SUPERVISORY RELATIONSHIPS AMONG OKLAHOMA SCIENCE TEACHERS 1956-1957

By

HERSHELL RAY MORRIS

Bachelor of Science

Oklahoma Agricultural and Mechanical College

Stillwater, Oklahoma

1952

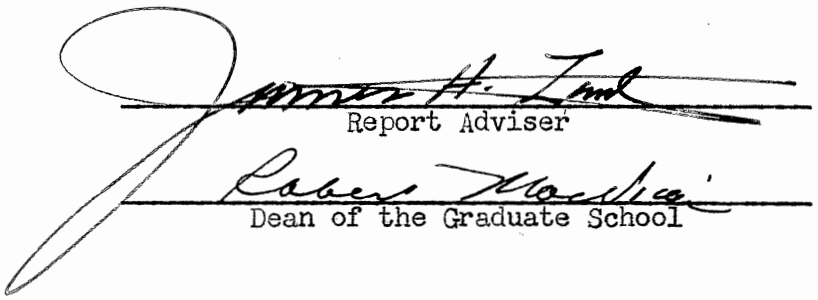
Submitted to the faculty of the Graduate School of
the Oklahoma Agricultural and Mechanical College
in partial fulfillment of the requirements
for the degree of
MASTER OF SCIENCE
May, 1957

SUPERVISORY RELATIONSHIPS AMONG

OKLAHOMA SCIENCE TEACHERS

1956-1957

Report Approved:



Report Adviser

Dean of the Graduate School

ACKNOWLEDGEMENT

The writer wishes to extend his sincere thanks to Dr. James H. Zant, Report Adviser, for his supervision and guidance during the writing of this report. The writer is grateful and appreciative of the suggestions contributed by the members of the National Science Foundation Program. The writer wishes to express his gratitude to the many principals and teachers of the state of Oklahoma who were considerate enough to return the questionnaires used in compiling this report.

H. R. M.

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER I

INTRODUCTION

In view of the present shortage of specialized science personnel in the United States attention has been focused on their potential supply and the effectiveness of the education available in these fields in the public high schools of the Nation. When considering the potential supply one must naturally consider the high school science teacher and his effectiveness. Many science teachers are prevented from being as effective as they might be by course limitations, lack of equipment, heavy teaching loads, improper supervision, and many other problems of a similar nature. Since many of the problems of science teachers are monetary in nature they can be called administrative problems and their proper solution will depend upon adequate and intelligent relationships between the science teacher and the department supervisor in the larger schools and between the science teacher and the school administrator in the smaller schools.

Statement of the Problem: Realizing that proper supervision is an incentive to effective teaching, this study was initiated to determine the nature of supervisory relationships among Oklahoma science teachers in regard to departmental supervisors, principals, superintendents, county superintendents, and the State Department of Public Instruction.

Because of the many facets involved in proper teacher-supervisor relationships a number of related areas were investigated in the questionnaires that were mailed to the principals and to the science

teachers. The attitudes of the teacher in regard to the administrators or supervisors and to the various aspects of their teaching position could be a strong influence on the types of answers that they returned in their questionnaire.

Scope of the Problem: The scope of the problem thus resolves itself into a survey of the size and offerings of the high schools involved in the survey correlated with a summary of data concerning the several science teachers who co-operated with the study.

The author has felt a need for this type of information since beginning his teaching career. Perhaps a word of explanation will clarify his present position. The author was graduated from the high school in which he is now teaching and the same administrators are there now as were there when he graduated. This long period of association and friendship, both as a student and a co-worker, has eliminated many of the problems that are seemingly commonplace among some of the other scienc teachers throughout the state.

Purpose of the Study: The primary purpose of the study is to broaden the author's personal knowledge concerning the status of science teachers and science teaching in the state of Oklahoma. The secondary purpose of the study is to furnish a source of information to others who are particularly interested in this phase of secondary education.

A richer background of knowledge in these areas will better enable the author to offer proper suggestions, recommendations, and criticisms in future discussions at faculty meetings, district teachers meetings, and state conventions.

CHAPTER II

PRELIMINARY SURVEY

The schools involved in the preliminary survey were selected at random from the Oklahoma Educational Directory[1] on the basis of three schools per county. Whenever possible, a large school, a medium sized school, and a small school was chosen from each county. Selections as to the size of the school were based on the number of teachers per school as listed in the directory.

Envelopes containing the letter of explanation,[2] the preliminary survey,[3] and a stamped, self-addressed envelope were prepared and mailed to two hundred and twenty-nine principals throughout the state.[4]

Purposes of the Preliminary Survey: The primary purpose of this initial survey was the preparation of a science teacher mailing list. There were no mailing lists of this nature available, and since the author felt that the questionnaire should be mailed directly to the teacher, that seemed like the most satisfactory method to follow.

The preliminary survey was also intended for reference material

---

[1]Oliver Hodge, Oklahoma Educational Directory, State Department of Public Instruction, Bulletin No. 109-E (Oklahoma City, 1956), pp. 23-72.

[2]See Appendix A, p. 23.

[3]Ibid., p. 24.

[4]See Appendix B. p. 25.

in evaluating the Science Teacher Survey since supervisory relationships will vary according to the size of the school and the nature of the science course offerings. Since chemistry and physics course offerings are somewhat dependent on the mathematics courses offered, the summary of course offerings includes both science and mathematics.

As a matter of convenience, the schools were divided into six groups for purposes of comparision. These groups were: five teachers or less per school, 6-10 teachers per school, 11-15 teachers per school, 16-20 teachers per school, 21-25 teachers per school, and twenty-six or more teachers per school.

Appendix C, page 35, contains summaries of the course offerings in science and mathematics for the school year 1956-1957 according to the aforesaid groupings.

The validity of a survey is partially dependent upon the number of replies received, therefore, a summary of this information is presented in Table I for due consideration.

TABLE I

PERCENTAGE RETURNS OF PRELIMINARY SURVEY

	School Group						
	5 or less	6-10	11-15	16-20	21-25	26 or more	Totals
Number mailed	74	63	39	13	22	18	229
Number of replies	45	50	36	13	19	18	181
Percentage of replies	61%	79%	92%	100%	86%	100%	79%

Many of the high schools in Oklahoma are not accredited by the North Central Association, so perhaps, some consideration should be

given to the number of accredited schools particpating in this survey. This information is summarized in Table II.

TABLE II

PERCENTAGE OF SCHOOLS ACCREDITED BY THE NORTH CENTRAL ASSOCIATION

	School Group						
	5 or less	6-10	11-15	16-20	21-25	26 or more	Totals
Number of schools accredited	0	17	20	13	19	18	87
Number of schools surveyed	45	50	36	13	19	18	181
Percentage of schools accredited	0%	34%	56%	100%	100%	100%	48%

Not to be misled by the low percentage of accredited schools in the groups of smaller schools, it is well to keep in mind that the larger and accredited high schools enroll a major percentage of the total number of students enrolled in all the high schools in Oklahoma.

The science teacher-administrator combination was quite evident in the smaller schools, however, as the size of the school increased the number of such combinations became less.

These combinations could be an advantage for the smaller schools if the administrators concerned were inclined to emphasis scientific studies. Evidently the advantage was not realized in most cases, because, as far as could be determined, the offerings of science and mathematics in the smaller schools were not influenced by these combinations.

TABLE III

SCIENCE TEACHER-ADMINISTRATOR COMBINATIONS
229 Schools Surveyed

	School Group					
	5 or less	6-10	11-15	16-20	21-25	26 or more
Number of science teacher-administrator combinations	20	9	6	0	0	0
Number of schools surveyed per group	45	50	36	13	19	18

The better offerings seemed to be influenced more by the number of teachers per school that were sharing the load as far as science teaching is concerned. Table IV illustrates how the science teaching load is shared in the various schools participating in the preliminary survey.

TABLE IV

NUMBER OF SCIENCE TEACHERS PER SCHOOL

	School Group					
	5 or less	6-10	11-15	16-20	21-25	26 or more
1 science teacher per school	35	28	18	2	3	0
2 science teachers per school	9	19	12	8	10	1
3 science teachers per school	1	3	6	2	3	4
4 science teachers per school	0	0	0	1	2	4
5 or more science teachers per school	0	0	0	0	0	7
Total schools per group	45	50	36	13	19	18

Another important aspect that should not be neglected in these considerations is the number of students involved in these various situations. In the 5 teacher or less group the enrollment varied from 23 to 150. Average enrollment for this group was approximately 75. In the 6-10 group the range of enrollments was from 56 to 268. Average enrollment for this group was approximately 160. In the 11-15 group the enrollment varied from 128 to 403. Average enrollment for this group was approximately 225. In the 16-20 group the range of enrollments was from 250 to 505. Average enrollment for this group was approximately 325. In the 21-25 group the enrollment varied from 323 to 756. Average enrollment for this group was approximately 515. In the last and largest group the range of enrollment was from 506 to 3094. The average for this last group was about 1265.

The State Department of Public Instruction did a study regarding science and mathematics credits of 1954-1955 high school graduates. There were 714 high schools that responded to the questionnaire and these 714 schools had a total of 22,760 graduates in 1955. The results were as follows:[5]

Science

	No. of Graduates
No credit in science	692
General science only	5,738
Biology only	1,829
General science and biology	9,616
General science and other science	3,914
Physics	1,555
Chemistry	3,183
Physics and chemistry	1,091
Other science courses	854
Two or more science courses	14,501

[5] Oliver Hodge, Letter to Superintendents and Principals, State Department of Public Instruction, (December 13, 1955) p. 1.

Mathematics

	No. of graduates
No credit in mathematics	13
General mathematics only	2,292
Algebra only	4,441
General mathematics and algebra	6,556
General mathematics and plane geometry	1,109
Algebra and plane geometry	8,117
Advanced algebra	4,396
Solid geometry	1,123
Trigonometry	1,381
High school arithmetic	2,719
Two or more mathematics courses	14,014

It should be noted that approximately 64% of the seniors had credit in two or more courses in science and approximately 62% had credit in more than one course in mathematics.

According to a national survey 96.7% of all tenth grade students in the United States have an opportunity to take biology and 94.2% of all twelfth grade students have an opportunity to take either physics or chemistry.[6] It would be interesting to compare the Oklahoma data with these national figures but each set of figures is computed from a different base. The Oklahoma statistics, quoted previously, list only the number of students that have credit in the various courses, whereas, the national statistics list the number or percentage of students that have the opportunity to study the various courses, in addition to the number actually enrolled for credit.

---

[6] Kenneth E. Brown, Offerings and Enrollments in Science and Mathematics in Public High Schools, United States Department of Health, Education, and Welfare, Pamphlet No. 118 (Washington, 1956), pp. 5-14.

CHAPTER III

ANALYSIS OF SCIENCE TEACHER SURVEY

The teachers in this survey were selected at random from the lists of names on the preliminary survey forms. Evelopes containing a letter of explanation,[1] a questionnaire[2], and a stamped, self-addressed envelope were prepared and mailed to 105 teachers throughout the state of Oklahoma. The percentage returns are listed in Table V.

TABLE V

PERCENTAGE RETURNS OF SCIENCE TEACHER SURVEY

	School Group						
	5 or less	6-10	11-15	16-20	21-25	26 or more	Totals
Number mailed	16	22	19	11	17	20	105
Number of replies	7	14	9	7	10	14	61
Percentage of replies	44%	64%	47%	64%	59%	70%	58%

The first page of the Science Teacher Survey was devoted to general information about the teacher that might give an insight into the particular supervisory relationship in each individual case. Table VI is a summary of the reference material that was gained from page one of

[1] See Appendix D, p. 42.

[2] Ibid., pp. 43-44.

the survey. The information is summarized in the same order as it appeared on the questionnaire.

TABLE VI

GENERAL INFORMATION SUMMARY FROM SCIENCE TEACHER SURVEY

61 Questionnaires returned
60 Questionnaires answered
1 Questionnaire left blank

Age of Teachers:

	Age in Years								
	20-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	Over 60
Number of teachers	6	6	2	8	4	7	7	4	1

Marital Status:

	Single	Married	Widowed	No answer	Total
Female teachers	3	15	2	1	21
Male teachers	3	34	0	3	40

Experience and Tenure:

Years	Total Number of Years Teaching	Number of Years Teaching Science	Number of Years in Present Position
First	7	7	7
1-5	13	22	36
6-10	9	9	8
11-15	8	8	10
16-20	7	10	1
21-25	9	4	3
26-30	8	5	1

TABLE VI (Continued)

Experience and Tenure: (Continued)

Years	Total Number of Years Teaching	Number of Years Teaching Science	Number of Years in Present Position
31-35	4	1	0
36-40	1	0	1
Over 40	1	1	0

Types and Numbers of Oklahoma Teaching Certificates:

Life:	Biology	23	Aeronautics	1
	General Science	16	Agriculture	1
	Mathematics	15	Economics	1
	Chemistry	13	Geology	1
	Social Studies	12	Geography	1
	Physics	11	Home Economics	1
	English	6	Journalism	1
	Grades 1-12	5	Music	1
	Elementary	5	Photography	1
	Administration	2	Physical Education	1
	Psychology	2	Sociology	1
Standard:				
	Natural Science	16	Home Economics	2
	Mathematics	4	Social Studies	2
	Administration	3	Art	1
	Agriculture	2	English	1
	Commerce	2	Industrial Arts	1
	Elementary	2		
Provisional or Temporary:				
	Natural Science	9	Mathematics	3
No Certificate Listed:		4		

Teaching in Preferred Field:

Yes 49 No 11

Size of Teacher's Graduating Class From High School:

	Size of Class				
	1-20	21-80	81-150	151-300	301 or more
Number of Teachers	20	25	4	10	1

TABLE VI (Continued)

Size of Class

	1-20	21-80	81-150	151-300	301 or more
Number of Teachers	20	25	4	10	1

General Questions:

1. Do you feel that your academic preparation for your teaching field is adequate?

   Yes 38 No 22

2. Did you have a course in the methods of teaching science?

   Yes 27 No 33

3. Do you feel that the scope of this course was adequate?

   Yes 16 No 11

4. Does your principal or superintendent allow your classes sufficient time for field trips or other outside work?

   Yes 46 No 12

5. Does the administration pay for the substitute teacher if you are away from school on official business?

   Yes 48 No 9

6. Do you have all the equipment listed on the minimum equipment list published by the State Department of Education?

   Yes 39 No 17 Don't know 5

7. What is your source of funds for science equipment?

   School Board 54 Fees 15
   Other 4 None 0

8. Average amount spent for all your classes.

   Average Amount Spent

	$25 or Less	$100 or Less	$101-$200	$201-$300	Over $300
Number of Teachers	6	16	10	11	7

TABLE VI (Continued)

Average Amount Spent Per School Group

	School Group					
	5 or less	6-10	11-15	16-20	21-25	25 or more
Average Amount Spent	$170	$226	$168	$110	$313	$254

9. Do you think science classes should be included in the core curriculum?

Yes 51 No 7

10. Are you as a science teacher ever concerned professionally with the County Superintendent?

Yes 16 No 44

11. Are the textbooks adopted by the State Department of Education adequate for your needs?

Yes 40 No 19

12. Do you think the State Department of Education should have a specific division concerned primarily with Science Education?

Yes 36 No 19

13. Has any representative from the State Department of Education ever visited your classroom?

Yes 36 No 24

Questions 4, 5, 6, 7, 10, 11, 12, and 13 from Table VI are related to the problem of supervision at the local, county, and state level. Questions 4, 5, 6, and 7 concern the local level, question 10 concerns the county level, and questions 11, 12, and 13 concern the state level.

At the local level it should be noted that 12 teachers reported insufficient time for outside work or field trips. Eight of the tea-

chers, so reporting, were from schools that had 21 teachers or more.[3] This seems to indicate that the larger schools, that can offer the better courses, do not permit the teachers to enrich their courses with some of the practical aspects that field work can contribute.

The question of paying for a substitute teacher seems to involve the smaller schools where budgetary considerations have a strong influence.

The local school boards furnish funds for equipment in 54 of the schools but 6 schools depend solely on fees and 13 supplement their funds with fees or other sources. Seven of the teachers reporting fees were from schools of 26 or more teachers. From the report of expenditures listed in question 8, the average amounts listed in each group are adequate but it should be noted that 6 teachers spent $25 or less per year. Either these teachers have an adequate supply of good equipment on hand or the financial status of the science department should be improved.

The responses from question 10 indicate that only the smaller schools have much contact with the County Superintendent. Several of the teachers indicated that this contact was for the purpose of borrowing films from the County Film Library.

Approximately one-third of the teachers felt that the textbooks adopted by the State Department of Education were inadequate for their needs. About two-thirds of the teachers reporting indicated a need for a specific division in the State Department of Education that would be concerned primarily with Science Education. Forty per cent of the teachers have never had a visit from a representative of the State Department of Education. From the above responses there are strong

---

[3] See Appendix E, p. 45.

indications that considerable work needs to be accomplished in strengthening and improving the State Department of Education as far as science is concerned.

Page 2 of the Science Teacher Survey was devoted to the nature of the supervision the teachers received and to the nature of the supervisory activity involved in each particular situation plus any added comments the teachers chose to contribute. Appendix E, page 46 gives the frequency response to the various blanks.

The first set of statements[4] concern the nature of supervision received by each teacher. The responses, taken collectively, indicate that the general nature of the supervision in Oklahoma high schools is through occasional classroom visitation plus group or faculty meetings.

From the group of largest schools one of the most popular responses concerning the nature of supervision was conferences with the supervisor.

Considering the negative types of responses in this group of statements, 11 teachers reported that no one concerned himself about their teaching methods, 4 teachers reported that no one concerned himself about their teaching problems, and 6 teachers reported that the supervisor had too many other duties to properly supervise. It might be noted that 4 of the 6 responses concerning the supervisors who had too many other duties to properly supervise came from the group that had 6-10 teachers per high school.

The second set of statements[5] concerns the nature of the supervisory activity involved in each particular situation. Each statement in this set had from 12 to 29 responses except the statement that

---

[4]See Appendix D, p. 44.

[5]Ibid.

involved conducting research to improve instruction which had only 7 responses.

Taken collectively, the responses indicate that the general nature of supervisory activity seems to center around administrative details, providing professional literature, and keeping the superintendents informed of the teachers needs.

The number of responses for the remainder of the statements indicate that many of the supervisors are trying to improve their schools by selecting and organizing teaching materials, preparing courses of study and/or teaching units, comparing different methods of instruction, and planning and carrying out testing programs. The frequency response for each of these statements is given in Appendix E, page 46.

The final entry of the Science Teacher Survey asked for the teacher's general opinion of the supervisory relationships between science teachers and administrators in their area. Although many of the opinions were of a complimentary nature, some of them were very revealing as to the actual nature of the relationship involved. Listed below are some of the typical comments received:

"Snooper-visory involved which defeats the purpose."

"Administrators do what they can."

"Good but needs more attention."

"Adequate for needs."

"We need" but never "we'll furnish money to the science department."

"Good in general."

"Pretty well left up to the science teacher."

"There is very little -- no one qualified."

"Sometimes inadequate."

"Teacher-teacher relationship only -- which is good."

"Very good. Principal is one of the science teachers."

"Administrators are very co-operative and anxious for a good science program but have financial limitations."

"Little direct classroom supervision or observation nor do we feel it to be necessary."

"Most administrators feel that anyone can teach science if they are a coach."

"Teacher has freedom to carry out own ideas."

"It is above average at this school."

One comment that denoted considerable friction within a faculty is listed below:

"The superintendent has shown great interest in the Physics Department. He said I could have any equipment I needed. The principal would not allow any one to enroll in physics except juniors and seniors who had credit in both geometry and chemistry in hopes that there would not be enough enroll in physics to have a class this year. In spite of the high requirements 13 students enrolled. I pay return postage on rental films because the principal complained about this expense. The school pays an annual fee to East Central for films, but they only have a few I can use. The films I rent cost about $60 per year."

CHAPTER IV

CONCLUSION

Regardless of the few adverse comments and poor situations indicated by the summarized data of this report, the general trend points toward improved conditions in the future. Many of the problems indicated are financial in nature and, perhaps, the consolidation movement that is now underway will help alleviate some of them.

Criticism, from authorities such as Dr. MacVicar of Oklahoma Agricultural and Mechanical College and Dr. Cross of Oklahoma University, plus the influence of the national programs sponsored by the National Science Foundation, is opening the eyes of the administrators and the public in general. This increased public awareness of the present shortage of personnel in the scientific fields should be taken advantage of at every opportunity. Public support can accomplish, in a short time, the goals for which science teachers have been clamoring for a number of years.

Administrators should be reminded, over and over again, of the importance of scientific and technical training in this atomic era. This can best be accomplished by the science teacher that is adequately prepared in his field and enthusiastic about his teaching. This teacher should also make his problems known to civic-minded groups through adequate and intelligent public relations. The general public reaction will force some of the more backward adminis-

trators to mend their ways.

There is a great need for emphasis on science teaching at the state level. Stricter adherence to the qualification and certification of science teachers is a necessity if science is to assume its proper postion in the field of secondary education. The State Department of Education should re-evaluate its present policies concerning the requirements for students graduating from highschool. Six thousand four hundred and thirty students with credit in general science only, or less, should be an indication of an urgent problem to be solved.

Another aspect of the present situation might be to encourage the granting of federal aid to science teachers in much the same manner as many of the vocational teachers are receiving now. This would tend to cut class loads and improve the financial status of the teacher considerably. The improved financial status would promote improved relationships with the administrators.

The science teachers of Oklahoma are willing to sacrifice for a time but there is a need for some indication of future improvements in the science teaching profession.

"A thousand words will not leave
so deep an impression as one deed."
Ibsen.

BIBLIOGRAPHY

Brown, Kenneth E. Offerings and Enrollments in Science and Mathematics in Public High Schools, United States Department of Health, Education, and Welfare. Pamphlet No. 118 (Washington, 1956), pp. 5-14.

Hodge, Oliver. Letter to Superintendents and Principals, State Department of Public Instruction (December, 1955), p. 1.

_____. Oklahoma Educational Directory, State Department of Public Instruction, Bulletin No. 109-F (Oklahoma City, 1956), pp. 23-72.

A P P E N D I C E S

APPENDIX A

THE LETTER OF EXPLANATION AND THE PRELIMINARY SURVEY FORM THAT WAS MAILED TO THE HIGH SCHOOL PRINCIPALS

SUPPLEMENTARY TRAINING PROGRAM
FOR
HIGH SCHOOL SCIENCE TEACHERS
Oklahoma A. and M. College
Stillwater, Oklahoma

February 12, 1957

Dear Sir:

I am one of the teachers participating in the Supplementary Training Program at Oklahoma A. and M. College sponsored by the National Science Foundation.

I am compiling a mailing list for a questionnaire to be mailed to science teachers over the state and I would appreciate your filling in the names of the science staff in your school.

The enclosed sheet is devoted to reference material concerning the status of science and mathematics in Oklahoma this year. I would be very grateful if you could supply this information also. I have enclosed a stamped, self-addressed envelope for your convenience.

Sincerely,

Hershell R. Morris

Hershell R. Morris,

HRM:s

Encl. - 2

Name of School _____

Address _____

_____

Science Staff:

General Science: _____

Biology: _____

Physics: _____

Chemistry: _____

(Other) _____: _____

Present enrollment:

Freshman: _____

Sophomore: _____

Junior: _____

Senior: _____

Availability of Science and Mathematics Classes

Course	Offered Yearly	Offered Alternate Years	Offered on Demand	Not Available
General Science				
Biology				
Physics				
Chemistry				
(Other) _____				
(Other) _____				
General Math.				
Algebra I				
Algebra II				
Plane Geometry				
Solid Geometry				
Trigonometry				
(Other) _____				

APPENDIX B

MAILING LIST FOR PRELIMINARY SURVEY

County	Town	District	No. of teacher	Principal
Adair	Stillwell[NC]	25	21	K. Carleton
	Westville[NC]*	11	16	W. Bowles
	Watts*	4	4 1/2	J. W. Golden
Alfalfa	Cherokee[NC]*	46	10	R. L. Herren
	Jet*	4	7	J. E. Devor
	Amorita*	5	3	W. W. Jack
Atoka	Atoka[NC]*	15	10	W. C. Elliott
	Caney *	26	5	C. Cleveland
	Stringtown*	7	3	C. F. Rains
Beaver	Beaver*	22	9	D. Niles
	Turpin*	128	6 1/2	M. Smith
	Gate*	38	3	D. L. Harvey
Beckham	Elk City[NC]*	6	13	H. W. Peace
	Sweetwater*	15	7	C. A. Lewis
	Delhi	1	3 1/2	C. Kurtley
Blaine	Watonga[NC]	42	12	J. O. Smith
	Greenfield*	97	5	R. McKellips
	Southard*	98	3	D. E. Jones

NC, Schools accredited by the North Central Association

*, Answers received

APPENDIX B (Continued)

County	Town	District	No. of teachers	Principal
Bryan	Durant[NC]*	72	24	W. H. Winters
	Caddo*	5	11 1/2	B. J. Garner
	Yuba*	12	3	F. Stroup
Caddo	Anadarko[NC]*	A	17	B. Riddle
	Hydro*	1	7	C. Gambrell
	Lookeba	131	3	E. McClain
Canadian	El Reno[NC]*	34	32	W. P. Marsh
	Yukon[NC]*	27	9	J. Wade
	Piedmont	22	4	H. Collett
Carter	Ardmore[NC]*	19	22	M. H. Price
	Healdton[NC]*	55	16	C. C. Courtright
	Graham*	46	3	C. O. Ticknor
Cherokee	Tahlequah[NC]*	35	22 1/2	J. Lain
	Hulbert*	16	9	R. Edwards
	None other listed in directory.			
Choctaw	Hugo[NC]*	39	17	S. Parker
	Boswell*	1	11	S. Pardue
	Soper	4	5	D. Hammock
Cimarron	Boise City*	2	10 1/2	W. A. Tolbert
	Keyes*	11	5 1/2	M. T. Reeves
	Felt	10	3	M. R. Cyler
Cleveland	Norman[NC]*	29	32	B. R. Daniel
	Noble*	40	12 1/2	B. E. Fisher
	Lexington*	47	6	W. O. Drummond

APPENDIX B (Continued)

County	Town	District	No. of teachers	Principal
Coal	Coalgate*	1	13	D. L. Leister
	Tupelo*	2	4	I. Carter
	Centrahoma*	5	3	R. H. Hager
Comanche	Lawton[NC]*	8	55	H. Bish
	Fletcher*	9	10	H. Childs
	Geronimo*	4	3	G. Stuever
Cotton	Temple*	101	14	M. D. Greenewold
	Walters[NC]*	1	12	J. P. Sanders
	Randlett	262	4	W. Beard
Craig	Vinita[NC]*	65	27 1/2	G. L. Conner
	Welch*	17	7	R. L. Rice
	Centralia	2	3	H. Mayberry
Creek	Sapulpa[NC]*	33	33	G. K. Blake
	Drumright[NC]*	39	18	C. R. Bradley
	Depew	21	5 1/2	C. F. Hopper
Custer	Clinton[NC]*	99	20	L. V. Irwin
	Hammon	66	8	A. D. Shewmaker
	Arapaho*	5	4	B. R. Jones
Delaware	Jay*	1	12 1/2	W. Wilson
	Grove[NC]*	2	9	G. Baskins
	Colcord*	4	6	W. C. Everett
Dewey	Seiling*	8	10	I. Goss
	Taloga*	1	7	J. S. Francis
	Carmargo	4	4	S. Lofaro

APPENDIX B (Continued)

County	Town	District	No of teachers	Principal
Ellis	Shattuck	4	6 1/2	R. Thain
	Gage*	39	5	J. A. Adams
	Arnett*	3	5	A. H. Woods
Garfield	Enid[NC]*	57	52	D. B. Selby
	Garber[NC]*	47 1/2	13	J. Helm
	Waukomis*	1	6	W. Unruh
Garvin	Lindsay[NC]*	9	20	L. Carey
	Pauls Valley[NC]*	18	19	H. L. Mitchusson
	Paoli*	5	5	M. R. Arnold
Grady	Chickasha[NC]*	1	25	L. K. Miller
	Rush Springs*	68	7	M. D. Vincent
	Pocasset	100	5	L. L. Laws
Grant	Medford[NC]*	54	9 1/2	D. Schuneman
	Wakita	33	7	A. C. Riddle
	Nash*	107	3 1/2	E. Tarrant
Greer	Mangum[NC]*	1	10	R. Hogan
	Granite	3	7	T. Foster
	Brinkman	16	4	K. Chadwick
Harmon	Hollis[NC]*	66	8	E. R. Brecheen
	Gould*	6	8	J. T. Sanders
	Vinson*	5	7	G. Nipp
Harper	Laverne*	1	13	N. L. Olson
	Buffalo*	4	5	J. W. Ward
	Selman*	5	4	D. Wells

APPENDIX B (Continued)

County	Town	District	No. of teachers	Principal
Haskell	Stigler[NC]*	20	23	L. Rushing
	Kinta*	13	5	M. W. Ford
	McCurtain*	37	4	J. Slater
Hughes	Holdenville[NC]*	35	14	J. J. Daugherty
	Wetumka[NC]*	5	10	G. Chowins
	Dustin*	9	5	S. J. Owens
Jackson	Altus[NC]*	18	21	C. B. Street
	Eldorado*	25	9	B. R. Henry
	Olustee	35	4	S. Hanna
Jefferson	Ringling*	14	12	J. Tomlinson
	Waurika	23	12	B. Thompson
	Addington	22	4	G. Luscombe
Johnston	Tishomingo*	20	8	K. C. Davis
	Wapanucka*	37	5	T. B. Sullivan
	Pontotoc*	43	3	L. Massey
Kay	Ponca City[NC]*	71	53	H. S. Anderson
	Newkirk[NC]*	29	14	J. A. Hitch
	Kaw City	84	3 1/2	D. Young
Kingfisher	Kingfisher[NC]*	7	11	L. J. Johnson
	Hennessey[NC]*	16	10 1/2	A. Thomas
	Omega*	3	5	L. A. Neely
Kiowa	Hobart[NC]*	1	13	D. Gordon
	Snyder[NC]*	4	10	A. Kelley
	Gotebo[NC]*	3	5 1/2	M. Venard

APPENDIX B (Continued)

County	Town	District	No. of teachers	Principal
Latimer	Wilburton[NC]*	1	12	P. J. Smith
	Red Oak[NC]*	2	8	W. B. Rutledge
	Panola*	4	7	W. Merryman
LeFlore	Poteau[NC]*	29	23	H. Ferguson
	Spiro[NC]*	2	21	L. B. Young
	Bokoshe*	26	5	J. E. Tolbert
Lincoln	Chandler*	1	14	S. S. Wyatt
	Stroud*	54	10	R. Patton
	Agra*	134	5	L. W. Batchelor
Logan	Guthrie[NC]*	1	22	C. P. Wright
	Crescent*	2	8	J. G. Dzur
	Coyle*	4	5	T. Meadows
Love	Marietta[NC]*	16	12 1/2	J. Banks
	Thackerville*	4	6	J. J. Musser
	Leon	8	4	D. Kitchens
Major	Fairview	84	8	J. Maddox
	Ringwood*	1	5 1/2	J. R. Means
	Cleo Springs*	4	4	D. White
Marshall	Madill[NC]*	2	11	R. J. Maxwell
	Kingston	3	6	J. Gecks
	None other listed in directory.			
Mayes	Pryor[NC]*	1	21	H. Hunsaker
	Locust Grove*	17	14	L. Yarbrough
	Strang	18	3	B. F. Fultz

APPENDIX B (Continued)

County	Town	District	No. of teachers	Principal
McClain	Wayne*	10	11	J. T. Dowdy
	Purcell[NC]	15	10	J. L. Taylor
	Byars	4	3 1/2	T. Pinley
McCurtain	Broken Bow[NC]*	74	25	B. H. Orr
	Idabel[NC]*	5	15	J. Gimlin
	Battiest*	71	6	H. B. Bristow
McIntosh	Eufaula[NC]*	1	10	A. O. Beck
	Checotah[NC]*	19	10	G. D. McCullough
	Hanna	64	5	E. Prevett
Murray	Sulphur[NC]*	1	25	G. W. Duke
	Davis[NC]*	10	11	O. Goodrich
	Dougherty*	2	3	R. Renner
Muskogee	Muskogee[NC]* (Central)	20	56	B. L. Wertz
	Fort Gibson*	3	14 1/2	L. E. Hulsey
	Braggs	46	3	C. Vowell
Noble	Perry[NC]*	1	15	J. Divine
	Marland*	5	7	A. R. Hill
	Orlando*	4	5	J. R. Schaffler
Nowata	Nowata[NC]*	40	22	M. J. Due
	Lenepah*	1	8 1/2	C. R. Price
	Wann*	2	4	O. E. Story
Okfuskee	Okemah*	26	11	G. A. Peck
	Weleetka[NC]	31	8	J. Parsons
	Paden	14	5	F. R. Collins

APPENDIX B (Continued)

County	Town	District	No. of teachers	Principal
Oklahoma	Oklahoma City[NC]* (Capitol Hill)	89	80	Dr. L. Cox
	Edmond[NC]*	12	23	C. Ferguson
	Arcadia	5	7	E. A. Grywalski
Okmulgee	Okmulgee[NC]*	1	40	C. C. Warriner
	Henryetta[NC]*	2	23	L. Power
	Beggs*	4	6	D. Doss
Osage	Pawhuska[NC]*	2	23	L. Bean
	Hominy[NC]*	38	13	R. T. Atterbury
	Avant*	35	4	F. Moody
Ottawa	Miami[NC]*	23	37	F. A. Kelton
	Commerce*	18	11	W. J. Bennett
	Fairland*	31	7	R. Rousey
Pawnee	Pawnee[NC]*	1	22	B. Green
	Cleveland[NC]*	6	17	E. F. Rezabek
	Maramec	3	3	W. J. Bell
Payne	Stillwater[NC]*	16	36	C. Tilley
	Cushing[NC]*	67	22	G. P. Rush
	Quay	1	4	B. E. Warford
Pittsburg	McAlester[NC]*	80	28	F. G. Sandlin
	Hartshorne[NC]*	1	11	J. King
	Kiowa*	14	5	E. V. Roberts
Pontotoc	Ada[NC]*	19	24	E. A. Williamson
	Vanoss*	9	7	N. Umphers
	Francis*	3	3	I. Henson

APPENDIX B (Continued)

County	Town	District	No. of teachers	Principal
Pottawatomie	Shawnee[NC]*	93	41	A. W. Brokaw
	Tecumseh	92	12	J. K. Crouch
	St. Louis	66	5 1/2	G. Hill
Pushmataha	Antlers*	A	7	O. Jones
	Clayton	10	7	M. Deaton
	Rattan*	1	5	T. Messer
Roger Mills	Cheyenne*	7	5	O. H. Ellis
	Berlin	9	4	L. Stone
	Durham*	1	3	G. R. Gideon
Rogers	Claremore[NC]*	14	16	J. McKeever
	Chelsea*	2	8 1/2	J. R. Ransom
	Oologah	33	4	P. Blakley
Seminole	Seminole[NC]*	1	33	H. B. Mitchell
	Wewoka[NC]*	2	17	L. S. John
	Sasakwa*	10	5	L. E. Sahwaechter
Sequoyah	Sallisaw[NC]*	1	20	D. B. Young
	Vian*	2	9	F. Stinnett
	Roland	5	5 1/2	H. J. Harrell
Stephens	Duncan[NC]*	1	40	G. Waters
	Comanche*	2	15	C. D. Holleyman
	Bray	42	6	L. Pettigrew
Texas	Guymon[NC]*	8	18	H. B. Hunnicutt
	Hooker[NC]*	23	13	R. Semones
	Adams*	88	4 1/2	T. Crider

APPENDIX B (Continued)

County	Town	District	No. of teachers	Principal
Tillman	Frederick[NC]*	158	12	J. E. Martin
	Tipton[NC]	8	7	B. Kennedy
	Hollister	10	3	R. L. Meek
Tulsa	Tulsa[NC]* (Central)	1	131	M. M. Black
	Broken Arrow[NC]*	3	21	H. K. Ragsdale
	Sperry	8	6	H. W. Brooks
Wagoner	Wagoner[NC]*	19	15	G. Lemons
	Coweta[NC]*	17	10	G. W. Easley
	Okay*	1	3	C. C. Law
Washington	Bartlesville[NC]* (College)	30	41	J. C. Haley
	Dewey[NC]*	7	21	B. R. Mitchell
	Copan[NC]*	4	7	N. L. Marshall
Washita	Cordell[NC]*	78	10	F. L. French
	Dill City	3	5	S. L. Howe
	Cloud Chief*	8	3	J. D. Reynolds
Woods	Alva[NC]*	1	14	O. Korn
	Waynoka*	3	8	H. Wellborn
	Capron*	31	5	O. Jantz
Woodward	Woodward[NC]*	1	15	A. A. Tuck
	Mooreland*	2	12	D. McElhiney
	Fort Supply*	5	6	L. E. Howell

APPENDIX C

AVAILABILITY OF SCIENCE AND MATHEMATICS CLASSES, 1956-1957

Five teachers or less per school
45 schools surveyed

Course	Offered yearly	Offered on alternate years
General Science	21	23
Biology	8	23
Physics	0	1
Chemistry	0	4
General Mathematics	15	14
Algebra I	30	12
Algebra II	0	16
Plane Geometry	5	22
Solid Geometry	0	2
Trigonometry	0	2
Other courses listed as science or mathematics:		
General Agriculture	1	0
Photography	0	1
Business Arithmetic	0	1

APPENDIX C (Continued)

6-10 teachers per school
50 schools surveyed

Course	Offered yearly	Offered on alternate years
General Science	44	4
Biology	31	12
Physics	4	9
Chemistry	8	10
General Mathematics	32	2
Algebra I	44	3
Algebra II	15	17
Plane Geometry	16	18
Solid Geometry	1	5
Trigonometry	1	5
Other courses listed as science or mathematics:		
High School Arithmetic	0	1

APPENDIX C (Continued)

11-15 teachers per school
36 schools surveyed

Course	Offered yearly	Offered on alternate years
General Science	34	1
Biology	29	6
Physics	7	15
Chemistry	12	17
General Mathematics	24	0
Algebra I	36	0
Algebra II	20	12
Plane Geometry	24	10
Solid Geometry	3	3
Trigonometry	7	7
Other courses listed as science or mathematics:		
Business Arithmetic	2	0

APPENDIX C (Continued)

16-20 teachers per school
13 schools surveyed

Course	Offered yearly	Offered on alternate years
General Science	13	0
Biology	12	1
Physics	5	4
Chemistry	7	4
General Mathematics	13	0
Algebra I	13	0
Algebra II	11	2
Plane Geometry	13	0
Solid Geometry	5	2
Trigonometry	6	2
Other courses listed as science or mathematics:		
Geology	1	0

APPENDIX C (Continued)

21-25 teachers per school
19 schools surveyed

Course	Offered yearly	Offered on alternate years
General Science	19	0
Biology	19	0
Physics	9	6
Chemistry	13	6
General Mathematics	18	0
Algebra I	19	0
Algebra II	13	6
Plane Geometry	17	2
Solid Geometry	8	5
Trigonometry	8	6
Other courses listed as science or mathematics:		
Physiology	1	0
High School Mathematics	1	0
Vocational Mathematics	1	0

APPENDIX C (Continued)

26 or more teachers per school
18 schools surveyed

Course	Offered yearly	Offered on alternate years
General Science	18	0
Biology	18	0
Physics	18	0
Chemistry	18	0
General Mathematics	15	0
Algebra I	18	0
Algebra II	18	0
Plane Geometry	18	0
Solid Geometry	16	2
Trigonometry	16	1
Other courses listed as science or mathematics:		
Advanced Physical Science	1	0
Electronics	1	0
Geography	1	0
Geology	3	0
Photography	1	0
Physiology-Psychology	1	0
College Algebra	4	0

APPENDIX D

The letter of explanation and the Science Teacher Survey that was mailed to the High School Science Teachers.

614 North Hester Street
Stillwater, Oklahoma

Dear Fellow Science Teacher:

I am one of the teachers now attending the Supplementary Training Program for High School Science Teachers sponsored by the National Science Foundation this year at Oklahoma A. and M. College. This is a challenging and comprehensive program and if you are interested in increasing your proficiency in the field of science I hope you will apply and be accepted.

As part of our requirements for the year's study we have to write a Seminar Report. I have chosen as my topic "Supervisory Relationships Among High School Science Teachers". In order to collect information on this topic, I am sending you a questionnaire that I have tried to make as painless as possible. Will you please fill it out and return it as soon as possible. I have enclosed a stamped self-addressed envelope for your convenience.

Thank you very much for your cooperation.

Sincerely yours,

Hershell R. Morris.

HRM:sh

SCIENCE TEACHER SURVEY

Name of School _____ City _____ Oklahoma.

Your Name (omit if you wish) _____ Age ____.

Male _____ Female _____ Married _____ Single _____ Single (or widowed) with dependents _____.

Teaching Experience:

Total number of years teaching: _____.
Total number of years teaching science: _____.
Number of years in present position: _____.

Oklahoma Teaching Certificates held:

Type	Teaching Fields
_____	_____.
_____	_____.
_____	_____.

What is your preferred teaching field? _____

Size of your graduating class when you graduated from high school: _____ 1-20, _____ 21-80, _____ 81-150, _____ 150-300, _____ 300 or more.

Do you feel that your academic preparation for your teaching field is adequate? _____Yes _____ No.

Did you have a course in the methods of teaching science? _____Yes _____ No.

Do you feel that the scope of this course was adequate? _____Yes _____ No.

Does your principal or superintendent allow your classes sufficient time for field trips or other outside work? _____Yes _____ No.

Does the administration pay for the substitute teacher if you are away from school on official business? _____Yes _____ No.

Do you have all the equipment listed on the minimum equipment list published by the State Department of Education? _____Yes _____ No.

What is your source of funds for science equipment? ____ School Board ____ Fees. ____ Other, _____ None.

Average amount spent for all your classes. $_____.

Do you think science classes should be included in the core curriculum? _____Yes _____ No.

Are you as a science teacher ever concerned professionally with the County Superintendent? _____Yes _____ No.

Are the textbooks adopted by the State Department of Education adequate for your needs? _____Yes _____ No.

Do you think the State Department of Education should have a specific division concerned primarily with Science Education? _____Yes _____ No.

Has any representative from the State Department of Education ever visited your classroom? _____Yes _____ No.

Indicate the nature of the supervision you receive by checking or listing the appropriate item.

1. No one concerns himself about my teaching methods.
2. No one concerns himself about my teaching problems.
3. Occasional visits are made to my class room.
4. Frequent visits are made to my class room.
5. Confined primarily to conferences with the supervisor.
6. Confined primarily to group or faculty meetings.
7. Consists of classroom visitation, conferences, and faculty meetings.
8. The supervisor has too many other duties to properly supervise.
9. (Other) _____
10. _____

Indicate the nature of the supervisory activity involved in your situation.

1. Concerned with administrative details.
2. Selecting and organizing teaching materials.
3. Preparing courses of study and/or teaching units.
4. Comparing different methods of instruction.
5. Planning and carrying out testing programs.
6. Conducting research to improve instruction.
7. Providing professional literature.
8. Keeping the superintendent informed of my needs.
9. (Other) _____
10. _____

What is your general opinion of the supervisory relationships between science teachers and administrators in your area? _____

_____

_____

_____

APPENDIX E

FREQUENCY RESPONSE OF SCIENCE TEACHER SURVEY
Page 1 of Survey

School Group

Answer: Yes

Question no.	5 or less	6-10	11-15	16-20	21-25	26 or more	Total
1.	2	9	4	6	8	9	38
2.	1	7	3	4	5	7	27
3.	0	4	2	2	3	5	16
4.	5	13	9	6	5	8	46
5.	7	10	9	5	7	11	49
6.	5	8	5	5	5	11	39
7.	6 1 / 0 0	12 1 / 2 0	9 4 / 0 0	7 1 / 0 0	10 1 / 1 0	10 7 / 1 0	54 15 / 4 0
8.	Summarized in Table VI, page 10.						
9.	6	13	8	6	9	9	51
10.	4	5	3	1	2	1	16
11.	6	9	7	3	8	7	40
12.	6	7	7	3	7	6	36
13.	7	10	5	6	4	4	36
Total Schools per Group	7	14	9	7	10	14	

Answer: No

School Group

Question No.	5 or less	6-10	11-15	16-20	21-25	26 or more	Total
1.	5	4	5	1	2	4	21
2.	6	6	6	3	5	6	32
3.	1	4	1	1	2	2	11
4.	2	1	0	1	5	3	12
5.	0	4	0	2	2	1	9
6.	1	5	3	2	4	2	17
7.	Summarized above.						
8.	Summarized in Table VI, page 10.						
9.	1	0	1	1	1	3	7
10.	3	9	6	6	8	12	44
11.	1	4	3	3	2	6	19
12.	0	6	2	4	2	5	19
13.	0	4	4	1	6	9	24
Total Schools per Group	7	14	9	7	10	14	

APPENDIX E (Continued)

Page 2 of Survey

School Group

First Set of Statements:

Statement No.	5 or less	6-10	11-15	16-20	21-25	26 or more	Total
1.	1	2	2	1	2	3	11
2.	1	2	0	0	1	0	4
3.	1	9	5	4	2	7	28
4.	3	1	1	0	2	0	7
5.	2	0	1	0	2	6	11
6.	2	5	5	5	2	5	24
7.	4	3	3	1	1	3	15
8.	1	4	0	0	1	0	6
9.	0	0	0	1	0	0	1
10.	0	0	0	0	0	0	0
Total Schools per Group	7	14	9	7	10	14	

Second Set of Statements:

School Group

Statement No.	5 or less	6-10	11-15	16-20	21-25	26 or more	Total
1.	3	6	3	4	3	4	23
2.	2	5	0	1	3	6	17
3.	2	3	1	0	2	4	12
4.	3	3	1	0	2	4	13
5.	0	6	1	3	3	4	17
6.	1	3	0	2	1	0	7
7.	0	8	3	3	2	7	23
8.	4	6	5	2	5	7	29
9.	0	2	0	0	0	0	2
10.	0	0	0	0	0	0	0
Total Schools per Group	7	14	9	7	10	14	

VITA

Hershell Ray Morris

Candidate for the Degree of

Master of Science

Report: SUPERVISORY RELATIONSHIPS AMONG OKLAHOMA SCIENCE TEACHERS, 1956-1957

Major Field: Natural Science

Biographical:

Personal data: Born at Healdton, Oklahoma, April 13, 1925, the son of Truman A. and Johnnie L. Morris.

Education: Attended grade school in Healdton and Cushing, Oklahoma; graduated from Cushing High School in 1942; received the Bachelor of Science degree from the Oklahoma Agricultural and Mechanical College, with a major in Secondary Education, in May, 1952; completed requirements for the Master of Science degree in May, 1957.

Professional experience: Four years as a science and mathematics teacher in Cushing High School, Cushing, Oklahoma.

Member of: National Science Teachers, Association, Oklahoma Science Teachers Association, National Education Association of the United States, and Phi Sigma.