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A Comparative Study of the Training and Teaching Combinations of Kansas High School Teachers.

BY

C. W. RIDGWAY

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EDITOR'S INTRODUCTION.

The state of Kansas faces a teaching situation to-day in its high schools which probably differs very little from that which confronts every other state. This is the general problem of the relationship of the teacher's college major and minor to her teaching major and minor. There are, in round numbers, seven hundred high schools in Kansas. There are 13 first-class cities in the state, 76 second-class cities, and 566 high schools are maintained in centers which in population rank below a second-class city. It is largely with this latter group that the author has concerned himself in this study.

Mr. Ridgway estimates that 43 per cent of the senior high-school teachers in Kansas are teaching in but one subject-matter field. The implication is that they have had adequate preparation for teaching in this field. Many of these teachers, if not a majority of them, are teaching in first-class cities. The other 57 per cent are teaching in one, two, three, four, or even five, subject-matter fields. Since practically all of the larger population centers require teaching experience before employing a teacher, it goes without saying that the beginning teacher is likely to be faced with the proposition of teaching subjects in which she has comparatively little or no college preparation.

While the North Central Association of Colleges and Secondary Schools places a definite minimum amount of college work that must have been accomplished by a teacher in a given subject in college before she may teach that subject in an accredited class A high school, the fact must be kept in mind that a very large proportion of the high schools are not included in this select grouping.

No attempt has been made in this study to do more than determine the high-school teacher's status as regards her subject-matter load. The position the author has taken has been that of saying, "Here is a situation that confronts us, now what can we do toward satisfying the demands of that situation? What combinations, major and minor, are most desirable for the prospective high-school teacher as she accomplishes her college course, from the viewpoint solely of common combinations in the high-school teaching field?" There is a thorough understanding that the prospective teacher should likely consider many other factors. The fact remains, however, that the oversupply situation is likely much increased by thoughtless subject-matter combinations in college which satisfy no demands from the hard-pressed high-school principal who does not have a large enough curricular offering to satisfy the assumption that no teacher teach in more than two fields, and those her major and minor. The recent tendency to curtail expenditures by eliminating a teacher from the staff and distributing her load among the remaining teachers has only added to the problem.

The data presented in this study are based on the school year 1930-'31. There is no assumption that the situation is not changeable to a greater or lesser degree from year to year.

EDWIN J. BROWN, *Editor.*

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PART I.

INTRODUCTION.

How often have we heard the freshman and sophomore, and not infrequently the junior, say: "My major subject is so and so, but I don't know what my minor will be. What would be a good combination for my field?" The answer he received has been based very largely upon personal opinion. Opinions are rarely reliable and are generally prejudiced. Oftentimes the choice of another subject to go with a student's chosen major subject has been determined very largely by the personality or the likeableness of some instructor under whom he enjoys working. Frequently very little attention is paid to the possibility of that combination being in demand in the teaching field.

A student may say, "This is my chosen field; I am not particular what other field I combine with it, but when I have finished my school work I want to be reasonably sure that I have a combination that will be in demand." What are the most commonly combined subjects now being taught in the Kansas high schools? This study attempts to answer the two questions.

PURPOSE OF THIS STUDY.

This study has been made in an attempt to answer the above questions, as well as several other questions dealing with the same general topic. The principal problems on which an attempt has been made to throw light are as follows:

1. What are the common teaching combinations?
2. What per cent of Kansas high-school teachers have majored or minored in college in the subjects they are teaching in high schools?
3. What per cent of teachers are teaching one, two, three or more subjects in fields which were not considered as major or minor subjects in the college course of the teacher?
4. What per cent of Kansas high-school teachers are teaching in one, two, three or more fields?
5. Should the college requirements for teaching preparation tend to produce teachers who are specialists, or should students be given some training in a number of fields?
6. In which subject fields are Kansas teachers paid the best salaries?
7. What are the differences in salaries paid the graduates of the different Kansas colleges?

UTILITY OF THE INFORMATION GAINED.

This information should make it easier for students to choose combinations that are commonly found in the teaching field. It will no longer be necessary for the adviser to state that in his opinion science and mathematics or home economics and English make a good teaching combination. Instead, he can

tell the student what per cent of teachers out in the field are teaching these and other combinations. Administrators and teachers should be able to determine the relative salaries paid for different teaching combinations. A teacher can readily determine her chances of teaching her major subject only, or what the chances are that she will teach her major subject combined with one, two, three or more other fields. She can also estimate her chance of being required to teach some subject or subjects in which she has little or no academic training.

METHOD OF PROCEDURE.

The data for this subject were obtained at the office of the state superintendent of public instruction. They were taken from high-school principals' reports made at the beginning of the last school year. These are the official reports made annually to the state office, and furnish the most reliable source of information concerning the high schools of Kansas. These reports in some cases were not complete, because of the failure of certain principals to fill in all the information asked for. All data that were reported were used in this study.

At no time was the sampling method used in this study, but in every chart or table presented every senior high-school teacher in Kansas, on whom data were reported, was counted; about five thousand teachers were included in the study, and the following information was secured: Name, salary, kind of degree, school granting the degree, major and minor subjects, years of experience, and the subjects which were taught as listed on the daily program.

In the making of each chart definite standards were set up. The data for each teacher had to conform to these standards or her case was not counted. The standards are explained with each chart.

PART II.

COMMON TEACHING COMBINATIONS.

It is of vital importance to prospective teachers, teacher-training institutions, as well as school executives, to know the common teaching combinations existing in the schools of a state. Assuming a school has no regularly employed Latin teacher, are its one or two classes in Latin more often taught by the English teacher than the home-economics teacher? Does the combination of mathematics and science occur with greater frequency than history and science on the programs of the Kansas high schools? Such questions as these are deserving of a better answer than can be offered by personal opinions and traditional practices. We may have assumptions as to what the best combinations are, or should be; but the question is, Are our most commonly chosen college academic combinations frequently found in the teaching field? Again, pretentious claims are often made by instructors for their pet subject combinations without any verifications as to the needs of the high school.

About 43 per cent of the senior high-school teachers in Kansas are teaching in only one field. A large number of these are found in the 13 first-class cities of the state. The other 57 per cent of teachers are teaching in two, three, four or five fields. Assuming that most of the inexperienced teachers will find their first position in the high schools of the second- and third-class cities, it is readily seen that the chances are much greater that a teacher will have to teach a combination of subjects than that she will find work in a single field.

Table I, herewith, shows how the different subjects rank in combinations. This table also shows the per cent of teachers included in the different combinations. To illustrate: Twenty-nine per cent of all English teachers teach nothing but English, while 20 per cent of all who are classed as English teachers have a teaching combination of English and social subjects. Thirteen per cent of the English teachers are teaching combinations of Latin and English. Home economics, music, modern language and other subjects rank as listed in order of frequency. Mathematics, social science, science, Latin and the other subjects are read for their respective combinations in like manner.

These combinations were determined from a tabulation of the teaching programs of 4,421 Kansas high-school teachers. Every teacher whose teaching combination could be determined was counted. It was impossible to determine the combination of some teachers who were teaching four, five or six subjects in four or five fields. These teachers were put into an unclassified list. This list comprises about six per cent of the total number of teachers. In many cases physical education and athletics were not listed on the daily programs. Since the data for this field were not complete, the results may not be entirely reliable. It is estimated that about one-half of the schools indicated the teacher in charge of physical education. Administrators who were teaching only one subject in one or two fields were not counted. When an administrator taught two or more subjects all in the same field he was counted as a

TABLE I.

TEACHING COMBINATIONS AS THEY RANK.

Read table thus: Column A indicates the per cent of teachers who are teaching in only one field, *e. g.*, 29 per cent of all English teachers teach nothing but English. The per cent of teachers who teach English in a combination with the other subjects is listed in columns 1, 2, 3, etc., in order of their frequency with **English.**

	A	1	2	3	4	5	6	7	8	9	10	11
English	29%	Soc. Science, 20%	Latin, 13%	Home Econ., 10%	Music, 7%	Mod. Lang., 6%	Mathematics, 5%	Science, 4%	Commerce, 3%	Ind. Arts, 1%	Agriculture, 1%	Phys. Ed., 1%
Mathematics	20%	Science, 26%	Soc. Science, 14%	English, 8%	Ind. Arts, 7%	Commerce, 5%	Latin, 4%	Phys. Ed., 4%	Home Econ., 4%	Agriculture, 3%	Music, 3%	Mod. Lang., 2%
Social Science	25%	English, 20%	Science, 11%	Mathematics, 10%	Home Econ., 8%	Phys. Ed., 5%	Latin, 5%	Commerce, 4%	Ind. Arts, 4%	Music, 3%	Agriculture, 3%	Mod. Lang., 2%
Science	15%	Mathematics, 24%	Soc. Science, 16%	Home Econ., 10%	Ind. Arts, 10%	Agriculture, 8%	English, 5%	Commerce, 4%	Phys. Ed., 4%	Music, 2%	Latin, 1%	Mod. Lang., 1%
Latin	8%	English, 42%	Soc. Science, 15%	Mod. Lang., 12%	Mathematics, 9%	Commerce, 4%	Music, 4%	Science, 3%	Home Econ., 2%	Agriculture, 1%	Phys. Ed., 0	Ind. Arts, 0
Modern Language	16%	English, 34%	Latin, 19%	Soc. Science, 12%	Mathematics, 6%	Home Econ., 5%	Science, 3%	Music, 3%	Commerce, 2%	Ind. Arts,. 0	Agriculture, 0	Phys. Ed., 0
Industrial Arts	26%	Science, 19%	Phys. Ed., 13%	Mathematics, 13%	Agriculture, 13%	Soc. Science, 10%	Commerce, 4%	English, 1%	Music, 1%	Home Econ., 0	Latin, 0	Mod. Lang., 0
Home Economics	32%	English, 19%	Soc. Science, 17%	Science, 15%	Mathematics, 5%	Commerce, 5%	Phys. Ed., 2%	Mod. Lang., 2%	Latin, 1%	Music, 1%	Agriculture, 1%	Ind. Arts, 0
Commerce	58%	Soc. Science, 8%	Mathematics, 7%	English, 6%	Science, 5%	Home Econ., 4%	Ind. Arts, 3%	Latin, 3%	Phys. Ed., 2%	Music, 2%	Mod. Lang., 1%	Agriculture, 1%
Agriculture	27%	Science, 25%	Ind. Arts, 21%	Soc. Science, 13%	Mathematics, 8%	English, 2%	Commerce, 1%	Latin, 1%	Home Econ., 1%	Phys. Ed., 1%	Mod. Lang., 0	Music, 0
Music	61%	English, 15%	Soc. Science, 8%	Mathematics, 4%	Latin, 3%	Science, 3%	Commerce, 2%	Home Econ., 2%	Mod. Lang., 1%	Ind. Arts, ½%	Phys. Ed., ½%	Agriculture, 0
Physical Education	22%	Ind. Arts, 20%	Soc. Science, 20%	Science, 11%	Mathematics, 11%	Home Econ., 5%	Commerce, 5%	English, 4%	Music, 1%	Agriculture, 1%	Latin, 0	Mod. Lang., 0

straight teacher of that field. If he were teaching two or more subjects in one field and one or more subjects in another field he was listed as teaching a combination of those two fields. In tabulating these results an effort was made to see that every school had some one checked in each of the following fields, provided work was offered in these fields: home economics, industrial arts, music, physical education, and commerce. For example, if a teacher taught only one class in home economics and that was all the home economics offered in that school, she was classed as the home-economics teacher, even though she taught two or more classes in each of two other fields. This was done because very likely she was hired specifically for this work.

COMMON COMBINATIONS FOUND IN MISSOURI SCHOOLS.

Table II was copied from page thirty-eight of *"The Teacher and the School,"*[1] a syllabus for a course in high-school administration for teachers. The combinations in this table were determined from a tabulation of the teaching programs of more than 2,400 Missouri high-school teachers outside of the cities of Kansas City, St. Louis and St. Joseph. The combinations show that the social studies are most frequently taught in combination with English, that Latin is next, and home economics the third most frequent combination with English. In the same manner, the most frequent combinations that go with other subjects are shown.

A comparison of Tables II and II*a* will show that teaching combinations are almost identical for high schools in Missouri and Kansas.

With this information at hand advisers should be more capable in aiding students in selecting proper minors to go with major subjects. Students should prepare themselves in the subjects they are most likely to be called upon to teach. Many times, after signing a contract, a teacher finds it necessary to return to summer school to seek added preparation in some subject she has been asked to teach. Much of this could be eliminated by making proper combinations when preparing for her teaching certificate. As will be shown in the next few pages, many teachers are now teaching subjects in high school in which they have not had adequate college training. No doubt, if the proper combinations had been chosen in undergraduate days, the teachers would have better preparation for the work they are now teaching.

This table shows that the social studies are most frequently taught in combination with English, that Latin is next, and home economics the third most frequent combination with English. In the same manner the most frequent combinations that go with other subjects are shown:

1. W. W. Carpenter and John Rufi, "The Teacher and the School": A Syllabus for a Course in High-school Administration. University of Missouri, 1929.

TABLE II.

TEACHING COMBINATIONS IN MISSOURI HIGH SCHOOLS.

Major Subjects.	First in frequency.	Second in frequency.	Third in frequency.
English	Social studies.	Latin.	Home economics.
Social studies	English.	Mathematics.	Physical education.
Mathematics	Science.	Social studies.	Latin.
Science	Mathematics.	Physical education.	Social studies.
Physical education	Social studies.	Science.	Mathematics.
Agriculture	Mathematics.	Social studies.	Science.
Latin	English.	Mathematics	Social studies.
Home economics	English.	Social studies.	———
Commerce	Mathematics.	Social studies	———
Music	English.	Social studies.	Drawing.
Manual training	Physical education.	Agriculture.	Science.
French	English.	Latin.	Social studies.
Spanish	English.	Social studies.	Latin.

TABLE IIa.

TEACHING COMBINATIONS IN KANSAS HIGH SCHOOLS.

Major Subjects.	First in frequency.	Second in frequency.	Third in frequency.
English	Social studies.	Latin.	Home economics.
Social studies	English.	Science.	Mathematics.
Mathematics	Science.	Social studies.	English.
Science	Mathematics.	Social studies.	Home economics.
Physical education	Industrial arts.	Social studies.	Science.
Agriculture	Science.	Industrial arts.	Social studies.
Latin	English.	Social studies.	Modern language.
Home economics	English.	Social studies.	Science.
Commerce	Social studies.	Mathematics.	English.
Music	English.	Social studies.	Mathematics.
Industrial arts	Science.	Physical education.	Mathematics.
Modern language	English.	Latin.	Social studies.

PART III.

HIGH SCHOOL TEACHING AND COLLEGE TRAINING.

At some time or another the following question has been brought to the attention of every trained school worker: What per cent of the college graduates working in high schools are teaching their major or minor subjects? A few small studies have been made in an attempt to throw light on this subject. "Graduates and Positions They Fill," by Earl W. Anderson,[1] Bureau of Educational Research, Ohio State University, is one of the most recent studies along this line. In this study information was collected concerning the history of graduates of teacher-training courses from Ohio State University during the year 1928-'29. In one of the tables Mr. Anderson shows the percentage of experienced and inexperienced graduates who secured positions during the

TABLE III.

PERCENTAGE OF TEACHER-TRAINING GRADUATES WHO TAUGHT ANY CLASSES IN THEIR MAJOR SUBJECTS IN HIGH SCHOOL.*

1	2	3	4	5	6
Subjects.	Total number of majors.	Information available regarding subjects taught.	Per cent in high school.	Per cent teaching major.	Per cent of all majors teaching major.
Home economics	118	70	98	100	98
Industrial arts	56	88	94	95	89
Commerce	32	67	89	100	89
Music	85	91	90	98	88
Vocational education	7	86	100	83	83
Agriculture	22	73	89	92	82
Physical education	109	87	81	97	79
Political science	4	33	75	100	75
Mathematics	119	95	80	82	67
Art	58	89	67	96	64
Latin	101	90	71	79	56
Language	6	100	50	100	50
Science	41	81	76	62	47
History	374	78	71	56	40
Public speaking	20	100	69	57	39
Chemistry	47	94	86	44	38
English	548	92	63	58	37
French	128	85	63	45	28
Geography	9	80	56	50	28
Biology	98	90	73	35	26
Physics	9	100	78	29	23
Social Science	53	80	57	35	20
German	13	100	50	20	10
Spanish	41	95	53	5	3
Economics	2	.....	50	.....	.....
Sociology	7	.....	29	.....	.....

* This table was copied from the Ohio State University bulletin previously mentioned, and presents data on graduates of that institution.

1. Earl W. Anderson: "Graduates and the Positions They Fill." Educational Research Bulletin, Vol. 10, No. 4; Ohio State University; 87 pp.

year. In another table he determines the percentage of teacher-training graduates who taught any classes in their major subject.

Table III, presented herewith, as well as the extract which follows, was copied from the Educational Research Bulletin mentioned above:

"The real test of the extent to which training in specific subjects is effective may be expressed in terms of the percentages of those trained who were actually teaching the high-school subjects for which they primarily were prepared. For example, the larger part of the value of a major in French in teacher training will be obtained only if the student actually makes use of this French in his high-school teaching. If he secures a position involving no teaching of French, it would have been better had he taken his major in one of the subjects which he is teaching. Table III shows the percentage of the graduates of teacher-training institutions who did some teaching in their major subjects in the year 1929-'30, the year following graduation.

"In finding out the percentages of graduates who taught their major subjects in high school, lack of data was encountered in some instances. Thus, of the three political-science majors who taught in high school, the actual subjects which they taught were only discovered in the case of one. In 90 per cent of the cases, however, information regarding the specific subjects taught was located. In order that the reader may see the percentage on which the data in columns 4, 5 and 6 are based, column 3 gives the percentage of those teaching in high school about whom information was known as to the subjects taught. A glance at columns 4 and 5 of Table III shows that in several instances, while a fairly large percentage of the majors taught in high school, often a small proportion of these actually taught their major subject.

"Assuming that for the most part those who taught out of their major subjects did so because they were unable to secure positions including their major subjects, column 6 gives an index of relative opportunities of teaching one's major subject in high school. Here again one must remember that those subjects in which there were a small number of majors cannot give a true picture of the situation as do those in which there are substantial groups.

"From Table III note that those who majored in the so-called special subjects secure positions including the teaching of their major subject in a much larger proportion than did those majoring in the academic fields. In home economics, 98 per cent of the majors, who were presumably interested in teaching and about whom information was available, secured positions teaching some home economics. Quite high percentages were also shown in industrial arts, music, commerce, agriculture, and vocational education. Low percentages majoring in Spanish, German, social science, biology, French, and geography were found teaching any classes of their major subjects in high school.

It is well to point out that these people who majored in home economics, physical education, music, and art, who taught in the elementary school, were included in the list of those teaching in high school, since these majors really trained for both elementary and high-school work.

"A check as to the proportion of experienced and inexperienced men and women who taught their majors in high school showed that larger percentages of experienced graduates secured positions in teaching their major subjects than did the inexperienced. Men secured positions more commonly in music, physical education, and history; women did better in art, Latin, and English. In general, however, there was not much difference between the success of men and women in securing positions teaching their majors.

"There were several instances in which majors in certain of the social sciences who were not teaching in the field of their special preparation were teaching allied subjects. In these cases some of the major training was used in such work. For instance, majors in economics taught no economics, but they did teach classes in sociology and civics, and *vice versa*.

"A wide disparity between the percentage of graduates majoring in specific subjects and the percentage who taught any classes in their major subjects in

high school is shown in many cases in Table III. In other words, it shows a number of these graduates made no direct use of their major training in their high-school teaching and, contrariwise, were teaching subjects for which they had no major preparation. This situation came about in most instances probably because the graduate was unable to obtain any position teaching classes in his major subject. It may also have happened because the school authorities were unable to find teachers who were well prepared in the subjects which were to be taught. The situation is probably accentuated by the disinterest of some school authorities in getting people with specific preparation for the subjects to be taught; by local pressure for the appointment of certain graduates regardless of their preparation; by the assumption of some administrators that personality is worth more than specific training when a choice must lie between the two. This is further complicated by the fact that some school administrators assume that any college graduate can handle the work in some subjects because all students have had some training in them. Such fields include geography, English, and American history. It is probable that such assignment of teachers, without regard as to their specific major preparation for such subjects, will continue until state requirements definitely forbid it."

Mr. Anderson has attacked this problem from the standpoint of the per cent of graduates who find work in their major fields.

The procedure of the original research herein presented has been from another angle. The writer has gone to the teacher out in the high school, taken her daily program and classified her as to subject matter taught. From her program he has determined whether her work comes in one field or whether she teaches a combination of two or more fields. In other words, one could say, "This is an English teacher," or "This teacher has a combination of English and Latin." Her classification having been determined by the subjects she is teaching, the report of her college record was examined to ascertain whether or not she had majored or minored in the work she is teaching.

No data are presented in this study concerning the per cent of graduates who find work in their major and minor fields. Neither has an attempt been made to ascertain the number of college or teacher-training graduates who enter the teaching field after receiving their degrees. The study is based entirely upon the teacher in the field, as regards her salary, college major and minor, and subjects she is teaching in high school.

SUBJECTS TAUGHT WITHOUT COLLEGE TRAINING.

Table IV, which follows, presents data on 4,380 senior high-school teachers. This table indicates the percentage of teachers who are teaching one or more subjects in which they did not major or minor in college. This information was taken from the daily high-school program and the record of the teacher's major and minor in college, as listed in the high-school principal's report to the office of the state superintendent. After ascertaining a teacher's major and minor, the daily program was consulted to discover the number of subjects she was teaching which were not included in her college major and minors. Subjects were used in compiling this table rather than academic fields. For illustration, if a home-economics major were teaching a combination of home economics and two classes in geometry but had no college training in mathematics, she was classified as teaching one subject outside of her major

and minor field. Again, if she were teaching one class in geometry and one in algebra she would be classified as teaching two subjects outside of her major and minor fields.

TABLE IV.

SUBJECTS TAUGHT WITHOUT COLLEGE TRAINING.

52%	taught no subject in which they had not majored or minored.
24%	taught 1 subject in which they had not majored or minored.
12%	taught 2 subjects in which they had not majored or minored.
4%	taught 3 subjects in which they had not majored or minored.
8%	did all their teaching in fields in which they had not majored or minored.

TEACHERS WITH A COLLEGE MAJOR OR MINOR IN THEIR TEACHING FIELDS.

Table V, on the following page, includes data from the same 4,380 teachers that were used in Table IV. As was stated before, an examination of the daily program disclosed the academic fields into which each teacher was classified. If the program indicated that she taught in only one field, she was scored as a teacher in that field, either with or without training, as was indicated by her college major or minor subjects. If the program showed her to be teaching a combination of two fields, she was scored as a teacher of that combination, either with or without training in each of these fields, according to her college record. As an example, *suppose a teacher had a major in English and a minor in Latin.* If she taught nothing but English she would be scored as a straight English teacher *with training.* If she taught nothing but geometry and algebra she would be scored as a mathematics teacher, *without training.* If she taught English and Latin she would be scored as an English-Latin combination teacher, with training in English and training in Latin. If this teacher with a major in English and a minor in Latin, taught English and home economics she would be scored as an English-home economics combiation, with training in English and no training in home economics. Again, if she taught home economics and science she would be scored as a home economics-science combination with training in neither subject.

After scoring all these teachers it was possible to total the number in each subject or in each subject combination. It is also possible to show the number of teachers who have had training in the fields which they are teaching.

Table V indicates the per cent of teachers who had a major or minor in the subjects they were teaching. To illustrate, 1,029 individuals were classed as English teachers, 88 per cent of them had a major or minor in English. Twenty-nine per cent of these 1,029 English teachers taught English alone. The other 71 per cent taught English and some other subject or subjects. They may or may not have had training in the other subject or subjects they were teaching. This does not imply that only 1,029 teachers teach English. Some others may teach one class in it but not enough to be classed as an English teacher. The same is true of the other subjects.

TABLE V.

TEACHERS WITH A MAJOR OR MINOR IN THEIR TEACHING FIELDS.

Subject Fields.	Number of teachers.	Per cent who have major or minor in field.	Per cent who teach in this field alone.
English	1,029	88%	29%
Mathematics	682	68%	20%
Social science	1,022	74%	25%
Science	751	71%	15%
Latin	313	64%	8%
Modern language	191	76%	16%
Industrial arts	348	70%	26%
Home economics	539	90%	32%
Commerce	522	65%	58%
Agriculture	240	60%	27%
Music	449	84%	61%
Physical education	252	42%	22%

The next twelve tables, VI to XVII inclusive, deal with twelve different subject fields. The data in these tables were compiled in the same manner as was explained for Table V. Teachers who were teaching in only one field were scored in that field, either with or without training, as their college major or minor would indicate. Teachers teaching a combination of two fields were scored in that combination, each field receiving a separate score indicating whether or not the teacher possessed training in that field as disclosed by her college record.

TABLE VI.

ENGLISH TEACHERS, COMBINATIONS AND TRAINING.

Read table thus: 310 teachers, or 29% of all English teachers, taught nothing but English. Ninety-six per cent of this 29 per cent had a college major or minor in English. Forty-eight teachers, or 5 per cent of all English teachers, taught a combination of English and mathematics. Fifty-eight per cent of this 5 per cent who taught a combination of English and mathematics had a major or minor in English. "Training in English," etc., in the table below indicates a college major or minor in that subject. All other subjects are read in a similar manner.

310, or 29%, taught English only	96% had training in English.
48, or 5%, taught English and Mathematics.....	58% had training in Mathematics. 81% had training in English.
204, or 20%, taught English and Social Science....	71% had training in Social Science. 80% had training in English.
40, or 4%, taught English and Science.....	45% had training in Science. 83% had training in English.
136, or 13%, taught English and Latin.....	64% had training in Latin. 88% had training in English.
66, or 6%, taught English and Modern Language,	71% had training in Mod. Language. 94% had training in English.
5, or 1%, taught English and Industrial Arts...	40% had training in Industrial Arts. 100% had training in English.
100, or 85%, taught English and Home Economics,	85% had training in Home Economics 81% had training in English.
36, or 3%, taught English and Commerce.....	17% had training in Commerce. 86% had training in English.
3, or 1%, taught English and Agriculture.....	33% had training in Agriculture. 66% had training in English.
70, or 7%, taught English and Music.....	71% had training in Music. 83% had training in English.
11, or 1%, taught English and Phys. Education..	18% had training in Phys. Education. 91% had training in English.

TABLE VII.

MATHEMATICS TEACHERS, COMBINATIONS AND TRAINING.

Read table thus: 140 mathematics teachers, or 20 per cent of all mathematics teachers, taught nothing but mathematics. Eighty-five per cent of this 20 per cent had a college major or minor in mathematics. Forty-eight teachers, or 8 per cent of all mathematics teachers, taught a combination of mathematics and English. Eighty-one per cent of this 8 per cent who taught a combination of mathematics and English had a major or minor in English, while 58 per cent of this 8 per cent had a major or minor in mathematics. "Training in English," etc., in the table below indicates a college major or minor in that subject. All other subjects are read in a similar manner.

140, or 20%, taught Mathematics only.....	85% had training in Mathematics.
48, or 8%, taught Mathematics and English.....	81% had training in English. 58% had training in Mathematics.
90, or 14%, taught Mathematics and So. Science..	75% had training in Social Science. 56% had training in Mathematics.
190, or 26%, taught Mathematics and Science.....	73% had training in Science. 68% had training in Mathematics.
28, or 4%, taught Mathematics and Latin.....	54% had training in Latin. 71% had training in Mathematics.
12, or 2%, taught Mathematics and Mod. Lang..	83% had training in Mod. Languages. 92% had training in Mathematics.
44, or 7%, taught Mathematics and Ind. Arts...	41% had training in Industrial Arts. 48% had training in Mathematics.
27, or 4%, taught Mathematics and Home Eco..	85% had training in Home Economics. 63% had training in Mathematics.
36, or 5%, taught Mathematics and Commerce...	44% had training in Commerce. 69% had training in Mathematics.
21, or 3%, taught Mathematics and Agriculture..	48% had training in Agriculture. 48% had training in Mathematics.
17, or 3%, taught Mathematics and Music.....	41% had training in Music. 65% had training in Mathematics.
29, or 4%, taught Mathematics and Phys. Ed...	21% had training in Phys. Education. 66% had training in Mathematics.

TABLE VIII.

SOCIAL SCIENCE TEACHERS, COMBINATONS AND TRAINING.

Read table thus: 260 teachers, or 25 per cent of all social science teachers, taught nothing but social science. Ninety-two per cent of this 25 per cent had a college major or minor in social science. Two hundred four teachers, or 20 per cent of all social science teachers, taught a combination of social science and English. Eighty per cent of this 20 per cent who taught a combination of social science and English had a major or minor in English, while 71 per cent of this 20 per cent had a major or minor in social science. "Training in English," etc., in the table below indicates a college major or minor in that subject. Other subjects are read in a similar manner.

260, or 25%, taught Social science only.....	92% had training in Social Science.
204, or 20%, taught Social Science and English....	80% had training in English. 71% had training in Social Science.
90, or 10%, taught Social Science and Math.....	56% had training in Mathematics. 75% had training in Social Science.
120, or 11%, taught Social Science and Science....	56% had training in Science. 63% had training in Social Science.
46, or 5%, taught Social Science and Latin.....	67% had training in Latin. 70% had training in Social Science.
22, or 2%, taught Social Science and Mod. Lang.,	50% had training in Mod. Language. 86% had training in Social Science.
33, or 4%, taught Social Science and Ind. Arts..	52% had training in Industrial Arts. 64% had training in Social Science.
88, or 8%, taught Social Science and Home Ec..	89% had training in Home Economics. 41% had training in Social Science.
46, or 4%, taught Social Science and Commerce..	46% had training in Commerce. 78% had training in Social Science.
31, or 3%, taught Social Science and Agriculture,	35% had training in Agriculture. 74% had training in Social Science.
32, or 3%, taught Social Science and Music.....	59% had training in Music. 66% had training in Social Science.
50, or 5%, taught Social Science and Phys. Ed..	28% had training in Phys. Education. 82% had training in Social Science.

TABLE IX.

SCIENCE TEACHERS, COMBINATIONS AND TRAINING.

Read table thus: 110 teachers, or 15 per ceent of all science teachers, taught nothing but science. Ninety-five per cent of this 15 per cent had a major or minor in science. Forty teachers, or 5 per cent of all science teachers, taught a combination of sciience and English. Eighty-three per cent of this 5 per cent who taught a combination of science and English had a major or minor in English, while 45 per cent of this 5 per cent had a major or minor in science. "Training in Science," etc., in the table below indicates a college major or minor in that subject. All other subjects are read in a similar manner.

110, or 15%, taught Science only	95% had training in Science.
40, or 5%, taught Science and English.....	83% had training in English. 45% had training in Science.
190, or 24%, taught Science and Mathematics.....	68% had training in Mathematics. 73% had training in Science.
120, or 16%, taught Science and Social Science....	63% had training in Social Science. 56% had training in Science.
9, or 1%, taught Science and Latin.....	33% had training in Latin. 78% had training in Science.
2, or 1%, taught Science and Modern Language,	50% had training in Mod. Languages. 100% had training in Science.
75, or 10%, taught Science and Industrial Arts...	47% had training in Industrial Arts. 69% had training in Science.
81, or 10%, taught Science and Home Economics..	94% had training in Home Economics. 52% had training in Science.
20, or 4%, taught Science and Commerce.....	25% had training in Commerce. 80% had training in Science.
62, or 8%, taught Science and Agriculture.....	35% had training in Agriculture. 82% had training in Science.
13, or 2%, taught Science and Music.....	62% had training in Music. 77% had training in Science.
29, or 4%, taught Science and Physical Education,	41% had training in Phys. Education. 86% had training in Science.

TABLE X.

LATIN TEACHERS, COMBINATIONS AND TRAINING.

Read table thus: 24 teachers, or 8 per cent of all Latin teachers, taught nothing but Latin. All 24, or 100 per cent of this 8 per cent, had a college major or minor in Latin. One hundred thirty-six teachers, or 42 per cent of all Latin teachers, taught a combination of Latin and English. Eighty-eight per cent of this 42 per cent who taught a combination of Latin and English had a major or minor in English, while 64 per cent of this 42 per cent had a major or minor in Latin. "Training in Latin," etc., in the table below indicates a college major or minor in that subject. All other subjects are read in a similar manner.

24, or 8%, taught Latin only	100% had training in Latin.
136, or 42%, taught Latin and English	88% had training in English. 64% had training in Latin.
28, or 9%, taught Latin and Mathematics.....	71% had training in Mathematics. 54% had training in Latin.
46, or 15%, taught Latin and Social Science.....	70% had training in Social Science. 67% had training in Latin.
9, or 3%, taught Latin and Science	78% had training in Science. 33% had training in Latin.
82, or 12%, taught Latin and Modern Language..	82% had training in Mod. Language. 68% had training in Latin.
7, or 2%, taught Latin and Home Economics...	71% had training in Home Economics. 43% had training in Latin.
10, or 4%, taught Latin and Commerce	40% had training in Commerce. 50% had training in Latin.
2, or 1%, taught Latin and Agriculture	100% had training in Agriculture. 50% had training in Latin.
13, or 4%, taught Latin and Music	69% had training in Music. 46% had training in Latin.

No Latin teacher was reported with a combination of industrial arts or physical education.

TABLE XI.

MODERN LANGUAGE TEACHERS, COMBINATIONS AND TRAINING.

Read table thus: 32 teachers, or 17 per cent of all modern language teachers, taught nothing but modern language. Ninety-four per cent of this 17 per cent had a college major or minor in modern language. Sixty-six teachers, or 34 per cent of all modern language teachers, taught a combination of modern language and English. Ninety-four per cent of this 34 per cent who taught a combination of modern language and English had a major or minor in English, while 71 per cent of this 34 per cent had a major or minor in modern language. "Training in modern language," etc., in the table below indicates a college major or minor in that subject. Other subjects are read in a similar manner.

32, or 17%, taught Modern Language only	94% had training in Mod. Languages.
66, or 34%, taught Modern Language and English,	94% had training in English. 71% had training in Mod. Languages.
12, or 6%, taught Modern Language and Math..	92% had training in Mathematics. 83% had training in Mod. Languages.
22, or 12%, taught Modern Lang. and Social Sci..	86% had training in Social Science. 50% had training in Mod. Languages.
2, or 1%, taught Modern Language and Science,	100% had training in Science. 50% had training in Mod. Languages.
38, or 20%, taught Modern Language and Latin..	68% had training in Latin. 82% had training in Mod. Languages.
9, or 5%, taught Mod. Lang. and Home Eco...	89% had training in Home Economics. 78% had training in Mod. Languages.
4, or 2%, taught Modern Lang. and Commerce,	75% had training in Commerce. 100% had training in Mod. Languages.
6, or 3%, taught Modern Language and Music..	67% had training in Music. 83% had training in Mod. Languages.

No modern language teacher was reported with a teaching combination of industrial arts, agriculture, or physical education.

TABLE XII.

INDUSTRIAL ARTS TEACHERS, COMBINATIONS AND TRAINING.

Read table thus: 107 teachers, or 26 per cent of all industrial art teachers, taught nothing but industrial arts. Eighty-nine per cent of this 26 per cent had a college major or minor in industrial arts. Five teachers, or 1 per cent of all industrial arts teachers, taught a combination of industrial arts and English. All five, or 100 per cent of this 1 per cent who taught a combination of industrial arts and English had a major or minor in English, while 40 per cent of this 1 per cent had a major or minor in industrial arts. "Training in industrial arts," etc., in the table below indicates a college major or minor in that subject. Other subjects are read in a similar manner.

107, or 26%, taught Industrial Arts only.....	89% had training in Industrial Arts.
5, or 1%, taught Industrial Arts and English...	100% had training in English. 40% had training in Industrial Arts.
44, or 13%, taught Industrial Arts and Math....	48% had training in Mathematics. 41% had training in Industrial Arts.
33, or 10%, taught Industrial Arts and Social Sci.,	64% had training in Social Science. 52% had training in Industrial Arts.
75, or 19%, taught Industrial Arts and Science...	69% had training in Science. 47% had training in Industrial Arts.
15, or 4%, taught Industrial Arts and Commerce,	33% had training in Commerce. 53% had training in Industrial Arts.
53, or 13%, taught Industrial Arts and Agriculture,	60% had training in Agriculture. 60% had training in Industrial Arts.
2, or 1%, taught Industrial Arts and Music....	50% had training in Music. 50% had training in Industrial Arts.
50, or 13%, taught Industrial Arts and Phys. Ed..	40% had training in Phys. Education. 70% had training in Industrial Arts.

No teacher was reported as teaching a combination of industrial arts and Latin, modern language, or home economics.

TABLE XIII.

HOME-ECONOMICS TEACHERS, COMBINATIONS AND TRAINING.

Read table thus: 180 teachers, or 32 per cent of all home-economics teachers, taught nothing but home economics. Ninety-four per cent of this 32 per cent had a college major or minor in home economics. One hundred teachers, or 19 per cent of all home-economics teachers, taught a combination of home economics and English. Eighty-one per cent of this 19 per cent who taught a combination of home economics and English had a major or minor in English, while eighty-five per cent of this 19 per cent had a major or minor in home economics. "Training in English," etc., in the table below indicates a college major or minor in that subject. Other subjects are read in a similar manner.

180, or 32%, taught Home Economics only	94% had training in Home Economics.
100, or 19%, taught Home Economics and English,	81% had training in English. 85% had training in Home Economics.
27, or 5%, taught Home Economics and Math...	63% had training in Mathematics. 85% had training in Home Economics.
88, or 17%, taught Home Eco. and Social Sci....	41% had training in Social Science. 89% had training in Home Economics.
81, or 15%, taught Home Economics and Science,	52% had training in Science. 94% had training in Home Economics.
6, or 1%, taught Home Economics and Latin...	43% had training in Latin. 71% had training in Home Economics.
10, or 2%, taught Home Eco. and Mod. Lang...	78% had training in Mod. Languages. 89% had training in Home Economics.
26, or 5%, taught Home Eco. and Commerce....	15% had training in Commerce. 92% had training in Home Economics.
7, or 1%, taught Home Economics and Music..	71% had training in Music. 71% had training in Home Economics.
13, or 2%, taught Home Eco. and Phys. Educ..	23% had training in Phys. Education. 85% had training in Home Economics.

No teacher was reported as teaching a combination of home economics and industrial arts. Only one teacher was reported as teaching a combination of agriculture and home economics.

TABLE XIV.

COMMERCE TEACHERS, COMBINATIONS AND TRAINING.

Read table thus: 308 teachers, or 58 per cent of all the commerce teachers, taught nothing but commerce. Eighty-six per cent of this 58 per cent had a college major or minor in commerce. Thirty-six teachers, or 6 per cent of all commerce teachers, taught a combination of commerce and English. Eighty-six per cent of this 6 per cent who taught a combination of commerce and English had a major or minor in English, while 17 per cent of this 6 per cent had a major or minor in commerce. "Training in commerce," etc., in the table below indicates a college major or minor in that subject. All other subjects are read in a similar manner.

308, or 58%, taught Commerce only	86% had training in Commerce.
36, or 6%, taught Commerce and English.....	86% had training in English. 17% had training in Commerce.
36, or 6%, taught Commerce and Mathematics...	69% had training in Mathematics. 44% had training in Commerce.
46, or 8%, taught Commerce and Social Science..	78% had training in Social Science. 46% had training in Commerce.
20, or 5%, taught Commerce and Science.....	80% had training in Science. 25% had training in Commerce.
10, or 3%, taught Commerce and Latin.....	50% had training in Latin. 40% had training in Commerce.
4, or 1%, taught Commerce and Mod. Lang....	100% had training in Mod. Languages. 75% had training in Commerce.
15, or 3%, taught Commerce and Industrial Arts,	53% had training in Industrial Arts. 33% had training in Commerce.
26, or 5%, taught Commerce and Home Eco....	92% had training in Home Economics. 15% had training in Commerce.
4, or 1%, taught Commerce and Agriculture....	100% had training in Agriculture. 50% had training in Commerce.
8, or 2%, taught Commerce and Music.....	50% had training in Music. 62% had training in Commerce.
9, or 2%, taught Commerce and Phys. Education,	44% had training in Phys. Education. 67% had training in Commerce.

TABLE XV.

AGRICULTURE TEACHERS, COMBINATIONS AND TRAINING.

Read table thus: 61 teachers, or 27 per cent of all the agriculture teachers, taught nothing but agriculture. Ninety-eight per cent of this 27 per cent had a college major or minor in agriculture. Three teachers, or 2 per cent of all agriculture teachers, taught a combination of agriculture and English. Sixty-six per cent of this 2 per cent who taught a combination of agriculture and English had a major or minor in English, while 33 per cent of this 2 per cent had a major or minor in agriculture. "Training in agriculture," etc., in the table below indicates a college major or minor in that subject. All other subjects are read in a similar manner.

61, or 27%, taught Agriculture only	98% had training in Agriculture.
3, or 2%, taught Agriculture and English.....	66% had training in English. 33% had training in Agriculture.
21, or 8%, taught Agriculture and Mathematics..	48% had training in Mathematics. 48% had training in Agriculture.
31, or 13%, taught Agriculture and Soc. Science..	74% had training in Social Science. 35% had training in Agriculture.
62, or 25%, taught Agriculture and Science.....	82% had training in Science. 35% had training in Agriculture.
2, or 1%, taught Agriculture and Latin.....	50% had training in Latin. 100% had training in Agriculture.
53, or 21%, taught Agriculture and Ind. Arts.....	60% had training in Industrial Arts. 60% had training in Agriculture.
1, or 1%, taught Agriculture and Home Econ...	100% had training in Home Economics. 0% had training in Agriculture.
4, or 1%, taught Agriculture and Commerce....	50% had training in Commerce. 100% had training in Agriculture.
2, or 1%, taught Agriculture and Phys. Educ...	50% had training in Phys. Education. 50% had training in Agriculture.

Agriculture was not reported in a combination with either modern language or music.

TABLE XVI.

MUSIC TEACHERS, COMBINATIONS AND TRAINING.

Read table thus: 278 teachers, or 61 per cent of all music teachers, taught nothing but music. Ninety-nine per cent of this 61 per cent had a college major or minor in music. Two hundred and seventy-eight teachers, or 15 per cent of all music teachers, taught a combination of music and English. Eighty-three per cent of this 61 per cent who taught a combination of music and English had a major or minor in English, while 71 per cent of this 15 per cent had a major or minor in music. "Training in music," etc., in the table below indicates a college major or minor in that subject. All other subjects are read in a similar manner.

278, or 61%, taught Music alone	99% had training in Music.
70, or 15%, taught Music and English.....	83% had training in English. 71% had training in Music.
17, or 4%, taught Music and Mathematics.....	65% had training in Mathematics. 41% had training in Music.
32, or 8%, taught Music and Social Science.....	66% had training in Social Science. 59% had training in Music.
13, or 3%, taught Music and Science.....	77% had training in Science. 62% had training in Music.
13, or 3%, taught Music and Latin.....	46% had training in Latin. 69% had training in Music.
6, or 1%, taught Music and Modern Language,	83% had training in Mod. Languages. 67% had training in Music.
2, or ½%, taught Music and Industrial Arts....	50% had training in Industrial Arts. 50% had training in Music.
7, or 2%, taught Music and Home Economics..	71% had training in Home Economics. 71% had training in Music.
8, or 2%, taught Music and Commerce.....	62% had training in Commerce. 50% had training in Music.
3, or ½%, taught Music and Physical Education,	0% had training in Phys. Education. 100% had training in Music.

No teacher was reported with a combination of music and agriculture.

TABLE XVII.

PHYSICAL EDUCATION TEACHERS, COMBINATIONS AND TRAINING.

Read table thus: 56 teachers, or 22 per cent of all physical education teachers, taught nothing but physical education. Seventy-nine per cent of this 22 per cent had a college major or minor in physical education. Eleven teachers, or 4 per cent of all physical education teachers, taught a combination of physical education and English. Ninety-one per cent of this 4 per cent who taught a combination of physical education and English had a major or minor in English, while 18 per cent of this 4 per cent had a major or minor in physical education. "Training in commerce," etc., in the table below indicates a major or minor in that subject. All other subjects are read in a similar manner.

56, or 22%, taught Physical Education alone....	79% had training in Phys. Education.
11, or 4%, taught Phys. Education and English..	91% had training in English. 18% had training in Phys. Education.
29, or 11%, taught Phys. Education and Math....	66% had training in Mathematics. 21% had training in Phys. Education.
50, or 20%, taught Phys. Education and So. Sci..	82% had training in Social Science. 28% had training in Phys. Education.
29, or 11%, taught Phys. Education and Science..	86% had training in Science. 41% had training in Phys. Education.
50, or 20%, taught Phys. Education and Ind. Arts,	70% had training in Industrial Arts. 40% had training in Phys. Education.
13, or 5%, taught Phys. Ed. and Home Eco....	85% had training in Home Economics. 23% had training in Phys. Education.
9, or 5%, taught Phys. Education and Com....	67% had training in Commerce. 44% had training in Phys. Education.
2, or 1%, taught Phys. Education and Agricul..	50% had training in Agriculture. 50% had training in Phys. Education.
3, or 1%, taught Phys. Education and Music..	100% had training in Music. 0% had training in Phys. Education.

No physical education teacher was reported with a combination of either Latin or modern language.

SUPPLY OF TEACHERS IN THE DIFFERENT ACADEMIC FIELDS.

The reports sent to the state superintendent of public instruction by the high-school principals tell us there are 15,768 different classes being conducted by the senior high schools of Kansas in ten different teaching fields. Table XVIII, which follows, was compiled by counting every class that was being taught in every high school, in the following fields: English, mathematics, social science, science, modern language, Latin, industrial arts, home economics, commerce, and agriculture. The fields just named were chosen for compilation of Table XVIII because in them are found the bulk of the scholastic credits used for high-school graduation. Classes in physical education and music were not counted in making up this table. In many cases the principal's report was not complete concerning these two subjects. This was especially true of physical education. Many times the reports would credit a teacher with the handling of his school music or high-school athletics and make no mention of the amount of time or number of class periods allotted to the activity. It was impossible to determine, in number of class periods, the amount of work a teacher did in these fields.

Table XIX was also compiled from data found on the above-mentioned high-school principals' reports. To construct this table another examination of these reports was made to determine the number of teachers who had prepared themselves, with either a major or a minor, to teach in the different scholastic fields. Every teacher who had a major or minor in any field was listed as having preparation for teaching that field.

The per cent of classes in each field, and the per cent of teachers having a major or minor in each of these fields, has been worked out in Table XVIII and Table XIX, respectively. Comparison of the percentage of classes and the percentage of teachers in any one field will tend to show whether or not the different fields have their share of the trained teachers.

It must be remembered that in Table XIX there are not as many individual teachers as the column head "No. of teachers" totals up. Many of these teachers were counted in two, three, or even four fields, depending upon the number of majors and minors they had completed while in college.

TABLE XVIII.

NUMBER AND PER CENT OF CLASSES FOUND IN DIFFERENT FIELDS.

Read table thus: Column 2 is the number of classes being taught in the different fields in the high schools of Kansas. Column 3 is the per cent of classes in the different scholastic fields found in the same schools. For illustration, during the past year there were 3,364 English classes taught in the Kansas high schools. These English classe were 21 per cent of all the clases in these school.

1	2	3
Subjects.	*Number of of classes.*	*Per cent of classes.*
English	3,364	21
Mathematics	2,055	13
Social Science	3,279	21
Science	1,695	11
Latin	756	5
Modern Languages	467	3
Industrial Arts	830	5
Home Economics	1,146	7
Commerce	1,724	11
Agriculture	455	3
	15,768	100

TABLE XIX.

TEACHERS WITH TRAINING IN THE DIFFERENT FIELDS.

Read table thus: Column 2 is the number of teachers who have a major or minor in the different fields. Column 3 is the per cent of teachers who have a major or minor in the different fields. To illustrate, 1,546 teachers, or 22 per cent of all teachers, had a major or minor in English.

1	2	3
Subjects.	*Number of of teachers.*	*Per cent of teachers.*
English	1,546	22
Mathematics	700	10
Social Science	1,497	21
Science	1,080	15
Latin	365	5
Modern Languages	543	8
Industrial Arts	260	3
Home economics	506	7
Commerce	344	5
Agriculture	240	3

Tables XVIII and XIX show that science and modern language have a larger per cent of teachers than they have of classes. More difference is found in modern language than would be expected. There are more teachers with a major or minor in this subject than there are classes being taught in the field. This may be due to the fact that a teacher who has a minor of only fifteen hours in a modern language is probably not able to teach that language effectively.

Mathematics, industrial arts, and commerce have a larger per cent of classes than of teachers, according to Tables XVIII and XIX. This does not necessarily mean that there is a shortage of teachers in these fields; but it does show that in proportion to the number of classes there is a smaller number of prepared teachers in these fields than in some of the other fields.

In addition to the eight subjects treated in Table XIX, the number of teachers who had a major or minor in education, physical education, and music were tabulated. It was found that 17 per cent of all high-school teachers had a major or minor in education. Likewise, 4 per cent of all teachers had a major or minor in music, and 1 per cent had a major or minor in physical education. Data from 685 schools were included. The information showed that 1,528 individuals had training in education. This produces an average of two and two-tenths persons per high school who have had training which would qualify them to some extent for teaching from the professional and administrative viewpoint. In music 420 persons were reported as having had training, while in physical education only 134 were reported. This number would, of course, be inadequate for the 685 high schools. Of course, there were a few teachers who had training in these subjects which was not reported, but, the percentage of failure to report a teacher's major or minor should be no greater in these subjects than in other subjects.

PART IV.

NUMBER OF FIELDS IN WHICH TEACHERS WORK.

As the college student preparing to teach school selects her major and minor fields and proceeds to master the fundamentals and pedagogical technique of those fields she has little thought but that she will find herself teaching those subjects when she leaves college. As graduation time nears and she begins to think of securing a position, and as her first interview with a school executive comes and goes she realizes that she may have to do some teaching outside of her chosen field. Table XX shows the per cent of teachers who are teaching in one, two, three or more fields. The study as a whole indicates that a large per cent of the teachers working in a single field are teaching commerce, home economics, industrial arts, or vocational agriculture. Most of the teachers who are teaching in one field only are found in the large school systems of the state.

TABLE XX.

PER CENT OF TEACHERS WORKING IN VARIOUS FIELDS.

43% of teachers teach in	1 field.
32% of teachers teach in	2 fields.
19% of teachers teach in	3 fields.
5% of teachers teach in	4 fields.
1% of teachers teach in	5 fields.

Several questions concerning the requirements for teaching preparation present themselves to the teacher-training institutions: (1) How far shall the institutions go in training specialists, and in what fields shall they demand high specialization? (2) In how many different fields should the student be required to do some work? (3) How much work should be required in the major field and the minor fields? (4) Should the same amount of work be required for a major or a minor in each of the fields? Or should some fields demand, let us say, thirty hours for a major while others set the minimum at twenty-five? (5) In how many and in what fields should the institutions require some work to be done? In most institutions blanket rules cover the requirements for majors and minors regardless of the field in which they are taken. Is it not probable that different semester-hour requirements should be made for different fields? Some fields seemingly require more training before a student is adequately prepared than do other fields.

It is evident that a large per cent of the beginning teachers will have to teach in two or more fields. It follows, then, that the prospective teacher should receive the training in more than one or two fields, since she never knows in what field she will be asked to teach some classes. Just how far this spreading over the various fields can go depends very much upon the fields in which the teacher is working. For example, modern language instructors claim a fifteen-hour minor in French or Spanish would be very inadequate

preparation for teaching either language. In like manner in the field of commercial education, thirty or forty hours of preparation would be needed before a teacher could efficiently instruct classes in high-school typing, shorthand, bookkeeping, and the other commercial subjects found in the high-school curriculum. Industrial arts is another field in which it would be necessary for an instructor to have at least twenty-five or thirty hours of training before he would be able to present adequately such subjects as woodworking, woodturning, woodfinishing, farm carpentry, sheet metal, household mechanics, or auto mechanics, as found in the present up-to-date high-school industrial arts curriculum.

On the other hand, fifteen hours of college training in mathematics above high-school mathematics might be considered sufficient, by many, to enable a teacher to teach high-school algebra or geometry. History, geography, agriculture (not vocational), psychology, physiology, and sociology are other subjects which can be taught, more or less successfully, with less college preparation than must be given to some of the aforementioned subjects. Would it not be better if more teachers could have some preparation in several of these common teaching fields, since classes from these fields will be shifted around to fill up the programs of teachers who have been hired for a special field?

For illustration, a small high school located in a third-class city, or in a rural district, might have teachers for the following fields: English, language, science, commerce, music, industrial arts, and athletics. The teacher would handle all the classes in his respective field, and probably one or two classes outside of the field. In a case like this the mathematics, agriculture, social science, and any other classes that were left over, would be distributed among the faculty where an opening in a teacher's schedule could be found. The principal would likely teach one or two of the classes. This, of course, is not an ideal situation, but it is what is commonly found, and with present resources there does not seem to be any other solution at hand. The illustration mentioned above is, of course, a hypothetical one, and any subject in the school curriculum may fall into this group which has no teacher on the faculty prepared to teach it. Had each of the teachers in this school been equipped with a few college hours of training in these common academic subjects probably every class in the high-school schedule could have been directed by some one who, although not well prepared, would have had some college preparation for teaching it.

It is hardy fair to a school district for a teacher to take a position teaching a subject in which he has no preparation. It certainly is unfair to the teacher. If it is an elementary subject she may teach it with a fair degree of success, but at best she has had to learn the subject and how to teach it at the expense of the pupil and the district which hires her.

In most of our first- and second-class cities a teacher must have a certain amount of experience before she will be admitted to the faculty. It is evident that most of our inexperienced teachers must find their first position in a school system similar to the one mentioned in the paragraph above. If the greater part of the inexperienced teachers are going to start work under conditions similar to those mentioned in the preceding paragraph, how much better it would be if more general training in the common teaching fields had fallen to their lot.

PART V.

SALARIES PAID TEACHERS OF THE DIFFERENT ACADEMIC FIELDS.

Are history teachers being paid more money on the average than science or Latin teachers? This question is very definitely answered in Table XXI, found on the next page. This table gives the averages, medians, and modes of the teachers working in the different teaching fields. In all of these measures of central tendency, several hundred dollars' difference is noted between the salaries of teachers in the different fields. Data in this table were taken from the principals' reports made to the office of the state superintendent. In compiling Table XXI the daily program of each individual teacher was examined and an effort was made to determine in what field she was teaching.

Many times it was hard to determine the field into which a teacher was to be classified, so certain standards were arbitrarily set up and followed throughout. For example, an administrator who was teaching only one subject was not counted. It was arbitrarily demanded that he be teaching at least two classes in order to be classed as an instructor. When a teacher was teaching an equal but a small amount of work in two or more fields, and a reliable decision could not be made into which field she was to be classified, she was classified in neither field. Frequently an instructor's college major or minor was of help in determining her classification. For example, suppose a teacher were teaching two classes of Latin and two classes of geometry; had she college training in Latin and not in mathematics, she was classed as a Latin teacher. This teacher was probably hired to teach Latin, and had been given these classes in mathematics to fill out her program, since the school was offering only two classes in Latin. An effort was made to place some teacher in all of the different fields in which the school was offering work. To illustrate: A teacher teaching two classes in mathematics and two in English would be classed as a mathematics teacher rather than an English teacher, if another teacher in the school were teaching more than two classes in English. This other teacher would be classed as an English teacher.

A special effort was also made to see that some teacher was classified in the departments of industrial arts, commerce, music, and home economics, if these subjects were offered by the school. These subjects were given particular attention because special skills are needed to teach them. Because of the skills required, and the fact that a textbook cannot be followed very closely in teaching these subjects, they are considered more difficult to teach than some of the other subjects in the high-school curriculum. A music teacher who has had no college training in history or mathematics might teach a class in either history or algebra, had she good high-school training, if she devoted a large amount of her time to the preparation of each lesson. But a history or mathematics teacher with no training in music above that given in high school very likely could not teach music, no matter how much time she spent on the preparation of her daily lessons. This is due to the fact that there has likely been mathematics and history training all along the line in both the elementary and high school, while a total absence of music training is not unusual.

TABLE XXI.

COMPARISON OF SALARIES IN THE DIFFERENT FIELDS.

Read table thus: Column 1 shows the mean salary received by Kansas high-school teachers in the different scholastic fields. Columns 2 and 3 show the median and mode for the teachers in the various fields. These fields are listed in this table according to their mean ranking. The median and mode ranking do not coincide in every case with the mean ranking.

Subject.	1 *Mean*	*rank.*	2 *Median*	*rank.*	3 *Mode*	*rank.*
Vocational agriculture	$2,246	1	$2,252	1	$2,295	1
Industrial Arts	1,876	2	1,823	2	1,800	2
Physical Education	1,855	3	1,818	3	1,800	3
Science	1,821	4	1,708	4	1,350	5
Mathematics	1,696	5	1,589	5	1,350	5
Social Science	1,641	6	1,519	6	1,350	5
Commerce	1,556	7	1,453	8	1,350	5
Modern Language	1,555	8	1,468	7	1,395	4
Latin	1,526	9	1,446	9	1,350	5
Music	1,512	10	1,397	12	1,350	5
English	1,463	11	1,408	10	1,350	5
Home Economics	1,431	12	1,400	11	1,350	5

Why should a vocational agriculture teacher receive on the average nearly $400 more salary per year than an industrial arts teacher? Or, why should the industrial arts teacher receive $350 more per year than the Latin or modern language teacher? And what is the reason that the teacher of so common a subject, with as great a utilitarian value, as home economics should be at the bottom of the salary scale? Table XXI shows these conditions to be true, but of course it does not tell why they are true. Some common conjectures will be offered as to the reason for this wide difference in the average salaries paid to teachers in the different teaching fields. These should be taken for what they are worth.

Vocational agriculture teachers receive more salary than any other class of teachers in the Kansas high schools probably because more of them are working under the Smith-Hughes act and receive part of their pay from the state and national government. The federal enactment sets a minimum salary for Smith-Hughes workers, and school boards are not allowed to pay less than the set amount. Many of the vocational agriculture men are hired for eleven months instead of nine, which fact is probably taken into consideration when the amount of their salary is fixed. These teachers must, in addition to their academic training, possess a skill which is peculiar to their field. Since vocational agriculture is generally taught under the Smith-Hughes act, which requires special training in these skills, only those students who meet the requirements of the act can qualify for the positions. This eliminates a great deal of the competition which is present in the other fields of teaching work.

Industrial arts teachers rank second in the salary scale. Much that has been said concerning special skills regarding the vocational agriculture work is also true in the case of industrial arts. This field is not generally handled by a Smith-Hughes man, so it lacks the protection that vocational agriculture enjoys in the Kansas high schools. However, it possesses certain characteristics and skills which are not readily picked up by some one who has not had training in the subject. A teacher who would not hesitate to attempt the teaching of a

class in history or mathematics, a subject in which he has had no college training, would probably not attempt to teach a class in printing, sheet metal, or auto mechanics without college preparation. The prohibition of tradesmen who are skilled in wookworking and other industrial crafts from teaching in the public schools without proper certification also lends to the college industrial arts man a monopoly which aids his salary standing. Another reason for the high salary average is the fact that there are few women in the industril arts field. Women generally receive less salary than men teachers of the same rank.

According to Table XXI physical education ranks third and only slightly below industrial arts in the salary scale. This subject is taught by both men and women, so the absence of women cannot be given as a reason for the high salary average. Neither will the argument that the teacher must have highly specialized skills peculiar to this field hold good in this case. The most plausible reason advanced seems to be that the athletic coaches who receive more salary than academic teachers tend to hold up the average. Under the present system of competitive athletics in high schools, winning teams are much sought after. Anyone who can produce a winner, or can handle athletes in such a way as to develop the best team from the material at hand, can demand more money than the teacher who is doing only classroom work. Again, the superintendents and school boards are generally willing to pay an athletic coach a larger salary than is paid other teachers of the same rank, because they then feel that they have a right to ask for his resignation if he does not produce a winning team.

Science ranks fourth in the salary scale. It was found that many administrators were teaching some classes in this field, and their larger salaries may have tended to hold the average up. Many administrators were found to be teaching in the social science field also.

English and home economics are found at the bottom of the scale, probably because the majority of teachers in these fields are women, and because there are few administrators teaching these subjects.