1.1329	1.9046
16	2.9070	2	189.3571	179	1.4535	1.0579	1.3740
17	12.5771	2	257.0415	180	6.2886	1.4280	4.4037
18	13.2016	2	222.5387	181	6.6008	1.2295	5.3687*
19	4.5011	2	135.8453	182	2.2506	0.7464	3.0152
20	1.6429	2	188.0915	181	0.8214	1.0392	0.7905
21	6.0411	2	145.8727	182	3.0206	0.8015	3.7686
22	4.7134	2	109.0207	181	2.3567	0.6023	3.9127
23	10.7367	2	207.1976	178	5.3683	1.1640	4.6119
24	2.1712	2	199.8691	173	1.0856	1.1553	0.9396
25	0.7278	2	301.7490	165	0.3639	1.8288	0.1990
26	2.6446	2	180.3615	178	1.3223	1.0133	1.3050

TABLE XXVI (Continued)

Job Behavior	SS _b	df _b	SS _w	df _w	MS _b	MS _w	F
27	1.3202	2	245.8185	178	0.6601	1.3810	0.4780
28	9.1055	2	266.1973	179	4.5527	1.4871	3.0614
29	1.9578	2	125.2993	180	0.9789	0.6961	1.4062
30	1.2039	2	258.5603	179	0.6019	1.4445	0.4167
31	0.6511	2	305.3489	173	0.3256	1.7650	0.1845
32	2.1354	2	242.6063	171	1.0677	1.4187	0.7526
33	8.4104	2	169.2139	175	4.2052	0.9669	4.3490
34	8.0802	2	136.6396	175	4.0401	0.7808	5.1743*
35	4.4062	2	231.9706	167	2.2031	1.3893	1.5860
36	4.9268	2	155.7966	174	2.4634	0.8954	2.7512
37	6.2036	2	101.6846	175	3.1018	0.5811	5.3382*
38	0.8482	2	152.5046	176	0.4241	0.8665	0.4894
39	5.4285	2	176.3091	172	2.7142	1.0251	2.6479
40	0.5776	2	91.8599	180	0.2888	0.5103	0.5659
41	0.4021	2	289.3486	177	0.2010	1.6347	0.1230

TABLE XXVI (Continued)

Job Behavior	SS _b	df _b	SS _w	df _w	MS _b	MS _w	F
42	3.4085	2	199.3181	176	1.7042	1.1325	1.5049
43	4.4171	2	242.1335	177	2.2085	1.3680	1.6144
44	5.8294	2	240.3610	176	2.9147	1.3657	2.1342
45	5.2617	2	296.8000	177	2.6309	1.6768	1.5689

*p ≤ 0.01

TABLE XXVII

ANALYSIS OF VARIANCE OF RESPONSES OF SCIENCE TEACHERS, SCIENCE
DEPARTMENT HEADS, AND PRINCIPALS ON PERFORMED ROLE RATING
SCALE FOR EACH JOB BEHAVIOR OF SCIENCE DEPARTMENT HEADS

Job Behavior	SS _b	df _b	SS _w	df _w	MS _b	MS _w	F
1	7.1660	2	186.0440	179	3.5830	1.0394	3.4473
2	2.0679	2	200.7742	179	1.0339	1.1216	0.9218
3	0.7168	2	172.4766	170	0.3584	1.0146	0.3533
4	2.4768	2	321.1548	176	1.2384	1.8247	0.6787
5	8.6638	2	288.2849	169	4.3319	1.7058	2.5395
6	0.1782	2	282.8164	179	0.0891	1.5800	0.0564
7	2.2649	2	267.1499	178	1.1324	1.5008	0.7545
8	0.7622	2	211.9565	171	0.3811	1.2395	0.3075
9	6.4553	2	253.0991	176	3.2277	1.4381	2.2445
10	8.6023	2	250.4040	178	4.3012	1.4068	3.0575
11	8.1357	2	183.4790	178	4.0679	1.0308	3.9464
12	13.3037	2	245.1392	178	6.6519	1.3772	4.8300*

TABLE XXVII (Continued)

Job Behavior	SS _b	df _b	SS _w	df _w	MS _b	MS _w	F
13	14.6517	2	223.1513	179	7.3258	1.2467	5.8764*
14	6.1494	2	257.8850	176	3.0747	1.4653	2.0984
15	9.8356	2	241.6129	178	4.9178	1.3574	3.6230
16	3.0007	2	237.8398	178	1.5004	1.3362	1.1229
17	10.0991	2	254.2883	178	5.0496	1.4286	3.5347
18	9.2507	2	214.4333	180	4.6254	1.1913	3.8826
19	22.8539	2	214.6415	179	11.4269	1.1991	9.5295*
20	10.1143	2	227.3643	179	5.0571	1.2702	3.9814
21	9.7479	2	197.1710	180	4.8740	1.0954	4.4495
22	11.7093	2	162.5603	179	5.8546	0.9082	6.4467*
23	30.2654	2	280.8638	176	15.1327	1.5958	9.4827*
24	0.4005	2	240.4101	171	0.2002	1.4059	0.1424
25	1.8474	2	369.2700	160	0.9237	2.3079	0.4002
26	6.0894	2	218.4138	176	3.0447	1.2410	2.4534

TABLE XXVII (Continued)

Job Behavior	SS_b	df_b	SS_w	df_w	MS_b	MS_w	F
27	0.3784	2	290.5049	175	0.1892	1.6600	0.1140
28	19.5205	2	271.7913	177	9.7603	1.5355	6.3562*
29	6.0265	2	209.3441	178	3.0133	1.1761	2.5621
30	1.5657	2	192.6255	176	0.7828	1.0945	0.7153
31	3.6323	2	285.7251	171	1.8162	1.6709	1.0869
32	1.7229	2	206.8042	168	0.8615	1.2310	0.6998
33	2.1062	2	228.1775	174	1.0531	1.3114	0.8031
34	19.4780	2	191.9475	171	9.7390	1.1225	8.6762*
35	4.4204	2	269.3745	162	2.2102	1.6628	1.3292
36	1.9608	2	228.2065	171	0.9804	1.3345	0.7346
37	1.3927	2	153.9699	171	0.6963	0.9004	0.7734
38	7.4133	2	197.9547	174	3.7066	1.1377	3.2581
39	8.7386	2	201.2218	171	4.3693	1.1767	3.7131
40	0.5989	2	127.1516	177	0.2995	0.7184	0.4169

TABLE XXVII (Continued)

Job Behavior	SS _b	df _b	SS _w	df _w	MS _b	MS _w	F
41	4.7922	2	359.0059	175	2.3961	2.0515	1.1680
42	13.0541	2	251.1683	173	6.5271	1.4518	4.4957
43	3.2168	2	284.0039	174	1.6084	1.6322	0.9854
44	4.3286	2	303.3992	173	2.1643	1.7538	1.2341
45	12.1646	2	317.8472	176	6.0823	1.8059	3.3679

*p ≤ 0.01

TABLE XXVIII

RESULTS OF T-TEST APPLIED TO DIFFERENCE BETWEEN MEANS OF RESPONSES OF SCIENCE TEACHERS ON THE EXPECTED AND PERFORMED ROLE RATING SCALES FOR EACH JOB BEHAVIOR OF SCIENCE DEPARTMENT HEADS

Job Behavior	Mean (expected)	Mean (performed)	Difference Between Means	Correlation Coefficient	Two-Tail Probability	Degrees Of Freedom	T Value
1	2.2276	3.2033	-0.9756	0.215	0.987	244	7.44*
2	3.4146	4.2927	-0.8780	0.332	1.000	122	7.27*
3	3.4286	4.3898	-0.9612	0.153	0.922	235	6.24*
4	2.3802	2.9008	-0.5207	0.675	1.000	120	5.46*
5	2.5478	3.5739	-1.0261	0.386	1.000	114	7.51*
6	2.0484	2.8710	-0.8226	0.376	1.000	123	6.88*
7	2.7561	3.7561	-1.0000	0.291	0.999	122	7.54*
8	3.1897	4.0603	-0.8707	0.451	1.000	115	6.92*
9	3.3719	3.7934	-0.4215	0.623	1.000	120	4.33*
10	2.1545	3.0407	-0.8862	0.425	1.000	122	7.83*
11	3.4146	4.3333	-0.9187	0.311	1.000	122	7.86*
12	3.1626	3.8455	-0.6829	0.489	1.000	122	6.22*
13	2.1935	3.2258	-1.0323	0.224	0.990	123	8.34*

TABLE XXVIII (Continued)

Job Behavior	Mean (expected)	Mean (performed)	Difference Between Means	Correlation Coefficient	Two-Tail Probability	Degrees Of Freedom	T Value
14	2.0756	2.8235	-0.7479	0.543	1.000	118	7.37*
15	2.2049	3.0902	-0.8852	0.431	1.000	121	7.84*
16	2.3471	3.2810	-0.9339	0.283	0.999	120	7.74*
17	2.8115	3.7131	-0.9016	0.371	1.000	121	6.89*
18	2.8049	3.6748	-0.8699	0.426	1.000	122	7.86*
19	1.9593	2.7398	-0.7805	0.393	1.000	122	7.35*
20	2.5285	3.6341	-1.1057	0.262	0.997	122	8.94*
21	2.1048	2.9597	-0.8548	0.375	1.000	123	8.26*
22	1.8130	2.3577	-0.5447	0.436	1.000	122	6.03*
23	2.5328	3.5492	-1.0164	0.474	1.000	121	8.96*
24	1.8547	2.1880	-0.3333	0.703	1.000	116	4.29*
25	2.4206	3.1402	-0.7196	0.602	1.000	106	6.03*
26	2.1901	2.9091	-0.7190	0.355	1.000	120	6.25*
27	2.5417	3.2167	-0.6750	0.502	1.000	119	5.76*

TABLE XXVIII (Continued)

Job Behavior	Mean (expected)	Mean (performed)	Difference Between Means	Correlation Coefficient	Two-Tail Probability	Degrees Of Freedom	T Value
28	2.6885	3.5492	-0.8607	0.417	1.000	121	6.74*
29	1.8536	2.4634	-0.6098	0.353	1.000	122	5.81*
30	3.1157	4.1653	-1.0496	0.288	0.999	120	8.57*
31	2.9573	3.8974	-0.9402	0.528	1.000	116	8.39*
32	2.7193	3.6842	-0.9649	0.314	0.999	113	7.56*
33	2.4000	3.4250	-1.0250	0.268	0.998	119	8.39*
34	2.3419	3.1453	-0.8034	0.493	1.000	116	8.07*
35	2.3545	2.8818	-0.5273	0.396	1.000	109	4.11*
36	2.3966	2.9052	-0.5086	0.412	1.000	115	4.66*
37	1.9068	2.3136	-0.4068	0.268	0.997	117	4.18*
38	2.2500	2.9750	-0.7250	0.305	0.999	119	6.73*
39	2.6154	3.3333	-0.7179	0.381	1.000	116	6.42*
40	1.4545	1.6198	-0.1653	0.828	1.000	120	3.85*
41	2.4538	3.1513	-0.6975	0.626	1.000	118	6.43*

TABLE XXVIII (Continued)

Job Behavior	Mean (expected)	Mean (performed)	Difference Between Means	Correlation Coefficient	Two-Tail Probability	Degrees Of Freedom	T Value
42	1.9407	2.2458	-0.3051	0.701	1.000	117	3.84*
43	2.3220	2.6610	-0.3390	0.611	1.000	117	3.34*
44	2.2308	2.7179	-0.4872	0.581	1.000	116	4.65*
45	2.6833	3.6333	-0.9500	0.467	1.000	119	7.62*

*p ≤ 0.01

TABLE XXIX

RESULTS OF T-TEST APPLIED TO DIFFERENCE BETWEEN MEANS OF RESPONSES OF SCIENCE DEPARTMENT HEADS ON EXPECTED AND PERFORMED ROLE RATING SCALES FOR EACH JOB BEHAVIOR OF SCIENCE DEPARTMENT HEADS

Job Behavior	Mean (expected)	Mean (performed)	Difference Between Means	Correlation Coefficient	Two-Tail Probability	Degrees Of Freedom	T Value
1	2.0000	2.7667	-0.7667	0.489	0.995	29	5.14*
2	3.5000	4.0000	-0.5000	0.621	1.000	29	2.48
3	3.5862	4.2759	-0.6897	0.659	1.000	28	3.58*
4	1.9310	2.5862	-0.6552	0.593	0.999	28	2.80*
5	2.4193	3.6000	-1.1807	0.286	0.901	59	3.71*
6	2.2667	2.8333	-0.5667	0.695	1.000	29	3.62*
7	2.8000	3.5333	-0.7333	0.671	1.000	29	4.25*
8	3.3000	4.1000	-0.8000	0.594	1.000	29	4.00*
9	2.9333	3.3000	-0.3667	0.773	1.000	29	2.26
10	1.9000	2.5000	-0.6000	0.652	1.000	29	3.84*
11	3.1667	3.8667	-0.7000	0.667	1.000	29	3.43*
12	2.8000	3.3667	-0.5667	0.786	1.000	29	4.26*
13	1.8667	2.5667	-0.7000	0.710	1.000	29	4.83*

TABLE XXIX (Continued)

Job Behavior	Mean (expected)	Mean (performed)	Difference Between Means	Correlation Coefficient	Two-Tail Probability	Degrees Of Freedom	T Value
14	2.0000	2.3333	-0.3333	0.841	1.000	29	2.76*
15	1.9667	2.4667	-0.5000	0.737	1.000	29	3.75*
16	2.3000	2.9333	-0.6333	0.740	1.000	29	4.08*
17	2.5484	3.4667	-0.9000	0.425	0.985	59	3.64*
18	2.6333	3.3000	-0.6667	0.696	1.000	29	4.13*
19	1.7000	1.9667	-0.2667	0.546	0.999	29	1.86
20	2.3333	3.0000	-0.6667	0.479	0.994	29	3.44*
21	1.7667	2.4000	-0.6333	0.595	1.000	29	4.29*
22	1.4000	1.7000	-0.3000	0.595	1.000	29	3.07*
23	2.1071	2.6786	-0.5714	0.745	1.000	27	3.62*
24	1.7931	2.1034	-0.3103	0.793	1.000	28	1.97*
25	2.2414	3.0345	-0.7931	0.660	1.000	28	3.17*
26	1.9310	2.5517	-0.6207	0.671	1.000	28	4.94*
27	2.5517	3.1379	-0.5862	0.552	0.999	28	2.74*

TABLE XXIX (Continued)

Job Behavior	Mean (expected)	Mean (performed)	Difference Between Means	Correlation Coefficient	Two-Tail Probability	Degrees Of Freedom	T Value
28	2.3103	2.8276	-0.5172	0.850	1.000	28	4.40*
29	1.6207	1.9655	-0.3448	0.753	1.000	28	3.36*
30	3.1724	3.9655	-0.7931	0.758	1.000	28	5.52*
31	3.0690	3.5172	-0.4483	0.838	1.000	28	2.92*
32	2.8966	3.4483	-0.5517	0.779	1.000	28	4.04*
33	2.0345	3.1724	-1.1379	0.575	0.999	28	6.43*
34	1.8276	2.2414	-0.4138	0.695	1.000	28	3.92*
35	2.5714	3.1071	-0.5357	0.694	1.000	27	2.95*
36	2.2414	2.7931	-0.5517	0.499	0.995	28	2.82*
37	1.7143	2.0714	-0.3571	0.516	0.996	27	2.29
38	2.0690	2.4483	-0.3793	0.666	1.000	28	2.17
39	2.2414	2.7241	-0.4828	0.701	1.000	28	2.98*
40	1.3667	1.4667	-0.1000	0.946	1.000	29	1.80
41	2.3667	2.9000	-0.5333	0.780	1.000	29	3.00*

TABLE XXIX (Continued)

Job Behavior	Mean (expected)	Mean (performed)	Difference Between Means	Correlation Coefficient	Two-Tail Probability	Degrees Of Freedom	T Value
42	1.7333	1.9333	-0.2000	0.879	1.000	29	1.99
43	1.8621	2.2759	-0.4138	0.639	1.000	28	2.36
44	1.8333	2.5000	-0.6667	0.590	1.000	29	2.94*
45	2.4828	3.1724	-0.6897	0.576	0.999	28	3.02*

* $p \leq 0.01$

TABLE XXX

RESULTS OF T-TEST APPLIED TO DIFFERENCE BETWEEN MEANS OF RESPONSES OF PRINCIPALS ON EXPECTED
AND PERFORMED ROLE RATING SCALES FOR EACH JOB BEHAVIOR OF SCIENCE DEPARTMENT HEADS

Job Behavior	Mean (expected)	Mean (performed)	Difference Between Means	Correlation Coefficient	Two-Tail Probability	Degrees Of Freedom	T Value
1	1.9000	2.7931	-0.8931	0.251	0.851	57	4.33*
2	3.5517	4.2414	-0.6897	0.658	1.000	28	3.46*
3	3.5769	4.2308	-0.6538	0.596	0.999	25	3.05*
4	2.3793	2.7586	-0.3793	0.663	1.000	28	2.17
5	2.7407	2.9630	-0.2223	0.863	1.000	26	1.65
6	2.2857	2.7857	-0.5000	0.686	1.000	27	3.15*
7	2.8571	3.5000	-0.6429	0.545	0.998	27	3.01*
8	3.1429	3.8929	-0.7500	0.635	1.000	27	3.58*
9	3.1071	3.5357	-0.4286	0.489	0.993	27	2.19
10	1.9655	2.6786	-0.7500	0.443	0.986	55	2.63
11	3.0357	3.8929	-0.8571	0.695	1.000	27	4.67*
12	2.1034	3.1786	-1.0714	0.448	0.987	55	4.39*
13	1.7241	2.6786	-0.9544	0.281	0.884	55	3.93*

TABLE XXX (Continued)

Job Behavior	Mean (expected)	Mean (performed)	Difference Between Means	Correlation Coefficient	Two-Tail Probability	Degrees Of Freedom	T Value
14	1.7333	2.6552	-0.8966	0.440	0.987	57	3.60*
15	1.8276	2.8276	-1.0000	0.468	0.992	28	5.20*
16	2.0000	3.1379	-1.1379	0.420	0.982	57	4.52*
17	2.1000	3.0690	-0.9690	0.110	0.572	57	3.89*
18	2.0667	3.1034	-1.0367	0.183	0.734	57	4.62*
19	1.5862	2.0000	-0.4138	0.495	0.995	28	2.70
20	2.3333	3.3793	-1.0460	0.182	0.733	57	4.63*
21	1.7241	2.5517	-0.8276	0.456	0.990	28	5.26*
22	1.6552	2.0000	-0.3448	0.675	1.000	28	2.77*
23	1.9655	2.6552	-0.6897	0.479	0.993	28	3.58*
24	1.5714	2.0714	-0.5000	0.790	1.000	27	3.55*
25	2.4444	2.8519	-0.4074	0.750	1.000	26	1.95
26	1.9655	2.4828	-0.5172	0.789	1.000	28	4.05*
27	2.3793	3.1034	-0.7241	0.564	0.999	28	4.06*

TABLE XXX (Continued)

Job Behavior	Mean (expected)	Mean (performed)	Difference Between Means	Correlation Coefficient	Two-Tail Probability	Degrees Of Freedom	T Value
28	2.2069	2.8621	-0.6552	0.552	0.998	28	3.93*
29	1.6551	2.2759	-0.6208	0.596	0.999	28	3.88*
30	2.9000	3.9655	-1.0690	0.363	0.958	57	3.57*
31	3.0714	3.7143	-0.6429	0.755	1.000	27	3.32*
32	3.0357	3.5000	-0.4643	0.661	1.000	27	2.55
33	1.8621	3.2143	-1.3522	0.211	0.781	55	5.33*
34	2.0345	2.8214	-0.7869	0.315	0.919	55	3.52*
35	2.0385	2.5385	-0.5000	0.661	1.000	25	2.48
36	1.9310	2.6071	-0.6761	0.155	0.669	55	2.59
37	1.4138	2.2143	-0.8005	0.184	0.729	55	3.52*
38	2.1724	3.0714	-0.8990	0.328	0.930	55	3.89*
39	2.2500	3.1429	-0.8929	-0.052	0.434	54	4.16*
40	1.3000	1.5517	-0.3103	0.433	0.985	57	1.43
41	2.3571	2.7143	-0.3571	0.791	1.000	27	2.29

TABLE XXX (Continued)

Job Behavior	Mean (expected)	Mean (performed)	Difference Between Means	Correlation Coefficient	Two-Tail Probability	Degrees Of Freedom	T Value
42	2.2857	2.8571	-0.5713	0.691	1.000	27	2.92*
43	2.1724	2.5862	-0.4138	0.742	1.000	28	2.46
44	1.9310	2.3103	-0.3793	0.804	1.000	28	2.63
45	2.2759	2.9655	-0.6897	0.668	1.000	28	3.58*

* $p \leq 0.01$

TABLE XXXI

MEANS OF COMBINED RESPONSES OF SCIENCE TEACHERS, SCIENCE DEPARTMENT HEADS, AND PRINCIPALS ON EXPECTED AND PERFORMED ROLE RATING SCALES FOR EACH JOB BEHAVIOR OF SCIENCE DEPARTMENT HEADS

Job Behavior	Expected Role Rating Scale	Performed Role Rating Scale
Section I: Instruction		
1. provide leadership that improves the instruction given within his department	2.130	3.066
2. provide direct supervisory assistance to departmental members by observing and evaluating their teaching	3.467	4.236
3. conduct a supervisory conference with each departmental member subsequent to observing his teaching to discuss his teaching in a positive vein	3.494	4.347
4. work with the principal to determine the teaching assignments of departmental members	2.311	2.827
5. assist the principal in selecting new departmental members	2.570	3.483

TABLE XXXI (Continued)

Job Behavior	Expected Role Rating Scale	Performed Role Rating Scale
6. work with departmental members to plan and implement in-services designed to meet departmental needs within the instructional process as identified by the entire department in conference	2.120	2.852
7. work with departmental members to plan and carry out visitations to other schools to observe methodologies, programs, and facilities	2.776	3.680
8. make recommendations to the principal concerning the tenure, promotion, transfer, or dismissal of departmental members	3.210	4.040
9. assist departmental members in solving problems involving student behavior	3.254	3.670
10. provide departmental leadership that develops and establishes a departmental policy to be used in evaluating student progress	2.082	2.895
11. encourage departmental members to observe each other's teaching;	3.317	4.188

TABLE XXXI (Continued)

Job Behavior	Expected Role Rating Scale	Performed Role Rating Scale
12. assist departmental members in solving problems involving lesson preparation and lesson presentation;	2.935	3.663
Section II: Curriculum		
13. provide leadership that improves the curriculum offered within his department;	2.060	3.033
14. recommend to the principal on the advice of his department the courses to be offered within his department;	2.000	2.721
15. work with departmental members to align the aims and goals of his department with the aims and goals of the school;	2.098	2.945
16. work with departmental members to develop for each departmental course long-range and short-range objectives that are consistent with the aims and goals of the department;	2.275	3.199
17. work with departmental members to plan and implement some form of remedial instruction within his department;	2.650	3.569

TABLE XXXI (Continued)

Job Behavior	Expected Role Rating Scale	Performed Role Rating Scale
18. work with departmental members to adapt instruction to the individual differences among students;	2.652	3.519
19. facilitate and plan for efficient utilization of departmental facilities, equipment, and materials by departmental members;	1.859	2.495
20. encourage departmental members to use field trips and guest speakers to enrich the curriculum by familiarizing departmental members with community resources and facilities;	2.462	3.489
21. work with departmental members to investigate new textbooks, new instructional materials, and new instructional programs;	1.978	2.803
22. work with departmental members to select and procure adequate amounts and kinds of instructional materials, equipment, and supplies;	1.712	2.192
23. work with departmental members to develop and establish safety standards and safety procedures to be used in departmental laboratories;	2.365	3.268

TABLE XXXI (Continued)

Job Behavior	Expected Role Rating Scale	Performed Role Rating Scale
Section III: Communications		
24. help to plan and to improve the work of his school by serving along with other department heads on his school's "Principal's Council";	1.801	2.155
25. attend regular meetings at the district level of the department heads in his subject area;	2.405	3.074
26. hold regular meetings of all departmental members to discuss departmental and school matters and to exchange ideas on teaching;	2.105	2.782
27. allow and encourage departmental members to participate in the planning of the agendas of departmental meetings;	2.525	3.185
28. work with departmental members to coordinate departmental activities to avoid duplications of effort by departmental members in the preparation of tests, worksheets, and other instructional materials;	2.533	3.322

TABLE XXXI (Continued)

Job Behavior	Expected Role Rating Scale	Performed Role Rating Scale
29. act as a liaison agent to communicate information, ideas, and suggestions between his department and the principal;	1.781	2.354
30. obtain student opinion on the status of each departmental course;	3.082	4.101
31. prepare with the assistance of departmental members an annual report to the principal of departmental programs and activities;	3.000	3.805
32. act as a liaison agent to communicate information on courses and teaching in his subject area between departmental members and teachers in the elementary and senior high schools (or elementary and junior high schools);	2.810	3.614
Section IV: Professionalism		
33. provide leadership that increases the professional growth of departmental members;	2.253	3.350
34. work with his school librarian to develop and maintain a departmental library of teaching journals and reference books;	2.202	2.943

TABLE XXXI (Continued)

Job Behavior	Expected Role Rating Scale	Performed Role Rating Scale
35. demonstrate exemplary teaching;	2.388	2.861
36. participate in the activities of professional and subject area organizations;	2.294	2.833
37. maintain his professional knowledge and his subject area knowledge at high levels;	1.787	2.259
38. encourage departmental members to attend professional meetings (seminars, workshops, conventions);	2.207	2.904
39. encourage departmental members to join and/or participate in professional and subject area organizations;	2.491	3.201
Section V: Administration		
40. submit to his principal an annual statement for budget purposes of the instructional materials, equipment, and supplies required by his department;	1.415	1.583
41. utilize assistants (students, departmental members, laboratory aides) to perform the clerical duties associated with his department headship;	2.417	3.034

TABLE XXXI (Continued)

Job Behavior	Expected Role Rating Scale	Performed Role Rating Scale
42. maintain an accurate and complete record of departmental business transactions (purchase orders and receipts, requisition orders, invoices);	1.961	2.290
43. compile annually an inventory of all departmental materials, equipment, and supplies by obtaining from departmental members lists of the materials, equipment, and supplies in their classrooms and laboratories;	2.217	2.576
44. assist the principal in the placement and orientation of student teachers within the department;	2.101	2.614
45. maintain for the use of departmental members files of the instructional materials (tests, worksheets) used by departmental members in each departmental course of study;	2.572	3.436

Note: The possible range of each mean is from one to five inclusive. With respect to the expected role rating scale, the smaller the mean the greater the extent that the group expected science department heads to have performed the corresponding job behavior. With respect to the performed role rating scale, the smaller the mean the greater the extent that the group perceived science department heads to have performed the corresponding job behavior.