AN EVALUATION OF CERTAIN HIGH SCHOOL SUBJECT-MATTER GROUPS IN TERMS OF THEIR CONTRIBUTIONS TO THE SEVEN OBJECTIVES OF SECONDARY EDUCATION

Based upon a study of selected high schools
in Washington, Oregon, and California

Submitted to

OREGON STATE AGRICULTURAL COLLEGE

In partial fulfillment of the
requirements for the
Degree of

MASTER OF SCIENCE

by

LEONARD A. MOORE

APPROVED:

Redacted for privacy

Professor of Industrial Education
In Charge of Major

Redacted for privacy

Chairman of the Committee on
Graduate Study

ACKNOWLEDGMENT

To the superintendents, principals, and teachers who cooperated in the study by giving so freely of their time in response to the questionnaire and to the seniors and graduate students of Oregon State College and the University of Oregon, who likewise responded to the questionnaire, the writer wishes to express his sincere acknowledgment and appreciation.

To Dr. R. J. Clinton, Associate Professor of Education, Oregon State College, the author is indebted for the many helpful suggestions and untiring assistance throughout the preparation of this manuscript.

To Professor George B. Cox, Head of the Department of Industrial Arts Education, Oregon State College, the writer wishes to extend his sincere thanks and appreciation for the many helpful suggestions and valuable information.

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INTRODUCTION

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INTRODUCTION

Statement of the Problem. Much has been written and said concerning the objectives of secondary education. It is recognized that there should be a definite and valid reason for every subject taught in an educational system. Various lists of objectives have been compiled by individuals, educational groups, and the several state and national education associations. No list has as yet been accepted as a national standard, but the list agreed upon by the "Commission on the Reorganization of Secondary Education", appointed by the National Education Association, is the closest approach to a nationally accepted standard.

The objectives listed by the Commission, and commonly referred to as the "Seven Cardinal Objectives of Secondary Education", are: Citizenship, Health, Vocation, Worthy Use of Leisure Time, Worthy Home Membership, Command of the Fundamental Processes, and Ethical Character.[1]

The ultimate aim of this thesis is to determine if possible, the comparative value of the various high school subject-matter groups as determined by ratings assigned by teachers, designed to show the probable contribution of these subjects to the seven objectives of secondary education.

Research on the part of the writer has shown a similar study to have been conducted at Little Rock,

1. Cardinal Principles of Secondary Education, U. S. Bureau of Education, Bulletin No. 35, 1918.

Arkansas. The Superintendent of the Little Rock Public Schools, having realized the possible value of such a study, called to his assistance Dr. James Ralph Jewell, then Dean of Education at the University of Arkansas, who conducted a limited survey among the teachers of the Little Rock school system. The tabular results of the Little Rock survey will be found in Appendix I.

Purpose of the Study. Since the only survey of this nature was quite limited in extent, and since even that study has not been made available in published form, it is the conviction of the writer that the problem is a worthwhile one for further investigation. From a survey of wider scope, including both experienced teachers of high school subjects and teachers in training, this thesis will attempt to further evaluate the contributions made by the various subject-matter groups to the seven objectives of secondary education. The experienced teachers cooperating in the survey were employed in representative schools scattered throughout Washington, Oregon, and California. The teachers in training were selected from graduate and senior students enrolled in the Schools of Education at Oregon State College and the University of Oregon.

It is hoped that a study of this nature will be an aid to curriculum makers. The necessity for valid reasons

for each subject is rapidly becoming the dominating factor in curriculum construction. If this study should assist any school administrator in making a more valid decision with reference to the probable importance of the various high school subject-matter groups, the writer shall consider these efforts well worthwhile.

Limitations of the Problem. This investigation is confined to the three western states; California, Oregon, and Washington. The data were collected by the questionnaire method from college seniors and graduate students in teacher-training curricula, and from employed high school teachers. Comparisons were made between the ratings assigned by college students and those made by experienced teachers to determine any relationship or differences that might exist between the ideals and objectives of the experienced and the inexperienced teaching groups. It is realized that such a study may show the relationship between the theory that college training gives and the viewpoint obtained from teaching experience.

All conclusions are directly related to the data obtained.

Method of Procedure. To obtain a fair cross-section of the school system in each of the three western states used in this study, schools were selected from communities varying in size and geographical location. A list of the

schools selected will be found on page 9.

A letter and the correct number of questionnaires, copies of which will be found on pages 7-8 were sent to the superintendents of the schools in the towns and cities selected. The questionnaires were distributed by the superintendent, a copy for each high school teacher.

The subject-matter groups were arranged vertically on the questionnaire and the seven objectives of secondary education were arranged horizontally. The teachers were given the following instructions: "On the basis of a possible 100 per cent contribution of each subject to each of the seven objectives of secondary education, please indicate your estimate of the actual contributions made by each subject." Each teacher rated each of the nine subject-matter fields which appeared on the questionnaire.

In addition to these ratings the persons responding were asked to check the number of years of teaching experience and the type of institution where they had received their teacher-training. The data of the study will be treated according to the amount of experience and the type of institution where the teachers were trained.

These questionnaires were rated by the teachers and returned to the writer by the superintendent to whom they had been sent. By this method ratings were obtained from

748 persons, 653 of whom were experienced teachers and 95 had had no teaching experience.

Replies to the questionnaires were arranged and ratings averaged, so as to show the results by various major groupings as indicated in the following chapter.

CHAPTER II

COLLECTION AND INTERPRETATION OF DATA

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COLLECTION AND INTERPRETATION OF DATA

As stated in the preceding chapter, this study is confined to the three West Coast states. Representative schools were selected as to geographical location and size of school systems. The questionnaires were sent in groups to the superintendents, who distributed them to the corps of teachers. After the questionnaires were rated they were returned to the sender by the superintendent. Accompanying the questionnaires was a letter to each superintendent stating the problem and asking his cooperation in the study. A copy of the questionnaire and of the letter of transmittal are shown on the following pages.

Table I, following the copy of the questionnaires, shows the number of schools contacted in each of the three states used in this study, the number of questionnaires sent to each school, and the number returned from each school. The totals are given for the number of questionnaires distributed in each state as well as the number returned from each state. The grand total shows the entire number of questionnaires sent out and the number of replies received.

OREGON STATE AGRICULTURAL COLLEGE
School of Education
Corvallis

Department of Industrial Education

April 11, 1932

Dear Sir:

It has occurred to us that a composite rating of the contribution made by each subject-matter group of the high school curriculum to the commonly accepted objectives of secondary education might be of interest and value to school administrators. It is proposed, therefore, to secure such a rating, basing the composite report upon the evaluation of a large number of active teachers in the field of secondary education.

It is our plan to have each teacher, supervisor, and school administrator participating in the study, make a simple rating of the possible contribution of each subject-matter group in the curriculum, to each of the seven objectives of secondary education. The form devised for this rating will require only a few minutes of a teacher's time, and we believe it will result in a worthwhile contribution to the field of secondary education. We shall appreciate your cooperation if you are interested to the extent of asking your teachers to make conscientious ratings on the forms enclosed. We suggest that you distribute the questionnaires to the teachers, asking that they return them to your office so that they can be returned to us in a group at the earliest opportunity. A self-addressed, stamped envelope is enclosed for your convenience.

Since we believe superintendents in general will be interested in this study, it is our purpose to find some means of making the results public. It is our desire to complete the study before the end of the present school year. We shall, therefore, appreciate your willingness to assist in the study and to return the questionnaires as promptly as possible.

Very truly yours,

L. A. Moore, Tabulator

Approved:

G. B. Cox, Professor of
Industrial Education

PURPOSE OF THE QUESTIONNAIRE

To determine the extent to which each of the different high school subjects contribute to the seven objectives of education.

To the teachers: We would like your cooperation in a study of the value of each subject in the high school curriculum in terms of its contribution to the general objectives of secondary education.

Directions for scoring: On the basis of a possible 100% contribution of each subject to each of the seven objectives of secondary education, please indicate your estimate of the actual contributions made by each subject. Score each subject listed.

Note: A sample rating is given below as a means of illustrating what is desired. The percentages given should not be allowed to influence your evaluation of the contributions of any subject to the various objectives.

SUBJECT-MATTER GROUP	OBJECTIVES						
	Citizenship	Health	Vocation	Worthy Use of Leisure Time	Worthy Home Membership	Command of the Fundamental Processes	Ethical Character
Biological Science	69	99	57	63	25	30	78
Biological Science							
English							
Home Economics							
Industrial Arts							
Latin							
Mathematics							
Modern Languages							
Physical Science							
Social Science							

Name_____ High School_____

Major work taught_____ Address_____

Number of years of experience in high school teaching____

Check the type of institution at which you received your training as a teacher.

1. Normal School.....
2. State Teachers' College.....
3. University or Liberal Arts.....
4. Technical School.....
   (Land Grant or State College)

TABLE I Sheet 1

City School System	No. of questionnaires sent	No. of questionnaires returned
	CALIFORNIA	
Alameda	95	50
Anaheim	49	42
Bakersfield	121	92
Brawley	39	00
Burbank	36	00
Chico	41	00
Colton	21	10
Eureka	35	00
Fortuna	23	11
Lodi	41	00
Los Banos	19	00
Redwood City	53	00
Salinas	38	00
Ukiah	18	9
Yuba City	23	6
Total for California	652	220
	OREGON	
Albany	25	00
Astoria	25	19
Baker	23	11
Benson Polytechnic	78	46
Canby	10	00
Corvallis	25	17
Dallas	18	12
Klamath Falls	34	7
La Grande	24	20
Marshfield	25	00
McMinnville	15	00
Milwaukie	25	18
North Bend	15	13
Oregon City	20	00
Pendleton	24	19
Roseburg	25	13
Salem	57	00
Silverton	19	11
Tillamook	15	9
Washington High School (Portland)	72	32
Total for Oregon	574	247

TABLE I Sheet 2

	WASHINGTON	
Aberdeen	38	31
Auburn	26	14
Bellingham	30	18
Bothel	11	00
Bremerton	30	8
Burlington	13	00
Cashmere	13	10
Centralia	37	26
Chehalis	22	5
Colville	14	7
Dayton	12	10
Ellensburg	19	00
Everett	54	00
Hoquiam	24	17
Kelso	19	13
Longview	29	19
Mount Vernon	25	13
Olympia	46	19
Port Angeles	29	19
Ritzville	17	6
West Valley	18	14
Yakima	44	32
Total for Wash.	570	281
Grand Total	1796	748

CLASSIFICATION OF DATA

The data furnished by the questionnaires returned were classified and arranged into four groups of tables, each based upon the presentation or comparison of certain factors bearing on the study. These tables are grouped as follows:

TABLE II--1 sheet

Average rating by the entire group of teachers reporting, showing the contribution claimed for each subject-matter division named in the questionnaire to each of the seven objectives of secondary education.

TABLE III--9 sheets

Average ratings arranged with reference to the subject-matter being taught by those responding. In this table it is possible to find the average rating assigned by any of the thirteen groups of teachers, to any of the nine subject-matter divisions, for any of the seven objectives.

TABLE IV--9 sheets

Average ratings grouped with reference to the type of teacher-training institution in which the persons responding had received their training:

1. Normal School
2. State Teachers' Colleges
3. Universities or Liberal Arts Schools
4. Technical Schools (Land Grant or State College)

TABLE V--9 sheets

Average ratings grouped with reference to the number of years teaching experience of the persons reporting, arranged in four groups as follows:

1. No teaching experience (college seniors registered in teacher-training curricula)
2. One to five years teaching experience
3. Six to ten years teaching experience
4. Over ten years teaching experience

The ratings are all given in per cent, with one hundred per cent as the maximum possible contribution of each subject to each objective. The various tables as outlined above, follow immediately.

TABLE II

SHOWING AVERAGE RATINGS BY ALL TEACHERS

Number of Teachers Rating	Citizen-ship	Health	Vocation	Worthy Use of Leisure Time	Worthy Home Membership	Command of Fundamental Processes	Ethical Character
BIOLOGICAL SCIENCE							
748	52.2	81.5	51.5	52.4	49.2	39.5	50.5
LATIN							
748	24.4	13.4	31.6	30.6	17.2	45.7	28.7
MODERN LANGUAGE							
748	41.8	17.9	45.1	51.3	30.9	46.9	35.4
SOCIAL SCIENCE							
748	84.4	45.2	52.9	55.9	65.1	38.5	70.2
HOME ECONOMICS							
748	60.2	78.2	70.0	61.6	86.1	40.5	55.9
PHYSICAL SCIENCE							
748	52.6	59.6	53.4	58.6	51.1	43.4	54.2
INDUSTRIAL ARTS							
748	53.3	34.9	79.8	70.8	64.0	45.2	39.4
ENGLISH							
748	68.3	28.4	68.0	78.7	61.9	72.2	62.6
MATHEMATICS							
748	35.5	17.4	61.6	31.4	33.5	71.5	30.4

Table III consists of nine separate tables, one for each of the subjects as listed on the questionnaire. The teachers were grouped as to subject-matter teaching and the ratings are the average per cent contribution of that particular subject to each of the seven objectives.

TABLE III - Sheet 1

BIOLOGICAL SCIENCE RATINGS

Subject-matter Groups	Number of Ratings	Citizen-ship	Health	Vocations	Worthy Use of Leisure	Worthy Home Member-ship	Fundamental Processes	Ethical Character
Agriculture	14	48.2	76.0	55.0	56.6	45.3	41.0	53.3
Biological Science	42	62.3	88.6	57.8	67.7	54.9	41.1	34.6
Commerce	64	50.8	71.0	47.1	46.6	40.8	34.0	52.9
English	139	59.9	85.5	52.8	51.4	49.1	40.0	56.0
Home Economics	40	57.9	86.7	52.9	50.0	50.0	39.1	55.9
Industrial Arts	82	52.4	79.8	46.1	52.3	46.0	43.7	47.3
Latin	20	53.6	83.7	51.8	52.1	49.7	37.8	60.2
Mathematics	93	51.8	80.1	51.1	51.7	48.6	34.7	54.6
Modern Language	37	51.1	80.4	43.7	44.8	50.0	37.3	54.0
Music and Art	29	52.0	81.6	52.2	52.3	50.9	44.4	25.5
Physical Education	44	47.1	81.5	51.6	47.7	47.9	42.0	64.1
Physical Science	37	59.8	81.4	60.1	60.8	55.0	43.0	51.2
Social Science	108	47.3	82.9	47.8	47.6	52.8	36.2	48.5

TABLE III - Sheet 2

ENGLISH RATINGS

Subject-matter Groups	Number of Ratings	Citizen-ship	Health	Vocations	Worthy Use of Leisure	Worthy Home Member-ship	Fundamental Processes	Ethical Character
Agriculture	15	55.7	23.6	62.6	72.0	58.0	73.0	57.3
Biological Science	39	59.9	29.3	64.7	73.2	57.7	73.2	62.7
Commerce	63	61.4	31.4	60.7	78.3	58.2	72.1	63.6
English	135	78.2	41.3	79.7	95.4	74.3	82.0	81.4
Home Economics	40	69.2	33.7	74.0	86.2	68.0	83.7	64.8
Industrial Arts	83	65.8	28.7	65.5	69.5	57.5	68.2	57.0
Latin	18	64.1	24.7	74.4	88.2	62.6	74.0	71.2
Mathematics	95	64.4	36.3	72.1	81.4	60.9	72.3	60.5
Modern Language	36	64.7	28.0	69.6	81.1	62.0	69.2	62.8
Music and Art	29	69.0	37.3	71.3	78.9	66.0	69.5	60.8
Physical Education	44	25.8	23.4	62.7	70.7	54.0	63.9	52.9
Physical Science	36	61.5	27.3	60.1	77.2	55.8	67.7	63.2
Social Science	109	65.4	26.2	63.4	80.5	61.5	72.6	63.6

TABLE III - Sheet 3

HOME ECONOMICS RATINGS

Subject-matter Groups	Number of Ratings	Citizen-ship	Health	Vocations	Worthy Use of Leisure	Worthy Home Member-ship	Fundamental Processes	Ethical Character
Agriculture	15	69.5	76.3	79.0	63.0	85.3	38.6	48.3
Biological Science	40	55.9	77.6	77.6	66.5	86.8	39.1	49.9
Commerce	64	55.2	75.5	65.9	58.2	83.5	34.6	48.1
English	141	61.0	78.2	69.7	60.4	88.0	42.0	45.2
Home Economics	44	80.2	88.9	84.7	84.8	94.9	54.2	79.7
Industrial Arts	83	76.9	69.9	69.8	65.3	79.7	48.5	48.6
Latin	19	52.7	78.5	65.1	60.0	81.7	30.7	40.8
Mathematics	95	57.3	76.2	69.7	62.0	85.8	35.9	48.3
Modern Language	36	53.1	73.7	60.7	56.7	78.7	35.5	43.9
Music and Art	29	64.6	80.5	72.9	68.7	89.6	42.4	53.3
Physical Education	43	53.0	70.8	71.8	60.5	87.7	40.3	49.2
Physical Science	37	53.2	74.4	63.3	56.9	80.0	36.1	48.5
Social Science	109	53.0	76.9	69.9	57.1	72.8	37.3	46.7

TABLE III - Sheet 4

INDUSTRIAL ARTS RATINGS

Subject-matter Groups	Number of Ratings	Citizen-ship	Health	Vocations	Worthy Use of Leisure	Worthy Home Member-ship	Fundamental Processes	Ethical Character
Agriculture	15	54.6	42.3	78.3	72.0	55.0	51.0	43.0
Biological Science	39	50.8	31.8	83.4	74.8	64.0	43.9	43.2
Commerce	64	49.8	29.0	82.5	66.8	62.0	39.4	33.5
English	140	54.6	31.0	79.0	71.4	65.5	45.8	39.6
Home Economics	40	59.5	35.5	86.1	80.4	66.7	49.3	48.9
Industrial Arts	85	68.1	50.1	81.7	78.1	69.3	65.1	51.8
Latin	19	47.1	28.1	74.6	72.1	66.7	39.7	34.4
Mathematics	94	52.8	36.1	80.0	70.3	66.6	41.6	38.0
Modern Language	36	46.2	25.6	77.9	62.1	58.2	35.3	33.3
Music and Art	29	60.1	42.3	83.1	82.1	73.4	72.5	38.6
Physical Education	43	45.9	24.2	80.7	66.1	56.3	40.8	37.4
Physical Science	36	52.5	34.8	79.8	69.6	58.4	38.9	38.8
Social Science	107	46.2	32.5	80.3	67.4	62.0	43.1	36.4

TABLE III - Sheet 5

LATIN RATINGS

Subject-matter Groups	Number of Ratings	Citizen-ship	Health	Vocations	Worthy Use of Leisure	Worthy Home Member-ship	Fundamental Processes	Ethical Character
Agriculture	14	15.7	9.2	25.0	17.5	11.0	30.3	15.0
Biological Science	38	25.6	12.4	25.9	28.5	15.5	49.4	32.8
Commerce	59	27.7	13.9	31.7	29.3	18.3	41.2	31.3
English	136	29.1	13.6	35.1	32.7	19.5	48.9	28.2
Home Economics	38	28.8	14.1	30.3	12.8	17.3	54.4	27.5
Industrial Arts	75	26.4	25.6	19.5	29.0	29.0	16.5	20.9
Latin	20	41.8	14.2	49.6	59.2	37.6	73.4	58.3
Mathematics	92	31.9	18.2	36.0	35.9	21.0	46.1	30.0
Modern Language	38	40.0	16.3	38.7	40.2	30.3	69.1	42.9
Music and Art	28	31.5	12.0	34.6	30.7	17.3	51.7	34.4
Physical Education	41	23.4	9.1	27.3	18.2	17.3	34.8	23.8
Physical Science	35	34.2	17.0	31.2	34.0	18.0	43.3	33.9
Social Science	108	22.4	10.2	27.3	26.0	15.9	43.3	22.6

TABLE III - Sheet 6

MATHEMATICS RATINGS

Subject-matter Groups	Number of Ratings	Citizen-ship	Health	Vocations	Worthy Use of Leisure	Worthy Home Member-ship	Fundamental Processes	Ethical Character
Agriculture	15	31.0	14.6	48.3	22.6	21.0	67.0	28.6
Biological Science	40	33.0	21.6	59.3	64.7	33.3	69.5	32.9
Commerce	64	29.1	14.3	53.2	25.9	28.5	68.1	28.3
English	140	49.3	16.2	61.4	26.3	32.3	70.8	25.4
Home Economics	40	32.2	17.3	64.5	26.8	26.0	74.8	28.9
Industrial Arts	82	40.8	24.2	64.5	38.4	34.3	70.2	32.7
Latin	20	23.5	12.0	62.2	26.0	24.2	76.0	30.7
Mathematics	97	43.0	23.6	70.2	43.7	44.1	80.3	43.5
Modern Language	36	33.2	14.8	59.7	28.5	32.7	71.2	26.8
Music and Art	29	35.9	19.6	56.0	29.6	31.0	76.7	35.3
Physical Education	43	27.3	12.5	57.4	28.4	29.1	50.5	26.6
Physical Science	36	39.3	17.6	67.8	37.5	33.1	78.7	39.0
Social Science	108	24.1	14.1	44.0	29.2	28.1	70.1	24.7

TABLE III - Sheet 7

MODERN LANGUAGE RATINGS

Subject-matter Groups	Number of Ratings	Citizen-ship	Health	Vocations	Worthy Use of Leisure	Worthy Home Member-ship	Fundamental Processes	Ethical Character
Agriculture	15	29.3	13.1	32.8	32.4	18.0	33.0	25.4
Biological Science	39	41.1	18.2	34.7	52.6	31.6	47.7	35.7
Commerce	63	42.3	15.7	39.0	50.6	28.6	43.1	36.6
English	137	44.5	14.6	47.0	55.7	30.7	46.0	34.3
Home Economics	39	36.8	16.3	45.3	92.7	26.1	57.1	36.0
Industrial Arts	82	40.9	19.2	40.4	45.1	30.9	39.5	36.1
Latin	20	47.5	17.9	50.0	71.7	37.7	63.0	53.5
Mathematics	94	40.5	21.6	45.4	50.5	30.0	38.6	33.2
Modern Language	40	59.8	21.3	51.2	64.9	41.6	66.9	50.5
Music and Art	29	42.8	17.3	46.8	52.3	26.8	49.2	40.4
Physical Education	44	45.8	12.8	43.5	43.8	29.4	42.0	33.4
Physical Science	35	41.1	17.1	39.9	55.0	28.2	42.1	35.6
Social Science	108	34.1	12.5	40.7	45.7	26.7	43.2	30.3

TABLE III - Sheet 8

PHYSICAL SCIENCE RATINGS

Subject-matter Groups	Number of Ratings	Citizen-ship	Health	Vocations	Worthy Use of Leisure	Worthy Home Member-ship	Fundamental Processes	Ethical Character
Agriculture	15	51.0	63.6	49.0	66.0	50.3	43.3	43.3
Biological Science	40	55.6	56.7	60.6	60.6	54.0	44.2	44.0
Commerce	65	56.5	60.1	49.6	57.8	52.9	35.3	46.2
English	136	54.6	60.4	53.0	51.6	50.7	45.2	43.8
Home Economics	40	57.7	67.9	54.8	63.3	53.9	45.2	45.2
Industrial Arts	82	56.5	63.0	49.7	58.8	51.2	44.9	47.2
Latin	19	47.8	57.6	45.5	57.6	53.4	37.6	46.4
Mathematics	93	52.0	61.1	44.6	57.1	56.1	42.0	43.9
Modern Language	36	47.7	60.1	51.5	53.4	46.9	44.6	39.2
Music and Art	29	56.2	66.0	56.3	62.3	52.2	43.7	47.4
Physical Education	45	50.9	60.1	49.4	55.8	55.7	39.5	86.0
Physical Science	38	55.0	54.9	64.3	64.2	57.6	61.3	47.2
Social Science	108	51.0	62.3	54.7	54.4	50.1	40.7	40.8

TABLE III - Sheet 9

SOCIAL SCIENCE RATINGS

Subject-matter Groups	Number of Ratings	Citizen-ship	Health	Vocations	Worthy Use of Leisure	Worthy Home Member-ship	Fundamental Processes	Ethical Character
Agriculture	15	83.2	40.6	41.7	53.3	67.6	39.0	65.3
Biological Science	40	83.7	47.0	44.5	52.8	63.1	41.4	72.4
Commerce	65	83.7	40.2	44.9	54.3	63.0	35.0	66.9
English	141	86.4	46.7	56.5	57.2	75.2	40.0	76.2
Home Economics	41	87.9	50.9	55.8	58.2	67.7	46.3	68.8
Industrial Arts	83	71.5	54.2	52.1	58.7	67.6	42.6	68.6
Latin	19	88.4	45.0	56.3	56.3	65.7	40.1	74.1
Mathematics	95	83.9	47.1	51.5	56.8	63.6	34.6	66.1
Modern Language	36	85.1	37.9	46.4	48.5	59.3	38.1	67.2
Music and Art	29	87.6	46.1	53.1	55.3	63.1	45.6	60.0
Physical Education	44	82.0	40.5	46.2	50.5	59.5	35.6	65.4
Physical Science	36	83.9	49.1	53.0	57.1	64.8	36.2	64.6
Social Science	114	94.1	41.0	50.0	59.6	66.9	69.1	71.9

TABLE IV - Sheet 1

BIOLOGICAL SCIENCE RATINGS

Teacher Group by Type of Training	Number of Ratings	Citizen-ship	Health	Vocations	Worthy Use of Leisure	Worthy Home Member-ship	Fundamental Processes	Ethical Character
Technical or Land Grant College	202	57.3	84.6	55.3	56.7	53.4	44.1	58.4
State Teachers College	69	48.9	78.8	47.2	49.8	45.1	47.4	46.0
Liberal Arts School	410	52.6	83.0	50.4	51.4	49.0	38.6	51.2
State Normal	80	55.1	81.3	49.0	44.6	45.0	33.2	53.3

TABLE IV - Sheet 2

ENGLISH RATINGS

Teacher Group by Type of Training	Number of Ratings	Citizen-ship	Health	Vocations	Worthy Use of Leisure	Worthy Home Member-ship	Fundamental Processes	Ethical Character
Technical or Land Grant College	203	71.8	31.0	66.7	79.7	65.5	80.9	65.6
State Teachers College	70	66.6	24.8	64.9	81.0	62.3	72.9	58.2
Liberal Arts College	415	65.7	30.0	68.6	81.1	62.0	93.4	62.9
State Normal	81	64.7	29.2	66.1	78.1	61.3	70.5	64.7

TABLE IV - Sheet 3

HOME ECONOMICS RATINGS

Teacher Group by Type of Training	Number of Ratings	Citizen-ship	Health	Vocations	Worthy Use of Leisure	Worthy Home Member-ship	Fundamental Processes	Ethical Character
Technical or Land Grant College	205	70.0	86.0	79.4	69.5	91.2	47.4	60.5
State Teachers College	73	62.8	76.8	68.6	60.9	84.0	54.5	42.9
Liberal Arts College	410	56.3	76.9	68.8	60.7	84.9	37.8	47.7
State Normal	75	56.1	83.7	66.3	68.0	85.6	38.9	47.7

TABLE IV - Sheet 4

INDUSTRIAL ARTS RATINGS

Teacher Group by Type of Training	Number of Ratings	Citizen-ship	Health	Vocations	Worthy Use of Leisure	Worthy Home Member-ship	Fundamental Processes	Ethical Character
Technical or Land Grant College	202	61.0	40.3	89.2	79.0	75.0	53.6	47.7
State Teachers College	70	57.4	39.3	82.1	71.7	64.6	51.2	43.1
Liberal Arts College	400	50.5	32.2	79.7	69.4	62.5	42.4	39.0
State Normal	80	47.4	28.0	75.5	68.3	62.1	43.2	42.1

TABLE IV - Sheet 5

LATIN RATINGS

Teacher Group by Type of Training	Number of Ratings	Citizen-ship	Health	Vocations	Worthy Use of Leisure	Worthy Home Member-ship	Fundamental Processes	Ethical Character
Technical or Land Grant College	190	27.6	14.8	31.3	29.2	19.3	44.4	31.5
State Teachers College	66	24.0	13.5	30.7	30.9	16.0	45.9	25.3
Liberal Arts College	387	29.8	14.5	34.3	31.2	20.9	50.1	31.1
State Normal	73	30.2	15.7	29.9	30.9	19.2	43.2	27.5

TABLE IV - Sheet 6

MATHEMATICS RATINGS

Teacher Group by Type of Training	Number of Ratings	Citizen-ship	Health	Vocations	Worthy Use of Leisure	Worthy Home Member-ship	Fundamental Processes	Ethical Character
Technical or Land Grant College	200	37.8	20.8	64.4	35.5	36.9	76.5	34.8
State Teachers College	70	31.9	18.1	62.4	32.7	29.0	70.4	29.4
Liberal Arts College	412	31.9	16.7	60.4	30.4	33.1	73.3	32.9
State Normal	78	34.0	17.7	58.4	27.4	31.3	68.0	30.6

TABLE IV - Sheet 7

MODERN LANGUAGE RATINGS

Teacher Group by Type of Training	Number of Ratings	Citizen-ship	Health	Vocations	Worthy Use of Leisure	Worthy Home Member-ship	Fundamental Processes	Ethical Character
Technical or Land Grant College	201	44.9	23.6	44.9	51.4	33.3	50.0	42.2
State Teachers College	69	41.3	17.6	44.5	48.6	29.0	44.3	32.6
Liberal Arts College	406	44.0	16.5	44.2	52.1	30.3	48.9	35.2
State Normal	74	40.8	17.3	45.6	49.8	28.4	38.7	33.2

TABLE IV - Sheet 8

PHYSICAL SCIENCE RATINGS

Teacher Group by Type of Training	Number of Ratings	Citizen-ship	Health	Vocations	Worthy Use of Leisure	Worthy Home Member-ship	Fundamental Processes	Ethical Character
Technical or Land Grant College	204	58.3	61.5	57.5	64.4	58.6	44.9	51.5
State Teachers College	70	51.6	63.0	51.7	53.8	47.7	39.7	41.1
Liberal Arts College	408	49.7	58.5	53.6	55.0	52.4	45.5	43.5
State Normal	77	53.7	59.8	46.5	50.1	54.4	40.8	44.8

TABLE IV - Sheet 9

SOCIAL SCIENCE RATINGS

Teacher Group by Type of Training	Number of Ratings	Citizen-ship	Health	Vocations	Worthy Use of Leisure	Worthy Home Member-ship	Fundamental Processes	Ethical Character
Technical or Land Grant College	206	86.8	51.4	52.1	58.2	74.1	41.2	76.1
State Teachers College	71	84.8	47.9	48.2	43.3	50.4	39.4	67.0
Liberal Arts College	413	84.9	44.4	50.1	56.3	65.2	39.0	68.4
State Normal	82	84.9	41.1	50.9	51.5	60.5	35.1	66.5

TABLE V - Sheet 1

BIOLOGICAL SCIENCE RATINGS

Teacher Group by Years of Experience	Number of Ratings	Citizen-ship	Health	Vocations	Worthy Use of Leisure	Worthy Home Member-ship	Fundamental Processes	Ethical Character
No Experience	95	52.5	84.0	54.2	51.8	51.5	39.9	50.4
1 to 5 yrs. (inc.)	230	51.5	81.9	48.9	50.1	47.3	37.2	50.6
6 to 10 yrs. (inc.)	197	54.1	79.8	48.0	50.3	50.1	39.0	53.4
Over 10 years	212	50.6	80.4	49.9	52.6	50.7	40.0	52.9

TABLE V - Sheet 2

ENGLISH RATINGS

Teacher Group by Years of Experience	Number of Ratings	Citizen-ship	Health	Vocations	Worthy Use of Leisure	Worthy Home Member-ship	Fundamental Processes	Ethical Character
No Experience	96	75.4	28.6	68.5	75.0	60.4	77.4	57.3
1 to 5 yrs. (inc.)	233	64.1	26.0	66.5	79.9	62.3	67.0	63.4
6 to 10 yrs. (inc.)	196	65.8	27.3	67.7	81.2	63.2	72.8	64.0
Over 10 years	210	67.9	31.6	69.3	78.6	63.8	71.7	65.6

TABLE V - Sheet 3

HOME ECONOMICS RATINGS

Teacher Group by Years of Experience	Number of Ratings	Citizen-ship	Health	Vocations	Worthy Use of Leisure	Worthy Home Member-ship	Fundamental Processes	Ethical Character
No Experience	95	55.1	75.9	68.2	56.9	86.4	38.7	71.5
1 to 5 yrs. (inc.)	231	58.8	78.9	69.9	63.6	86.9	37.4	49.3
6 to 10 yrs. (inc.)	197	61.9	78.6	72.4	61.4	86.5	43.2	51.5
Over 10 years	210	65.0	79.6	69.5	64.4	84.5	42.5	51.3

TABLE V - Sheet 4

INDUSTRIAL ARTS RATINGS

Teacher Group by Years of Experience	Number of Ratings	Citizen-ship	Health	Vocations	Worthy Use of Leisure	Worthy Home Member-ship	Fundamental Processes	Ethical Character
No Experience	94	51.4	37.4	77.9	67.0	63.0	45.3	37.6
1 to 5 yrs. (inc.)	231	49.6	32.5	80.6	72.8	64.5	41.9	37.6
6 to 10 yrs. (inc.)	197	57.2	32.8	79.5	70.3	63.7	44.3	40.0
Over 10 years	208	55.2	36.8	81.4	72.9	64.8	49.3	42.5

TABLE V - Sheet 5

LATIN RATINGS

Teacher Group by Years of Experience	Number of Ratings	Citizen-ship	Health	Vocations	Worthy Use of Leisure	Worthy Home Member-ship	Fundamental Processes	Ethical Character
No Experience	93	27.1	13.1	31.8	30.9	22.4	41.5	25.5
1 to 5 yrs. (inc.)	221	12.4	12.4	30.8	29.7	17.8	47.1	31.0
6 to 10 yrs. (inc.)	190	26.8	11.9	28.9	25.7	16.2	44.3	26.0
Over 10 years	206	31.4	16.1	35.1	36.0	22.5	49.8	32.3

TABLE V - Sheet 6

MATHEMATICS RATINGS

Teacher Group by Years of Experience	Number of Ratings	Citizen-ship	Health	Vocations	Worthy Use of Leisure	Worthy Home Member-ship	Fundamental Processes	Ethical Character
No Experience	95	31.7	19.5	60.6	33.1	35.2	68.9	25.1
1 to 5 yrs. (inc.)	233	31.9	16.0	59.3	29.9	31.1	72.7	30.4
6 to 10 yrs. (inc.)	195	30.7	14.6	61.1	29.2	33.0	69.9	30.4
Over 10 years	208	37.8	19.6	65.3	33.3	34.9	74.5	35.6

TABLE V - Sheet 7

MODERN LANGUAGE RATINGS

Teacher Group by Years of Experience	Number of Ratings	Citizen-ship	Health	Vocations	Worthy Use of Leisure	Worthy Home Member-ship	Fundamental Processes	Ethical Character
No Experience	94	43.6	17.0	44.9	52.3	35.2	47.1	33.9
1 to 5 yrs. (inc.)	230	40.5	15.9	43.4	52.0	28.7	45.8	35.5
6 to 10 yrs. (inc.)	197	40.7	15.9	47.0	46.4	27.1	46.2	33.8
Over 10 years	211	42.5	22.7	45.3	54.4	52.8	48.8	38.6

TABLE V - Sheet 8

PHYSICAL SCIENCE RATINGS

Teacher Group by Years of Experience	Number of Ratings	Citizen-ship	Health	Vocations	Worthy Use of Leisure	Worthy Home Member-ship	Fundamental Processes	Ethical Character
No Experience	95	53.5	59.6	55.9	57.6	53.2	40.7	44.8
1 to 5 yrs. (inc.)	231	53.0	64.0	50.8	58.0	47.1	42.5	44.9
6 to 10 yrs. (inc.)	197	52.1	52.1	53.4	56.9	50.7	43.2	43.1
Over 10 years	208	51.8	62.9	53.6	61.8	53.2	47.1	44.2

TABLE V - Sheet 9

SOCIAL SCIENCE RATINGS

Teacher Group by Years of Experience	Number of Ratings	Citizen-ship	Health	Vocations	Worthy Use of Leisure	Worthy Home Member-ship	Fundamental Processes	Ethical Character
No Experience	96	83.1	45.7	51.1	53.4	63.3	34.6	71.5
1 to 5 yrs. (inc.)	233	86.2	41.9	51.7	51.9	66.6	36.3	69.3
5 to 10 yrs. (inc.)	199	84.2	43.7	56.4	58.3	63.1	40.9	67.4
Over 10 years	209	84.1	49.8	52.5	60.3	67.3	42.3	72.9

CHAPTER III

SUMMARY AND CONCLUSIONS

CHAPTER III

SUMMARY AND CONCLUSIONS

Of the 1796 questionnaires sent to the 57 schools in California, Oregon, and Washington, 748 were rated and returned. This represents a total return of 41.6 per cent on the questionnaires, from 63.1 per cent of the schools contacted. The writer believes that this provides sufficient data from which to make a fair evaluation of the importance of those high school subjects listed, with reference to the seven objectives of secondary education. A further study along the same lines, embracing a larger cross-section of the United States, might improve upon the validity of this work in the same manner that it is assumed the present study (in the three West Coast states) has improved upon the validity of the original study at Little Rock, Arkansas.[1]

It is assumed in evaluating the high school subjects listed on the questionnaire that the ratings collected are the honest opinions of the teachers solicited. All evaluations and comparisons have been made with this assumption as a basis.

From Table II, the rating of 13.4 per cent for the

1. Jewell, J. R. - An unpublished study conducted at Little Rock, Arkansas, in cooperation with the University of Arkansas, 1926.

contribution of Latin to the objective Health is the lowest rating recorded in this study. Also the 26.6 per cent, Table X, as the total average contribution of Latin to all the objectives is the lowest of any subject listed.

From Table II it is noticed that the contribution of Home Economics to the objective Worthy Home Membership is the highest rating scored in this study, and from Table X it will be found that Home Economics also leads with the highest total average contribution to all of the objectives with 64.7.

EFFECT OF TEACHER-TRAINING SCHOOLS

Table VI was compiled to show the effect, if any, that the type of teacher-training institution may have on the evaluation of high school subject-matter.

Table VI shows the nine subject-matter groups and the average contribution assigned to each by the teachers from the four types of training schools.

TABLE VI

Average ratings assigned by teachers according to type of training received as indicated by the four types of training schools.

	Technical or Land Grant	State Teachers College	Liberal Arts College	State Normal School
Physical Sc	56.1	49.8	51.1	50.1
Industrial Arts	63.7	58.5	53.7	52.4
English	65.9	61.5	66.2	62.1
Mathematics	43.8	39.1	39.8	38.2
Latin	28.3	26.6	30.3	28.1
Modern Language	41.4	37.5	38.7	36.2
Social Science	62.8	54.4	58.3	55.8
Home Economics	72.0	64.3	61.9	63.8
Biological Sc.	58.5	51.9	53.8	51.7

Table VI seems to show that the type of school has little bearing on what teachers think of subject-matter and how the various groups contribute to the objectives. Throughout the nine subjects listed on the questionnaire the average ratings show only 11.3 per cent difference in opinion. Teachers trained in technical schools rate all but two subjects, English and Latin, higher than

teachers trained in any of the other schools. In the English rating the highest score was given by teachers from the Liberal Arts training schools, but it was only .3 per cent higher than that of the teachers from the technical schools.

The latin rating given by the same group of teachers was only 3.7 per cent higher than the rating given by the teachers from the State Teachers' Colleges. It might also be observed that the teachers from the Liberal Arts Colleges rated Home Economics and Industrial Arts considerably lower than teachers from Technical or Land Grant Colleges.

These differences are possibly accounted for by lessened opportunity to observe and become acquainted with the work in earlier years, rather than by any other differences in the training schools. It may well be assumed that teachers trained in technical schools would have more opportunity to observe and to take part in the more technical subjects and would consequently rate them higher, while teachers from the liberal arts schools would be more appreciative of English and Latin because of their lessened opportunities for experience or contact with subjects in the technical group.

The differences, however, are invariably small and would seemingly suggest that the fundamental theory taught in the four types of schools is practically the same.

ELEMENTS OF DIFFERENCE IN RATINGS

The element of personal pride or professional conviction seems to enter into the ratings assigned the teachers when those ratings involve the subject-matter being taught by the respective raters. That is, each teacher seems naturally to rate his own subject-matter group more liberally than others. Table VII following shows the ratings assigned to their own subject-matter group by the teachers in the various subject-matter divisions, as compared with ratings assigned by all other teachers outside of those particular divisions.

TABLE VII - Sheet 1

BIOLOGICAL SCIENCE

The Seven Objectives	Average Ratings of Biological Science Teachers	Average Ratings of All Other Groups of Teachers
Citizenship	62.3	52.7
Health	88.6	80.9
Vocation	57.8	51.1
Worthy Use of Leisure Time	67.7	51.2
Worthy Home Membership	54.9	48.8
Command of the Fundamental Processes	41.1	39.4
Ethical Character	34.6	51.9

TABLE VII - Sheet 2

ENGLISH

The Seven Objectives	Average Ratings of English Teachers	Average Ratings of All Other Groups of Teachers
Citizenship	78.2	60.6
Health	41.3	29.1
Vocation	79.9	66.7
Worthy Use of Leisure Time	95.4	78.1
Worthy Home Membership	74.3	60.2
Command of the Fundamental Processes	82.0	72.4
Ethical Character	81.4	61.7

TABLE VII - Sheet 3

HOME ECONOMICS

The Seven Objectives	Average Ratings of Home Economics Teachers	Average Ratings of All Other Groups of Teachers
Citizenship	80.2	58.8
Health	88.9	75.7
Vocation	84.7	69.6
Worthy Use of Leisure Time	84.8	61.1
Worthy Home Membership	94.9	83.3
Command of the Fundamental Processes	54.2	30.5
Ethical Character	79.7	47.6

TABLE VII - Sheet 4

INDUSTRIAL ARTS

The Seven Objectives	Average Ratings of Industrial Arts Teachers	Average Ratings of All Other Groups of Teachers
Citizenship	68.1	51.7
Health	50.1	32.8
Vocation	81.7	80.5
Worthy Use of Leisure Time	78.1	71.3
Worthy Home Membership	69.3	62.9
Command of the Fundamental Processes	65.1	45.1
Ethical Character	51.8	38.8

TABLE VII - Sheet 5

LATIN

The Seven Objectives	Average Ratings of Latin Teachers	Average Ratings of All Other Groups of Teachers
Citizenship	41.8	28.1
Health	14.2	14.3
Vocation	49.6	30.2
Worthy Use of Leisure Time	59.2	27.9
Worthy Home Membership	37.6	22.3
Command of the Fundamental Processes	73.4	44.1
Ethical Character	58.3	28.6

TABLE VII - Sheet 6

MATHEMATICS

The Seven Objectives	Average Ratings of Mathematics Teachers	Average Ratings of All Other Groups of Teachers
Citizenship	43.0	33.2
Health	23.6	16.6
Vocation	70.2	58.2
Worthy Use of Leisure Time	43.7	32.0
Worthy Home Membership	44.1	29.5
Command of the Fundamental Processes	80.3	70.3
Ethical Character	43.5	29.9

TABLE VII - Sheet 7

MODERN LANGUAGE

The Seven Objectives	Average Ratings of Modern Language Teachers	Average Ratings of All Other Groups of Teachers
Citizenship	59.8	40.6
Health	21.3	16.4
Vocation	51.2	42.1
Worthy Use of Leisure Time	64.9	54.0
Worthy Home Membership	41.6	28.7
Command of the Fundamental Processes	66.9	45.4
Ethical Character	50.5	35.9

TABLE VII - Sheet 8

PHYSICAL SCIENCE

The Seven Objectives	Average Ratings of Physical Science Teachers	Average Ratings of All Other Groups of Teachers
Citizenship	55.0	53.1
Health	54.9	61.6
Vocation	64.3	51.6
Worthy Use of Leisure Time	64.2	58.2
Worthy Home Membership	57.6	52.3
Command of the Fundamental Processes	61.3	42.2
Ethical Character	47.2	47.8

TABLE VII - Sheet 9

SOCIAL SCIENCE

The Seven Objectives	Average Ratings of Social Science Teachers	Average Ratings of All Other Groups of Teachers
Citizenship	94.1	83.9
Health	41.0	45.4
Vocation	50.0	50.2
Worthy Use of Leisure Time	59.6	54.9
Worthy Home Membership	66.9	65.0
Command of the Fundamental Processes	69.1	39.5
Ethical Character	71.9	67.9

A brief examination of Table VII preceding shows that in only two cases (Social Science and Physical Science) was there a deviation from the general tendency to rate one's own subject higher than others. In the rating of Social Science it is found that the contribution of Social Science to the objectives of "Vocation" and "Health" received higher ratings from other teachers than from the Social Science teachers themselves. Only 0.2 per cent difference is found in the Social Science contribution to the objective, "Vocation", while three and six-tenths variation is noticed in the ratings of the "Health" objective. As these ratings show such a slight differentiation the conclusion is that it does not alter the meaning of the table as a whole.

In the case of Physical Science where there is 6.7 per cent difference in contribution to the "Health" objective the conclusion is drawn that the group of teachers other than Physical Science have included physical education (playground work, athletics, etc.) in their classification of Physical Science subjects. This double interpretation on the part of teachers outside of the physical education program may account for a part of the more favorable ratings given by them as compared with the ratings assigned by the Physical Science teachers themselves. On the other hand it is easily recognizable that physical

education may well be expected to rate high in the "Health" objective.

The contribution of Industrial Arts to the "Vocation" objective was rated higher by the Commerce, Biological Science, and Home Economics teachers than by those teaching Industrial Arts subjects. This higher rating was influenced, the writer believes, by the wrong though sometimes popular conception, that Industrial Arts is a trade subject. While the "Vocational" objective is frequently claimed for Industrial Arts by those unfamiliar with its real objectives, or only passingly familiar with its program, those trained in the field of Industrial Arts education do not claim vocational preparation for their subject any more than the Science teachers of the secondary schools claim to train scientists. The author bases this statement on his definition of aims of Industrial Arts, namely--the aim of Industrial Arts in the secondary schools is not the preparation of boys for any special vocation in life, but to give them some knowledge of the different fields of industry, combined with a degree of skill for their personal satisfaction in avocational pursuits, and as a practical aid in vocational guidance.

Home Economics received the highest average rating of any subject on the questionnaire used in this study. The total average rating of 86.1 per cent as the contribution of Home Economics toward "Worthy Home Membership"

is rather to be expected, as the very nature of Home Economics is such as to contribute largely to standards of home life.

THE EFFECT OF TEACHING EXPERIENCE

The similarity of the ratings of college and university students who have had no teaching experience and the rating of experienced teachers is shown in Table VIII, following:

TABLE VIII

Average ratings assigned by teachers of varying number of years of experience for the contribution of the subject-matter to the seven objectives as a whole.

Subject-matter	No Experience	0 to 5 yrs. Experience	6 to 10 yrs. Experience	Over 10 yrs. Experience
Biological Sc.	57.7	52.5	53.5	53.9
Social Science	57.8	58.5	59.1	61.1
Home Economics	64.7	63.5	65.1	65.2
Mathematics	39.1	38.8	38.4	43.0
English	63.2	61.1	63.1	64.1
Physical Sc.	52.2	51.5	51.5	53.5
Modern Language	39.1	37.4	36.7	40.7
Latin	27.4	25.9	25.7	31.9
Industrial Arts	54.4	54.3	55.4	57.5

Since the majority of these ratings are comparatively close, it is concluded that the theory of secondary education, as presented by schools of higher education, carries well over into the field of practical application. Additional experience in teaching seems to have had little effect upon the ratings assigned.

COMPARISON OF RATINGS FROM THIS STUDY WITH THOSE OF THE LITTLE ROCK STUDY

Certain excerpts from the Little Rock study are included here as a means of comparison with previous findings, and to show the close relationship that is noticeable between the two studies. Only the same subject-matter as is common to both studies is given in Table IX following. A copy of the complete tabular report of the original study follows later, for the benefit of those desiring to make further comparisons.[1.]

TABLE IX

Subject-matter	Average total contribution shown by Little Rock study	Average total contribution shown by this study
English.....	77.8	62.9
Practical Arts.....	68.4	
Home Economics.....		64.7
Industrial Arts.....		55.3
Latin.....	28.1	27.3
Mathematics.....	44.7	40.7
Modern Language.....	27.8	38.5
Physical Science.....	63.2	53.2
Social Science.....	66.3	58.9

1. Jewell, J. R. - An unpublished study conducted at Little Rock, Arkansas, in cooperation with the University of Arkansas, 1926.

THE EVALUATION OF THE SUBJECT-MATTER

Table X shows very definitely the primary objective of this thesis, namely, "An Evaluation of Certain High School Subject-Matter Groups in Terms of Their Contribution to the Seven Objectives of Secondary Education", based upon a study of teachers in selected high schools of California, Oregon, and Washington. The table gives the subject-matter groups as listed on the questionnaire, together with the average total rating assigned to each subject for all the objectives by the entire group of raters.

TABLE X

Evaluation of the nine subject-matter groups, listed on the questionnaire, by the 748 raters

Subject-matter Groups	Average total contribution of each subject to all of the objectives
Home Economics	64.7
English	62.9
Social Science	58.8
Industrial Arts	55.4
Biological Science	53.8
Physical Science	53.3
Mathematics	47.7
Modern Language	38.5
Latin	26.6

The comparisons and conclusions that have been presented here have all been arrived at from the data collected for this study. Personal opinion or educator's influence does not make itself shown in this study. Facts and observations have been given with the intent to help administrators not only in the selection of a curriculum but in instances where combination instructors are used, that he may select those teachers who are best qualified to teach the more important subject-matter.

Tradition has in the past made the group of studies that are offered in high schools more or less a set rule. Traditions are hard to set aside and the administrator must have sufficient reason for any changes he makes in that group of studies. This study has been made with the hope that it will help the administrator in selecting a group of studies that will more closely fit in with the trend of education today.

Table X readily shows the viewpoint of these 748 educators in the field. The other tables were given to show any differences that might develop from segregating the whole mixed group into groups with stated similarities as to type of training, teaching experience, etc., and so that comparisons might be made more readily.

APPENDIX I

APPENDIX I

Following are the tabular results of an unpublished study very similar to the one just completed. It has been referred to in this study and comparisons made with it as to evaluations of the subject-matter common to both studies.

These results were arrived at in 1926, by Dr. James R. Jewell, then Dean of Education at the University of Arkansas, and now Dean of Education for the Oregon State System of Higher Education. His study was confined to the public school system of Little Rock, Arkansas, and was therefore somewhat more limited than the present study.

PRINCIPLES OF JUNIOR-SENIOR HIGH SCHOOL EDUCATION

LITTLE ROCK, ARKANSAS, SEPTEMBER, 1926

JUSTIFICATION OF THE VARIOUS SUBJECTS OF THE CURRICULUM AS DETERMINED BY THE EXTENT TO WHICH THEY AID IN ACHIEVING THE SEVEN MAJOR OBJECTIVES OF EDUCATION

Figures given are per cents of maximum possible

Subjects	Health	Command of Fundamental Processes	Worthy Home Membership	Vocation	Citizenship	Worthy Use of Leisure	Ethical Character	Average Total
English	17.5	92.	93.3	75.	83.3	96.9	86.9	77.8
Mathematics	7.2	84.1	65	71.9	37.5	20.8	26.7	44.7
Social Science	53.3	43.8	81.7	56.9	94.1	53.1	80.8	66.3
Latin	1.9	55.5	20.8	31.9	24.4	29.4	32.8	28.1
French	.3	36.1	28.	33.8	21.1	43.1	25.9	26.9
Spanish	.3	38.9	28.9	39.7	21.4	45.3	25.6	28.6
Science	88.3	59.4	79.7	63.3	52.7	59.7	38.9	63.2
Practical Arts, Etc.	67.2	45.5	93.	81.6	69.4	77.8	44.4	68.4
Commercial	4.2	62.2	52.5	91.1	48.6	19.7	18.1	42.3
Music	34.4	25.	84.7	47.5	49.2	96.1	63.3	57.1
Art	13.1	26.4	79.7	53.6	44.2	83.3	55.6	50.8
Physical Education	99.7	16.9	75.2	42.8	63.9	72.8	63.3	62.1

APPENDIX II

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A high school curriculum is selected from subjects which, supposedly, are of the greatest educational value to the majority of pupils attending that particular school. Generally speaking, the seven objectives of secondary education are taken as a basis for selection of high school subject-matter. Numerous authorities, each in their respective fields, have from time to time given reasons for their subject-matter being included in the curriculum.

From a great deal of this published information the writer of this thesis has endeavored to show in condensed form some of the reasons why some subjects have a place in the high school curriculum.

Under the several objectives, the writer has listed some of the contributions of the various subject-matter groups claimed by writers for their respective fields.

CITIZENSHIP

"Ability to earn a living is at the foundation of all citizenship in democracy. Any aspect of education which contributes in assisting a child in earning a living, and in making him happier and more efficient in his work, is the best type of citizenship education for the greatest mass."[1].

1. Whitcomb, E. S., "Contribution of Home Economics to Citizenship Training", U. S. Bureau of Education, Bul. No. 14, 1925, Vol. III, page 33.

J. A. Harris, in an article on the real value of biology states, "Any subject which may be pursued in the secondary schools should be considered not merely with reference to its usefulness in training the faculties of the pupils, but in its bearing on the main objectives of public education--the development of the finest and most effective type of citizenship, and the solution of great national economic and social problems."[2].

"Historical study should materially assist the student to develop his permanent attitude toward political liberty and self-government. If he is a member of a democratic society like our own, he will see not only its lasting good in democracy, but he will also see, and in his measure be able to promote, the conditions necessary for its successful continuance."[3].

"Citizenship training has held for sometime the keynote position in education of this country, and it is generally agreed that such training involves among other things, the problems concerned with sound health, the care and welfare of the young, home and family relationships, and vocational effectiveness. These are the cardinal principles upon which present-day education is founded. And

2. Harris, J. Arthur, "Real Value of Biology in Secondary Schools", School and Society, Vol. 24, pp. 286-90, September, 1926.

3. Degarmo, Charles, Principles of Secondary Education, page 152.

home economics contributes to each of these principles."[4].

To be the best type of citizen a man or woman should be able to speak and write good English. Civic education is a development of qualities whereby one acts intelligently as a member of a neighborhood, town, city, state, or nation, and is a basis for understanding international relationships. A good course in English promotes citizenship by teaching how to discuss points of interest in a courteous manner, also how to present an effective argument, or how to conduct a public meeting.

Dr. John H. Finley, Commissioner of Education for the State of New York, after the enactment of the New York State part-time school law in 1919, made the following memorable statement regarding part-time education and the responsibility of the state in respect to the education of employed boys and girls:

"It was with a clear recognition of the need and right of working children for adequate educational opportunities which would better fit them for their duties as citizens, that the legislature of 1919 passed, and Governor Alfred E. Smith signed the part-time school law, which it seems to me might well be called the "Children's Charter", because of the guarantees which it makes on the

4. Whitcomb, E. S., "Home Economics has a Place in Present-day Education", School and Society, Vol. 14, pp. 25-8, October, 1928.

part of the state to all children who live in this commonwealth. I regard boys and girls who early in life enter upon vocational pursuits as peculiarly of concern to the state and I hold as a solemn obligation this great opportunity which has come to us to conserve their interests, for certainly, as never before, may it be truly said that our national future depends upon the ideals of our youth, upon their faith in democracy and their fitness for it. These many thousands of 14, 15, 16, and 17-year old children who every year leave the schools constitute such a large portion of our citizenship that they become without doubt the very foundation of society."[5].

HEALTH

"Health is a joint responsibility which is shared by many agencies besides the home economics department--by the physical education, by the school doctor, dentist and nurse, by the science teachers, and certainly by the home."[6].

5. Dr. John H. Finley, Commissioner of Education for the State of New York, quoted from an article by Oakley Furney, Supervisor of Part-time Education, New York State Education Department, published in The Yates-American Instructor, Beloit, Wisconsin, (a trade organ without date.)

6. Brown, Clara and Haley, Alice, The Teaching of Home Economics, page 91, Houghton Mifflin Company, 1928.

W. W. Thiesen[7] says, "Most people will come in contact with the field of science as consumers rather than producers. Our purpose should be, therefore, to develop intelligent consumers of the offerings of science." He quotes Dr. Franklin Bobbitt as pointing out that, "We live not only in the midst of a maze of mechanical appliances and innumerable chemical creations, but in a world in which health must be directed by science and in communities in which high standards of performance on the part of those who are responsible for such matters as our supply of pure milk, our drinking water and various other services depend upon an enlightened citizenry sufficiently well trained in fundamental principles that undesirable conditions and inefficient service will not be tolerated."

E. R. Downing says, "We are dependent upon scientific knowledge at almost every turn--knowledge which is the basis of our improved skills....As an illustration, consider the matter of health. It is said, and probably truly, that we know enough to banish all contagious diseases.....Gradually, the death rate is decreasing among civilized peoples. The average expectation of life in the United States, when they first became independent,

7. Thiesen, W. W., "How to Accomplish Our Aims in General Science", School Science and Mathematics, Vol. 4, p. 735, 1926.

was twenty-seven years; in 1857 it was thirty-seven years; while now it is fifty-seven.....These are the results of a few of the scientific discoveries that have increased our fruitful knowledge in the field of health."[8].

"The popular campaigns for health education have shown how vital to physical well-being are the subjects under Home Economics, just as good conservation and thrift campaigns showed that national welfare may depend on how individuals choose their food and spend their money.

"The value of the knowledge of mathematics in reading statistics and data concerning the health conditions of the people of the world makes us more susceptible to the remedies and precautions necessary to keep ourselves in the best physical condition."[9].

"Observational training in biology, therefore, stands in a class by itself; it has no equivalent in the curriculum, for no other subject has to do with the germination, growth, nourishment, and evolution of living things, their qualities, condition of health or disease, vital processes, life history, classifications, economics and aesthetic functions."[10].

8. Downing, E. R., Teaching Science in the Schools, 1925, pp. 69-71.

9. Atwater, Helen W., "Home Economics in Education", National American Educational Association, Vol. 14, p. 162, May 1923.

10. DeGarmo, Charles, Principles of Secondary Education, p. 83.

With the great concentration of population in the cities, and with crowded conditions; and diseases more common, biological knowledge and scientific research are necessary to safeguard public health. By including the basic principles of the biological sciences in the secondary school curricula, it is possible to give a better understanding of health and sanitation to the masses, and to extend the average length of life, in spite of crowded conditions, epidemics, and incurable diseases. Many children are suffering from defective hearing, infected teeth, poor eyesight or malnutrition, a large percentage of which could have been avoided if the parents of these children had had some knowledge of the science of life. The great number of men that were rejected from service during the World War has brought before the people the great need of health education, and it is now being taught in schools more than ever before.

VOCATION

"In recent years there has been a great deal of discussion as to whether we are justified in spending public money in giving vocational training to the pupils enrolled in the secondary schools. And more and more is the conviction growing that the use of public funds for such a purpose is not only justified but obligatory."[11].

11. Brown, Clara and Haley, Alice, The Teaching of Home Economics, p. 57.

The Committee on Reorganization says, "In the field of vocational guidance, chemistry should make for better understanding of the world's work and thus be of value in selecting a vocation. Moreover, it should help students to see the need for adequate vocational preparation."[12].

William F. Rasche, advises keeping in mind the following for objectives in shop courses, "1. To adjust the boy to his new school and to his employment. 2. To give the boy an understanding of practical home jobs and skill in doing them. 3. To diagnose the boy's personal qualifications with a view of helping him make satisfactory preparations for some useful occupation."[13].

"Homemaking can be made an expert profession and is fast becoming one, as the opportunities for training and experience are offered and accepted."[14].

The census of 1920 shows that 85% of the women of the United States marry and become homemakers. This tends to show that homemaking is a vocation.

The Pennsylvania Board of Education, in its statement of principles and policies governing vocational

12. "Reorganization of Science in Secondary Schools", Bureau of Education Bulletin, No. 26, 1920, p. 14

13. Rasche, William F., The Shop Objectives and the Physical Equipment for Home Mechanics Departments of Continuation Schools, page 3.

14. Wood, Mildred W., "Home Making as a Possible Profession", Journal of Home Economics, Vol. 18, pp. 63-7, Feb., 1926.

schools as quoted by Edwin A. Lee in his book, OBJECTIVES AND PROBLEMS OF VOCATIONAL EDUCATION, is, "When vocational schools or departments are established as a part of the school system the controlling purpose of such courses should be to fit a person for profitable employment and not to hold children in school. Vocational education is not a cure-all for the ills of any scheme of general education, nor will such a school or course take care of defective, backward, or incorrigible children. It is an insult to the working man to expect vocational instruction to fashion efficient workers out of a class not able to cope with the problem of securing a general education."[15].

"In an industrial society, physics has an important office to perform in fitting men and women not only for specific callings, but for the capacity to adapt themselves readily to new callings."[16].

"The studies of the economic group may be regarded as compounds arising from the application of pure sciences to industrial or material welfare. Here we see the exact, the biological, and the earth sciences, joining with history, modern and foreign languages, anthropology, etc., to lay the foundations of industrial welfare, and to pre-

15. Lee, Edwin A., Objectives and Problems of Vocational Education, p. 79.

16. DeGarmo, Charles, Principles of Secondary Education, page 76.

pare the individual both on the side of insight and upon that of efficiency to play an honorable and useful part therein."[17].

The following from the report of Dr. Dunker, member of the Royal Prussian Industrial Commission of 1904, shows the evil effects of the inelastic course in Germany. "Shopwork, in accordance with a fundamental but often forgotten educational principle, rests upon the native instincts of the growing individual. Not every boy of approximately high school age is inclined to scientific studies, but almost every boy has an instinctive desire to create with the hand something concrete and tangible. To direct and cultivate this instinct must be the task of a rational education. Now, the advocates of manual training have always emphasized the point that they desire, by means of manual training, to attract to the middle school pupils that are not drawn to higher culture by literary interests. Such pupils, who are not in themselves bad or mentally deficient, but whose interests cannot be reached by a one-sided school, are found in all countries. With us they are kept in the higher, almost purely literary, school by the pressure of military privileges. Beginning with Quarta (about fourteen years of age), they embarrass

17. DeGarmo, Charles, Principles of Secondary Education, page 158.

the classes, vex the teachers, lower the standard of instruction, and therefore that of the entire school, become over-aged, and secure at the best the military privilege of one year of army service (instead of two). If they turn out well in some vocation in later life it is in spite of the school and not because of the school. Very often, however, they enter upon practical life morose natures, without faith in themselves and their calling, without energy, without creative ardor, irritated against the school that failed to reach them. Of the best the school can give, of the desire for progress, of the yearning for more and higher things, they have not felt a breath; their culture has come to an end, but also for effective manual work they are spoiled."[18].

WORTHY HOME MEMBERSHIP

"Worthy home membership, it is generally admitted, is the objective toward which home economics should make the greatest contribution. Obviously this objective provides justification for teaching to girls certain housekeeping skills, since the average homemaker still has the responsibility for the preparation of the food, for keeping the house clean, and so on. Because of the changed conception of what homemaking really entails, the purely

18. De Garmo, Charles, Principles of Secondary Education, page 163.

manipulative skills as cooking and sewing, no longer consume so large a part of the time devoted to home economics. Family relations, child care, home care of the sick, elementary nutrition, home furnishing, and economics of buying are names now applied to courses in home economics."[19].

The Committee on Reorganization states that science teaches the efficiency of the home and life within the home at every angle. This Committee assigns chemistry a definite service toward the proper organization, use and support of home life. Science has devised many conveniences that make modern homes comfortable and attractive and science knowledge is required for their full appreciation and most intelligent use.[20].

Whitcomb maintains that, "The aim of home economics has never been to produce a skilled cook or seamstress, but it has been to give the girl an appreciation of home, its benefits and relations and to render her capable of meeting the home problems with intelligence and a consciousness of power."[21].

"Citizenship training has held for sometime the

19. Brown, Clara and Haley, Alice, The Teaching of Home Economics, pp. 56-7.

20. Bureau of Education Bulletin No. 11, 1920, page 13.

21. Whitcomb, E. S., "Contributions of Home Economics to Citizenship Training", U. S. Bureau of Education, Bulletin No. 14, Vol. III, p. 39, 1925.

keynote position in education of this country, and is generally agreed upon that such training involves among other things, the care and welfare of the young, the problems concerned with sound health, home and family relationships, and vocational effectiveness. These are the cardinal principles upon which our present-day education is founded, and home economics contributes to each of these principles."[22].

When one has mastered the fundamentals of citizenship, learns the laws of health, obeys the rules of society, considers himself master of a vocation, and has learned how wisely to spend leisure time, he is unquestionably a worthy home member. If the social sciences contribute to all mentioned objectives, they must make some contribution to the objective, Worthy Home Membership.

WORTHY USE OF LEISURE TIME

From an extensive preliminary study of Industrial Arts objectives for the past fifty years, W. E. Warner, selects a group of fifteen specific notions or central purposes. These include:

1. Exploration
2. Educational guidance
3. Vocational guidance
4. Consumer's knowledge and appreciation

22. Whitcomb, E. S., "Contributions of Home Economics to Citizenship Training", U. S. Bureau of Education, Bulletin No. 14, pp. 25-8, Oct., 1928.

5. Household mechanics
6. Social habits and attitudes
7. "Prevocational" purposes
8. Avocational purposes
9. A degree of skill
10. The seven cardinal principles
11. Mechanical intelligence
12. Correlation with other subjects
13. Developing the faculties
14. Coordinating the hand and eye
15. Vocational training

Number 10 was selected because the seven cardinal principles are self-evident as referring to a group of principles that have been widely stressed in secondary education since its appearance in 1918.[23.]

David Snedden is quoted by W. E. Warner as saying, "I have found substantial proportions of young men who continue to take fairly keen interests in woodworking and electricity after being started on these things in a school shop. Surely avocations are very much worthwhile in these days of specialized vocations."[24.]

COMMAND OF THE FUNDAMENTAL PROCESSES

"The responsibility for developing a reasonable mastery of the tool subjects rests largely with the elementary grades and it is not until the junior high school period that definite instruction in home economics is

23. Warner, W. E., Policies in Industrial Arts Education, 1928, pp. 33-40.

24. Warner, W. E. Policies in Industrial Arts Education, 1928, page 42.

usually begun."[25].

Leonard V. Koos says, "The command of fundamental processes scarcely deserves equal ranking with the other aims, since this is really necessary if pupils are to achieve the other objectives."[26].

Since arithmetic is one of the fundamentals, one would surely need to know some arithmetic to be able to have command of the fundamentals.

The saying of the Pythagoreans, as quoted by Charles DeGarmo, in his book, PRINCIPLES OF SECONDARY EDUCATION, "'What is the wisest?' 'Number.' 'And what next?' 'Man, who gave names to things.' Mathematics and language, then, are the two fundamentals in the world, and presumably also in education."[27].

Reading and writing are the essentials of the fundamentals and it is through English that these are best taught. High school students should learn how to express properly and adequately themselves, both in writing and in speaking. Through composition and public speaking courses these objectives are reached.

25. Brown, Clara and Haley, Alice, The Teaching of Home Economics, p. 17.

26. Koos, Leonard V., The American Secondary School, 1927, page 169.

27. DeGarmo, Charles, Principles of Secondary Education, 1909, page 65.

Command of the fundamental processes is necessary if the pupils are to achieve the other objectives. This objective generally applies to the mastery of the tool subjects - reading, writing, arithmetic. The responsibility for developing a reasonable mastery of these subjects rests largely upon the elementary grades. The Home Economics teacher desires her pupils to be able to make accurate computations when occasions demand, to write legibly, and to express themselves intelligently in both oral and written discourse, but the chief obligation to teach them these skills belongs to other teachers. If the Home Economics teacher is to contribute to the development of the fundamental processes there are two things necessary; first, she must know the way herself. Not until the teacher of Home Economics takes pride in her own written and spoken English can she create the desire in her pupils of being just as accomplished. Second, she must always insist upon the highest standards that the pupils are capable of in all things that they do. This same is true of teachers in Science, Industrial Arts, Mathematics, etc.

Foreign languages contribute to the fundamental processes through their contribution to English more than anything else. J. Warsaw, Professor of Modern Languages in the University of Missouri, maintains that teachers of English look upon a foreign language as their main ally.

But Daniel Starch has proved by tests and experiments that the value of foreign language in this respect is not as great as it was once believed to be. He concludes that the increased ability to use the English language is very slight but it increases the knowledge of the grammatical construction of the English language to a great degree; so the study of foreign language may be justified from this standpoint. As all education is dependent upon reading and writing, any factor that contributes to greater efficiency along this line certainly should be encouraged.

"It is a source of very great pleasure to be able to recall a mental image of an organism as it appears under the microscope; to understand its structures in the light of their functions; to interpret its behavior in terms of its social relations, and otherwise to apperceive it in an enriching biological background. To afford these pleasures of recognition and interpretation is one of the valuable contributions of biology to cultural education."[28].

Through Home Economics the contribution which home training makes to character building is invaluable. Family relationships are reflected in the community in civic

28. Peters, Charles C., "Objectives of Education", Second Yearbook of the National Society for the Study of Educational Sociology, 1929, pp. 118-119.

interests. Psychologists agree that the power of initiative is a determiner of early mental patterns and conduct, which persists throughout life. Home is therefore recognized as the most powerful psychological mould in that present social organization.

Ethical Character is an objective that is not affected directly by many of the subject-matter groups but all training for citizenship will tend to perpetuate the qualities that make real character. The Social Sciences do set a standard for moral conduct by showing the results of the improper use of social gain. Society has set certain standards and society is very critical and very severe in its treatment of those who fall below the standards.

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_____ "Contributions of Home Economics to Citizenship Training", U. S. Bureau of Education Bulletin No. 14, Vol. III, pp. 33; 25-8, 1925.

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