

AN ABSTRACT OF THE THESIS OF

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Title: A COMPARATIVE ANALYSIS OF THE HEALTH KNOWLEDGE
AND HEALTH INTERESTS DERIVED FROM DIFFERENT
CURRICULAR PATTERNS AT THE JUNIOR HIGH
SCHOOL LEVEL *Redacted for Privacy*

Abstract approved: _____
Arthur Koski

This study was concerned with the effect of additional time in health instruction for 9th graders at the junior high school level.

A 120-item questionnaire, developed after extensive review of related tests, was mailed to a jury of ten health subject matter experts. The evaluations of all the items made by the health experts were sent back to the investigator. This evaluation was combined with the results of item analysis to formulate a 45-item comprehensive health knowledge test and parallel health interest inventory.

The data obtained for this research were acquired by administering a health knowledge test and a parallel health interest inventory to 279 students of school districts A and B. Pre-test and post-test were conducted for the purpose of comparing the effect of additional time in health instruction.

The multiple regression analysis was used in the comparison of (1) the pre-score of school district B with the pre-score of school district A; (2) the pre-score of school district B with the post-score of school district A; and (3) the pre-score of school district A with the post-score of school district A.

The result of this study revealed that with the additional health classes taken, the higher the health knowledge score; girls scored higher than boys; the higher the score of students' word knowledge, the higher the score of students' health knowledge.

It was found that 9th graders who had a nine-week block in health in the 7th and 8th grades or in the 7th, 8th, and 9th grades in the junior high school had a greater opportunity for the acquisition of health knowledge than the 9th graders who had a nine-week block only in health at the 7th grade level. There was a negligible relationship between health knowledge and health interest.

A Comparative Analysis of the Health Knowledge
and Health Interests Derived from Different
Curricular Patterns at the Junior
High School Level

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TABLE OF CONTENTS

	<u>Page</u>
I. INTRODUCTION	1
Objectives	1
Statement of the Problem	2
Limitations of the Study	3
Importance of the Study	4
Basic Assumptions	5
Definition of Terms	6
Summary	6
II. REVIEW OF RELEVANT LITERATURE	8
Health Knowledge	8
Health Interests	10
Summary	12
III. CONSTRUCTION OF THE HEALTH INTEREST INVENTORY AND THE HEALTH KNOWLEDGE TEST	13
The Procedure of Test Construction	13
Preparation of the Preliminary Tests	16
Selection of Final Forty-five Multiple-Choice Items for Health Knowledge Test and Health Interest Inventory	20
Summary	20
IV. PROCEDURES OF THE STUDIES AND ANALYSIS OF THE RESULTS	24
Subjects	24
Instruments Used	26
Procedures for Collection of Data	27
Pre-Test	27
Post-Test	27
Scoring	28
Analysis of Data	28
Objectives	28
Choice of Independent Variables	28
Analytical Process	29

	<u>Page</u>
Hypotheses to Be Tested	30
Analysis of Hypothesis I	31
Analysis of Hypothesis II	35
Analysis of Hypothesis III	39
 V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS	 45
Summary	45
Conclusions	50
Recommendations	52
 BIBLIOGRAPHY	 54
 APPENDICES	
Appendix I. Committee for Protection of Human Subjects	 57
Appendix II. Jury Selected and Institution Represented	 59
Appendix III. A Letter to the Jury of Ten	61
Appendix IV. Criteria for Selection of Objective Questions by Item Analysis	 63
Appendix V. Health Knowledge Test of Original 120 Items	 65
Appendix VI. Health Interest Inventory of Original 120 Items	 87
Appendix VII. Health Knowledge Test of Final 45 Items	 98
Appendix VIII. Health Interest Inventory of Final 45 Items	 107
Appendix IX. Answer Sheets	113

LIST OF TABLES

<u>Table</u>		<u>Page</u>
1	Composite Mean Scores of the Multiple-Choice Items According to the Ratings by the Jury.	19
2	Results of Item Analysis of the Multiple-Choice Health Knowledge Items.	21
3	Analysis of Variance Table for Health Knowledge Score Regressed on Sex, Number of Classes, and Word Knowledge (the comparison of the students who had a health class in 7th grade with the students who had health classes in 7th and 8th grades).	32
4	Analysis of Variance Table for Health Knowledge Score Regressed on Sex, Number of Classes, and Word Knowledge (the comparison of the students who had a health class in 7th grade with the students who had health classes in 7th, 8th, and 9th grades).	37
5	Analysis of Variance Table for Health Knowledge Score Regressed on Sex, Number of Classes, and Word Knowledge (in school district A, the comparison of the 9th graders who had post-test in health with the 9th graders who had pre-tests in health).	41

A COMPARATIVE ANALYSIS OF THE HEALTH KNOWLEDGE
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HIGH SCHOOL LEVEL

CHAPTER I

INTRODUCTION

William A. Alcott ignited the light of school health in 1892 when he wrote many essays related to school health services and health instruction. Alcott's influence was so profound that he was described by James Rogers as the father of school health education in the United States.

Today, health is an integral part of education. Health in the school is defined by Dr. Carl L. Anderson as "an outgrowth of man's constant search for more effective and more enjoyable living" (2, p. 17). School health programs include healthful school living, school health services, and health instruction. There is no doubt that health instruction is essential for the student. However, there still remains a big question--what is the most effective health instruction among the different curricular patterns? The question has challenged the author to search for an answer.

Objectives

The purpose of this investigation was to determine whether

additional time in health instruction at the junior high level would provide students with greater health knowledge than shorter instruction periods. More specifically, the problem in the investigation was to determine whether there were significant differences in health knowledge between the students of different curricular patterns who had different amounts of health instruction. In school district A, students received a 9-week block in health instruction in the 7th, 8th, and 9th grade level. In school district B, the students only had a 9-week block in health instruction at the 7th grade level. In addition, the study was to determine whether there is any significant difference in health knowledge and health interest between students who were in the different curricula.

Statement of the Problem

The author interviewed Dr. Carl L. Anderson, emeritus professor of health at Oregon State University, and discussed the acquisition of health knowledge in various curricular patterns. Dr. Anderson said that there was a need to measure the levels of health knowledge of 9th graders to determine the effect that varied health curricula have upon health knowledge and to determine differences which may exist among the students. Dr. Anderson also thought that there was a need to explore the correlation that exists between a student's health interests and what he knows about health.

Health education scheduling is one of the main problems in health education. In the state of Oregon, each school district does its own scheduling in health instruction. Different schedulings may result in varying degrees of health knowledge. Drs. Mayshark and Foster indicated that there were a variety of health schedulings, such as regular course work, block plan, alternating three-two plan, one period each week, correlation with other subjects, integrated health instruction, and incidental health instruction (17, p. 115).

This study is mainly designed to determine the difference in results between a 9-week program in health instruction at 7th and 8th grades, or 7th, 8th, and 9th grades, and a 9-week schedule in health instruction at 7th grade level only.

Limitations of the Study

The investigation reported in the study was subject to the following limitations:

- 1) The study was limited to 9th graders in school district A and school district B.
- 2) The study used two investigation instruments--the questionnaire for health knowledge and the checklist for health interest.
- 3) Fifteen major health topics were used in this study: chronic disease; communicable disease; community health; dental health; drugs, including alcohol and tobacco; environmental

health; exercise, fatigue, and rest; heredity; aging; medical care; mental health; nutrition; consumer health and personal health protection; safety; sex and reproduction.

- 4) Forty-five items of a health knowledge test and 45 parallel item health interest inventory were used in the study.

Importance of the Study

A diversity of fields of knowledge is important to the student. His understanding and possession of health knowledge is especially important because health is the vehicle on which travels the hopes, the accomplishments, and the joys of life.

The 1925 publication of the Gates-Strang Health Knowledge Test was the first to gain recognition as a standardized test for grades 3 to 12.

Health interest provides a psychological basis for planning and implementing health instruction programs at all levels of education.

In 1929, Dr. Claire E. Turner directed one of the first studies concerning measurement of health interests of children in the elementary school (1, p. 24). Other health specialists have conducted similar studies.

The previously mentioned studies were the forerunners of health research both in health knowledge and health interest. Nevertheless, no studies had been made on the differences between various types of

instructional plans and their relationships between students' health interests and health knowledge. From this present study, a determination would be made whether additional time in that health instruction was beneficial for junior high school students. In addition, the relationship between health interest and health knowledge was explored.

Basic Assumptions

In this study it was assumed that:

- 1) The health knowledge test and health interest inventory are valid and reliable indicators of each individual's health knowledge and interest. Validity of the test items was determined empirically by jury members who are experts in health areas. The procedure used in establishing the reliability was the Kuder-Richardson formula.
- 2) Students chosen for the study have similar intellectual abilities. Ninth grade students who had similar word knowledge and reading comprehension were chosen as subjects (Chapter IV, p. 24).
- 3) The number of students used in the experimental group was sufficient in size ($N = 244$) to get significant data for meaningful statistical interpretation.
- 4) The students were taught by certified health teachers. The individual differences between certified health instructors

would probably not be great enough to affect the results of this research.

- 5) Both school district A and school district B are similar in socioeconomical backgrounds (Chapter IV, p. 24).

Definition of Terms

Many times disagreement arises between groups of persons because different meanings are placed upon terms rather than because of differences in basic philosophies. For this reason, it is advisable to define some terms which were used throughout this study.

Health. A state of complete physical, mental, emotional and social well-being and not merely the absence of disease and infirmity (3, p. 2).

Health interest. The feeling of one whose attention, concern, or curiosity is particularly focused on health (20, p. 741).

Health knowledge. The acquaintance with facts about health; a clear perception of the facts of personal health which provide the basic scientific information upon which good health practices may be founded (6, p. 10).

Summary

Health is a major concern of all people. Youth will inherit the destiny of our nation; therefore, their health and well-being are highly

important. Health is so indispensable that we recognize it as an integral part of education.

Jessie Haag, in her book School Health Program, indicates:

The purpose of health education in the junior or middle high school is related to the basic needs of adolescents. Health education strengthens the student's desirable health practices, attitudes, and knowledge and develops additional health practices, attitudes, and knowledge that promote effective healthful living. . . (11, p. 149).

In order to achieve adequate health knowledge and sufficient health interests, there are some questions which should be raised relative to health scheduling in the schools. First, what is the most effective health class scheduling for junior high school students? Secondly, what is the relationship between health knowledge and health interests among junior high school students? If these questions were to be answered, it was imperative that different scheduling of health instruction at the junior high school level be studied and compared.

CHAPTER II

REVIEW OF RELEVANT LITERATURE

This chapter is a review of the literature related to this study. The first part is devoted to studies related to health knowledge. The second part is related to health interests.

Health Knowledge

A person's knowledge may be affected by his intelligence level and education. The factors which influence a person's health knowledge have been studied by a number of educators. Their findings are as follows.

Wickersham's study states:

- a) Urban youths are significantly superior in health knowledge to rural youths.
- b) Non-farm youths are significantly superior in health knowledge to farm youths.
- c) Girls are significantly superior in health knowledge to boys.
- d) Students who had been enrolled in a high school course in health education are significantly superior in health knowledge to those who had not been enrolled in a high school course in health education.
- e) Students who had been enrolled in a high school biology course are significantly superior in health knowledge to those who had not been enrolled in a high school biology course (26, p. 3301).

His third statement was shared by the School Health Study's survey (23, p. 27), which cites there was a statistically significant

difference on group means of test scores between sexes at all three grade levels in all sizes of school districts. In all cases the difference was in favor of girls. Neher (23, p. 37) reported that girls scored significantly higher than boys in health knowledge and health attitudes at the high school level. However, Dowell's (7, p. 23) findings showed that no statistically significant difference existed between males and females in either health knowledge or health practices in the 20 items he tested. The author considered that the lack of significant difference might be attributed to the small number of items included in the test.

Dearborn examined the health knowledge of 5,267 junior college students before a required health course, using the Dearborn College Health Knowledge Test, and again at the end of the course. The result is as follows:

The mean pretest scores for all students was 47% and the retest score 59%, showing a statistically significant knowledge gain following the health education course (27, p. 28).

In Shaw's thesis, one of the conclusions agrees on this point. His statement is "health knowledge can be favorably changed through health instruction" (21, p. 121). However, other studies indicate that the difference is small. For example, a summary (14) of 25 continuous years of health knowledge testing reports a slight but steady improvement in the level of health information held by students

during the years studied. The Massachusetts study (23, p. 36) also found only slight improvement in health knowledge from grade to grade. But this study pointed out that there is a greater difference between grades 11 and 12.

Farris, in his study, discovered:

. . . health knowledge of entering college freshmen was very largely a factor of their intelligence, and particularly of verbal intelligence. It was also noted that while the amount of formal health instruction received by the students in his study was low, a mean of only one semester in grades seven through twelve, this factor did have a significant influence on their health knowledge test scores even if they had been the same on all the other variables studied (23, p. 36).

Neher (23, p. 37) agreed to this point. He reported that pupils of high intelligence and high socioeconomic level tended to score higher in all four areas measured. The Massachusetts study (23, p. 36) led to the same conclusion. It found the highest correlation between health knowledge and intelligence quotient. A summary of 25 continuous years of health knowledge testing (23, p. 37) indicated that intelligence and home and community environment influence health knowledge.

Health Interests

The factors which influence a person's health interests have been studied by a number of educators. Their findings are as follows.

Corliss from his study, writing about health interests of children, stated (5, p. 355):

The boy's greatest health interest at all grades was physical fitness. Interest of boys and girls in the choice of food, care of teeth, safety in getting to school, and other similar elementary learnings was high at the fourth and fifth grades, but dropped sharply in the next years after the subjects had been studied and pressing questions had been answered.

When summary charts of growth characteristics of children at each grade level were compared with health interests at corresponding levels, it was seen that the interests were closely parallel with developmental characteristics. Young children were interested in activities for which they had immediate use.

It was apparent that children's interests emanated largely from developmental changes occurring at pubescence and while this interest of boys was fairly constant through all grades, their high interest in personality development was not pronounced until they reach later junior high school age. Girls, on the other hand, had an intense interest in personality development all through junior high school continuing a high interest through senior high school.

Tejero's (27, p. 23) study had similar findings in regard to sex differences.

In contrast with health knowledge, health interests are not affected by the I. Q. Kim's (15, p. 1141) pointed out that student interests were significantly higher in health questions related to development tasks than in more general types of health questions. Student interests in health questions related to developmental tasks were not affected by the I. Q. or socioeconomic background.

Similar to health knowledge, health interests can be affected by sex. Dowell (7, p. 23) stated that there is a wide range of interest in

various areas, with girls apparently more interested in health than boys.

It is quite interesting that the Denver study (23, p. 28) showed that the teachers were more valuable in discovering pupil interests than were the parents.

Although health problems may be different from one place to another, nonetheless, Lantagne's studies (23, p. 28) reported that there was little geographical difference in health interests.

Summary

From the previous discussions, we know that the health knowledge of students may differ according to I.Q. and sex, while health interests of students may differ according to sex and grades, but are little affected by geographical difference. None of these studies dealt with relative performance of students in different schedules of health instruction. Also, none of these studies attempted to determine the relationship of health knowledge and health interests. It seemed appropriate, therefore, that a comparative analysis of the health knowledge and health interests derived from different curricular patterns at the junior high school be conducted.

CHAPTER III

CONSTRUCTION OF THE HEALTH INTEREST INVENTORY
AND THE HEALTH KNOWLEDGE TESTThe Procedure of Test Construction

This study was concerned with a comparison of health interest and health knowledge of the different curricular patterns at the junior high school level. To achieve this purpose, one of the necessary tools used was an appropriate measuring instrument of interest and knowledge in the field of health. After a thorough review of the available literature, it was felt by the author that none of the presently available tests in health knowledge and health interest were relevant or suitable for this study.

In order to obtain a valid list of major health areas and related items, a thorough and careful analysis of published health knowledge tests and health interests inventory was reviewed for use in the junior high school. It is important to state that these test items are rather general.

Two major phases comprised this study. Phase one was the construction of a health knowledge test, and phase two was the construction of a parallel health interest inventory. Step by step procedure of test construction is as follows.

Phase one:

Construction of Objective Health Knowledge Test

- 1) Selection, revision, and use of 120 items from Kilander-Leach Health Knowledge Test (14), Anderson's test manual of Health Principle and Practice (3), Veenker's Health Knowledge Test (23), LaPlace's test manual of Health (16), Schiffers and Peterson's test manual of Essentials of Health Living (22), and Johns, Shainberg and Byer's test manual of Dimensions, A Changing Concept of Health (12). These 120 test items cover 15 major areas of health.
- 2) Referral of these test items reviewed by a jury of 10 health subject matter experts for criticism, acceptance, and rating.
- 3) Administration of this test to 10th grades of Corvallis High School. The Kuder-Richardson formulas (9, p. 418) were used to establish reliability as follows:

- a) Kuder-Richardson Formula 20:

$$\begin{aligned}
 Y_{tt} &= \frac{n}{n-1} \cdot \frac{s^2 - \sum pq}{s^2} \\
 &= \frac{120}{120-1} \cdot \frac{(14.65)^2 - 23.9041}{(14.65)^2} \\
 &= 0.89609
 \end{aligned}$$

n = number of items

s^2 = variance

p = proportion getting an item correct

q = proportion getting an item wrong

pq = sum of products of p and q

b) Kuder-Richardson Formula 21:

$$r_{tt} = \frac{ns^2 - \bar{x}(n - \bar{x})}{s^2(n - 1)}$$

$$= \frac{120(14.65)^2 - 36.53(120 - 36.53)}{(14.65)^2(120 - 1)}$$

$$= 0.88902$$

- 4) Conduction of an item analysis procedure for the 120-item test (Table 2, p. 21).
- 5) Selection of 45 from the 120 items which both met the criteria of jury and item analysis.

Phase two:

A parallel health interest inventory was constructed by using the test items selected for the health knowledge test.

An example:

Health Knowledge Test: Item 1 (Appendix VII)

1. The best method today for lowering the death rate from cancer is by
 - *A. early diagnosis
 - B. repeated use of radium and X-ray
 - C. avoiding infection
 - D. early operation

Health Interest Inventory: Item 1 (Appendix VIII)

Direction: Fill in the space under the letter which best indicates your degree of interest.

A	B	C	D
No interest	Little interest	Some interest	Very interested

for furthering my knowledge in:

1. lowering the death rate from cancer.

Preparation of the Preliminary Tests

A 120 multiple-choice type knowledge test relating to the 15 topic areas in health was developed. Each item was carefully selected and revised from the aforementioned standard test or test manuals (phase 1 above). A 120 parallel-item health interest inventory was developed (phase 2 above).

In the development of a valid test, the following procedure was used:

- 1) submit test items to a jury of ten school health specialists for criticism of the test;
- 2) revise test items on the basis of criticism received from the jury of ten;
- 3) administer test items to 51 10th graders;
- 4) subject the results of tests of the 10th graders to an item analysis;

- 5) construct the final test with 45 items carefully selected from those proven the best by the jury and item analysis.

One hundred and twenty health knowledge test items were sent to the jury. The following were the criteria for evaluating items:

Criteria for evaluating items:

1. Is it a valid item, clear and understandable?
2. Are all distractors plausible?
3. Does each and every item have a single correct answer?

Instructions:

Judge each item in accordance with a three-point scale and check (✓) your choice.

If you feel the item is:

excellent	Check #1
good	Check #2
fair	Check #3

Example:

- 1 2 3 oo. Scurvy is a nutritional disease related to vitamin
- A. A
 - B. B
 - *C. C
 - D. D

*The answers to all questions were starred with an asterisk.

Every member of the jury promptly returned the rating sheets. The jury made excellent suggestions in reference to various individual multiple-choice items. Each individual multiple-choice item rating

score that had been provided by the jury was then tabulated on an accounting sheet. Each of the 120 multiple-choice items had been set up for a rating on a three-point scale as follows: excellent, good, and fair. Weights were assigned to each of these three categories respectively as follows: 1, 2, and 3.

It should be noted that the lower weights have been assigned to the categories considered most desirable, whereas the undesirable category has been assigned a weighting of 3. Given the weights indicated, it became possible to compute the mean rating, hereafter called the composite mean, achieved by each multiple-choice item. To illustrate the computation of these individual items, the values given by each member of the jury for Item 25 (Table 1, p. 19) were 1, 1, 2, 1, 1, 1, 3, 1, 1, 2. The sum of these ratings was 14; this number divided by the number of jurors (10), gave a composite mean for item 25 of 1.40.

It also should be noted that the ratings have a possible range from 1.00 to 3.00. The lower the rating, the better the item in the judgment of the jury. These ratings will be referred to later in this study as one of the criteria to be used in choosing multiple-choice items for the final 45-item test to be constructed as a part of this study. Table 1 is a listing of each multiple-choice item by consecutive number and the composite mean arrived at as a result of the jury's rating.

Table 1. Composite Mean Scores of the Multiple-Choice Items
According to the Ratings by the Jury.

Item	Composite mean	Item	Composite mean	Item	Composite mean
* 1	1.3	41	1.5	81	2.0
2	2.0	*42	1.4	82	1.4
3	1.9	*43	1.6	83	1.7
4	1.8	44	1.8	*84	1.6
5	1.6	45	1.6	85	1.2
6	1.7	46	1.9	86	1.6
* 7	2.0	47	1.5	87	1.6
* 8	1.9	*48	1.7	88	1.8
* 9	1.6	49	2.5	*89	1.5
*10	1.5	50	1.5	90	1.6
11	1.4	*51	1.4	*91	1.3
12	1.4	52	1.4	*92	1.5
13	2.0	*53	1.6	93	1.1
*14	1.7	54	1.6	94	1.8
15	2.7	*55	2.0	*95	1.7
*16	1.8	*56	1.7	*96	1.1
17	2.3	*57	1.3	97	1.5
18	2.5	58	1.9	98	1.5
19	2.4	59	2.3	99	1.6
*20	1.6	*60	1.2	100	2.1
21	1.8	61	2.1	101	2.3
*22	1.6	62	1.5	*102	1.4
23	2.2	*63	1.8	*103	1.5
24	2.2	*64	1.3	104	1.6
*25	1.4	65	1.9	105	1.7
*26	1.4	66	1.9	106	1.7
27	1.8	67	1.4	107	1.4
28	1.9	68	1.4	108	1.5
*29	1.7	69	2.1	109	1.4
*30	1.6	70	2.0	*110	1.2
*31	1.5	*71	1.7	111	1.3
32	1.7	72	1.7	112	1.8
*33	1.6	73	1.3	113	1.7
34	1.9	74	2.1	114	1.2
*35	1.9	*75	1.6	*115	1.1
*36	1.6	76	1.6	116	1.6
37	2.7	77	1.6	*117	1.4
*38	1.5	*78	1.3	118	1.5
39	1.6	79	1.2	*119	1.3
*40	1.8	80	1.0	120	2.1

Remarks: Lowest, 1.1; highest, 2.7; mean, 1.7
The lower the rating, the better the item.

*Items selected in the study.

The jury composed of eight school health educators, a school physician, and a school health nurse (Appendix II) was selected to review and criticize the preliminary forms. A letter (see Appendix III) was drafted and sent to all jury members asking them to serve in this capacity.

Selection of Final Forty-five Multiple-Choice Items
for Health Knowledge Test and Health
Interest Inventory

After each of the 120 multiple-choice items for the health knowledge test had been collected, constructed, revised, judged, and analyzed (Table 2), it was possible to make a selection of 45 items for the final form of a health knowledge test and a parallel health interest inventory.

It is important to state that each item met both jury and item analysis criteria.

Summary

This chapter has been devoted to the development of a 9th grader's health knowledge test and health interest inventory. After a thorough review of the literature, it was felt that none of the present available tests in health was applicable nor adequate for the measurement necessary in this study. Therefore, it was deemed necessary to construct a suitable test in health for the 9th grade level.

Table 2. Results of Item Analysis of the Multiple-Choice Health Knowledge Items.

Item	DI	ID	Item	DI	ID	Item	DI	ID
** 1	24	39	37	17	-12	73	39	- 3
2	28	10	**38	22	44	74	8	- 6
3	54	14	39	45	20	**75	30	39
4	25	16	*40	30	27	76	13	17
5	25	16	41	22	10	77	19	5
6	39	- 3	**42	44	43	**78	47	37
** 7	41	49	**43	39	44	79	28	10
** 8	53	37	44	22	-13	80	45	20
* 9	24	27	45	59	25	81	19	5
**10	53	37	46	25	- 7	82	39	21
11	13	5	47	22	22	83	36	3
12	19	16	**48	36	38	**84	33	33
13	28	10	*49	48	26	85	33	21
**14	56	42	50	28	-13	86	30	15
15	39	21	**51	39	44	87	31	4
*16	48	26	52	42	15	88	27	21
17	16	22	**53	41	49	**89	22	44
*18	48	26	54	22	10	90	19	28
19	22	-13	**55	50	43	**91	33	33
**20	41	61	**56	33	44	*92	36	27
21	39	21	**57	39	44	93	39	9
**22	27	45	58	33	9	94	16	11
**23	42	38	**59	33	33	**95	30	39
24	48	14	**60	21	33	**96	42	38
**25	42	38	61	16	- 1	97	22	- 1
**26	33	44	62	33	21	98	19	16
27	22	10	**63	33	44	99	45	20
28	17	-12	*64	30	27	100	34	- 2
*29	42	26	65	16	22	101	28	- 2
**30	36	38	66	22	- 1	**102	33	33
**31	33	33	67	28	10	*103	24	27
32	25	4	68	8	-17	104	31	4
**33	39	32	69	22	22	105	16	33
34	39	21	70	22	10	106	36	15
*35	19	28	**71	39	32	107	25	4
*36	24	27	72	33	9	108	34	- 2

(Continued on next page)

Table 2. (Continued)

Item	DI	ID	Item	DI	ID	Item	DI	ID
109	17	-12	113	16	33	**117	50	43
**110	45	32	114	25	4	118	19	5
111	25	4	**115	33	56	**119	30	39
112	19	-7	116	10	11	120	25	16

** Acceptable range

* Marginal and revisable items

DI = Difficulty index; ID = Discrimination index. Criteria for selection from item analysis (Appendix IV).

This test aims at measuring general health knowledge rather than any specific area, such as nutrition or first aid. Therefore, the selection of the items in this test covered a wide range of health knowledge. One hundred and twenty multiple-choice items were constructed and submitted for the criticism of ten test and subject matter experts. After receiving criticism from the experts, items were revised. Using the item analysis data and referring to the ratings provided by the jury, items were selected for the final 45-item test. Hence, validity of the test was appraised. Reliability of the test was demonstrated by using the Kuder-Richardson formula 20 and 21 (Chapter III, p. 13).

The final multiple-choice item health knowledge test with a parallel health interest inventory (Appendices VII and VIII) developed as a result of this effort.

CHAPTER IV

PROCEDURES OF THE STUDIES AND
ANALYSIS OF THE RESULTSSubjects

Both school district A with six junior high schools and school district B with three junior high schools are located in Oregon in the Willamette Valley. Primary employment of the residents in the school districts involved in the study was in government work. Per capita income of persons in district A is \$3, 125 and \$3, 011 in district B (22, p. 39-192 and 39-227). Families mean income for the district A is \$12, 104 and \$11, 362 for the district B (19, p. 36 and 42). The assumption was made that both districts have similar socioeconomic backgrounds.

Through the Statistical Interactive Programming System (SIPS) the comparison was made of word knowledge scores of the two samples.

The results of the comparison are as follows:

	Sample A	Sample B
Sample size	119	125
Mean	96.42	94.26
Variance	208.47	161.51
t-statistic =	1.27	

The t-statistic ($t = 1.27$) is smaller than the critical value 1.96 at the 0.05 significance level. It is, therefore, concluded that there is no significant difference between the two samples in word knowledge scores.

Through the Statistical Interactive Programming System (SIPS) the comparison was made of reading comprehension scores of the two samples. The results of the comparison are as follows:

	Sample A	Sample B
Sample size	119	125
Mean	99.28	96.42
Variance	265.41	199.58

t-statistic = 1.47

The t-statistic ($t = 1.47$) is smaller than the critical value 1.96 at the 0.05 significance level. Again, it is concluded that there is no significant difference between the two samples in reading comprehension scores. The word knowledge scores and reading comprehension scores were used to match the samples because I.Q. scores were not available. A new law (Public Law 93-380) prohibited the release of individual I.Q. datum. Individual scores for reading comprehension and word knowledge were made available by school authorities through an anonymous procedure. Reading comprehension and word knowledge may be the significant factors in determining levels of intelligence.

Total enrollment of 9th graders in both school district A and school district B was 2,639 during Fall 1974 academic term. Participants in the study were 279 9th grade students. Of these, 146 were from school district A, and 133 were from school district B. Thirty-five of the original sample were eliminated from the study because they were either transfer students or did not complete the test. Of the final sample, 119 came from three junior high schools in district A, and 125 came from one junior high school in district B to test hypotheses I and II. The sample, 125 9th grade students from school district A, was used to test hypothesis III. Participants from both school district A and school district B were selected during the Fall 1974 academic term. All selected participants were tested at the beginning of the academic term. District A students were given a post-test following the completion of their health instruction unit.

Instruments Used

A specially designed health knowledge test and a parallel health interest inventory were constructed and were the instruments of measure used in this investigation (Appendices VII and VIII). While the knowledge test and the interest inventory were developed by the investigator, not all items were original. Some knowledge test items used in this investigation were modifications of test items developed by other people in this area of educational research (3, 12, 13, 14, 16, 25).

Procedures for Collection of Data

Pre-Test

A 45-item health interest inventory was administered to 146 students before the 9th graders of school district A had their 9-week block in health. A 45-parallel-item health knowledge test was then administered to the same sample of 9th graders. The health interest inventory and the health knowledge test took a 45-minute class period for completion.

In school district B, which had a 9-week block only at the 7th grade level in the junior high school, a 45-item health interest inventory was administered to 133 9th grade students. A 45-parallel-item health knowledge test was then administered to the same sample of 9th graders. Both tests were completed in a 50-minute class period.

Post-test

After the 9th graders of school district A completed a 9-week block in health, the same procedures were used to administer the identical post-test as was used in the pre-test. There were no results of the post-tests for 9th graders of school district B because of the absence of any treatment effect. In other words, there was not any health instruction for 9th graders in school district B.

Scoring

Both tests were hand-scored by the investigator. All raw scores were transferred to a 100-point basis.

Analysis of Data

Objectives

The objectives of statistical analysis were to find:

- 1) What effect did the variables of number of classes, of sex (male or female), and of word knowledge have upon the student's health knowledge.
- 2) What effect did a 9-week health instruction unit have upon knowledge retention based upon pre- and post-test results.

Choice of Independent Variables

Word knowledge has a high relationship with reading comprehension. In this study, the correlation coefficient of the two variables (X_1 = word knowledge, X_2 = reading comprehension) was 0.86. This implies that both X_1 and X_2 are of near equal importance. The implication in this study is that the use of either X_1 or X_2 in this analysis serves the same purpose. The investigator chose the X_1 (word knowledge) as one of the variables in the regression model.

Stepwise regression showed that health interest is not a significant variable (F-statistic = 0.0799, smaller than the critical value, 3.84). Therefore, health interest was not included as a variable in the regression model.

Analytical Process

From the previous statement, the functional form (the mathematical form of the equation) was established as follows:

$$Y_{ijk} = \mu + \alpha_i + \beta_j + \gamma X_{ijk} + e_{ijk}$$

where:

Y_{ijk} = scores of health knowledge

μ = grand mean

α_i = number of classes or treatment effect

β_j = sex effect

X_{ijk} = word knowledge

γ = regression coefficient

e_{ijk} = random error

This model supposes that health knowledge might be affected by number of classes, sex, word knowledge, treatment effect, and random error.

However, for the purpose of analysis, the mathematical model was converted into a regression model. The corresponding regression model was specified as follows:

$$HK = f(D_1, D_2, WK)$$

where:

HK = health knowledge

D_1 = dummy¹ for sex, 1 = male, 0 = female

D_2 = dummy¹ for number of classes; 1 = students had health in 7th grade, 0 = students had health in 7th and 8th grades, or 7th, 8th, and 9th grades

WK = word knowledge

$$HK = f(D_1, D_3, WK)$$

where:

HK = health knowledge

D_1 = dummy¹ for sex; 1 = male, 0 = female

D_3 = dummy¹ for treatment effect; 0 = pre-test, 1 = post-test

WK = word knowledge

Statistical procedures utilizing the data of this study were the t-test, F-test, and regression analysis. All statistical calculations were performed by computer through the use of Oregon State University Statistical Interactive Programming System (SIPS).

Hypotheses to Be Tested

This study was designed to test the general hypothesis that 9th

¹Dummy - a variable that assumes only two values, zero or one, that may be used to represent nonquantitative variables such as sex, number of classes, and pre- or post-test (4, p. 32).

graders who had longer blocks in health instruction have more health knowledge than 9th grade students who had shorter blocks, and that there would be a significant relationship between the student's health knowledge and health interest.

Analysis of Hypothesis I

The following null hypotheses I, I(a), I(b) and I(c) were established to be treated statistically:

Hypothesis I

Ninth graders who had a 9-week block in health instruction at the 7th and 8th grade levels have no more health knowledge than 9th graders who had a 9-week block in health only at the 7th grade level.

Subhypothesis I(a)²

There is no significant difference between 9th grade boy students' score and 9th grade girl students' score.

Subhypothesis I(b)³

There is no significant difference between the score of health knowledge and the score of word knowledge in 9th grade students.

Subhypothesis I(c)⁴

There is no relationship between 9th grade students' health knowledge and their health interests.

²This was retested in subhypotheses II(a) and III(a).

³This was retested in subhypothesis II(b) and subhypothesis (III(b).

⁴This was retested in subhypotheses II(c) and III(c).

In comparison of the pre-score of school district B with the pre-score of school district A, the estimated regression was presented as follows:

$$HK = -1.813 - 5.251 D_1 - 3.349 D_2 + 0.9720 WK; R^2 = 0.50$$

$$t\text{-statistics: } \quad (-4.00) \quad (-2.55) \quad (14.38)$$

where:

HK = health knowledge

D_1 = dummy for sex; 1 = male, 0 = female

D_2 = dummy for number of classes; 1 = students had a health class in 7th grade; 0 = students had health classes in 7th and 8th grades

WK = word knowledge

The three numbers in parentheses listed above are the t-statistics for testing whether variables D_1 (sex), D_2 (number of classes), and WK (word knowledge) are, respectively, significant.

Through the Statistical Interactive Programming System (SIPS), an analysis of variance was given in Table 3.

Table 3. Analysis of Variance Table for Health Knowledge Score Regressed on Sex, Number of Classes, and Word Knowledge (the comparison of the students who had a health class in 7th grade with the students who had health classes in 7th and 8th grades).

Source	DF	Sum of Squares	Mean Square	F
Total	248	49,360	203.18	79.49*
Regression	3	24,600	8,200.28	
Residual	240	24,759	103.16	

* 0.01 level of significance

The F-test was used to test the hypothesis that the coefficients of the explanatory variables (sex, number of classes, and word knowledge) are simultaneously equal to 0. The F-statistic is 79.49, which is greater than the critical value ($F_{3, 240} = 2.68$) at the 0.01 level. The F-test implies that the coefficients of sex, number of classes, and word knowledge are not simultaneously equal to 0. In other words, at least one of the coefficients is different from 0.

The F-test was confirmed by the t-test. The t-tests were applied in testing the null hypotheses that the coefficients are individually equal to 0. The absolute value of the t-statistics of coefficients of sex, number of classes, and word knowledge (4.00, 2.55, and 14.38 respectively) are all greater than the critical value ($t_{0.025, 240} = 1.960$) at the 0.05 significance level (8, p. 305). The null hypotheses were rejected. This means that sex, number of classes, and word knowledge have significantly affected health knowledge.

R^2 is equal to 0.50 which indicated 50 percent of the variation in health knowledge was associated with the variation of sex, number of classes, and word knowledge. Both the t- and F-tests indicated that the coefficient of sex, number of classes, and word knowledge are respectively significantly different from 0 at the 0.05 and 0.01 significance level.

The hypotheses were restated and tested individually as follows:

Hypothesis I

Ninth graders who had a 9-week block in health at the 7th and 8th grade levels have no more health knowledge than 9th graders who had a 9-week block in health only at the 7th grade level.

The t-statistic of the coefficient of the number of classes is 2.55, which is greater than the critical value ($t_{0.05, 240} = 1.645$) at the 0.05 significance level. Hypothesis I is, therefore, rejected.

The coefficient of number of classes (D_2) has a negative sign with magnitude equal to 3.349. The coefficient indicates that the student who had health instruction only in 7th grade could be expected to score 3.349 points less than the student who had health instruction in 7th and 8th grades.

Subhypothesis I(a)

There is no significant difference between 9th grade boy students' score and 9th grade girl students' score.

The t-statistic of the coefficient of sex is 4.00, which is greater than the critical value ($t_{0.025, 240} = 1.960$) at the 0.05 significance level. Subhypothesis I(a) is, therefore rejected.

The coefficient of sex (D_1) has a negative sign with magnitude equal to 5.251. The coefficient indicates that the boy students' score could be expected to be 5.251 points less than girls' score.

Subhypothesis I(b)

There is no significant difference between the score of health knowledge and the score of word knowledge in 9th grade students.

The t-statistic of the coefficient of word knowledge is 14.38, which is greater than the critical value ($t_{0.025, 240} = 1.960$) at the 0.05 significance level. Subhypothesis I(b) is, therefore, rejected.

The coefficient of word knowledge (WK) has a positive sign with magnitude equal to 0.9720. The coefficient indicates that if word knowledge increased one unit in 100, the health knowledge could be expected to increase 0.9720 point.

Subhypothesis I(c)

There is no relationship between the 9th grade students' health knowledge and their health interests.

Through the Statistical Interactive Programming System (SIPS) the correlation coefficient of variable 1 (health interests) and variable 2 (health knowledge) was found to be -0.096. It indicates a negative and very low relationship of the health interests and health knowledge.

Analysis of Hypothesis II

The following null hypotheses II, II(a), II(b) and II(c) were established to be treated statistically:

Hypothesis II

Ninth graders who had a 9-week block in health at the 7th, 8th, and 9th grade levels have no more health knowledge than 9th graders who had a 9-week block in health at the 7th grade level.

Subhypothesis II(a)

There is no significant difference between 9th grade boy students' score and 9th grade girl students' score.

Subhypothesis II(b)

There is no significant difference between the score of health knowledge and the score of word knowledge in 9th grade students.

Subhypothesis II(c)

There is no relationship between 9th grade students' health knowledge and their health interests.

In comparison of the pre-score of school district B with the post-score of school district A, the estimated regression equation was presented as follows:

$$HK = -3.184 - 6.623 D_1 - 4.456 D_2 + 1.019 WK; R^2 = 0.50$$

$$t\text{-statistics:} \quad (-4.71) \quad (-3.17) \quad (14.06)$$

where:

HK = health knowledge

D_1 = dummy for sex; 1 = male, 0 = female

D_2 = dummy for number of classes; 1 = students had a health class in 7th grade, 0 = students had health classes in 7th, 8th, and 9th grades

WK = word knowledge

The three numbers in parentheses listed above are the t-statistics for testing D_1 (sex), D_2 (number of classes), and WK (word knowledge) and are, respectively, significant.

Through the Statistical Interactive Programming System (SIPS), an analysis of variance was given in Table 4.

Table 4. Analysis of Variance Table for Health Knowledge Score Regressed on Sex, Number of Classes, and Word Knowledge (the comparison of the students who had a health class in 7th grade with the students who had health classes in 7th, 8th, and 9th grades).

Source	DF	Sum of Squares	Mean Square	F
Total	243	56,912	243.21	80.07*
Regression	3	28,469	9,489.77	
Residual	240	28,443	118.51	

* 0.01 level of significance

The F-test was used to test the hypothesis that the coefficients of explanatory variables (sex, number of classes, and word knowledge) are simultaneously equal to 0. The F-statistic is 80.07, which is greater than the critical value ($F_{3, 240} = 2.68$) at the 0.01 significance level. The F-test implies that the coefficient of sex, number of classes, and word knowledge are not simultaneously equal to 0. In other words, at least one of the coefficients is different from 0.

The F-test was confirmed by the t-test. The t-tests were applied in testing the null hypotheses that the coefficients are individually equal to 0. The absolute value of the t-statistic of the coefficients of sex, number of classes, and work knowledge (4.71, 3.17, and 14.06 respectively) are greater than the critical value ($t_{0.025, 240} = 1.960$) at the 0.01 significance level (8, p. 305). The null hypotheses were rejected. This means that sex, number of classes, and word knowledge have significantly affected health knowledge.

R^2 is equal to 0.50 which indicated 50 percent of the variation in health knowledge was associated with the variation of sex, number of classes, and word knowledge. Both the t- and the F-tests indicated that the coefficient of sex, number of classes, and word knowledge are respectively significantly different from 0 at the 0.05 and 0.01 significance level.

The hypotheses were restated and tested individually as follows:

Hypothesis II

Ninth graders who had a 9-week block in health in 7th, 8th, and 9th grades have no more health knowledge than 9th graders who had a 9-week block in health in 7th grade.

The t-statistic of the coefficient of the number of classes is 3.17, which is greater than the critical value ($t_{0.05, 240} = 1.645$) at the 0.05 significance level. Hypothesis II is, therefore, rejected.

The coefficient of number of classes (D_2) has a negative sign with magnitude equal to 4.456. The coefficient indicates the student who had health instruction in 7th grade could be expected to be 4.456 points less than the student who had health instruction in 7th, 8th, and 9th grades.

Subhypothesis II(a)

There is no significant difference between 9th grade boy students' scores and 9th grade girl students' scores.

The t-statistic of the coefficient of sex (D_1) is 4.71, which is greater than the critical value ($t_{0.025, 240} = 1.960$) at the 0.05 significance level. Subhypothesis II(a) is, therefore, rejected.

The coefficient of sex (D_1) has a negative sign with magnitude equal to 6.623. The coefficient indicates that boys' score could be expected to be 6.623 points less than girls' score.

Subhypothesis II(b)

There is no significant difference between the score of health knowledge and the score of word knowledge in 9th grade students.

The t-statistic of the coefficient of word knowledge is 14.06, which is greater than the critical value ($t_{0.025, 240} = 1.960$) at the 0.05 significance level. Subhypothesis II(b) is, therefore, rejected.

The coefficient of word knowledge (WK) has a positive sign with magnitude equal to 1.019. The coefficient indicates that if word knowledge increased one unit in 100 the health knowledge could be expected to increase 1.019 points.

Subhypothesis II(c)

There is no relationship between the 9th grade students' health knowledge and their health interests.

Through the Statistical Interactive Programming System (SIPS) the correlation coefficient variable 1 (health interests) and variable 2 (health knowledge) was found to be -0.094. It indicates a negative and very low relationship of the health interests and health knowledge.

Analysis of Hypothesis III

The following null hypotheses III, III(a), III(b), and III(c) were

established to be treated statistically:

Hypothesis III

There is no significant difference between the pre-test score and the post-test score of the 9th graders in school district A.

Subhypothesis III(a)

There is no significant difference between 9th grade boy students' score of health knowledge and 9th grade girl students' score of health knowledge.

Subhypothesis III(b)

There is no significant difference between the score of health knowledge and the score of word knowledge in 9th grade students.

Subhypothesis III(c)

There is no relationship between 9th grade students' health knowledge and their health interests.

In comparison of the pre-test scores of school district A with the post-test scores of school district A, the estimated regression equation was presented as follows:

$$HK = -6.491 - 5.669 D_1 + 1.156 D_3 + 1.044 WK; R^2 = 0.51$$

$$t\text{-statistics:} \quad (-4.60) \quad (9.408) \quad (15.37)$$

where:

HK = health knowledge

D_1 = dummy for sex; 1 = male, 0 = female

D_3 = dummy for treatment effect; 0 = pre-test, 1 = post-test

WK = word knowledge

The three numbers in parentheses listed above are the t-statistics for testing whether variables for D_1 (sex), D_3 (treatment effect) and WK (word knowledge) are, respectively, significant.

Through the Statistical Interactive Programming System (SIPS) an analysis of variance table was given in Table 5.

Table 5. Analysis of Variance Table for Health Knowledge Score Regressed on Sex, Number of Classes, and Word Knowledge (in school district A, the comparison of the 9th graders who had post-test in health with the 9th graders who had pre-tests in health).

Source	DF	Sum of Squares	Mean Square	F
Total	249	47,418	190.43	85.61*
Regression	3	24,220	8,073.42	
Residual	246	23,198	94.30	

*0.01 level of significance

The F-test was used to test the hypothesis that the coefficient of explanatory variables (sex, pre- or post-test, and word knowledge) are simultaneously equal to 0. The F-statistic is 85.61 which is greater than the critical value ($F_{3, 246} = 2.68$) at the 0.01 significance level. The F-test implies that the coefficient of sex, pre- or post-test, and word knowledge are not simultaneously equal to 0. In other words, at least one of the coefficients is different from 0.

The F-test was confirmed by the t-test. The t-tests were applied in testing the null hypotheses that the coefficients are individually equal to 0. The absolute value of the t-statistics of coefficients

of sex, pre- or post-test, and word knowledge (4.60, 9.408, and 15.37 respectively) are greater than critical value ($t_{0.025, 246} = 1.960$) at the 0.05 significance level (8, p. 305). The null hypotheses were rejected. This means sex, pre- or post-test, and word knowledge have significantly affected health knowledge.

R^2 is equal to 0.51 which indicated that the 51 percent of the variation in health knowledge was associated with the variation of sex, pre- or post-test, and word knowledge. Both the t- and the F-tests indicated that the coefficients of sex, pre- or post-test, and word knowledge are respectively significantly different from zero at the 0.05 and 0.01 significance levels.

The hypotheses were restated and tested individually as follows:

Hypothesis III

There is no significant difference between the average pre-test score and the average post-test score of the same sample of 9th graders in school district A.

The t-statistic of the coefficient of the pre- or post-test is 9.408, which is greater than the critical value ($t_{0.05, 246} = 1.645$) at the 0.05 significance level. Hypothesis III is, therefore, rejected.

The coefficient of pre- or post-test (D_3) has a positive sign with magnitude equal to 1.156. The coefficient indicates the score of post-test could be expected to be 1.156 points more than the score of pre-test.

Subhypothesis III(a)

There is no significant difference between 9th grade boy students' score of health knowledge and 9th grade girl students' score of health knowledge.

The t-statistics of the coefficient of sex is 4.60, which is greater than the critical value ($t_{0.025, 246} = 1.960$) at the 0.05 significance level. Subhypothesis III(a) is, therefore, rejected.

The coefficient of sex (D_1) has a negative sign with magnitude equal to 5.669. The coefficient indicated that the boys' score could be expected to be 5.669 points less than the girls' score.

Subhypothesis III(b)

There is no difference between the score of health knowledge and the score of word knowledge in 9th grade students.

The t-statistic of the coefficient of word knowledge is 15.37, which is greater than critical value ($t_{0.025, 240} = 1.960$) at the 0.05 significance level. Subhypothesis III(b) is, therefore, rejected.

The coefficient of word knowledge (WK) has a positive sign with magnitude equal to 1.044. The coefficient indicates that if word knowledge increased one unit in 100, the health knowledge could be expected to increase 1.044 points.

Subhypothesis III(c)

There is no relationship between the 9th grade students' health knowledge and their health interests.

Through the Statistical Interactive Programming System (SIPS) the correlation of coefficient variable 1 (health interests) and variable 2 (health knowledge) was found to be -0.088. It indicates a negative and very low relationship of the health interests and health knowledge.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

One of the main aims of education is to endow each individual with the essential qualities of good citizenship. Health education is an important part of good citizenship. Today, the ever-growing tide of health knowledge, along with unsolved health problems, make health instruction part and parcel of general education of American youth.

The ultimate goal of school health instruction is to lead students into favorable health behavior and practices. For this purpose, it is necessary to provide the health knowledge which forms the base for the development of favorable attitudes and practices which are fundamental to a high quality of health for each individual's life needs.

Evaluation is an indispensable part of the educational process. The effectiveness of health instruction, therefore, should be measured for purposes of improvement in health teaching and learning. The main purpose of this study was to investigate the effectiveness of additional time in health instruction at the junior high school level. More specifically, it was to compare the effectiveness of health instruction by different scheduling patterns.

The study compared the following curricular patterns:

- 1) A 9-week block in health instruction in the 7th grade at the junior high school level, and a 9-week block in health instruction in the 7th and 8th grades at the junior high school level.
- 2) A 9-week block in health instruction only in the 7th grade at the junior high school level, and a 9-week block in health instruction in the 7th, 8th, and 9th grades at the junior high school level.
- 3) A 9-week block in health instruction in the 7th and 8th grades at the junior high school level, and a 9-week block in health instruction in the 7th, 8th, and 9th grades at the junior high school level.

In order to compare the effect upon knowledge of these different scheduling procedures, the adequate devices for appraising the status of health knowledge and health interest were a basic requirement. An analysis of the literature disclosed that published junior high school health knowledge tests and health inventory were not only limited in the number available, but lacked content validity because of rapid change in health knowledge. As a result, it was necessary to construct an adequate test in health for this study.

The procedure of test construction included the following steps:

- 1) Selection, revision, and use of 120 items selected from Kilander-Leach's Health Knowledge Test, Anderson's test

manual of Health Principle and Practice, Veenker's Health Knowledge Test, LaPlace's test manual of Health, Schifferes and Peterson's test manual of Essentials of Health Living, and Jones, Shainberg and Byer's test manual of Dimensions, A Changing Concept of Health. The 120 test items selected covered 15 major areas of health.

- 2) Referral of these items to a jury of 10 health subject-matter experts for criticism, acceptance, and rating.
- 3) Item analysis was applied to determine the statistically acceptable items.
- 4) Selection of 45 from the 120 items which both met the criteria for jury decision and item analysis.

The final form of the test produced results confirming its effectiveness. Every item included was subjected to the scrutiny of a group of experts, and met the criteria of item analysis. Statistical analysis showed the test to be highly satisfactory as to its reliability, with a coefficient of 0.88. The final 45 multiple-choice item 9th grade health knowledge test and health interest inventory was developed as a result of the foregoing steps of test construction.

After the construction of a valid 9th grade health knowledge test, it was possible to compare the effectiveness of health instruction by different curricular patterns.

The samples for this study consisted of 119 9th grade students from school district A and 125 9th grade students from school district B in testing hypotheses I and II. One hundred and twenty-five 9th grade students were used in testing hypothesis III. The samples were matched according to their per capita, families' mean income, reading comprehension and word knowledge.

The following null hypotheses were established and treated statistically.

Hypothesis I

- 1) Ninth graders who had a 9-week block in health at 7th and 8th grade levels have no more health knowledge than 9th graders who had a 9-week block in health at the 7th grade level.

Conclusion: Hypothesis I is rejected at the 0.05 level of significance.

Hypothesis II

- 2) Ninth graders who had a 9-week block in health at 7th, 8th, and 9th grade levels have no more health knowledge than 9th graders who had a 9-week block in health at the 7th grade level.

Conclusion: Hypothesis II is rejected at the 0.05 level of significance.

Hypothesis III

- 3) Ninth grade students who had a 9-week block in health at 7th, 8th, and 9th grade levels have no more health knowledge than 9th grade students who had a 9-week block in health at the 7th and 8th grade levels.

Conclusion: Hypothesis III is rejected at the 0.05 level of significance.

Subhypotheses I(a), II(a), and III(a)

- 4) There was no significant difference between 9th grade boy students' score of health knowledge and 9th grade girl students' score of health knowledge.

Conclusion: Hypotheses I(a), II(a), and III(a) are rejected at the 0.05 level of significance.

Subhypotheses I(b), II(b), and III(b)

- 5) There was no significant difference between the score of health knowledge and the score of word knowledge of 9th grade students.

Conclusion: Hypotheses I(b), II(b), and III(b) are rejected at the 0.05 level of significance.

Subhypotheses I(c), II(c), and III(c)

- 6) There was no relationship between the 9th grade student health knowledge and their health interests.

Conclusion: Their correlation is very low.

Hypothesis I, hypothesis II, and hypothesis III all verified the additional time in health instruction at the 8th or 8th and 9th grade levels increased student health knowledge.

The results of all the subhypotheses confirmed that sex, number of classes and word knowledge increased the 8th and 9th grade students' health knowledge.

The findings of this study are summarized as follows:

- 1) The student who had health instruction only in the 7th grade could be expected to score 3.349 points less than the student who had health instruction in the 7th and 8th grades; or 4.456

points less than the students who had health instruction in the 7th, 8th, and 9th grades. These differences are significant at the 0.05 level.

- 2) The score of the post-test could be expected to exceed the score of the pre-test by 1.156. This difference is significant at the 0.05 level.
- 3) The boys' score could be expected to be 5.251 or 6.623, or 5.669 points less than the girls' score. These differences are significant at the 0.05 level.
- 4) If word knowledge increased one unit in 100, the health knowledge could be expected to increase 0.9720 or 1.019 or 1.044 points respectively. These differences are significant at the 0.05 level.
- 5) The correlation of coefficient variable 1 (health interests) and variable 2 (health knowledge) was found to be -0.096, -0.094, and -0.088 respectively. It indicated a negative and very low relationship of the two variables.

Conclusions

The following conclusions were drawn from the data presented in this study.

- 1) Evidence was obtained indicating a significant difference in the effectiveness of different periods of health instruction.

- a) Ninth graders who had a 9-week block in health at the 7th and 8th grade levels have more health knowledge than 9th graders who had a 9-week block in health only at the 7th grade level.
- b) Ninth graders who had a 9-week block in health at 7th, 8th, and 9th grade levels have more health knowledge than 9th graders who had a 9-week block in health at the 7th grade level.
- c) Ninth graders scored higher in health knowledge post-test than they did in the pre-test.

The differences in the effectiveness of the three health curricular patterns was found to be significant at the 0.05 level.

- 2) Evidence obtained indicated a negligible coefficient correlation between health interest and health knowledge.
- 3) Evidence was obtained that 9th grade girls' scores are superior to 9th grade boys' scores.
- 4) Evidence was obtained indicating word knowledge will affect health knowledge of the 9th grader.
- 5) The test developed for 9th graders for the measurement of both health knowledge and the parallel health interest inventory is a new concept in health education measurement.
- 6) The 9th grade health knowledge test developed in this research appears to be a valid instrument for measuring the acquisition of health knowledge.

Recommendations

The following recommendations were based on the results of the study.

- 1) That further studies, using a multiple regression method, should be conducted to demonstrate how other variables beyond number of classes, sex, and word knowledge affect health knowledge.
- 2) That health vocabulary instruction should be an important phase of the health education program.
- 3) That further study should be directed toward determining the reason(s) for the discrepancy in scores of male and female students and devising a method which can achieve equivalent scores between the sexes.
- 4) That administrators, on the junior high school level, should consider providing additional time in health instruction in order to enhance the 9th graders' health knowledge.
- 5) That further investigations be made into the multi-pattern of health schedulings; such as the regular five day-week course vs. the three-two plan; one period each week vs. correlation with other subjects; integrated health instruction vs. correlation with other subjects; integrated health instruction vs. incidental health instruction. The outcome of these comparisons may give school

administrators a guide in establishing a better health instruction program.

- 6) That instructors should be encouraged to use a program of pre-testing and post-testing to help measure the effectiveness of their own instruction in health.
- 7) That future research should be directed toward the development of a health knowledge test and a parallel health need check list; or a health knowledge test with a parallel health practice check list.
- 8) That further studies be directed to the question of how health interests arise and what intensifies a student's health interests.
- 9) That further study be made of the relationships of health interests and health practices or behavior.
- 10) That a study be initiated to determine what health knowledge is most important and how that health knowledge can be the core of a school health education program.
- 11) That further study be made of the relationship of reading level and the acquisition of health knowledge.

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APPENDICES

APPENDIX I

COMMITTEE FOR PROTECTION OF HUMAN SUBJECTS

OREGON STATE UNIVERSITY

Committee for Protection of Human Subjects

Summary of Review

Title: A Comparative Analysis of the Health Knowledge and Health
Interests Derived from Two Different Curricular Patterns at
the Junior High School Level

Program Director: Arthur Koski (Fajaw Yeh)

Recommendation:

XXX Approval
 _____ Provisional Approval
 _____ Disapproval
 _____ No Action

Remarks:

Redacted for Privacy

Date: _____

Signature: _____

cc: Dr. MacDonald

mep

[Handwritten Signature]
 Assistant Dean of Research
 Phone: 754-3437

APPENDIX II

JURY SELECTED AND INSTITUTION REPRESENTED

JURY SELECTED AND INSTITUTION REPRESENTED

Dr. Carl Anderson Emeritus Professor of Health
Oregon State University

Dr. Gordon Anderson Professor of Health
Oregon State University

Dr. Mary Beyrer Professor of Health
Ohio State University

Dr. John Burt Professor of Health
University of Maryland

Dr. Roy Foster Professor of Health
Oregon State University

Dr. Cyrus Mayshark Dean of Education
University of Texas

Dr. June McMurdo Health Teacher
Corvallis High School

Mrs. Kay Novak School Health Nurse
Western View Jr. High School

Dr. Noel Rawls. Health Officer
Benton County Health Department

Mr. Len Tritzsch Health Education Specialist
State Board of Health, Oregon

APPENDIX III

A LETTER TO THE JURY OF TEN

May 21, 1974

This letter is being written in connection with a doctorate research project being conducted at Oregon State University under the direction of Dr. Arthur Koski. The purpose of this study is to construct an instrument to be administered to 9th graders of the junior high school to determine their health interests and health knowledge. The construction of the instrument necessitates the selection of health items which may be used to identify the interests and knowledge of students. In an attempt to determine which items shall be included in the instrument, it is important to have the preliminary items rated by a jury of experts for validation purposes. From the jury returns, an instrument will be constructed which will be administered to approximately 300 students in the ninth grade. We are anxious to determine the health interests and health knowledge relations owing to different curricular patterns at the junior high school level. In doing this, high schools may provide a more effective scheduling plan in health education.

I am enclosing a copy of the preliminary instrument for your evaluation together with a self-addressed stamped envelope for your convenience when replying. Would you arrange to check the item in the instrument and return it to me by June 6, 1974? Any comments and suggestions that you may have will be gratefully appreciated. I will send you a copy of the findings of this research when they are available.

I sincerely appreciate your helpfulness in this research project.

Very sincerely yours,

Fa-jaw Yeh
Graduate Assistant
Department of Health
Oregon State University

Encs.

APPENDIX IV

CRITERIA FOR SELECTION OF OBJECTIVE QUESTIONS
BY ITEM ANALYSIS

CRITERIA FOR SELECTION OF OBJECTIVE QUESTIONS
BY ITEM ANALYSIS

1. Difficulty Index (DI)--the average of the 27% of the upper group that marked the item correct and 27% of the lower group that marked the item correct.

$$DI = \frac{H+L}{2}$$

2. Discrimination Index (ID)--subtract the lower % from the upper %

$$ID = U - L$$

3. Selection of Test Item:

Acceptable range

- A. DI is less than 70 and greater than 20.
- B. ID is greater than 30.
- C. Both criteria must be met.

4. Marginal and Revisable Items:

- A. DI is less than 60 and greater than 20.
- B. ID is greater than 25
- C. Both criteria must be met.
- D. Selection to be revised
 - A) Answers little or negative discrimination
 - B) Answers that are seldom selected.

APPENDIX V

HEALTH KNOWLEDGE TEST OF ORIGINAL 120-ITEM

HEALTH KNOWLEDGE TEST OF 120 ITEMS

DIRECTIONS: Carefully fill out the above information before turning to the questions. Each question gives a choice of several answers. Circle the appropriate answer on the answer sheet that is provided. Do not spend too much time on any one question. Do not write on this test.

Example: (Question) 00. A lack of which of the following substances causes night blindness

- A. Vitamin D
- B. Vitamin B
- C. Vitamin C
- D. Vitamin A

(Answer) 00. A B C (D)

(The right answer would be shown by circling the letter "D")

Chronic Diseases

1. The best method today for lowering the death rate from cancer is by
 - * A. early diagnosis
 - B. repeated use of radium and x-ray
 - C. improvement in one's general health
 - D. early operation

2. The number of cases of organic diseases such as heart disease and cancer compared with communicable diseases such as typhoid, tuberculosis, and diphtheria is:
 - * A. increasing
 - B. the same
 - C. decreasing
 - D. not known

3. Arthritis is a form of rheumatism in which there is inflammation of:
 - A. muscles
 - * B. joints
 - C. nerves
 - D. bursae

4. Where does heart disease rank as a cause of death in the United States today?
 - * A. First
 - B. Second
 - C. Fifth
 - D. Among the second five causes

5. A stroke occurs when blood cannot get to the
 - A. heart muscle
 - B. kidneys
 - * C. brain
 - D. lungs

6. The term 'tumor' means:
 - A. cancer
 - * B. new growth
 - C. malignant growth
 - D. benign growth

7. The two leading causes of death in the United States at the present time are:
- A. accidents and heart disease
 - * B. cancer and heart disease
 - C. stroke and heart disease
 - D. cancer and stroke
8. A patient with a very high white blood cell count may have
- A. emphysema
 - B. pernicious anemia
 - * C. leukemia
 - D. carcinoma

Communicable Disease

9. Tuberculosis is best treated by
- A. humid climate
 - B. dry climate
 - C. X-ray treatment
 - * D. drugs
10. Botulism refers to:
- * A. a type of food poisoning
 - B. one of the newer drugs
 - C. an enzyme
 - D. a tropical disease
11. The blood test required in many states before a marriage license is issued is for the purpose of determining whether or not either party has:
- * A. syphilis
 - B. gonorrhea
 - C. tuberculosis
 - D. hemophilia
12. A communicable disease that is most likely to cause blindness is
- * A. gonorrhea
 - B. measles
 - C. diphtheria
 - D. tuberculosis

13. Immunity-producing substances are called
- A. vaccine
 - B. antigens
 - * C. antibodies
 - D. tranquilizers
14. Fungi cause which diseases?
- A. Malaria and African sleeping sickness
 - * B. Athlete's foot and ringworm
 - C. Typhus and Rocky Mountain spotted fever
 - D. Yellow fever and hepatitis
15. Eating poorly cooked beef or fish, or living under unsanitary conditions with dogs, may produce
- A. roundworms
 - B. hookworms
 - * C. tapeworms
 - D. pinworms
16. The first artificial immunization that was a practical success was for:
- * A. smallpox
 - B. tetanus
 - C. diphtheria
 - D. measles

Community Health

17. Which of the following is a recognized activity of a county health department?
- A. paying for hospitalization of communicable disease patients
 - B. treating communicable disease patients
 - C. operating sewage disposal plants
 - * D. immunization
18. Of most concern in a community adult health promotion program would be
- A. obesity
 - B. arthritis
 - * C. cardiovascular conditions
 - D. diabetes mellitus

19. Community health problems
- A. mostly involve teen-agers
 - * B. are sometimes caused by population shifts
 - C. are always a matter of infectious disease
 - D. always arise from economic problems
20. Which one is a voluntary health agency, as the term is commonly used?
- A. Metropolitan Life Insurance Company
 - B. U. S. Public Health Service
 - * C. American Heart Association
 - D. Oregon State Board of Health
21. Yaws, a crippling disease against which the World Health Organization is conducting a worldwide campaign, is found most often in
- * A. the tropics
 - B. desert regions
 - C. Russia
 - D. temperate climate
22. The U. S. Public Health Service bureau primarily concerned with medical research is
- A. office of the Surgeon General
 - * B. National Institutes of Health
 - C. Bureau of Clean Air and Water
 - D. Bureau of State Services
23. Of least importance in a community adult health promotion program would be
- A. high blood pressure
 - * B. dental caries
 - C. diabetes mellitus
 - D. obesity
24. Community N has a lower birth rate and a higher death rate than community M. Therefore, community
- A. N likely has better sanitation promotion
 - B. N is healthier
 - * C. M may have a predominantly older population
 - D. M has the higher vital index

Dental Health

25. Dental caries is caused directly by
- A. sugar
 - B. an infection
 - * C. a chemical formed by bacteria
 - D. viruses
26. Fluoride is added to the drinking water in some areas to
- A. kill bacteria
 - B. prevent goiter
 - C. soften water
 - * D. reduce dental decay
27. In the adult the dietary substance essential to healthy gums is
- A. calcium
 - * B. Vitamin C
 - C. Vitamin D
 - D. iron
28. The best procedure to prevent further development of small cavities in the teeth of children is to
- A. brush the teeth more often
 - B. change brands of toothpaste
 - C. visit a dentist
 - * D. fluoridate the water supply
29. A dental specialist whose specialty is straightening teeth is a (an)
- A. periodontist
 - B. endodontist
 - * C. orthodontist
 - D. chiropractor
30. The molars
- A. bite food into small pieces
 - * B. crush and grind food into small particles
 - C. often don't appear until a person is over 30
 - D. tear food apart like the fangs of meat eating animals

31. Fluoridation has been found to
- A. cause abscesses
 - B. cause trench mouth
 - * C. reduce cavities significantly
 - D. keep teeth white
32. The tooth layers are, from the inside out
- A. dentine, pulp, enamel
 - * B. pulp, dentine, enamel
 - C. pulp, enamel, dentine
 - D. enamel, pulp, dentine

Drugs Including Alcohol and Tobacco

33. What is meant by "tolerance" as used in speaking of drug addiction?
- A. Physical dependence on the drug
 - * B. The need for larger doses of the drug with continued use
 - C. Emotional dependence on the drug
 - D. A sense of well-being and relaxation caused by the drug
34. What is it in tobacco smoking which causes lung cancer?
- A. nicotine
 - B. the heat of the smoke
 - C. carbon monoxide in tobacco smoke
 - * D. tobacco tars
35. Which statement is most often true about alcoholics?
- * A. They suffer from malnutrition.
 - B. They eventually become insane.
 - C. They show personality changes.
 - D. They suffer from infectious disease.
36. Alcohol
- A. is associated with lung cancer
 - B. is usually a stimulant
 - C. causes gastric ulcers
 - * D. can produce addiction

37. The most dangerous form of tobacco use is
A. chewing tobacco
B. pipe smoking
C. cigar smoking
* D. cigarette smoking
38. A person who smokes one or more packs a day is how much more likely to get lung cancer than a nonsmoker?
A. Twice times
B. Five times
C. ten times
* D. Fifteen or twenty times
39. Intoxication is produced by alcohol's effect on
A. the heart
B. the liver
* C. the brain
D. the spinal cord
40. Marihuana is derived from
A. L. S. D.
B. opium
* C. the Indian hemp plant
D. barbituric acid

Environmental Health

41. The critical problem in supplying water for the community is
A. getting water with high mineral content
* B. providing water free of pathogenic organisms
C. removing tastes and smells from water
D. filtering lime from the water
42. Noise at the higher frequencies may cause
A. damaged vision
B. fatal disease
* C. damaged hearing
D. skin irritation
43. Today, the major source of air pollution is
A. home burning
B. chemical factory emissions
C. electric power plant emissions
* D. transportation sources

44. The most expensive and yet necessary means of solid waste disposal in metropolitan areas today is:
- A. sanitary land-fills
 - * B. incineration
 - C. open dumps
 - D. reduction
45. The main effect of air pollution on human health has been increased incidence of diseases of the
- A. nervous system
 - B. cardiovascular system
 - C. gastrointestinal system
 - * D. respiratory system
46. The largest consumer of water and the major contributor to water pollution is
- A. navigational craft
 - * B. municipalities
 - C. agriculture
 - D. industry
47. Mosquito control was shown to be the key to
- A. the control of syphilis and gonorrhoea
 - * B. malaria control
 - C. poliomyelitis
 - D. tuberculosis control
48. Studies have indicated a higher incidence of lung cancer in
- A. rural than in urban areas
 - B. suburban than in urban areas
 - * C. urban than in rural areas
 - D. rural than in suburban areas

Exercise, Fatigue, Rest

49. Exercise is more important to health than
- A. nutrition
 - B. avoidance of infection
 - C. both of the preceding two
 - * D. none of the first two

50. Fatigue due to sedentary or mental work is best relieved at the end of one's working hours by:
- A. coffee
 - B. a shower
 - * C. recreational activity of a physical type
 - D. sleep as long as your need
51. Which of the following is of most benefit from regular exercise?
- A. immunity to infection
 - B. extended length of life
 - C. increased tendency of fatigue
 - * D. improved circulation
52. During sleep
- A. the heart beats slightly faster with less force
 - B. digestion ceases
 - C. nerve conduction stops
 - * D. metabolism is lowered
53. Sleep produces
- A. larger vital capacity
 - B. body temperature increase
 - * C. recuperation from tension and fatigue
 - D. rapid pulse
54. Most junior high school students require how much sleep at night?
- A. 5 hours
 - B. 6 hours
 - C. 7 hours
 - * D. 8 hours
55. Jogging is a new exercise hobby which can be defined as
- * A. a steady easy-paced run
 - B. race walking
 - C. a competitive endeavor
 - D. brutal masochistic punishment
56. Heavy exercise immediately after meals appears to interfere with
- * A. digestion
 - B. excretion
 - C. secretion
 - D. filtration in the kidney

Heredity

57. The sex of offspring depends upon
- A. which ovary the egg comes from
 - B. the body cells of the mother
 - * C. whether the sperm cell that fertilizes the egg contains the X or Y chromosome
 - D. the relative vitality of the parent
58. Which statement about the inheritance of allergies is the most accurate?
- A. Allergies are inherited.
 - * B. The tendency to develop allergies is inherited.
 - C. Allergies are not inherited.
 - D. It is not known definitely whether there is an inherited factor.
59. Is alcoholism inherited?
- A. Yes
 - * B. No
 - C. Yes, in some cases.
 - D. Yes, in most cases.
60. According to present scientific knowledge, which one is entirely attributed to heredity?
- A. Cancer
 - B. Excessive weight
 - * C. Color-blindness
 - D. Chickenpox
61. Human being ordinary cells have how many chromosome pairs?
- A. 12
 - * B. 23
 - C. 28
 - D. 32
62. A gene that is expressed regardless of the other gene in the pair, is called
- A. recessive
 - * B. dominant
 - C. allele
 - D. chromosome

63. The most 'color blindness' is inability to see normally the colors:
- A. red and yellow
 - B. blue and yellow
 - * C. red and green
 - D. red and blue
64. Baldness is usually the result of
- A. unclean hair
 - B. epidermal infection
 - * C. hereditary factors
 - D. atrophy of follicles

Life Expectancy and Aging

65. Which is the correct statement?
- A. Euthanasia is the humility and demoralizing death.
 - * B. Euthanasia is a painless killing, especially to end a painful and incurable disease.
 - C. Euthansia is the science of improving the human race through the regulation of parenthood.
 - D. Euthanasia is a feeling or state of well-being.
66. Which of the following nations is most likely to have the greatest average length of life?
- * A. Sweden
 - B. India
 - C. Japan
 - D. United States
67. Most important factor in hastening aging is
- A. poorly balanced diet
 - B. lack of activity
 - * C. deficient circulation
 - D. irregularity
68. The most important factor in human life-span is
- * A. inheritance
 - B. nutrition
 - C. exercise
 - D. rest

69. The country with lowest life expectancy is:
* A. India
B. China
C. New Zealand
D. Soviet Union
70. You could expect to live the longest if you were:
A. a male living in India
* B. a female living in the Netherlands
C. a female living in Ceylon
D. a male living in the Soviet Union
71. Aging is regarded as that phase in life when bodily function
A. begins to rejuvenate
B. maintains steadily
C. stops completely
* D. begins to decline
72. Which of the followings can hasten the aging process the most
A. sleep more than 8 hours
B. drink more than 8 cups of water
* C. inactivity
D. an emotional upset

Medical Careers and Health Insurance

73. A physician who specializes in the health of children is called a:
* A. pediatrician
B. orthopedist
C. obstetrician
D. otologist
74. A college degree is usually required to practice their specialty in three of these fields For which one is a high school diploma sufficient?
A. Medical social worker
B. Dentist
C. Hospital administrator
* D. Dental hygienist aide

75. If a man is suffering from disease the best thing for him to do is to:
- A. let Nature be the cure
 - B. use self-medication
 - * C. see a medical doctor
 - D. be treated by a chiropractor
76. For a family medical adviser the best choice would be a (an)
- A. surgeon
 - B. neurologist
 - C. obstetrician
 - * D. internist
77. The category that has contributed most to our rising medical costs is that of
- A. physician's fees
 - * B. hospital costs
 - C. drug and prescriptions
 - D. dentists' fees
78. A nonmedical specialist who is licensed to examine eyes, prescribe corrective lenses and eye exercise is
- * A. an optometrist
 - B. an ophthalmologist
 - C. a pediatricist
 - D. a pharmacist
79. A doctor who treats expectant mothers and women who have just had babies is
- A. a geriatrician
 - * B. an obstetrician
 - C. a pathologist
 - D. a urologist
80. The most important reason for having medical health insurance is:
- A. to guarantee good health
 - B. for protection against loss of income resulting from permanent disability
 - * C. to budget against unpredictable health and medical expense
 - D. to get cheaper medical care

Mental and Emotional Health

81. Many people lack emotional stability in adult life. This characteristic most probably is traceable to:
- * A. early home life
 - B. early school life
 - C. bad companions
 - D. heredity
82. Which one of these factors contributes most to good mental health?
- A. Daydreaming
 - * B. Facing the realities of life
 - C. Avoiding all unpleasant situations
 - D. A great deal of introspection
83. A person of normal mental health
- A. devotes no time to his own benefit
 - * B. has upsets
 - C. is not self-centered
 - D. is always the same in mood
84. The most important factor in successful social adjustment is
- A. flattery
 - B. aggressiveness
 - C. egocentricity
 - * D. interest in other people
85. The mentally healthy person has learned to:
- A. disenchant those he dislikes
 - * B. live with frustration
 - C. always keep his unconscious mind awake
 - D. apply his unconscious mind to everyday
86. Which of the followings is/are principles of good mental health?
- A. face responsibility
 - B. appreciate others
 - C. take things as they come
 - * D. all of these

87. One of the better ways of handling anxiety is by:
- A. rejection
 - * B. talking it out
 - C. introjection
 - D. extroversion
88. Which of the following traits is most often associated with suicide?
- A. high self-esteem
 - B. extrovertism
 - * C. social isolation
 - D. academic success

Nutrition

89. The normal functioning of the thyroid gland is dependent upon adequate dietary amounts of
- A. potassium
 - * B. iodine
 - C. chlorine
 - D. fluorine
90. Which of the following foods should we eat to avoid scurvy?
- A. Canned vegetables
 - B. Meat or fish
 - C. Cod liver oil
 - * D. Orange juice
91. During which age period will the lack of proper food result in most harm?
- A. Adolescence--12-18 years
 - B. Child--6-12 years
 - * C. From birth to 6 years
 - D. Early maturity--18-24 years
92. Excessive obesity is most often caused by
- A. heredity
 - B. psychological factors
 - * C. caloric intake
 - D. lack of exercise

93. Sunlight enables the body to make its own
- A. niacin
 - * B. vitamin D
 - C. vitamin C
 - D. vitamin A
94. Which is true of three daily meals?
- * A. They should be equal in food value.
 - B. Dinner should be heaviest.
 - C. Lunch should be heaviest.
 - D. Breakfast should be heaviest.
95. Which of these should you avoid if you want to lose weight?
- A. Celery
 - B. Tomatoes
 - C. Lettuce
 - * D. Avocados
96. The best sources of vitamin C are
- A. beef, poultry, and fish
 - B. bread, cereal, and cookies
 - * C. citrus fruits, potatoes and tomatoes
 - D. liver, heart and kidney meats

Personal Health Protection and Consumer Health

97. The best rule to follow to prevent constipation is to
- A. take a laxative regularly once a week
 - B. avoid cheese since it is considered to be binding
 - C. eat plenty of food high in water content such as soups and beverages
 - * D. eat regularly food containing roughage such as vegetables, fruits and whole grain bread
98. Which one is the best reason why patent medicines should not be used?
- A. They are too expensive for what a person gets from them.
 - B. They stimulate one too much by means of harmful drugs.
 - C. They may cause a person to become a drug addict.
 - * D. They may contain substances that give temporary relief while the condition causing the trouble grows worse.

99. Which statement is correct concerning lighting and television watching?
- A. TV gives off certain harmful rays that may injure the eyes.
 - B. It is best to sit slightly to the side of the TV screen when viewing it.
 - * C. Moderate indirect lighting for the room as a whole is recommended for minimum eye strain.
 - D. There should be sufficient contrast between the lighting in the room and that from the TV screen.
100. The common factor associated with skin disorders (such as warts, cold sore, acne or ringworm)
- A. occur only in youth
 - B. occur only when a person is ill
 - * C. are caused by organisms
 - D. usually occur at the same time.
101. A broken eardrum may result from
- A. cleaning wax from the ear canals
 - * B. blowing a congested nose too vigorously
 - C. prolonged exposure to noise
 - D. inner ear imbalance
102. When a person is in a very good physical condition, his heart
- A. pumps faster
 - B. pumps less blood at once
 - * C. pumps slower
 - D. pumps irregularly
103. Frauds related to advertising over radio, TV, newspapers, and other media come under the jurisdiction of the
- A. American Medical Association
 - * B. Federal Trade Commission
 - C. U. S. Food and Drug Administration
 - D. U. S. Post Office
104. A private citizen whose name is prominent in the fight to protect the consumer is
- A. Frances Kelsey
 - B. Oral Roberts
 - * C. Ralph Nader
 - C. S. Jessel

Safety and First Aid

105. For a moderate cut on the hand the first thing to do is
- A. apply a tourniquet of rubber tubing
 - B. apply a tourniquet of sterile bandage
 - C. pour cold water on the cut until it stops bleeding
 - * D. elevate the hand and apply direct pressure
106. Which of the following is an accepted principle in first aid?
- A. Move the injured person as soon as possible.
 - * B. Do the common sense thing that is indicated.
 - C. Give the person some medication.
 - D. Do not let an injured person lie on the ground.
107. Almost half of the accidental deaths in the home result from
- A. burns
 - B. poisoning
 - * C. falls
 - D. firearms
108. Which of the following is not an accepted first aid measure?
- * A. Put Vaseline on a scalded leg.
 - B. Place splints on fractures.
 - C. Call for a physician.
 - D. Call for an ambulance.
109. The principal type of fatal home accident is:
- * A. falls
 - B. burns
 - C. cuts
 - D. electrocution
110. The factor most frequently associated with motor vehicle fatalities is:
- A. slippery roads
 - B. night driving
 - * C. excessive speed
 - D. headlight glare
111. The greatest number of automobile accidents occurs when the prevailing weather is:
- A. rainy
 - B. snowy
 - C. foggy
 - * D. bright and clear

112. The best way to prevent accidents is to
- * A. increase and promote safety education
 - B. make safety laws more strict and step up enforcement
 - C. devise and install more safety equipment
 - D. provide stiffer penalties for law violations

Sex and Reproduction

113. When it is time for the baby to be born:
- A. The navel gradually opens to let the baby out.
 - * B. The muscles of the uterus contract to force out the baby.
 - C. The Fallopian tube expands to permit the baby to pass through
 - D. None of these three statements applies.
114. The human embryo gets its food through:
- A. The Fallopian tube
 - B. cell division
 - C. the abdominal cavity
 - * D. the placenta
115. During menstruation the female should
- A. not go swimming
 - * B. go about normal activities
 - C. stay in bed
 - D. reduce all activities
116. Semen normally contains
- A. lymph
 - B. female germ cells
 - * C. male germ cells
 - D. interstitial hormones
117. A woman misses a menstrual period. This means
- A. she is definitely pregnant.
 - * B. she may or may not be pregnant.
 - C. she is probably not pregnant.
 - D. she is certainly not pregnant.

118. On the expectant mother's first visit to a physician, a blood sample is taken. This sample is used to check for
- * A. Rh factor, anemia and syphilis
 - B. diabetes and toxemia of pregnancy
 - C. pelvic size
 - D. puerperal fever
119. Any early termination of pregnancy is called
- A. maturation
 - * B. abortion
 - C. adoption
 - D. artificial insemination
120. A human life begins with the penetration of
- * A. a single sperm by a single ovum
 - B. several sperm by an ovum
 - C. a single ovum by several sperms
 - D. a single ovum by a single sperm.

APPENDIX VI

HEALTH INTEREST INVENTORY OF ORIGINAL 120-ITEM

HEALTH INTEREST INVENTORY

PURPOSE: You have been asked to be part of a survey which is being conducted in selected junior high schools. The purpose of this survey is to evaluate health interests of junior high school students. Your honest and sincere response will be necessary if the results are to be correct and to show what your health interests really are.

DIRECTIONS: On the next pages you will find statements about health. When you are told to do so, read each statement carefully, and mark the appropriate space on the answering sheet that is provided. Fill in the space under the letter which best identifies your degree of interest.

TERMINOLOGY: No interest - You have no interest at all in the topic.

Little interest - You have a limited amount of interest in this topic and would probably prefer studying another topic.

Some interest - You have some interest in this topic and would like to learn more about the subject.

Very interested - You have a great deal of interest and curiosity about this topic and would like to explore the subject thoroughly.

EXAMPLE: Fill in the space under the letter which best indicates your degree of interest in the following statement about health.

A	B	C	D
⋮ ⋮	⋮ ⋮	⋮ ⋮	⋮ ⋮
No	Little	Some	Very
interest	interest	interest	interested

in knowing about:
(Statement) 00. The occurrence of athlete's foot.

A	B	C	D
⋮	■	⋮	⋮

(The answer would indicate that the individual had a little interest in knowing about the occurrence of athlete's foot.)

HEALTH INTEREST INVENTORY

DIRECTIONS: Fill in the space under the letter which best identifies your degree of interest.

A	B	C	D
∴	∴	∴	∴
No	Little	Some	Very
Interest	Interest	Interest	Interested

for furthering my knowledge in:

1. lowering the death rate from cancer.
2. Comparing the number of cases of organic disease such as heart disease and cancer with communicable diseases such as typhoid, tuberculosis, and diphtheria.
3. the nature of arthritis.
4. heart disease rank as a cause of death in the U.S.A. today.
5. the occurrence of stroke.
6. the meaning of tumor.
7. the two leading causes of death in the United States at the present time.
8. the symptoms of leukemia.
9. the treatment of tuberculosis.
10. the nature of botulism.
11. the blood test for a marriage license.
12. the communicable disease which is most likely to cause blindness.
13. immunity-producing substances.

DIRECTIONS: Fill in the space under the letter which best identifies your degree of interest.

A	B	C	D
:::	:::	:::	:::
No	Little	Some	Very
Interest	Interest	Interest	Interested

for furthering my knowledge in:

14. disease that fungi may cause.
15. the cause of tapeworms.
16. the first artificial immunization that was a practical success.
17. the recognized activity of a county health department.
18. the most concern of an adult health promotion program.
19. the causes of community health problems.
20. voluntary health agencies.
21. area that yaws is found most often.
22. the U.S. Public Health Service Bureau primarily concerned with medical research.
23. of least importance in a community adult health promotion program.
24. the correlation of birth rate and death rate to the communities.
25. the causes of dental caries.
26. the reason for adding fluoride to the drinking water.
27. the dietary substance essential to healthy gums.
28. the prevention of further development of small cavities in the teeth of children.

DIRECTIONS: Fill in the space under the letter which best identifies your degree of interest.

A	B	C	D
⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮
No	Little	Some	Very
Interest	Interest	Interest	Interested

for furthering my knowledge in:

29. a dental specialist whose specialty is straightening teeth.
30. the structure of the tooth.
31. the function of molars.
32. the purpose of fluoridation.
33. "tolerance" as used in speaking of drug addiction.
34. substances in tobacco smoke which cause lung cancer.
35. the effect of alcoholism.
36. the nature of alcohol.
37. the most dangerous form of tobacco use.
38. a person who smokes two or more packs a day is how much more likely to get lung cancer than a nonsmoker.
39. the part of our bodies which is intoxicated due to alcohol's effect.
40. the derivation of marijuana.
41. the critical problem in supplying water for a community.
42. the adverse effect of noise.
43. the major source of air pollution.
44. solid waste disposal.

DIRECTIONS: Fill in the space under the letter which best identifies your degree of interest.

A	B	C	D
⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮
No	Little	Some	Very
Interest	Interest	Interest	Interested

for furthering my knowledge in:

45. air pollution has been increasing incidence of human diseases.
46. the largest consumer of water and the major contributor to water pollution.
47. a key to the mosquito control.
48. the area where a higher incidence of lung cancer.
49. the importance of exercise.
50. the way to relieve fatigue due to sedentary or mental work.
51. the great benefit from regular exercise.
52. the nature of sleep.
53. the function of sleep.
54. the number of hours that most adults are required to sleep.
55. the definition of jogging.
56. the outcome of heavy exercise immediately after meals.
57. determination of the sex of offspring.
58. inheritance of allergies.
59. inheritance of alcoholism.
60. color-blindness.
61. the number of chromosome pairs in human beings.

DIRECTIONS: Fill in the space under the letter which best identifies your degree of interest.

A	B	C	D
⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮
No	Little	Some	Very
Interest	Interest	Interest	Interested

for furthering my knowledge in:

62. a gene that is expressed, regardless of the other gene in the pair.
63. colors the most affected by 'color blindness'.
64. the cause of baldness.
65. euthanasia.
66. life expectancy of each country in the world.
67. hastening of aging.
68. the most important factor in the human life-span.
69. country with the lowest life expectancy.
70. the factors which add to longevity of life.
71. physical aging process.
72. the factor which can hasten the aging process.
73. the physician who specializes in the health of children.
74. education sufficient for the dental hygienist.
75. the best thing for a man to do when he is suffering from disease.
76. choice of a family medical adviser.
77. the category that has contributed most to our rising medical costs.
78. a nonmedical specialist who is licensed to examine eyes, prescribe corrective lenses, and eye exercise.

DIRECTIONS: Fill in the space under the letter which best identifies your degree of interest.

A	B	C	D
⋮ ⋮ ⋮	⋮ ⋮ ⋮	⋮ ⋮ ⋮	⋮ ⋮ ⋮
No	Little	Some	Very
Interest	Interest	Interest	Interested

for furthering my knowledge in:

79. a doctor who treats expectant mothers and women who have just had babies.
80. the most important reason for having medical health insurance.
81. emotional stability.
82. contribution to good mental health.
83. the nature of normal mental health.
84. the most important factor in successful social adjustment.
85. the behavior of a mentally healthy person.
86. the principles of good mental health.
87. one of the better ways of handling anxiety.
88. the trait which is often associated with suicide.
89. normal functioning of the thyroid gland.
90. food which you eat to avoid scurvy.
91. the age period of when improper food results in most harm.
92. the cause of excessive obesity.
93. the function of sunlight in nutrition.
94. the best source of vitamin C.
95. the food value in daily meals.
96. food selection for losing weight.

DIRECTIONS: Fill in the space under the letter which best identifies your degree of interest.

A	B	C	D
⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮
No	Little	Some	Very
Interest	Interest	Interest	Interested

for furthering my knowledge in:

97. prevention of constipation.
98. the reason why patent medicine should not be used.
99. correct lighting and television watching.
100. the cause of warts, cold sores, acne and ringworm.
101. the cause of a broken eardrum.
102. the heart function of a healthy person.
103. the office which has the jurisdiction on the frauds related to advertising over radio, TV, newspapers and other media.
104. a private citizen whose name is prominent in the fight to protect the consumer.
105. the first aid for a moderate cut on the hand.
106. the principles of first aid.
107. kinds of accidental deaths in the home.
108. first aid measure.
109. the principal type of fatal home accident.
110. the factor most frequently associated with motor vehicle fatalities.
111. the prevailing weather in which the greatest number of automobile accidents occur.
112. the best way to prevent accidents.

DIRECTIONS: Fill in the space under the letter which best identifies your degree of interest.

A	B	C	D
⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮
No	Little	Some	Very
Interest	Interest	Interest	Interested

for furthering my knowledge in:

113. child birth.
114. the growth of the fetus.
115. menstruation.
116. semen.
117. the meaning of a woman missing a menstrual period.
118. the reason for checking the blood of the expectant mother.
119. the term of early termination of pregnancy.
120. the moment when a human life begins.

APPENDIX VII

HEALTH KNOWLEDGE TEST OF FINAL FORTY-FIVE ITEM

HEALTH KNOWLEDGE TEST OF FINAL FORTY-FIVE ITEM

DIRECTIONS: Carefully fill out the above information before turning to the questions. Each question gives a choice of several answers. Circle the appropriate answer on the answer sheet that is provided. Do not spend too much time on any one question. Do not write on this test.

Example: (Question) 00. A lack of which of the following substances causes night blindness?
 A. Vitamin D
 B. Vitamin B
 C. Vitamin C
 D. Vitamin A

(Answer) 00. A B C **Ⓓ**

(The right answer would be shown by circling the letter "D")

1. The best method today for lowering the death rate from cancer is by
 - * A. early diagnosis
 - B. repeated use of radium and X-ray
 - C. avoiding infection
 - D. early operation

2. The two leading causes of all deaths in the United States at the present time are:
 - A. heart disease and accidents
 - * B. heart disease and cancer
 - C. heart disease and stroke
 - D. cancer and stroke

3. A patient with a very high white blood cell count most likely would have
 - A. emphysema
 - B. pernicious anemia
 - * C. leukemia
 - D. carcinoma

4. Today the best treatment for tuberculosis is
 - A. humid climate
 - B. dry climate
 - C. radiation
 - * D. drug therapy

5. Botulism refers to:
 - * A. a type of food poisoning
 - B. one of the newer drugs
 - C. an enzyme
 - D. a tropical disease

6. Diseases caused by fungi include:
 - A. Malaria and African sleeping sickness
 - * B. Athlete's foot and ringworm
 - C. Typhus and Rocky Mountain spotted fever
 - D. Yellow fever and hepatitis

7. The first successful vaccination was for
 - * A. smallpox
 - B. tetanus
 - C. diphtheria
 - D. measles

8. A voluntary health agency, as the term is commonly used, is
 - A. a county health department
 - B. U. S. Public Health Service
 - * C. American Heart Association
 - D. Oregon State Board of Health

9. The agency within U. S. Public Health Service primarily concerned with medical research is
 - A. office of the Surgeon General
 - * B. National Institutes of Health
 - C. Bureau for Clean Air and Water
 - D. Bureau of State Services

10. Dental decay is caused directly by
 - A. sugar
 - B. an infection
 - * C. a chemical formed by bacteria
 - D. viruses

11. Fluoride is added to the drinking water in some areas to
A. kill bacteria
B. prevent goiter
C. soften water
* D. reduce dental decay
12. A dentist whose specialty is straightening teeth is a (an)
A. periodontist
B. endodontist
* C. orthodontist
D. chiropractor
13. The molars
A. bite food into small pieces
* B. crush and grind food into small particles
C. often don't appear until a person is over 30
D. tear food apart like the fangs of meat eating animals
14. Fluoridation has been found to
A. cause abscesses
B. cause trench mouth
* C. reduce cavities significantly
D. keep teeth white
15. What is meant by "tolerance" as used in speaking of drug addiction?
A. Physical dependence on the drug
* B. The need for larger doses of the drug with continued use
C. Emotional dependence on the drug
D. A sense of well-being and relaxation caused by the drug
16. Alcoholics most often suffer from
* A. malnutrition
B. asthma
C. diabetes
D. oral cancer
17. Alcohol
A. is associated with lung cancer
B. is usually a stimulant
C. causes a person to have cold feet
* D. can produce physical dependence.

18. How much more likely is a person who smokes to get lung cancer than a non-smoker during his life?
- A. Two times
 - B. Four times
 - C. Six times
 - * D. Eight to eighteen times
19. Marijuana is derived from
- A. L. S. D.
 - B. a poppy
 - * C. a hemp plant
 - D. morphine
20. Noise at high frequencies may cause
- A. damaged vision
 - B. fatal disease
 - * C. damaged hearing
 - D. skin irritation
21. Today, the major source of air pollution is attributed to
- A. home burning
 - B. chemical factory emissions
 - C. electric power plant emissions
 - * D. combustion engines used in transportation
22. Studies have indicated a higher incidence of lung cancer in
- A. rural than in urban areas
 - B. suburban than in urban areas
 - * C. urban than in rural areas
 - D. rural than in suburban areas
23. Regular exercise contributes most directly to
- A. increasing immunity to infection
 - B. extending length of life
 - C. increasing chronic fatigue
 - * D. improving circulation
24. Sleep produces
- A. larger vital capacity
 - B. body temperature increase
 - * C. recuperation from tension and fatigue
 - D. a rise in blood pressure

25. Jogging is a new exercise hobby which can be defined as
* A. a steady easy-paced run
B. race walking
C. a competitive endeavor
D. fast running
26. Heavy exercise immediately after meals appears to interfere most with
* A. digestion
B. excretion
C. secretion
D. filtration in the kidney
27. The sex of offspring depends upon
A. which ovary the egg comes from
B. the body cells of the mother
* C. whether the sperm cell that fertilizes the egg contains the X or Y chromosome
D. the relative vitality of the parent
28. According to the present scientific knowledge, heredity is the only cause of
A. cancer
B. excessive weight
* C. color-blindness
D. chicken pox
29. The most common type of "color blindness" is inability to see normally the colors:
A. red and yellow
B. blue and yellow
* C. red and green
D. red and blue
30. Baldness is most often the result of
A. unclean hair
B. epidermal infection
* C. hereditary factors
D. poor nutrition
31. Aging is regarded as the process in life which causes bodily functions to
A. start to regenerate
B. maintain steadily
C. stop completely
* D. begin to decline

32. A nonmedical specialist who is licensed to examine eyes, prescribe corrective lenses is
- * A. an optometrist
 - B. an ophthalmologist
 - C. a pediatricist
 - D. a pharmacist
33. If a man is suffering from prolonged disease the best thing for him to do is to:
- A. let Nature be the cure
 - B. use self-medication
 - * C. see a medical doctor
 - D. be treated by a chiropractor
34. Of the following the most important factor in successful social adjustment is
- A. flattery
 - B. aggressiveness
 - C. egocentricity
 - * D. interest in other people
35. The normal functioning of the thyroid gland is dependent upon adequate dietary amounts of
- A. potassium
 - * B. iodine
 - C. chlorine
 - D. fluorine
36. The lack of proper food will result in most harm during the age period of
- * A. 0-6 years
 - B. 7-13 years
 - C. 14-20 years
 - D. 21-27 years
37. Excessive obesity is most often caused by
- A. heredity
 - B. glandular malfunction
 - * C. caloric intake
 - D. lack of certain nutrients

38. Of the following if you want to lose weight you should avoid eating
- A. celery
 - B. tomatoes
 - C. lettuce
 - * D. avocados
39. The best sources of vitamin C are
- A. beef, poultry, and fish
 - B. bread, cereal, and cookies
 - * C. citrus fruits, cabbage and tomatoes
 - D. liver, heart and kidney meats
40. When a person is in good physical condition, usually his heart
- A. pumps faster than normal
 - B. pumps less blood than normal
 - * C. pumps slower than normal
 - D. pumps irregularly
41. Control of advertising in mass media (radio, TV, newspapers, etc.) comes under the jurisdiction of the
- A. American Medical Association
 - * B. Federal Trade Commission
 - C. U. S. Food and Drug Administration
 - D. U. S. Post Office
42. The factor most frequently associated with motor vehicle fatalities is:
- A. slippery roads
 - B. night driving
 - * C. excessive speed
 - D. head light glare
43. During menstruation the female should
- A. not go swimming
 - * B. go about normal activities
 - C. stay in bed
 - D. reduce all activities
44. A woman misses a menstrual period. This means
- A. she is definitely pregnant.
 - * B. she may or may not be pregnant.
 - C. she is probably not pregnant.
 - D. she is certainly not pregnant.

45. Any early termination of pregnancy is called
- A. maturation
 - * B. abortion
 - C. adoption
 - D. artificial insemination

APPENDIX VIII

HEALTH INTEREST INVENTORY OF FINAL FORTY-FIVE ITEM

HEALTH INTEREST INVENTORY

PURPOSE: You have been asked to be part of a survey which is being conducted in selected junior high schools. The purpose of this survey is to evaluate health interests of junior high school students. Your honest and sincere response will be necessary if the results are to be correct and to show what your health interests really are.

DIRECTIONS: On the next pages you will find statements about health. When you are told to do so, read each statement carefully, and mark the appropriate space on the answering sheet that is provided. Fill in the space under the letter which best identifies your degree of interest.

TERMINOLOGY: No interest - You have no interest at all in the topic.

Little interest - You have a limited amount of interest in this topic and would probably prefer studying another topic.

Some interest - You have some interest in this topic and would like to learn more about the subject.

Very interested - You have a great deal of interest and curiosity about this topic and would like to explore the subject thoroughly.

EXAMPLE: Fill in the space under the letter which best indicated your degree of interest in the following statement about health.

A	B	C	D
∴	∴	∴	∴
∴	∴	∴	∴
No	Little	Some	Very
interest	interest	interest	interested

in knowing about:

(Statement 00. The occurrence of athlete's foot.)

(Response) 00.	A	B	C	D
	⋮	⋮	⋮	⋮

(The answer would indicate that the individual had a little interest in knowing about the occurrence of athlete's foot.)

HEALTH INTEREST INVENTORY

DIRECTIONS: Fill in the space under the letter which best indicates your degree of interest in the following statements about health.

A	B	C	D
∴	∴	∴	∴
No	Little	Some	Very
interest	interest	interest	interested

in knowing about:

1. lowering the death rate from cancer.
2. The two leading causes of all deaths in the United States at the present time.
3. the symptoms of leukemia.
4. the treatment of tuberculosis.
5. the nature of botulism.
6. the disease that fungi may cause.
7. the first successful vaccination.
8. voluntary health agencies.
9. the agency within U. S. Public Health Service primarily concerned with medical research.
10. the causes of dental decay.
11. the reason for adding fluoride to the drinking water.
12. a dentist whose specialty is straightening teeth.
13. the function of molars.
14. the purpose of fluoridation.
15. "tolerance" as used in speaking of drug addiction.

DIRECTIONS: Fill in the space under the letter which best indicates your degree of interest in the following statements about health.

A	B	C	D
:::	:::	:::	:::
No	Little	Some	Very
interest	interest	interest	interested

in knowing about:

16. the effects of alcoholism.
17. the nature of alcohol.
18. how much more likely is a person who smokes to get lung cancer than a nonsmoker?
19. the source of marijuana.
20. the adverse effect of noise.
21. the major source of air pollution.
22. the area where a higher incidence of lung cancer exists.
23. the health benefit of regular exercise.
24. the nature of sleep.
25. the definition of jogging.
26. the outcome of heavy exercise immediately after meals.
27. determination of the sex of offspring.
28. color-blindness.
29. colors the most affected by "color blindness".
30. the cause of baldness.

DIRECTIONS: Fill in the space under the letter which best indicates your degree of interest in the following statements about health.

A	B	C	D
⋮	⋮	⋮	⋮
No	Little	Some	Very
interest	interest	interest	interested

in knowing about:

31. the physical aging process.
32. the best thing for a person to do when he is suffering from disease.
33. a nonmedical specialist who is licensed to examine eyes, prescribe corrective lenses.
34. the most important factor in successful social adjustment.
35. normal functioning of the thyroid gland.
36. the age period during which eating improper food results in most harm.
37. the cause of excessive obesity.
38. the food value in daily meals.
39. food selection for losing weight.
40. the heart function of a healthy person.
41. the agency which has the jurisdiction over advertising in mass media (radio, TV, newspapers, etc.)
42. the factor most frequently associated with motor vehicle fatalities.
43. menstruation.
44. the meaning of a woman missing a menstrual period.
45. the term meaning early termination of pregnancy.

APPENDIX IX

ANSWER SHEETS

HEALTH KNOWLEDGE TEST OF 120 ITEMS
ANSWER SHEET

Directions: Circle the correct answer:

					No.	
					Sex	
1.	A	B	C	D	27.	A B C D
2.	A	B	C	D	28.	A B C D
3.	A	B	C	D	29.	A B C D
4.	A	B	C	D	30.	A B C D
5.	A	B	C	D	31.	A B C D
6.	A	B	C	D	32.	A B C D
7.	A	B	C	D	33.	A B C D
8.	A	B	C	D	34.	A B C D
9.	A	B	C	D	35.	A B C D
10.	A	B	C	D	36.	A B C D
11.	A	B	C	D	37.	A B C D
12.	A	B	C	D	38.	A B C D
13.	A	B	C	D	39.	A B C D
14.	A	B	C	D	40.	A B C D
15.	A	B	C	D	41.	A B C D
16.	A	B	C	D	42.	A B C D
17.	A	B	C	D	43.	A B C D
18.	A	B	C	D	44.	A B C D
19.	A	B	C	D	45.	A B C D
20.	A	B	C	D	46.	A B C D
21.	A	B	C	D	47.	A B C D
22.	A	B	C	D	48.	A B C D
23.	A	B	C	D	49.	A B C D
24.	A	B	C	D	50.	A B C D
25.	A	B	C	D	51.	A B C D
26.	A	B	C	D	52.	A B C D

Answer Sheet

Directions: Circle the correct answer.

- | | | | | | | | | | |
|-----|---|---|---|---|------|---|---|---|---|
| 53. | A | B | C | D | 81. | A | B | C | D |
| 54. | A | B | C | D | 82. | A | B | C | D |
| 55. | A | B | C | D | 83. | A | B | C | D |
| 56. | A | B | C | D | 84. | A | B | C | D |
| 57. | A | B | C | D | 85. | A | B | C | D |
| 58. | A | B | C | D | 86. | A | B | C | D |
| 59. | A | B | C | D | 87. | A | B | C | D |
| 60. | A | B | C | D | 88. | A | B | C | D |
| 61. | A | B | C | D | 89. | A | B | C | D |
| 62. | A | B | C | D | 90. | A | B | C | D |
| 63. | A | B | C | D | 91. | A | B | C | D |
| 64. | A | B | C | D | 92. | A | B | C | D |
| 65. | A | B | C | D | 93. | A | B | C | D |
| 66. | A | B | C | D | 94. | A | B | C | D |
| 67. | A | B | C | D | 95. | A | B | C | D |
| 68. | A | B | C | D | 96. | A | B | C | D |
| 69. | A | B | C | D | 97. | A | B | C | D |
| 70. | A | B | C | D | 98. | A | B | C | D |
| 71. | A | B | C | D | 99. | A | B | C | D |
| 72. | A | B | C | D | 100. | A | B | C | D |
| 73. | A | B | C | D | 101. | A | B | C | D |
| 74. | A | B | C | D | 102. | A | B | C | D |
| 75. | A | B | C | D | 103. | A | B | C | D |
| 76. | A | B | C | D | 104. | A | B | C | D |
| 77. | A | B | C | D | 105. | A | B | C | D |
| 78. | A | B | C | D | 106. | A | B | C | D |
| 79. | A | B | C | D | 107. | A | B | C | D |
| 80. | A | B | C | D | 108. | A | B | C | D |

Answer Sheet

Directions: Circle the correct answer.

109. A B C D

110. A B C D

111. A B C D

112. A B C D

113. A B C D

114. A B C D

115. A B C D

116. A B C D

117. A B C D

118. A B C D

119. A B C D

120. A B C D

HEALTH INTEREST INVENTORY
ANSWER SHEET

Directions: Fill in the correct space
under the letter which best
identifies your degree of
interest.

No. _____
Sex _____

	A	B	C	D		A	B	C	D
1.	::	::	::	::	19.	::	::	::	::
2.	::	::	::	::	20.	::	::	::	::
3.	::	::	::	::	21.	::	::	::	::
4.	::	::	::	::	22.	::	::	::	::
5.	::	::	::	::	23.	::	::	::	::
6.	::	::	::	::	24.	::	::	::	::
7.	::	::	::	::	25.	::	::	::	::
8.	::	::	::	::	26.	::	::	::	::
9.	::	::	::	::	27.	::	::	::	::
10.	::	::	::	::	28.	::	::	::	::
11.	::	::	::	::	29.	::	::	::	::
12.	::	::	::	::	30.	::	::	::	::
13.	::	::	::	::	31.	::	::	::	::
14.	::	::	::	::	32.	::	::	::	::
15.	::	::	::	::	33.	::	::	::	::
16.	::	::	::	::	34.	::	::	::	::
17.	::	::	::	::	35.	::	::	::	::
18.	::	::	::	::	36.	::	::	::	::

Directions: Fill in the correct space under the letter which best identifies your degree of interest.

	A	B	C	D		A	B	C	D
37.	∴	∴	∴	∴	58.	∴	∴	∴	∴
	∴	∴	∴	∴		∴	∴	∴	∴
38.	∴	∴	∴	∴	59.	∴	∴	∴	∴
	∴	∴	∴	∴		∴	∴	∴	∴
39.	∴	∴	∴	∴	60.	∴	∴	∴	∴
	∴	∴	∴	∴		∴	∴	∴	∴
40.	∴	∴	∴	∴	61.	∴	∴	∴	∴
	∴	∴	∴	∴		∴	∴	∴	∴
41.	∴	∴	∴	∴	62.	∴	∴	∴	∴
	∴	∴	∴	∴		∴	∴	∴	∴
42.	∴	∴	∴	∴	63.	∴	∴	∴	∴
	∴	∴	∴	∴		∴	∴	∴	∴
43.	∴	∴	∴	∴	64.	∴	∴	∴	∴
	∴	∴	∴	∴		∴	∴	∴	∴
44.	∴	∴	∴	∴	65.	∴	∴	∴	∴
	∴	∴	∴	∴		∴	∴	∴	∴
45.	∴	∴	∴	∴	66.	∴	∴	∴	∴
	∴	∴	∴	∴		∴	∴	∴	∴
46.	∴	∴	∴	∴	67.	∴	∴	∴	∴
	∴	∴	∴	∴		∴	∴	∴	∴
47.	∴	∴	∴	∴	68.	∴	∴	∴	∴
	∴	∴	∴	∴		∴	∴	∴	∴
48.	∴	∴	∴	∴	69.	∴	∴	∴	∴
	∴	∴	∴	∴		∴	∴	∴	∴
49.	∴	∴	∴	∴	70.	∴	∴	∴	∴
	∴	∴	∴	∴		∴	∴	∴	∴
50.	∴	∴	∴	∴	71.	∴	∴	∴	∴
	∴	∴	∴	∴		∴	∴	∴	∴
51.	∴	∴	∴	∴	72.	∴	∴	∴	∴
	∴	∴	∴	∴		∴	∴	∴	∴
52.	∴	∴	∴	∴	73.	∴	∴	∴	∴
	∴	∴	∴	∴		∴	∴	∴	∴
53.	∴	∴	∴	∴	74.	∴	∴	∴	∴
	∴	∴	∴	∴		∴	∴	∴	∴
54.	∴	∴	∴	∴	75.	∴	∴	∴	∴
	∴	∴	∴	∴		∴	∴	∴	∴
55.	∴	∴	∴	∴	76.	∴	∴	∴	∴
	∴	∴	∴	∴		∴	∴	∴	∴
56.	∴	∴	∴	∴	77.	∴	∴	∴	∴
	∴	∴	∴	∴		∴	∴	∴	∴
57.	∴	∴	∴	∴	78.	∴	∴	∴	∴
	∴	∴	∴	∴		∴	∴	∴	∴

Directions: Fill in the correct space under the letter which best identifies your degree of interest.

	A	B	C	D		A	B	C	D
79.	∴	∴	∴	∴	100.	∴	∴	∴	∴
80.	∴	∴	∴	∴	101.	∴	∴	∴	∴
81.	∴	∴	∴	∴	102.	∴	∴	∴	∴
82.	∴	∴	∴	∴	103.	∴	∴	∴	∴
83.	∴	∴	∴	∴	104.	∴	∴	∴	∴
84.	∴	∴	∴	∴	105.	∴	∴	∴	∴
85.	∴	∴	∴	∴	106.	∴	∴	∴	∴
86.	∴	∴	∴	∴	107.	∴	∴	∴	∴
87.	∴	∴	∴	∴	108.	∴	∴	∴	∴
88.	∴	∴	∴	∴	109.	∴	∴	∴	∴
89.	∴	∴	∴	∴	110.	∴	∴	∴	∴
90.	∴	∴	∴	∴	111.	∴	∴	∴	∴
91.	∴	∴	∴	∴	112.	∴	∴	∴	∴
92.	∴	∴	∴	∴	113.	∴	∴	∴	∴
93.	∴	∴	∴	∴	114.	∴	∴	∴	∴
94.	∴	∴	∴	∴	115.	∴	∴	∴	∴
95.	∴	∴	∴	∴	116.	∴	∴	∴	∴
96.	∴	∴	∴	∴	117.	∴	∴	∴	∴
97.	∴	∴	∴	∴	118.	∴	∴	∴	∴
98.	∴	∴	∴	∴	119.	∴	∴	∴	∴
99.	∴	∴	∴	∴	120.	∴	∴	∴	∴

HEALTH KNOWLEDGE TEST OF FINAL 45 ITEMS
ANSWER SHEET

School now attending _____

No. _____ Grade _____

Sex _____ Age _____

Did you attend 7th and 8th grade at this school? Mark X in the appropriate space.

7th grade: Yes _____ Name of the other school _____
 No _____
 8th grade: Yes _____ Name of the other school _____
 No _____

Directions: Circle the correct letter which best identifies
your health knowledge.

- | | | | | | | | | | |
|-----|---|---|---|---|-----|---|---|---|---|
| 1. | A | B | C | D | 21. | A | B | C | D |
| 2. | A | B | C | D | 22. | A | B | C | D |
| 3. | A | B | C | D | 23. | A | B | C | D |
| 4. | A | B | C | D | 24. | A | B | C | D |
| 5. | A | B | C | D | 25. | A | B | C | D |
| 6. | A | B | C | D | 26. | A | B | C | D |
| 7. | A | B | C | D | 27. | A | B | C | D |
| 8. | A | B | C | D | 28. | A | B | C | D |
| 9. | A | B | C | D | 29. | A | B | C | D |
| 10. | A | B | C | D | 30. | A | B | C | D |
| 11. | A | B | C | D | 31. | A | B | C | D |
| 12. | A | B | C | D | 32. | A | B | C | D |
| 13. | A | B | C | D | 33. | A | B | C | D |
| 14. | A | B | C | D | 34. | A | B | C | D |
| 15. | A | B | C | D | 35. | A | B | C | D |
| 16. | A | B | C | D | 36. | A | B | C | D |
| 17. | A | B | C | D | 37. | A | B | C | D |
| 18. | A | B | C | D | 38. | A | B | C | D |
| 19. | A | B | C | D | 39. | A | B | C | D |
| 20. | A | B | C | D | 40. | A | B | C | D |

Directions: Circle the correct letter which best identifies your health knowledge.

41. A B C D

42. A B C D

43. A B C D

44. A B C D

45. A B C D

HEALTH INTEREST INVENTORY OF FINAL 45 ITEMS
ANSWER SHEET

School now attending _____

No. _____ Grade _____

Sex _____ Age _____

Directions: Fill in the correct space under the letter which best identifies your degree of interest.

	A	B	C	D		A	B	C	D
1.	::	::	::	::	17.	::	::	::	::
2.	::	::	::	::	18.	::	::	::	::
3.	::	::	::	::	19.	::	::	::	::
4.	::	::	::	::	20.	::	::	::	::
5.	::	::	::	::	21.	::	::	::	::
6.	::	::	::	::	22.	::	::	::	::
7.	::	::	::	::	23.	::	::	::	::
8.	::	::	::	::	24.	::	::	::	::
9.	::	::	::	::	25.	::	::	::	::
10.	::	::	::	::	26.	::	::	::	::
11.	::	::	::	::	27.	::	::	::	::
12.	::	::	::	::	28.	::	::	::	::
13.	::	::	::	::	29.	::	::	::	::
14.	::	::	::	::	30.	::	::	::	::
15.	::	::	::	::	31.	::	::	::	::
16.	::	::	::	::	32.	::	::	::	::

Directions: Fill in the correct space under the letter which best identifies your degree of interest.

	A	B	C	D
33.	:: ::	:: ::	:: ::	:: ::
34.	:: ::	:: ::	:: ::	:: ::
35.	:: ::	:: ::	:: ::	:: ::
36.	:: ::	:: ::	:: ::	:: ::
37.	:: ::	:: ::	:: ::	:: ::
38.	:: ::	:: ::	:: ::	:: ::
39.	:: ::	:: ::	:: ::	:: ::
40.	:: ::	:: ::	:: ::	:: ::
41.	:: ::	:: ::	:: ::	:: ::
42.	:: ::	:: ::	:: ::	:: ::
43.	:: ::	:: ::	:: ::	:: ::
44.	:: ::	:: ::	:: ::	:: ::
45.	:: ::	:: ::	:: ::	:: ::