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June Butler Willhite
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A DETERMINATION OF VARIABILITY OF TEACHING ASSIGNMENTS IN THE SECONDARY SCHOOLS OF UTAH TOGETHER WITH IMPLICATIONS FOR TEACHER EDUCATION CURRICULA

by

June Butler Willhite

A thesis submitted in partial fulfillment
of the requirements for the degree

of

MASTER OF SCIENCE

in

Education

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June Butler Willhite

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INTRODUCTION

It is usually recognized that, in the broad sense, our public schools are maintained for the instruction of children and youth. Moreover, there appear to be three important factors which bear directly upon the nature of this instruction: (1) the individuals who enter the teaching profession, the kinds of people they are, their physical, emotional and mental characteristics or capacities; (2) the kind of education these potential educators receive in preparation for their professional work; and, (3) the actual teaching assignment the individual receives in the particular school where he is employed. Commonly, these three matters are referred to as teacher recruitment, education and assignment.

The present study is concerned with the third item, teacher assignment in the secondary school. To know the assignments actually received by the teachers in one year in this state may furnish a realistic pattern from which potential assignment may be more accurately predicted.

The data were assembled by obtaining daily class schedules from the senior high schools, the junior high schools and the combination senior-junior high schools in Utah. The variety of teaching assignments was analyzed to show the number of fields in which teachers conduct classes, the number who teach in one subject, two or more subjects, the subject areas requiring largest number of teachers, subject combinations recurring most often, the amount of time allowed daily for planning or preparation, and assignments at regular periods which do not involve class instruction. However, no attempt is made to consider all aspects of the teaching load.

The variety of subjects represented in the collective curriculum of the state is an indication of educators' philosophy and attempts through classes taught to meet the needs of young people to live in and to perpetuate a democracy. It is anticipated that the findings herein presented may be sign-posts for those who make policy for teacher education in the state, for those whose duty it is to make teacher assignments and for those who contemplate entering the profession.

REVIEW OF LITERATURE

It is recognized that combinations of subjects actually taught by teachers in the field is one small facet in the earnest attempt of educators to improve instruction in the schools. Utah's need for improved instruction is no different from that of any other state or area, unless it be one of degree. Perhaps in many ways, the problems are the same and may have kindred solutions to those of the neighboring state, Colorado. A comparison of findings by this study was included in this literature review because results of findings in other states were interesting for their similarities and their differences of those in Utah.

Stephen Romine (16) of the University of Colorado published a study in 1946 which was designed to determine facts which would be a basis for action to improve instruction in Colorado by improving the teaching combinations and assignments in secondary schools. He points out in the study that the majority of the high schools of that state are small and curriculums are traditional - those features Utah and Colorado have in common and each is also faced with a condition of inadequate financial support to make changes requiring extra expenditure. Some of his findings are presented for purposes of comparison with what this study has found regarding conditions in Utah.

Because Denver's teacher problems are different in many ways from the rest of the state, that city is not included in the Romine study but the study does include all accredited high schools in Colorado except those in Denver. The study involves 229 schools and 1,661 classroom

teachers who taught grades 9 to 12. The schools were divided into two groups: (1) those accredited only by the University of Colorado, and (2) those accredited by the North Central Association. Generally speaking, the schools of the second group are larger, more adequately financed and employ more fully qualified teachers. Within each of these groups, schools were divided into categories on basis of size. Below are the findings for the reader's comparison with findings under conditions which are similar in Utah.

(1) In Group I, as explained above, 52 per cent of teachers were engaged in teaching in not more than two fields of subject matter while 69 per cent of the second group were involved in not more than two fields. An average of the two figures is 60.5 per cent which can be compared with an average of 61 per cent for all secondary schools in Utah and 69 per cent for senior high schools.

(2) There was a definite trend toward concentration in fewer fields as the size of schools increased. While this study does not make the division according to size, the group which happened to be composed of larger schools (Group I) shows the same tendency. This is to be expected for offerings of small schools would be strictly limited unless teachers offered classes in a number of fields.

(3) Subject fields with the largest percentage of teachers involved were English with 7 per cent in the first of the two groups and 13 per cent in the second group. This study for Utah shows English to be the area with the largest number of teachers concerned and a percentage of 19.5 to be compared with the average of the two figures, 10 per cent. Commercial subjects ranked second with 10 per cent in each group while physical education was second in Utah, with 15.9 per cent. (Physical

education was not tabulated as regular subject in Colorado study.)

(4) Subjects taught singly in the two groups with the average incidence of the two groups were commercial subjects with 19.5 per cent, English with 18 per cent and 13 per cent for social studies only. Comparative data from this study shows English taught singly by 19.5 per cent of all teachers and physical education by 15.9 per cent.

In a later study (15) Romine added other findings based on Colorado but of interest again for comparison with Utah. This time there is no division of schools and he states that data was secured from the vast majority of secondary teachers in Colorado. For purposes of comparison, to continue from above:

(5) About 53 per cent of all teachers were assigned in a single field (he states there is considerable variation in single fields) and 33 per cent were assigned in two fields. Thus, 86 per cent were teaching in not more than two fields. This figure compares with the average figure of 60.5 per cent in the first study. (See 1). It will be noted that this study's figure of 61 per cent is for two subjects as against two fields here but this study also shows that combinations are with few exceptions in the same area (comparable with field in Romine's study). The data for this later study was collected for use in determining teacher loads so the change in purpose may account for the variation in classification of subjects.

(6) Romine reported some stability of two and three subject combinations but noted that number and variety reported not so frequently indicated temporary or "accidental" combinations. The same statement describes conditions as determined by this study in Utah.

Of interest is a study of William Albert Earl Wright (19) made in Pennsylvania but concerned only with science teachers. Because it was made in third class districts (median population 10,080) and concerned 607 teachers which was 13.14 per cent of the 4,618 teachers in the schools observed, the condition of small communities and comparatively few teachers is similar to that of this state. No figures for science teachers alone are available for Utah but this study shows that 21.8 per cent of all teachers teach some class in the physical science area. Stated generally, he found that 80 per cent of biology and general science teachers were scheduled to teach in not more than two subjects and that 60 per cent of chemistry and physics teachers taught in not more than two subjects.

Dr. Leo F. Hadsall (7), a present Californian who formerly taught in Pennsylvania, reports a 1949-50 study of subject combinations with biology in California high schools. Indications of the study are that California administrators have not done so well in limiting the number of subject assignments for high school biology teachers. He found 63.5 per cent of biology and life-science teachers teaching in not more than two subjects, compared with 80 per cent in the Pennsylvania study. The writer does not mean to infer that conditions are the same but results are interesting for comparison with Utah's 61 per cent for all teachers.

In an Alabama study of 1948-49 by Will S. DeLoach and Auborn Russ Hall (5) which concerned only chemistry teachers of white schools, 7.2 per cent of teachers taught one subject, 18.5 per cent taught two subjects, 42.6 per cent taught three subjects, 24.1 taught four subjects, 6.2 per cent cent five subjects and 1.5 per cent taught six subjects. Comparative figures for all Utah teachers may be found on page 20. In short, there it was found that three subjects was the most common

load and one-third taught four or more subjects. A little more than a third teach three or more subjects in Utah.

No summarized information about combinations of subjects taught by Utah teachers for this or previous years seems available. Though the number of subjects taught or preparations required is a recognized factor in calculations of teacher load, the facts about prevailing combinations or how or why they are so combined are not generally accessible to the writer.

METHOD OF PROCEDURE

As indicated previously, the specific problem of this study was formulated as follows: "To determine the variability of teaching assignments in the secondary schools of Utah together with implications for teacher education curricula".

Through the Department of Education, a letter asking for a copy of the daily schedules used in the school, was sent to the principals of secondary schools in the state. By sending a second letter three weeks later, the writer has assembled the requested information from 86.76 per cent of the secondary schools in the state. From that 86 per cent, these data herein presented were assembled.

The schools are divided into three groups. Group I is comprised of the senior high schools, Group II is made up of those schools which accommodate pupils of both senior high and junior high classification, and Group III comprises those of junior high grade only.

A code was designed which permits identification of school, teacher, area or areas in which he teaches, subjects within the area and number of classes in each subject. Example 00101 identifies Teacher 1 (01, the last two figures), in School 1 (001, first three figures); 1C1, 3Cs, 1C4, 1M5 following 00101 indicates that Teacher 1 teaches one class in algebra, three classes in general mathematics, one class in geometry and has one period scheduled for preparation or consultation. (See Appendix B). The C denotes the subject area of mathematics, the number preceding it is the number of classes and the number following it denotes the subject in the area; that is, 1 is the number assigned to algebra, 2 is assigned to

general mathematics and 4 denotes geometry). M is a miscellaneous category and 5 following it is the code number assigned to designate a period scheduled for consultation or preparation. (See Appendix A).

Limitations on the code were determined by specific operations for which the business machines available were designed, and the number of figures contained in the highest number desired to be registered in any category. Thus, no more than 9 divisions could be made in any one subject area. The number of schools (118) included required three figures and teacher numbers required two figures since no more than 99 teachers are employed in any one school.

Each teacher's (2,264 cases) schedule in each school (118 schools) was fitted onto the code pattern. By use of services of the IBM Department at the Utah State Agricultural College, the following summaries of data, by code, were provided for each of the three groups:

(1) Number of teachers teaching one subject daily with the subject identified.

(2) Number of teachers teaching two subjects daily with the subjects identified.

(3) Number of teachers teaching three subjects daily with the subjects identified.

(4) Number of teachers teaching four subjects daily with the subjects identified.

(5) Number of teachers teaching five subjects daily with the subjects identified.

(6) Number of teachers teaching six subjects daily with the subjects identified.

(7) Number of teachers teaching seven subjects daily with the subjects identified.

(8, 9, 10, 11, 12, 13, 14) Combined data for all groups in each of the above categories.

(15, 16, 17) Number of teachers teaching each subject and number of times taught by each teacher in each of three groups.

(18) Combined data for all groups showing number of teachers teaching each subject and number of times taught.

The code as formulated divided the curriculum into twelve subject areas with as many (up to 9) subject classifications under each large area division as needed. Because of the variety of work assigned for specific periods which does not conform to subject matter divisions, it was found expedient to use two miscellaneous categories (M and N).

From the code sheets made up by the writer, the data concerning the number of teachers employed in each school (which determined size for this study), were readily available. Precaution in the coding by assignment of numbers within certain limitations to the schools in each of the three groups as described above enabled the writer to keep the data for each group separate. (Schools in Group I were numbered 1 - 40, Group II from 40 - 99, Group III from 100 up). Obviously, no group was large enough to require use of all possible number assignments.

From the code summaries as furnished by IBM Department and described above, the facts regarding subjects taught, number of times taught, number of teachers teaching each subject and the subjects taught by each teacher were ascertained by counting and additions where necessary. The different ways in which the information was summarized provided a means of checking for accuracy. Only by such aids does the writer feel that the volume of data was made manageable.

PRESENTATION AND ANALYSIS OF DATA

Response to Request for Copies of Daily Schedule

Of importance to the validity of the analysis of data is the completeness of the data upon which results are based. Of the 136 secondary schools in Utah, 118 responded to the request for a copy of the daily schedule used in the school. (Two responded too late to be included in this study.) Thus the data as shown by the table below is 86.76 per cent complete. As explained in an earlier section, Group I is composed of all senior high schools, Group II of combination senior and junior high schools, and Group III of junior high schools. The response below the figure of 86 per cent came in the combination group with more than 20 teachers and in the junior high group with less than 10 teachers and the more than 20 teachers division. See Table 1, page 12.

Size and Organization Patterns of Secondary Schools

The secondary schools of Utah follow three different organizational patterns. Of the 118 schools studied, which represent 86.76 per cent of the secondary schools in the state, nearly one-fourth (23.7 per cent) are senior high schools, one third (33.9 per cent) are senior and junior high schools combined, while a little less than half (see Table 2) are junior high schools.

It may be seen from Table 2 that although the senior high schools total 23.7 per cent of the number of secondary schools, they have 37.5 per cent of the teachers within their ranks. The junior high schools are 42.4 per cent of the total, yet have only 38 per cent of the teachers. Thus it is to be expected that on the average, the senior high schools

Table 1. Summary of size of schools (number of teachers) included and those not included in this study

Size (number of teachers)	Included	Not included	Total	Per cent included
Group I				
Under 10	1	0	1	100.0
10 - 20	10	1	11	90.9
20 or more	17	2	19	89.5
Group II				
Under 10	15	2	17	88.2
10 - 20	18	4	22	81.8
20 or more	7	2	9	77.7
Group III				
Under 10	15	3	18	83.3
10 - 20	14	0	14	100.0
20 or more	21	4	25	84.0
Total	118	18	136	86.7

are larger than the junior high schools but employ about the same number of teachers. With the largest number of schools and smallest percentage of teachers, the schools of the combination group must be expected to be smaller in size.

Table 3 shows the range in size of schools of each group and the median size gauged by number of teachers in each group. Senior high schools range in size from 2 to 76 teachers with a median size of 24.5 teachers, combination schools range from 4 to 44 with the median at 11.77 teachers and the junior high group shows a range from 2 to 37 with a median of 16.64. From this information, we can not expect to find many schools whose faculties approach the upper figure of the range in number.

Table 2. Number and percentage of schools and teachers in three groups

Organization type	Number schools	Per cent of total	Number of teachers	Per cent of teachers
Group I	28	23.7	840	37.5
Group II	40	33.9	561	24.7
Group III	50	42.4	863	38.0
Total	118		2,264	

Table 3. Range and median size of schools in each of three groups

Organization type	Range in number of teachers	Median number of teachers
Group I	2 - 76	24.50
Group II	4 - 44	11.77
Group III	2 - 37	16.64

Table 4 summarizes the information as to size of schools in each group showing the percentage of each size division in each organization type (group). These facts of relative sizes and numbers of different organization types may be of interest to those who contemplate entering the teaching profession of this state. Since it is generally believed that initial employment in the profession is found in the smaller schools, that means that in this state, the smaller 62 per cent have less than 20 teachers.

Some variation is found within each type of organization. In towns

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Table 4. Percentage of schools in size divisions in each of three groups

Organization type	No. of schools in group	No. with less than 10 teachers	Per cent of group	No. with 10-20 teachers	Per cent of group	No. having more than 20 teachers	Per cent of group
Group I	28	1	3.6	10	35.7	17	60.7
Group II	40	15	37.5	18	45.0	7	17.5
Group III	50	15	30.0	14	28.0	21	42.0
Total	118	31	26.3	42	35.6	45	38.1

where junior colleges are located, the senior high schools may include only two grades of work, the eleventh and twelfth. Though classes are separate from the junior college classes, the faculty is frequently shared and they may be under the same administration. Some senior high schools share the service of teachers with other schools in their area (perhaps junior high schools). This seems to be a common practice in such subjects as art or music, which require a special kind of skill.

A few schools in the senior and junior high combination group have the day divided into seven periods. It would seem that the number of requirements in each grade and six grades to be served have made this plan seem the best solution for adjustment to a physical situation and outside requirement. There are cases when bands or other groups meet for a period preceding the regularly scheduled day.

Again there is variation in the junior high school pattern. In those towns where senior high school and junior college form an organized unit, the junior high schools include tenth grade and are, therefore, four-year

junior high schools. At least one junior high includes grades 5, 6, 7, 8, 9 and two-year (grades 7, 8) junior high schools are to be found. Cases exist also where a grade school teacher in the locality may teach some special work in the junior high school while the junior high teacher takes over the work in a lower grade for a specified part of the day. Several junior high schools use the seven period plan.

The Subjects Taught in Secondary Schools

An examination of Table 5 gives an idea of what subjects are taught in the secondary schools of Utah. Though there appear 74 different subjects, this is not the complete picture. (See necessity of combining for coding purposes below.)

The table shows the number of teacher-classes in English to be 1,634, which is nearly twice that of the subject second highest, general mathematics, with 828 teacher-classes. Large numbers of teachers will be needed to teach these subjects. Comparative numbers needed can be estimated for each of the subject areas. Those areas with largest numbers of teacher-classes are communicative arts (2,075), social studies (1,578), physical education (1,352), mathematics (1,297), and physical and life science (1,083). It is evident that in these areas, largest numbers of teachers will be required.

The wide variety of subjects uncovered in the curricula of these 118 schools would seem to reflect an attempt on the part of educators to meet the needs of high school students of our day. Table 5 presents the subjects under area classifications (after some combining which was necessary to codify them to make facts available, yet meaningful). Some of the facts and observations which have been thus hidden, I think will

Table 5. Number of teacher-classes in various subjects in Utah secondary schools

Area (subjects included)	Group I	Group II	Group III	Total
Communicative Arts and Literature*				2,075
English	562	415	657	1,634
Speech	77	31	43	151
Reading	10	35	88	133
Literature	0	4	46	60
Journalism	17	12	7	36
Dramatics	15	5	7	27
Public Speaking and Debate	17	9	0	26
General Education (Spelling, Penmanship, etc.)	0	1	7	8
Social Studies				1,578
American History	270	176	200	646
Civic	37	78	164	279
Social Science	11	35	192	238
World History	131	51	29	211
American Problems	74	54	3	131
Psychology	30	5	10	45
Sociology	18	3	0	21
Vocations	5	2	0	7
Physical Education				1,352
Physical Education (Health)	318	312	490	1,120
Health (First Aid, Hygiene)	35	32	46	113
Athletics (Wrestling, Baseball, Tennis)	58	33	9	100
Dancing	18	0	1	19
Mathematics				1,297
General Mathematics				828
Algebra	149	59	93	301
Geometry	93	25	11	129
Commercial Arithmetic	18	3	7	28
Trigonometry	7	2	0	9
Pre-flight	1	1	0	2

*Figure in total column indicates total of all subjects in area.

Table 5. (cont'd.)

Area (subjects included)	Group I	Group II	Group III	Total
Physical and Life Science				1,083
General Science	15	125	355	495
Biology	125	59	22	206
Chemistry	71	40	0	111
Physiology	54	21	0	75
Physics (Electronics)	44	23	2	69
Geography (Physical Science)	6	12	41	59
Genetics	15	9	0	24
Botany and Zoology	23	0	0	23
Geology (Earth Science)	8	7	6	21
Commercial Subjects				744
Typing	190	124	90	404
Shorthand (Stenography, Dictation)	97	40	0	137
Bookkeeping	48	34	0	82
General Business	42	5	15	62
Distributive Education	18	3	0	21
Calculating Machines	17	0	0	17
Business English	9	0	0	9
Commercial Law	6	2	0	8
Accounting	4	0	0	4
Industrial Arts				741
Industrial Art (General Shop, Practical Art)	110	92	49	351
Shop (Auto Mechanics, Carpentry, Welding, etc.)	155	69	120	344
Mechanical Drawing	34	5	1	40
Printing	5	0	0	5
Trade and Industrial Education	0	1	0	1
Home Economics				735
Home Making (Living)	112	159	180	451
Clothing	99	27	48	174
Foods	54	15	41	110
Music				640
Instrumental	68	104	165	337
Vocal	74	73	150	297

Table 5. (cont'd.)

Area (subjects included)	Group I	Group II	Group III	Total
Music (cont'd.)				
Baton	2	2	0	4
Music Appreciation and Fundamentals	2	0	0	2
Art				466
General Art (Applied)	68	104	182	354
Crafts (Ceramics, Homecraft)	32	15	44	91
Commercial Art	20	1	0	21
Agriculture				263
Agriculture	56	112	14	182
Farm Mechanics	48	33	0	81
Language				123
Spanish	35	4	19	58
French	25	0	4	29
Latin	18	0	7	25
German	11	0	0	11
Miscellaneous				
Library Science and Library	90	76	108	274
Counseling	47	24	117	188
Core	0	10	127	137
Study	44	31	57	132
Drivers' Training	35	6	0	41
Student Council	4	6	13	23
Senior Review	2	5	1	8
Photography	1	3	3	7
Nurses' Aid	2	0	0	2

prove interesting and suggestive.

Courses entitled art personality science, welfare, ethics, orientation, human relations and common learnings may be as comprehensive as their titles might permit and may be attempts of communities to enable students to develop personality and take cognizance of opportunities

of service to community needs. Courses called life adjustment, personal development and pupil personnel would seem to reflect awareness of and a step in the prevention of maladjustment of individuals.

Penmanship and spelling as separate subjects are found in a few schools. More often appears language arts (classified under English) which was described as including reading and writing and spelling. Courses called general education are described as including spelling, writing and dictionary usage. Several reading classes are designated as remedial reading. Classes in oral composition have been included in the speech classification. A class in radio broadcasting is included under public speaking. A course called senior review and one called fundamentals is found in a few schools.

Some courses which may or may not be highly technical are electronics, photography, radio, and nurses' aide. A class in model building may contribute directly to leisure time activity. Practical arts may include aims in more than one direction.

A few schools have a regular meeting time during school hours for clubs and organizations, thus giving them co-curricular status rather than extra-curricular. A regular class in student government, which may be substituted for social science, has been found. Some school publications have a regularly scheduled period.

Not a very clear picture of counseling in Utah schools is to be gained from daily schedules. Table 5 shows that the junior high group (Group III) has nearly three times as much time allotted to counseling as does the senior high group (Group I) while the combination group has the smallest amount--only 24 periods for 40 schools. However, the

tabulation shows 31 periods for preparation and guidance for this group. It seems fair to assume that this guidance work is not done by a teacher trained for counseling. Group I shows 16 periods for preparation and guidance and Group III 29 periods for the same (not included in table). Of the senior high schools included herein, three provide for a counselor scheduled 5 or 6 periods per day in that work. The combination group has none and the junior high schools have four counselors so scheduled.

Drivers' training is offered in 9 schools of Group I and four schools in Group II. Some larger schools have ROTC programs.

Six schools in the junior high group and two in the combination group are engaged in core curriculum work. No senior high schools in this study indicate core work or multiple period classes though the report of one high school received too late for inclusion does show work in core classes. It is, no doubt, experimental in at least a part of the cases and my data give little information. In most cases the subjects combined in the core are language arts and social science. In one school the course is called LASS from the first letter of language arts and social science. One case combines the social studies, English and science in a seventh grade core.

Number of Subjects Taught by Teachers

To answer the question, "What part of the teachers teach in one subject, two subjects, or more," Table 6 is presented. It includes the number of subjects to seven and gives separate information in numbers and percentages for each group and total figures for the state. Of all Utah teachers, 24.8 per cent teach in only one subject, 36.4 per cent teach in two subjects, 23.3 per cent in three subjects, 10.9 per cent

in four subjects, 3.6 per cent in five subjects and 0.9 per cent in six subjects.

From the table one may conclude that the chances are, roughly three to two that a teacher in the state will more likely be required to teach two subjects than that he will teach one or three. The possibility of teaching more than three declines sharply, except in the combination senior and junior organization where the four subject percentage remains close to the three subject percentage.

It is to be noted also that in the two larger groups (Group I and Group III), that the percentage of teachers in one subject is twice that of Group II and the schools are approximately 1.6 times as large. Thus the chances of being assigned in one subject increases with the size of the school.

To make extractions from the table, in the senior high school group 26.9 per cent of the teachers teach one subject and 42.3 per cent teach two subjects, so 69.2 per cent of the teachers in senior high school teach in not more than two subjects. Significance of this fact should be noted in a later analysis of the two most frequent subject combinations.

In Group II the number of teachers teaching in not more than two subjects goes down to 42.3 per cent (14.4 per cent in one subject plus 27.9 per cent in two subjects). Since the median size of this group is 11.77 teachers (see Table 3) and five grades are to be served, it seems unavoidable that more teachers must teach a greater variety of subjects than in the senior high or junior high group where the median size is larger and three grades are to be served.

Though the median size of the junior high schools (Group III) is

Table 6. Number and percentages of teachers in each of three groups teaching one, two, three, etc., subjects

Teachers teaching	Group I	Per cent	Group II	Per cent	Group III	Per cent	Total	Per cent
One subject	226	26.9	81	14.4	256	29.7	563	24.8
Two subjects	355	42.3	157	27.9	311	36.3	823	36.4
Three subjects	196	23.3	144	25.6	187	21.7	527	23.3
Four subjects	46	5.5	120	21.4	81	9.4	247	10.9
Five subjects	15	1.8	44	7.7	22	2.5	81	3.6
Six subjects	2	0.002	13	2.3	5	0.5	20	0.9
Seven subjects			2	0.4	1	0.1	3	0.1
Total number of teachers	840		561		863		2264	

16.64 teachers, 65.7 per cent of the teachers teach in not more than two subjects (29.4 per cent in one subject plus 36.3 per cent in two subjects). The ratio here of size of school to number of teachers teaching not more than two subjects is somewhat higher for the junior high schools than for the senior high schools (16.64 : 65.7 per cent;: 24.5 : 69.2 per cent).

The total figures show that 61.2 per cent of all secondary teachers teach in not more than two subjects (24.8 per cent plus 36.4 per cent). To summarize, see Table 7.

Two-subject Teaching Combinations

An analysis of the two-subject teaching combinations in senior high schools shows algebra and geometry to be the most frequent combination. Others in order are (2) typing and shorthand, (3) physical education and

Table 7. Numbers and percentage of teachers who teach in not more than two subjects

	Numbers	Per cent
Group I	581	69.2
Group II	237	42.3
Group III	567	65.7
Total	1,385	61.2

health, and (4) English and speech. (See Table 8.) The only combination of frequent occurrence involving two areas is English and American History in tenth place and occurring six times.

In Group II where it has been shown there are a greater percentage of teachers who teach three or four subjects, more combinations and likelihood of smaller incidence must be expected. Here algebra and general mathematics are combined most often (20 times) and two-area combinations appear in English and general mathematics, English and homemaking, general mathematics and physical education, and social science and general mathematics. The likelihood of teaching entirely in a major field is somewhat lessened to that of the senior high school.

In Group III are more two-subject combinations of higher incidence than Group I, but a two-area combination of general mathematics and general science ranks highest. General mathematics combined with world history, with civics, and with reading also appear for lower places in the list. Because general mathematics appears more often than any other subject in combination here, it has been determined that 205 of the 863

Table 8. Two-subject teaching combinations

	Number of times occurring
Group I	
Algebra and Geometry	29
Typing and Shorthand	25
Physical Education and Health (when separate subject)	16
English and Speech	13
(Home Making and Clothing	9
(Vocal Music and Instrumental Music	9
(English and Journalism	8
(American History and World History	8
English and American History	6
Agriculture and Farm Mechanics	5
Group II	
Algebra and General Mathematics	20
American History and American Problems	17
English and Reading	16
English and American History	13
Typing and Shorthand	12
Home Making and Clothing	11
(English and Speech	10
(English and General Mathematics	10
(English and Home Making	10
(General Mathematics and Physical Education	10
American History and Civics	9
(American History and World History	7
(Agriculture and Farm Mechanics	7
(Vocal Music and Instrumental Music	7
Social Science and General Mathematics	6
English and Library	5
Group III	
General Mathematics and General Science	31
Algebra and General Mathematics	29
English and Literature	23
English and Reading	22
Vocal Music and Instrumental Music	19
American History and Civics	17
English and Speech	15
English and Social Science	11
General Mathematics and World History	10
General Mathematics and Civics	6
General Mathematics and Reading	5

teachers in junior high school, or 23.7 per cent, teach at least one class in general mathematics.

Three-subject Teaching Combinations

The table of three-subject combinations (Table 9) with their small numbers of recurrence is valuable only as a basis for the statement that there is little uniformity about subject combination of more than two as they are taught in this state. They do tend to remain within related subject areas and examples in the four-combinations can be found where the fourth is one added to some of the three-combinations above. The

Table 9. Three-subject teaching combinations

	Number of times occurring
Group I	
Typing, Shorthand, Bookkeeping	4
English, French, Spanish	3
Algebra, General Mathematics, Instrumental Music	2
Group II	
Algebra, General Mathematics, Geometry	3
Shop, Physical Education, Athletics	2
Typing, Shorthand, Bookkeeping	2
Industrial Art, Shop, Crafts	2
Group III	
Algebra, General Mathematics, Counseling	3
English, Speech, Civics	3
Reading, General Mathematics, General Science	3
American History, Civics, Vocal Music	2
American History, Civics, Counseling	2
General Mathematics, General Science, Counseling	2
General Mathematics, General Science, Core Curriculum	2
General Mathematics, Industrial Art, Crafts	2
English, Vocal Music, Instrumental Music	2

number of times that general mathematics in Group III appears in these groups is emphasis for the observation stated earlier that nearly one-fourth of all teachers in junior high school teach at least one class in general mathematics.

Single-subject Teaching in State

In Table 6 it is shown that 226 teachers in Group I teach only one subject, 81 in Group II, and 256 in Group III teach one subject only (total 563). A further analysis of the data shows that English is the subject to which more one-subject teachers are assigned than any other. In the senior high schools the teach of shop* was second in the list of one-subject teachers. Group II does not show a marked predomination of any one subject taught singly. English, however, was highest with an incidence of 23. In the junior high group, 49 teachers of physical education (usually including health) did not teach outside the field, and 29 teachers taught English alone. (See Table 10 for summary of this information.

English and physical education are the only one-subject teachers which appear in all three groups in a number large enough to be significant. Totaling 101 one-subject teachers teach English and 76 one-subject teachers teach physical education. For those who may want such information about a specific subject, Table 10 is included here.

Single-area Teaching in State

A further look into the data reveals that 517 teachers in the state teach one or more classes in English. Of these, it has just been pointed out that 101, which is 19.5 per cent, teach that subject alone. Of the

*For coding purposes, shop embraces several different shops, as auto mechanics, machine shop, carpentry, welding, etc.

Table 10. Number of teachers teaching in one subject only in each of three groups*

Subject	Group I	Group II	Group III	Total
English	49	23	29	101
Shop	23		12	35
Physical Education	18	8	50	76
American History	10			10
Clothing	10			10
World History	9			9
Library	9		8	17
Typing	7			7
Home Making		8		8
Industrial Art		6	7	13
General Mathematics			20	20
General Science			18	18
Music (Instrumental)			11	11
Social Science			10	10
Art (General)			10	10
Music (Vocal)			8	8

*Only those of incidence of 6 or above in a single group is included.

478 who teach at least one class in physical education, only 15.9 per cent (76) teach that subject alone.

Table 11 has been designed to show the number of teachers participating in teaching of each of the major subject areas. Of the teachers in the state, 35 per cent teach one or more classes in the broad area of communications and literature, 28 per cent teach one or more classes in social studies, 27 per cent in mathematics, etc. Generalizing, about one-fourth or more of the positions in the state will need the services of a person trained in the general subject areas of social studies, mathematics, science, and physical education. Thus, while English and physical education teachers have a greater chance of being assigned strictly in their field, there still is a strong possibility that they may be required to

Table 11. Percentage of teachers involved in subject areas

Subject area	Number of teachers	Percentage of total (2264)
Communications and Literature	797	35.2
Social Studies	640	28.2
Mathematics	617	27.2
Science (Physical and Life)	494	21.8
Physical Education	478	21.1
Commercial Subjects	337	14.9
Music	268	11.8
Home Economics	217	9.6
Industrial Art	201	8.9
Art	151	6.6
Agriculture	96	4.2
Languages	64	2.8

teach in another field.

Regular Assignment Outside Organized Classes

The variety of work done by teachers about the school which is not actual classroom work will be of interest to some. To present the whole picture, Table 12 is presented. In the category of special assignment is included school publications, play productions (rehearsals) and special work with students. The category called clerical includes work which might be done by one other than a teacher such as checking of absence, office assignment, or lunch duty.

Table 12. Number of teachers involved in work outside organized classes

	Group I	Group II	Group III	Total
Special Assignment	24	25	76	125
Clerical Assignment	17	20	26	63
Grand total				188

Though a few engage in the work for more than one period, it is readily seen that the equivalent of about 21 teachers is included in the first category and the equivalent of 10.5 teachers in the second category if we assume one period allowed for each.

Preparation Time for Teachers

To provide a part (usually one period) of a teacher's day for consultation with students when necessary, preparation of plans, gathering of materials, and necessary conference with administrator or other teachers is a primary concern of principals in best ordered schools. The Douglass formula and other methods of determining teacher load recognize that the greater number of preparations required, the heavier the load, and the more acute the need of a preparation and consultation period. Periods called "free" have been so considered in this study. Table 13 shows the relation of the preparation period to number of subjects taught by the individual teacher.

Tabulations show the opposite of what theory and good judgment would recommend to be true. As the number of subjects taught increases, the amount of preparation time is reduced. Of the teachers having one subject preparation, 64.9 per cent have a preparation period while only 8.6 per cent of those teaching five subjects have the preparation time. A slight variation occurs in the case of six subjects when 10 per cent of these are allowed preparation time. It is noted that percentages are highest in Group I, second highest in Group III, while Group II with fewer teachers (median number) and more grades to serve have the smallest amount of time reserved for preparation.

Table 13. Numbers and percentages of teachers scheduled with a preparation period

Teachers teaching	Group I			Group II			Group III			All groups		
	Number	Prep-aration	Per cent	Number	Prep-aration	Per cent	Number	Prep-aration	Per cent	Number	Prep-aration	Per cent
One subject	226	188	83.2	81	40	49.4	256	136	53.5	563	364	64.9
Two subjects	355	248	69.8	157	53	33.7	311	142	45.4	823	443	53.6
Three subjects	196	79	40.3	144	46	31.9	187	50	26.7	527	175	33.2
Four subjects	46	12	26.1	120	24	20.0	81	9	11.1	247	45	14.2
Five subjects	15	0	0	44	3	6.8	22	4	18.1	81	7	8.6
Six subjects	2	0	0	13	1	7.6	5	1	20.0	20	2	10.0
Seven subjects	0	0	0	2	0	0	1	0	0	3	0	0

Two-school and Part-time Teaching

An idea of the number of teachers who are assigned to more than one school or part-time teachers in the state may be gained from Table 14. (Data do not permit separation.)

The sharing of the faculties by the high school and junior college in the towns where they are located accounts for the large number in the senior high group (Group I). It is the teachers of special subjects such as music and art who are most often assigned to more than one school. Naturally, the number of shared or part-time personnel in the group where the senior high and junior high are under one organization will be small.

Table 14. Number of two-school or part-time teachers in schools by groups

	Number of teachers (two-school or part-time)	Number of schools in group
Group I	82	28
Group II	6	40
Group III	15	50

SUMMARY OF FINDINGS

This study to determine the variability of teaching assignments in the secondary schools of Utah together with implications for teacher education curricula is based on data from 86.76 per cent of the secondary schools of the state of Utah. Daily schedules for 1953-54 were used as the source of data. A code pattern of subject areas with subject divisions which permits identification of school and teacher was devised and the class schedule of each teacher (2,264) fitted on to the code. Through the IBM Department of the Utah State Agricultural College, data were printed by code with grouping to show the subjects or combination of subjects taught by each teacher and the number of teachers teaching in each subject. In the analysis, the data were kept separated according to the organization type of the school. Types are designated as Group I (senior high schools), Group II (combination senior and junior high schools) and Group III (junior high schools).

Group I includes 28 schools, Group II includes 40 schools and 50 schools are in Group III. On the whole, the senior high schools are larger schools as shown by the percentage of all secondary teachers employed by them and the median number of teachers. By the same analysis, the combination group is made up of schools smallest in size.

Variations from the 3 - 3 organization are the two-year senior high school and four-year junior high schools which are the rule in towns where junior colleges are located. Smaller communities (as evidenced by size of schools) often combine the junior and senior high schools under one organization. The seven-period instead of six-period day is used in

many of the junior high schools.

In an analysis by teacher-classes of subjects taught in the secondary schools, English and general mathematics show the largest number of teacher-classes, thus indicating a large number of teachers needed with training in these two subjects. The broader subject areas requiring largest number of teachers are communicative arts* (2,075), social studies (1,578), physical education (1,352), mathematics (1,297), and physical and life science (1,083).

Of the large variety of subjects found in the entire state curricula, some sound new and indicate attempts to follow the newer general education philosophy. Others are traditional and would seem to be an attempt to meet the common criticism of lack of knowledge of subject matter in the product of the public school. Some of what has formerly been called extra-curricular work seems to have achieved the co-curricular status by receiving an allotted period in the daily schedule. The work of counseling is allotted most time and most full-time workers in the senior high school, and receives least attention in the combination group. Drivers training is offered in 9 schools of Group I and 4 schools in Group II.

Group III shows wider trial or acceptance of the core curriculum while Group II indicates an attempt in two schools only. The common extent of its use seems to be combination of language arts and social science in a double period.

The study shows that more teachers are assigned to teach two subjects than to teach one or three or more. The percentage of teachers teaching only one subject is twice as high in Group I and Group III (which are larger in size) as Group II, so the chances of being

* Numbers indicate number of teacher-classes.

assigned to one subject increases with the size of the school. It is determined that 61.2 per cent of all teachers in secondary schools teach in not more than two subjects.

In general, the analysis of subject combinations taught shows the combinations to be in one broad subject area. Algebra and geometry, typing and shorthand, algebra and general mathematics show highest incidence of recurrence. An exception to the one-area statement is the combination of general mathematics and general science in Group III. General mathematics is found in combination with other subject more often than any other subject in lists of multiple subject teaching. In Group II which includes smaller schools and more grades, there are more combinations but occuring a smaller number of times showing less uniformity in teaching combinations.

There is little uniformity about combination of subjects for teachers after the number goes beyond two. However, they do show the tendency to stay in general subject-areas. Subject combinations of four are found where the fourth is one added to the list of three occuring most often, as shown by Table 9.

Approximately one-fourth (24.8 per cent) or 563 teachers are assigned to teach in one subject. English, with a total of 101 teachers, is the subject most often assigned singly to a teacher in each of the three groups and physical education (76 teachers) ranks second.

The subject areas in which largest numbers of teachers are assigned are communicative arts, social studies, mathematics, physical science and physical education.

Regular periods are provided in some cases for special work such as school publication or rehearsals or clubs. Some teachers receive assignments

involving such chores as lunch duty or office work.

The percentage of teachers provided a preparation or consultation period is highest in the senior high school and lowest in the combination group. In all groups, as the number of subjects taught increases, the percentage having preparation time decreases.

The number of teachers assigned to two schools or to part-time teaching seems large in Group I, due perhaps to the sharing of faculties by junior colleges in towns where they are located. Numbers here are smallest where the junior and senior high school are under the same organization.

SOME CONCLUSIONS AND IMPLICATIONS

Support is furnished by this study for the statements below which are drawn from the implications for teacher education in the study by the writer and expressed as guiding principles for professional education.

(1) Special problems of small schools need to receive some emphasis. Since the study shows 62 per cent of the teachers in the state to be placed in schools of less than 20 teachers, a much larger per cent will at some time in their career be employed in the small community.

(2) Though there is required in the state about the same number (only slightly more junior high) of senior high and junior high teachers, a choice of age group while in process of training would seem to make for more adequate preparation.

(3) Largest numbers of teachers will need to be trained for teaching in the broad areas of communicative arts, social studies, physical education and physical science. (Table 5). Since we know that 35 per cent of teachers teach in fields of communicative arts, 28 per cent in social studies and 27 per cent in mathematics (Table 11), such information may be a guide for schools of education in estimating to what extent they are training to fill the need. However, with many factors, such as out-of-state employment, variation in turn-over and impracticability of determining areas of study, it can be no decisive gauge. Requirements by the state that English, social studies and physical education be taught in specific grades is a steady factor but each school may also make certain and special requirements for graduation so we can never very closely determine the need in terms of subject preparation nor can we control the

subject- turn-over of teachers.

(4) The variety of special classes and activities scheduled is a point for emphasizing the fact that candidates will do well to follow special interests in their training, whether in a major subject area or not. In this day of emphasis on general education, courses will be less subject bound and special interest can be counted upon to furnish motivation and interest in groups. Teacher education can make the importance of special interest and extra-curricular work a planned part of the program.

(5) Implications are that the core idea is being accepted as worthy of trial and theory indicates that more emphasis on training for it would be an improvement in teacher education curricula. The number of schools using the core curriculum (six in junior high group and two in combination group) seems to indicate that training in the philosophy and method of the core should be offered either in a separate course or occupy a prominent part in some related course. Because the term is loosely used and often misunderstood, we can not know just what has been done. It has been pointed out that its use, as found by this study, has been to combine two subjects into a double period rather than making the core include the total part of the curriculum required of all students at a given level. Alberty (1) has advanced the case for wide use of the term by outlining six different type cores. If prospective teachers can learn a better understanding of the term, its purpose and philosophy and methods which make the idea usable for them, its use may become more widespread. Principals have said their first difficulty in instituting or expanding the development of the core curriculum is in finding qualified teachers. They believe it requires a special type of preparation. The continuing

spread of the core program and acceptance of the idea by teachers and administrators has led Grace Wright (18) of the U. S. Office of Education, Secondary School Section, to make a study of summer-session offerings (1953) in which she found that at least 35 institutions in 21 states and the District of Columbia provided courses dealing entirely or in a large part with the core program. (University of Colorado and University of Kansas mentioned west of the Mississippi).

(6) Because of the number of teachers shown to be assigned for a part of the day to work which might be done by other personnel, those who are trained as administrators should be alerted to the fact that unless the teacher does the job better or more economically, the possibility of a different solution should be considered. A variety of factors could conceivably make the decision in favor of making it the teacher's job.

(7) A broad general education with some specialization in one area seems to be a preferred pattern in education for teachers. If it were expected by teacher educators that subject lines would be closely drawn, as they have been in the past, the implication is that training in two subjects (one area) for teaching is sufficient. (It will be recalled that 61.2 per cent of all teachers teach in not more than two subjects and that 24.8 per cent teach in one subject). The problem becomes one of reconciling specialization as required by institutions for graduation and a general spread of courses with sufficient knowledge to teach outside the specialized course. In general, this study shows that combinations of subjects assigned to teachers are in the same subject area; that is, speech and English are taught by the same teacher and algebra and geometry by the same teacher (Table 8). So, in spite of the fact that the growing concept of education requires cuts along horizontal lines in subject matter

rather than vertical lines (subject lines), specialization in one field still seems to be preferred in teacher education. So long as requirements are stated in subjects and assignments are made by subjects, a subject studied is a measurement of qualification. A weakness in state certification requirements permits a teacher to be assigned and to teach in a subject or an area where he may have had no training.

(8) It is the teachers of special subjects, such as music or art, who may expect to be assigned to more than one school and perhaps more than one age level of work. With this fact known by educators, preparation recognizing a wider range in age of teaching levels can be recommended for these teachers.

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APPENDIX

APPENDIX A

Code of Subjects within Subject Areas

A. Communicative Arts and Literature

1. English
2. Reading (remedial reading)*
3. Journalism (creative writing)
4. Speech (oral composition)
5. Dramatics
6. Public Speaking and Debate (broadcasting)
7. General Education (described as spelling, penmanship)
8. Literature

B. Social Studies

1. American History
2. World History
3. Sociology
4. American Problems
5. Civics (citizenship, welfare, ethics, etc.)
6. Vocations (occupations)
7. Psychology (life adjustment, personnel development)
8. Social Science (common problems)

C. Mathematics

1. Algebra
2. General Mathematics (vocational)
3. Commercial Arithmetic
4. Geometry
5. Trigonometry
6. Pre-flight

D. Physical and Life Science

1. Biology
2. Botany and Zoology
3. Chemistry (bio-chemistry, geo-chemistry)
4. General Science
5. Geography (physical science, world geography)
6. Geology (earth science)
7. Physical (electronics)

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*Parentheses after subjects indicate confining and classification of subjects to keep data manageable, yet meaningful.

8. Physiology
9. Genetics (heredity, eugenics)

E. Languages

1. Latin
2. French
3. Spanish
4. German

F. Commercial Subjects

1. Typing
2. Shorthand (stenography, dictation)
3. Bookkeeping
4. General Business (office principles, business practice)
5. Commercial Law
6. Business English
7. Accounting
8. Distributive Education (consumer education)
9. Calculating machines

G. Home Economics

1. Home Making (home living, home arts)
2. Clothing
3. Foods

H. Industrial Arts

1. Industrial Art
2. Mechanical Drawing
3. Shop (metal, electricity, welding, auto mechanics, welding, plastics)

I. Agriculture

1. Agriculture
2. Farm Mechanics

J. Physical Education

1. Physical Education and Health
2. Athletics (wrestling, baseball, golf, tennis)
3. Health (first aid, hygiene)
4. Dancing

K. Music

1. Vocal
2. Instrumental

3. Baton
4. Music Appreciation and Fundamentals

L. Art

1. Crafts
2. General Art (applied)
3. Commercial Art

M. Miscellaneous

1. Counseling
2. Library Science (library)
3. Study
4. Administration or Supervision
5. Consultation
6. Preparation and Guidance
7. Time at different school or part-time
8. Special Assignment (publications)
9. Drivers' Training

N. Miscellaneous

1. Check absences (attendance)
2. Office
3. Lunch duty
4. Student council
5. Nurses aide
6. Photography
7. Senior review (fundamentals)
8. Co-ordinator
9. Core curriculum

APPENDIX B

Sample Code Sheet

12901	6A1	1M5		
12902	6D1	1M5		
12903	4B2	2M6	1M5	
12904	3C1	2C4	1C2	1M5
12905	2C1	3C2	1J1	1M5
12906	6F1	1M5		
12907	6G1	1M5		
12908	7M3			
12909	5A1	1A4	1M5	
12910	1B2	5B5	1M5	
12911	1B2	5D5	1M5	
12912	6H3	1M5		
12913	6L1	1M5		
12914	6K1	1M5		
12915	2A7	3J1	1J2	1M5
12916	2A7	3J1	2M5	
12917	6C2	1M5		
12918	1A7	5A8	1M5	
12919	5B1	1B2	1M5	
12920	5A1	1F1	1M5	
12921	1D1	5D4	1M5	
12922	5A2	1M5	1N1	
12923	6A1	1M5		
12924	5C2	1M5	1M8	
12925	2K2	5M7		