

AN ABSTRACT OF THE THESIS OF

Le Etta (Lee) Pratt for the degree of Doctor of Education

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Title: AN INVESTIGATION OF COLLEGE STUDENT ATTITUDE CHANGE TOWARD

TEACHING THROUGH PARTICIPATION IN A SCHOOL HEALTH FAIR

Abstract approved:

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Gordon Anderson

Purpose of the Study

The School Health Fair is an experiential method used to supplement classroom theory in a teacher preparation course at the University of Wisconsin-La Crosse (UWL). The purpose of this study was to determine how this method affected student attitude toward teaching.

The following null hypotheses were tested from pre- to post-test and then from pre- to post post-test:

1. There is no significant difference between the gain scores of the experimental group and the control group.
2. There is no significant difference between the gain scores of the school health majors in the experimental group and the school health majors in the control group.
3. There is no significant difference between the gain scores of the school health minors in the experimental group and the school health minors in the control group.

4. There is no significant difference between the gain scores of the community health majors in the experimental group and the community health majors in the control group.

Procedures/Findings

Subjects for this study included 98 randomly selected teacher preparation students in the Health Education Department at the UWL. The Minnesota Teacher Attitude Inventory (MTAI) was used to pre- and post-test these students at the beginning and end of one semester (Spring 1977). A post post-test using the MTAI was administered nine months from the pre-test date. All data were collected by the investigator.

The Kruskal-Wallace one-way analysis of variance was used to test Null Hypothesis 1. Null Hypothesis 1 was accepted. There was no significant difference in attitude toward teaching between students in the control and experimental groups. The Mann-Whitney U test was used to test Null Hypotheses 2, 3, and 4. Null Hypotheses 2, 3, and 4 were also accepted. There were no significant differences in attitude change toward teaching between the school health majors, school health minors, and the community health majors in the control and experimental groups, respectively.

Conclusions

The school health fair seemed to be a useful experiential method in changing student attitude toward teaching. Rex (47) and Knoll (21) support this position. However, their findings are based on experiential learning only. When classroom theory and experiential learning

were combined using the school health fair, the use of this method to change attitudes toward teaching becomes questionable.

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Change Toward Teaching Through Participation
in a School Health Fair

by

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AN INVESTIGATION OF COLLEGE STUDENT ATTITUDE
CHANGE TOWARD TEACHING THROUGH PARTICIPATION
IN A SCHOOL HEALTH FAIR

I. INTRODUCTION

This study investigated the potential attitude change toward teaching of college students participating in a school health fair as a part of a teacher preparation course. The health fair is an experiential learning method used at the undergraduate level as a vehicle through which teacher preparation class objectives can be achieved.

The project described in this study combined classroom theory with actual presentation of unit and lesson plans at a health fair held in a public school near the University of Wisconsin-La Crosse (UWL).

Although experiential learning has been a primary method of learning throughout history, American education has traditionally stressed the cognitive domain in its curriculum. Prior to the Industrial Revolution, experiential learning took place at home or in the craft guilds. In the movement of education to the formal classroom, the role of the student seems to have become passive and the role of the teacher that of presenter of material. However, it is evident that affective curriculum is gaining support and application in higher education.

One of the major controversies in the educational system today reflects this difference in learning experience: should university

learning focus on "education" or "training." The peak of educational efficiency includes the parallel approaches of practicum and philosophy. A positive influence on student attitude toward teaching is one of the desirable outcomes postulated about balancing philosophical and practical approaches in teacher preparation programs.

Statement of the Problem

The focus of this study was to determine the effect participation in a school health fair has on changing attitudes toward teaching for undergraduate health education majors and minors.

The school health fair is an experiential method emphasizing health instruction. The health fair gives health majors and minors in an undergraduate teacher preparation course a realistic teaching experience in the public school. One of its stated objectives is that it changes attitude toward teaching (46).

The concept of a health fair is not new. The application to teacher preparation practicum, however, is unique. No scientific research has been done to determine if the school health fair as an experiential method changes attitude toward teaching. (A more complete description of the health fair may be found in Chapter III.)

Purpose of the Study

The main emphasis of this research was to determine the effect of the school health fair as an experiential learning method on student attitude change toward teaching. The research compares

college students enrolled in a teacher preparation course which includes the health fair experience with college students enrolled in a teacher preparation course not including the health fair experience.

Problems of the Study

This study focused on five problems:

Problem 1 - To determine the effect of one type of experiential learning in a health education teacher preparation course on the attitudes of students toward teaching.

Problem 2 - To determine the effect of one type of experiential learning in a health education teacher preparation course on the attitudes of school health majors toward teaching.

Problem 3 - To determine the effect of one type of experiential learning in a health education teacher preparation course on the attitudes of school health minors toward teaching.

Problem 4 - To determine the effect of one type of experiential learning in a health education teacher preparation course on the attitudes of community health majors toward teaching.

Problem 5 - To determine if a time lapse after the health fair teaching experience is a factor in attitude change.

Definition of Terms

For the purpose of this study, these terms will be defined to mean the following:

Attitude - Those precursors to behavior that exist as conscious predispositions to respond in a particular way to the various circumstances of life situations (3:7).

Attitude Response (also change of attitude) - The attitude change as measured by the difference in the pre- to post- and the pre- to post post-test scores (MTAI).

CHMC - Community Health Major Control Group.

CHMX - Community Health Major Experimental Group.

Community Health Education - That health education process utilizing intergroup relationships, value patterns, and communication resources in a specific social system (40:33-37).

Creativity - The process of putting selected past experiences together with new experiences to generate new patterns, new ideas, or new products (4:4).

Experiential Learning - A working definition of experiential learning is adopted for this study composed of the following parts:

- (1) a learning experience that takes place outside the classroom,
- (2) but within the context and sponsorship of an academic department,

(3) the purpose of which is to include in the curriculum a "learning by doing" component, and (4) details a clearly identifiable learning experience as defined by the above criteria of at least six weeks cumulative duration (58:2).

Gain Scores - The measurable change in scoring level between an initial and a second set of test scores.

Group - Four to six students developing and achieving specific group objectives under the leadership of a group head and a section head.

Group Head - A student leader working with four to six university students responsible for establishing and accomplishing group objectives and assisting the section head in achieving section and health fair objectives.

Health - That quality of physical, emotional, intellectual, social, and spiritual well-being which enables one to live effectively.

Health 200 (School Health Programs) - A required teacher preparation course for health majors and minors at the University of Wisconsin-La Crosse (UWL).

Health Education - The process of providing or utilizing experiences for favorably influencing understandings, attitudes, and practices relating to individual, family, and community health (62:121).

Health Education Program - A planned and organized series of health education activities or procedures implemented with (1) an educational specialist assigned primary responsibility, (2) a budget, (3) an integrated set of objectives sufficiently detailed to allow evaluation, and (4) administrative support (39:33-37).

Health Instruction - The process of providing in the school or community a sequence of planned and spontaneously originated learning opportunities in health education comprising such organized aspects as objectives, unit plans, and lesson plans (39:33-37).

Moderator Variable - That factor which is measured, manipulated or selected by the experimenter to discover whether it modifies the relationship of the independent variable to an observed phenomenon (65:41).

MTAI (Minnesota Teacher Attitude Inventory) - Test designed by Walter W. Cook, University of Minnesota (et al) to measure attitudes of a teacher (student teacher) which predict the type of social atmosphere the teacher will maintain in the classroom...measuring effectiveness of teacher education programs (15).

Required Health Education (course required for graduation) - Every health major and minor at the University of Wisconsin-La Crosse (UWL) is required to take Health 200 (School Health Programs) which includes theory and practical experience in specific aspects of school health environment, school health services, and school health instruction (65:10).

School Health Education - That health education process associated with health activities planned and conducted under the supervision of school personnel with involvement of appropriate community health personnel and utilization of appropriate community resources (39:33-37).

School Health Education Curriculum (also School Health Education Program) - All the health opportunities affecting learning and behavior of children and youth in the total school curriculum. These health experiences are gained in both school and community settings as the individual interacts with his environment, including other students, school personnel, parents, and community members (39:33-37).

School Health Environment - The promotion, maintenance, and utilization of safe and wholesome surroundings, organization of day-to-day experiences and planned learning procedures in the school to influence favorably emotional, intellectual, physical, social, and spiritual health (39:33-37).

School Health Fair - A creative experiential learning activity planned in the classroom by the teacher preparation students in Health 200 at the University of Wisconsin-La Crosse (UWL) and carried out in a public school each semester.

SHMC - School Health Major Control Group.

SHMIC - School Health Minor Control Group.

SHMIX - School Health Minor Experimental Group.

SHMX - School Health Major Experimental Group

School Health Program (Health 200) - The curriculum requirement for all health education majors and minors at the University of Wisconsin-La Crosse (UWL).

School Health Services - That part of the school health program provided by physicians, nurses, dentists, health educators, social workers, teachers, and others to appraise, protect, and promote the health of students and school personnel (38:34-37).

Section - Four or five groups (20 to 25 students) developing and achieving specific section objectives under the leadership of a section head.

Section Head - A student leader working with four or five groups (20 to 25 students), and more specifically with the group heads, to establish and accomplish section objectives supportive of the overall objectives.

Special Committee - A committee of about 30 university students recruited each semester to fulfill assignments supplemental to section

and group work in the health fair, i.e. general decorations, invitations, thank-you notes, ushering, etc. Committee leaders are Health Majors Club officers. Club members participate on the committee.

Symbol - An object representative of the health fair theme, utilized to re-enforce and correlate the central thought from the health fair level down through the group presentation level. (Example: road signs for the theme "The Trip of Life," and gifts for the "Happy Birthday" theme.)

Theme - The established central thought from which overall, section, and group work is correlated. The theme facilitates student effort by making abstract subject matter understandable and intriguing.

Traditional School Health Class - A teacher preparation class covering objectives in health instruction, environment, and services and conducted in a classroom setting.

UWL - University of Wisconsin-La Crosse.

II. REVIEW OF RELATED LITERATURE

This literature review is divided into three sections: experiential learning in education, experiential learning in teacher preparation, and the health fair as an experiential learning approach in teacher preparation.

Experiential Learning in Education

Contemporary university administrators and educators are in a state of conflict regarding the use of experiential learning in education curriculums. There appears to be a diversity of historical roles from which this conflict logically grows. This diversity emanates from German, British, and other influences.

During the 18th century, "The University of Berlin became the prototype with its emphasis on research and the advancement of knowledge rather than on teaching and on the growth of its students" (42:24). Ties with England also have greatly influenced the type of undergraduate education offered in our country. The first universities in America focused on intellectual discipline as did British universities of the time. The affective domain is, however, slowly being integrated as a part of university function. The establishment of the Morrill Act of 1862 by the Federal Government gave formal recognition to "learning by doing" (42:25).

Universities Today

At present there is an underlying conflict as to what a university is and how it ought to function. "Some people say knowledge resides primarily within academic walls; while others feel that the real knowledge lies outside these walls" (42:24). More traditional educators argue that the university is imbued with the responsibility to control the student's intellectual development (59:3). One faculty member stated: "The University should not become a training school" (60:266). On the other hand, experiential innovators assume that the schools exist primarily for the educational goals of the student with as much variety and flexibility as possible. This struggle manifests itself in confusion over "experience versus classroom" (42:24).

Balanced Education

There seems to be a need to combine the skills and perspectives gained through classroom theory with practical experience outside the classroom. Classroom education has been the general pattern throughout the country. Experiential learning has been presented through fragmented activities. A few groups have moved to the opposite extreme, abandoning the classroom altogether, and direct education through experiential learning alone (65:2). According to Lunetta (37:518), "the day when the teachers are trained by higher education alone is past, and the time when public schools attempt the job alone should never come." It seems difficult to determine the extent of the

educational balance throughout the country. Schools seem to be moving in one general direction. Universities are beginning to look outward from the classroom and to place increasing emphasis on experiential learning as a valid component of the educational process. Educators are recognizing that a student cannot develop toward full potential in a passive role (65:3).

Need for Further Research

Many investigations have been conducted on classroom methodologies and on experiential learning approaches outside the classroom (4, 5, 24, 32). However, the review of the literature indicated a need for further research on the effect of combining classroom theory with experiential learning (49, 67, 69, 72).

Experiential Learning in Teacher Preparation

Many researchers have hypothesized that experiential learning in teacher preparation courses positively influences student attitude toward teaching when compared to classroom methods (60:75). Although numerous studies confirm this hypothesis, there seems to be comparable research indicating that experiential learning changes attitude toward teaching in a negative direction, and that the classroom approach may positively influence teaching attitude. The following investigations were determined most pertinent to this study since they all measured attitude toward teaching of students in teacher preparation courses and involved classroom or experiential methods.

Classroom Approach

Two studies were found in which classroom methodologies were evaluated to determine the effect on student attitude toward teaching.

Garber (24) used the MTAI to specifically focus on the attitudinal effects of two methods of instruction. He concluded that classroom instruction can be expected to contribute significantly to more favorable attitudes in elementary teacher education majors. However, Zerwekh (72) drew an opposite conclusion. Her investigation considered the affective influence of the traditional textbook approach on students in a teacher preparation foundation course at Iowa State University and evaluated their attitudes toward teaching. Pre- and post-tests using the MTAI indicated the classroom approach changed student attitudes toward teaching in a negative direction.

Experiential Learning Methods

Both positive and negative attitude changes toward teaching seem to be the outcome of innovations in experiential learning.

Two studies yielded positive results. Using the MTAI, Rex (49) attempted to discover what effect, if any, field experiences have upon entering teacher preparation student attitudes toward teaching. A pre- and post-test showed significant positive attitude change toward teaching. Knoll (32) asked the question, Do Pre-Student Teaching Experiences Change Attitudes Toward Teaching? The primary purpose of Knoll's research was to investigate the effect of an undergraduate exploratory field experience course (pre-student teaching)

on the attitudes held by prospective teachers. Pre- and post-tests using the MTAI yielded a positive response. Results indicated that students entered the program with a positive attitude and left the program with an even more positive attitude toward teaching.

Opposing results were reported by both Wilcox (69) and Turk (67). Wilcox (69) attempted to see if there was an attitude change, if it was positive or negative, and if the attitude change was significant and related to the student teaching experience. He concluded that for the total group of 280 student teachers, attitude changes did take place, that these changes were negative, and that they were statistically significant. It was inferred that the student teaching experience itself produced these negative effects on the changes in attitudes of student teachers. Turk (67) conducted research on students enrolled in an innovative freshman teacher preparation course at the District of Columbia Teachers College. The experiences in this course involved 90 hours of volunteer work outside the classroom. The MTAI was administered at the beginning of the course and again at the end. Results showed that attitudes concerning the concepts related to teacher preparation changed significantly in a negative direction.

These studies seem to confirm the continued controversy over classroom versus experiential learning methods. Studies related to experiential learning in teacher preparation courses seem to promote the assumption that methods in these classes can influence student attitude toward teaching. The "either/or" attitude in teacher

preparation methodologies seems to produce both positive and negative results in student attitudes toward teaching. However, no studies could be found where both methods were applied concurrently to investigate the attitude change toward teaching in teacher preparation courses. The reported research seems to lack longitudinal considerations of the indicated attitude change. Pre- and post-tests were administered revealing an immediate attitude effect. None of the studies indicated a follow-up test after a statistically valid time-lapse to see if the attitudinal change was lasting.

Research, therefore, needs to examine teacher preparation courses where classroom theory and practical experience are combined. Such research should determine if this simultaneous approach could yield a consistent and lasting student attitude change toward teaching.

The Health Fair As An Experiential Approach In Teacher Preparation

School Health Fair

The health fair project in the School Health Programs Class combines both classroom theory and practical teaching experience. The project presents a new perspective for experiential learning in teacher preparation coursework. Students define objectives, prepare unit plans, and lesson plans, and design learning activities in the classroom. They then have a realistic teaching experience in the public school setting as they present the health fair to public school students (49). A more complete description of the school health

fair in Chapter III differentiates the school health fair and the community health fair which may be held in the public school. No statistically significant findings exist regarding school health fairs.

Community Health Fairs

The review of health fair literature reveals a number of applications of the community health fair concept, none of which relate to attitude change. The general objective of a community health fair is health education of the public. This goal is achieved through various booths and displays used for distributing pertinent information and by screening for public health problems (46).

The Journal of School Health (1:584-587) detailed an outline for a community health fair. Two suggestions in this article are applied in the school health fair: (1) it recommends the community health fair have a Steering Committee to contribute ideas and increase involvement, and (2) suggests that evaluation improves the quality of a community health fair. The school health fair Advisory Committee was comprised of teachers and administrators drawn from the public school in which it was held. The school health fair was evaluated in all areas with specific emphasis on teaching experience components - objectives, plans, methods, and activities.

Schneider (52:295-298) discussed some of the comparisons between a community health fair and a school health fair: (1) a community health fair can exhibit materials for viewing to inform, to educate,

and to promote health; (2) community health fairs promote interest and many ideas rather than develop one central theme; (3) school health fairs seem more dynamic, placing a premium upon active rather than on static materials; and (4) the students plan, prepare, arrange, and manage both the community and the school health fair activities.

Community Health Fairs in Public Schools

Only two studies reported the descriptions of community health fairs held in public schools. Novick (40) conducted a community health fair in ghetto schools in New York City to determine the health needs of local youth. He tried to meet some of these needs through dissemination of health information at the fair. A community health fair in East Harlem Junior High School had as its major focus the presenting of information on drugs, alcohol, and tobacco through displays and handouts. The impact of these health fairs on the junior high school students was said to be uncertain.

Medical Examinations at Health Fairs

Fleming (22) developed a manual for conducting medical examinations through health fairs which included plans for follow-up procedures after the health fair. The objective of the undertaking was to improve the health of students in the public school. This project was field tested at the secondary level in New York. Her manual has been made available to the public.

Mobile Health Fairs

Tittle (64), in an unpublished report, discussed the Presbyterian Community Health Fair Project--a mobile health fair developed in 1966. The mobile health fair was offered to poor rural communities in New York. One unique objective of the mobile health fair was community development. Any church, club, or other group could sponsor the fair at no financial cost to the community. The community became involved in setting up the fair, housing fair staff, providing professional assistance, and coordinating publicity (43, 44, 61, 63).

Health Fair by Elementary Children

Kohl (33:12-13) discussed a fair developed by elementary children showing how a common theme, "The Circus", could be researched and developed into an open-ended curriculum unit. In such a project, the children seem to be investigating a theme to gain knowledge. In contrast, university teacher preparation students who develop the school health fair utilize the theme as a method to present knowledge.

Though the literature discussed a number of applications for the community health fair both in the community and in the public school, the school health fair as a teaching method has not been reported. There is a lack of empirical research on health fairs. Because the school health fair has as one of its objective the positive influence on student attitude toward teaching, such investigation is necessary.

Summary

The following inferences have been derived from the review of literature:

1. Research suggests that classroom theory and practicum need to be combined in education.
2. Research suggests that when experiential learning is incorporated into classroom theory in teacher preparation courses, student attitude toward teaching may be influenced.
3. Lack of available research points to the need for longitudinal studies related to attitude change in teacher preparation.
4. Lack of reported research suggests that a study needs to be conducted to ascertain whether the school health fair as an experiential method will change attitudes toward teaching of health education majors and minors.

Hypotheses for This Study

The following hypotheses were formulated from the inferences. They were tested twice, first from pre-test to post-test to determine attitude change, and then from pre-test to post post-test to determine longitudinal attitude:

1. There is no significant difference between the gain scores of the experimental group and the control group.
2. There is no significant difference between the gain scores of the school health majors in the experimental group and the school health majors in the control group.
3. There is no significant difference between the gain scores of the school health minors in the experimental group and the school health minors in the control group.
4. There is no significant difference between the gain scores of the community health majors in the experimental group and the community health majors in the control group.

Assumptions for This Study

The following six underlying assumptions were made for this research:

1. That attitudes are precursors to behavior (3:1, 16:12, 19);
2. That attitudes can be measured through a sufficiently validated instrument (15, 16:9-10, 18:477, 65:73);

3. That the MTAI as validated will measure attitude change toward teaching (15, 36:82);
4. That all students will respond accurately regarding their feelings toward the attitudinal statements during the data collection;
5. That the student's prior educational experience and educational encounters between the first and second post-tests will be equally varied; and
6. That there will be no historical influence between Health 200, Section 1 (12:00 noon) and Health 200, Section 2 (1:00 pm) in the experimental group and the Health 200 Section 3 (2:00 pm) in the control group (10).

III. DESIGN OF THE STUDY

This study was designed to investigate changes in student attitudes toward teaching as measured in two groups of students, one combining an experiential method (the health fair) with classroom theory, and the other involved only with traditional classroom teacher preparation. The following sections are included in this chapter: selection of the population, equipment and facilities, description of the educational method, collection of the data, and interpretation of the data.

Selection of the Population

The population consisted of the health education majors and minors at the UWL. The experimental group utilized students from two course sections. A minimum of 60 university students was necessary to administer the health fair method. A third section of at least 30 students, not involved with the health fair, comprised the control group. Consideration was given to randomness since the health education majors and minors had equal opportunity to register for the Health 200 (School Health Programs) sections 1, 2, and 3. A "blind" draw was utilized to determine which section would serve as the control group.

Equipment and Facilities

Financial support for the school health fair came from several sources. The Department of Health Education budgeted \$150 each school term to cover such general expenses as the 200 invitations and thank-you notes sent to city and school guests, advertisements, and general decoration items. A student lab fee of \$3 per student was used for group lesson plan development. Additional items were supplied by local government and community businesses. Large sheets of cardboard, for instance, were donated by the La Crosse Paper Company. The La Crosse City Street Department delivered and picked up numerous items of equipment necessary to assemble the health fair. Donated time was a major contribution on the part of the university faculty, public school teachers, and the university students.

The classroom portion of the project was held in North Hall on the UWL campus. To limit historical influences all three sections were scheduled in the same room on the same three days of the week and at 12:00 noon, 1:00 pm, and 2:00 pm. All three sections were taught by the investigator using the same textbook (10).

The experiential portion, the Health Fair, was held in the Jefferson Elementary School, utilizing the Jefferson facility.

Description of the Educational Method

Time Allocation

Content in three health education areas of the School Health Program was covered in Health 200 at the UWL. The instructional units and the time allocations of a 15-week semester for both the experimental and control groups are on page 25, Figure 1.

General Class Procedure

To facilitate the health fair method, the seven-week unit designated for school health instruction was divided into two segments. Students developed written plans, and checked and adjusted them prior to the actual development of the written format. This process provided coordination within the overall unit and lesson plan development moving from the general plan to the sections and then to group preparation.

Health Fair Structure for the Experimental Group

The school health fair encompassed broad involvement. It included the university departments, university students, community, and public school personnel and students. The organization chart, Figure 2, on page 26 may clarify lines of communication in the project development.

The class instructor acted as a facilitator to student leadership under the direction of the department chairman and with input from the Advisory Committee from the public school where the fair was held.

Orientation	Week 1
School Health Instruction	Weeks 2, 3, 4
Theory: Unit and Lesson Plans	
Assignment: Written Plan	
School Health Environment	Weeks 5, 6, 7
School Health Services	Weeks 8, 9, 10
School Health Instruction	Weeks 11, 12, 13, 14
Development: Written (2 weeks) Plan	
Presentation: Written (2 weeks) Plan	
<u>Experimental Group:</u> Public School Teaching (2 weeks)	
<u>Control Group:</u> Classroom Teaching (2 weeks)	
Closure	Week 16

FIGURE 1. Health 200, School Health Programs, Instructional Units

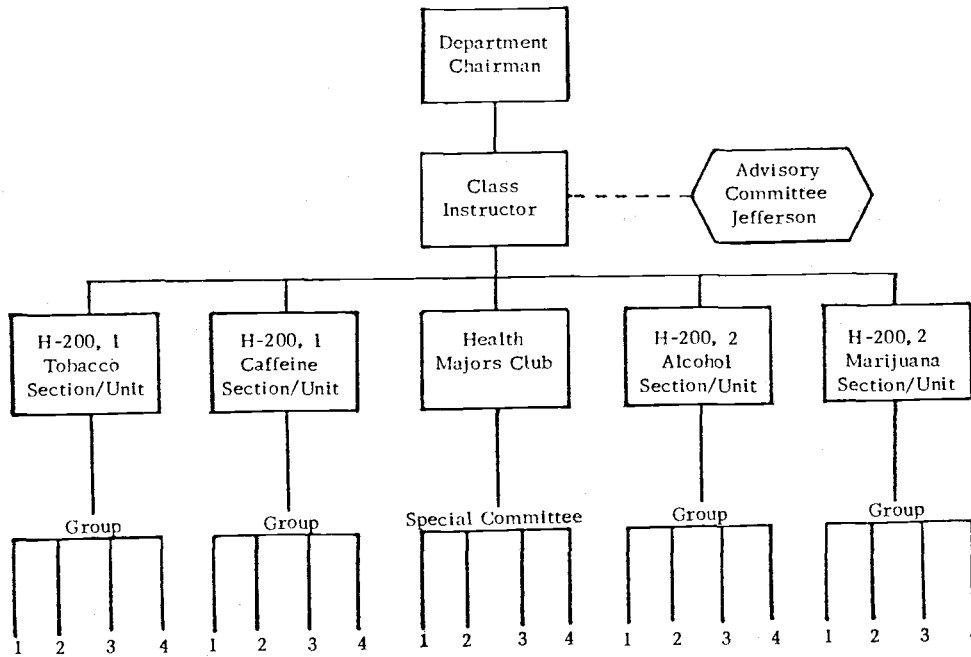


FIGURE 2. Organization of the Health Fair

Advisory Committee

The Advisory Committee consisted of the principal from the cooperating school and teachers representing each grade level in the school. The three major functions of this committee were: (1) to give input to the total project, (2) to evaluate lesson plans and methods developed by the university students, and (3) to give feedback when the fair was completed.

Special Committee

All the supplemental tasks which would not naturally fall under the section and group responsibilities were carried out by a special committee from the Health Majors Club.

Student Leadership

Health fair organization was an avenue through which teacher preparation students had the opportunity for experience in leadership and organization. The students were grouped into four sections with about 25 to 26 students in each section. There were four groups within a section with about 6 to 7 students in a group. Each section head and assistant section head worked closely with four group leaders and assistant group leaders. Under this student leadership, the teacher preparation students developed the total health fair, beginning with subject selection, breaking down the subject by section, and then by groups within the sections.

In the health fair covered by this research, the students chose the subject category of drugs. The organization chart shows the four section breakdowns: alcohol, caffeine, marijuana, and tobacco. To illustrate how the groups further subdivide the content, the groups in the alcohol section were: effects on the brain, effects on the digestive system, effects on the heart, and effects on movement. The students followed this pattern in choosing and then correlating from the general to the specific groups the objective, theme, symbol, and colors for the Health Fair. This sequence of operation formed the basis for all the learning activities in each unit plan and lesson plan.

Procedure Adjustment for the Control Group

The orientation, closure, school health environment, and school health services units were conducted identically in both the experimental and control groups. However, the procedure for the experimental and control groups varied in the school health instruction unit, providing practical experience for four weeks of the course in the public school for students in the experimental group.

The school health instruction unit for the control group differed from the experimental group in five ways:

1. The written plan for the experimental group contained facility development so that large numbers of students working in sections and groups could arrange their units and lesson plans into space limitations in the public school. In contrast, written plans

for the control group encompassed only unit plans, lesson plans, objectives, learning activities, and materials.

2. The experimental group spent four weeks working in the community and in the public school gathering and preparing materials and then presenting them in the public school. The control group, maintained within the classroom, developed and presented materials through group discussion and idea exchange. Opportunity was provided for the students to present unit plan outlines and to teach lesson plans in class.

3. The classroom teaching experience for the control group did not require an advisory committee from a public school, section or group student leaders, or health majors club involvement.

4. Since the control group was smaller than the experimental group, groups and sections did not have the same number of students.

5. The unit and lesson plan subject categories for the control group differed from the experimental group. The students in the control group chose four systems of the body: digestive, muscular, nervous, and reproductive.

Collection of the Data

Pilot Study

A pilot study was conducted Fall Semester 1976 at the UWL in conjunction with Hamilton Elementary School. Pre- and post-tests were administered to a control group and an experimental group. The methods were reorganized (section time and class location) in preparation for the use of this experiential method during Spring Semester 1977 at the UWL and Jefferson Elementary School. (See Chapter III for modifications.)

The Procedure

Data for evaluation of the effects of the health fair involved the assessment of attitude change toward teaching from a pre-test to post-test and from a pre-test to a post post-test period. The instrument used for these measurements was the MTAI. The pre-test was administered at the beginning of the semester, the post-test at the end of the semester, and the post post-test nine months from the date of the pre-test.

Data Collection Instrument

Several prospective instruments were examined and evaluated for their appropriateness as criterion measures. Each was deemed inferior to the MTAI for the purposes of this study. The most likely

alternatives to the MTAI and the principal reasons for rejecting them are included in Appendix B.

Minnesota Teacher Attitude Inventory (MTAI)

The MTAI was selected as the measuring instrument because the major functions of the instrument are: (1) selecting students for teacher preparation, (2) selecting teachers for teaching positions, (3) career counseling, and (4) measuring effectiveness of teacher education preparation.

Reliability

Borg (6:360) set limits within which it would seem reasonable to appraise the reliability of an instrument. He stated that generally reliability coefficients of .90 or over are required for a test to be considered a reliable measuring instrument. Personality reliability coefficients could range from .60 to .80. The reliability of the MTAI claimed by the authors to be a coefficient of .90 was checked by Leeds in a follow-up procedure. Leeds (34) stated that the MTAI has a reliability coefficient of .93.

Validity

The validity coefficient claimed by the authors from the initial administration of the MTAI was .60 (16). In the study by Leeds previously mentioned, a coefficient of .63 was obtained (34). Courtney (17) reported this was an adequate validity rating.

Appropriateness to the Population

The MTAI was developed utilizing basically the type of population sampled in this study--undergraduates enrolled in a teacher education preparation course.

Fakability Provision

The data revealed that a poor teacher "fakes" in a different way than a good teacher does. The scoring procedure adopted is such that the differences which may exist between good and poor teachers with reference to faking operate in the direction of increasing the validity of the MTAI (15).

There have been 155 studies performed either on or with the MTAI.

Interpretation of the Data

Variables

The independent variable in this research was the health fair. Academic classification and assignment to the treatment group are the moderator variables. The dependent variable is attitude change as measured by the gain scores of the pre-, post-, and post post-tests.

Design Matrix

All responses in the pre-, post-, and post post-tests were marked by the students on computer-scored answer sheets. When the data from the pre- and post-tests were collected, the attitude change was

calculated (the difference between the pre- and the post-test scores). Scores of the post post-test, administered after a time interval of nine months from the pre-test date, also were computed and analyzed. The difference between the pre- and the post post-test scores were evaluated.

TABLE 1. Design Matrix: Number of Majors Minors in the Experimental and Control Groups

Major Classification	Experimental			Control		
	Pre-Test	Post-Test	Post Post-Test	Pre-Test	Post-Test	Post Post-Test
SHM	29	29	27	11	11	11
SHMI	24	24	23	10	10	9
CHM	18	18	17	11	11	11
TOTALS	71	71	67	32	32	31

There were more school health majors than school health minors or community health majors in this study. Also, there were fewer community health majors than school health minors. All the students who took the pre-test also took the post-test. However, two school health majors, two school health minors, and one community health major did not take the post post-test. The sample size of groups can be different when using nonparametric statistics (53:222).

Nonparametric Statistics

Nonparametric statistics were chosen to analyze the data. The Kruskal-Wallis one-way analysis of variance was used comparing the experimental and control groups. The Kruskal-Wallis test is the most commonly used of the nonparametric techniques. It is the nonparametric analog of the F test (25:192-193). The Mann-Whitney U test was used for specific two-group comparisons, i.e. CHMC and CHMX, SHMC and SHMX, SHMIC and SHMIX. The Mann-Whitney U test is the best nonparametric test which compares two samples for possible significant differences (66:241-242).

Statistical Model (29)

The statistical model for the Kruskal-Wallis H test is:

$$H = \frac{12}{N(N+1)} \left[\frac{\sum Ri^2}{Ni} \right] - \left[3(N+1) \right]$$

N = Number in all samples combined
 $\sum Ri$ = Sum of ranks in the ith sample
 Ni = The number of the ith sample

The statistical model for the Mann-Whitney U test is:

$\sum RX$ = sum of ranks for X
 $\sum RY$ = sum of ranks for Y

$$U_1 = N_1 N_2 + \frac{N_1(N_1+1)}{2} - \sum RX$$

$$U_2 = N_1 N_2 + \frac{N_2(N_2+1)}{2} - \Sigma RY$$

N_1 = Number in sample one

N_2 = Number in sample two

The smallest U value is used. However, when the sample is over 20, the Z ratio must be used:

$$Z = \frac{U_1 - (N_1 N_2 / 2)}{\sqrt{(N_1 N_2 (N_1 + N_2 + 1)) / 12}}$$

Decision Rules (54)

The critical H = .05

The computed H \geq 5.99 reject the null hypothesis

The critical Z \leq .05

The probability for Z must be \leq the predetermined level of significance to reject the null hypothesis.

IV. ANALYSIS OF DATA

This chapter presents data regarding a school health fair used as an experiential method to supplement classroom theory in a teacher preparation course at the University of Wisconsin-La Crosse (UWL). The findings will be presented in the following order: experimental and control groups, school health majors, school health minors, and community health majors.

Experimental and Control Groups

Statistical analysis resulted in acceptance of the first null hypothesis:

There is no significant difference between the gain scores of the experimental group and the control group.

The data input for this calculation required the computation of gain scores, the differences between the pre-test and post-test scores and then pre-test to post post-test scores of all students in the experimental and control groups. Results are presented in Tables 2, 3, and 4.

The statistical analysis of these data required the application of the Kruskal-Wallis one-way analysis of variance test, since nonparametric techniques were selected to measure the ordinal data.

TABLE 2. School health major test score differences (70)

Group	Student Identification Number	Score Differences	
		Pre- to Post-	Pre- to Post-
Control	1	46	46
	2	27	53
	3	14	16
	4	4	11
	5	3	3
	6	0	-13
	7	- 8	-12
	8	-12	-14
	9	-15	-11
	10	-24	11
	11	-29	- 7
Experimental	1	53	29
	2	45	24
	3	41	40
	4	37	37
	5	31	19
	6	31	9
	7	27	4
	8	25	9
	9	24	- 1
	10	23	19
	11	23	14
	12	13	-12
	13	11	12
	14	9	9
	15	1	4
	16	1	-11
	17	- 8	26
18	- 8	- 9	
19	-11	-18	
20	-15	-19	
21	-18	13	
22	-19	0	
23	-21	-21	
24	-23	-17	
25	-24	-22	
26	-41	-39	
27	-57	- 8	

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TABLE 2. School health major test score differences (cont.)

Kruskal-Wallace H and Mann-Whitney U computed and critical numbers

Pre- to post-test computed H		.2172
Critical H	\geq	5.99
Pre- to post post-test computed H		.1430
Critical H	\geq	5.99
Pre- to post-test computed U		167.50
Z score .63; P score .53		
Critical P	\leq	.05
Pre- to post post-test computed U		141
Z score .23; P score .82		
Critical P	\leq	.05

TABLE 3. School health minor test score differences

Group	Student Identification Number	Score Differences	
		Pre- to Post-	Pre- to Post-
Control	1	49	38
	2	27	21
	3	25	17
	4	4	13
	5	4	-15
	6	0	- 2
	7	- 4	0
	8	- 6	- 5
	9	-11	-10
Experimental	1	50	39
	2	45	31
	3	33	38
	4	31	9
	5	29	43
	6	23	23
	7	23	23
	8	21	43
	9	21	5
	10	20	12
	11	17	17
	12	14	20
	13	9	- 1
	14	8	14
	15	7	6
	16	4	4
	17	3	5
	18	0	0
	19	- 1	0
	20	- 3	33
	21	- 5	- 5
	22	- 5	- 6
	23	-10	-14

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TABLE 3. School health minor test score differences (cont.)

Kruskal-Wallace H and Mann-Whitney U computed and critical numbers

Pre- to post-test computed H		.2172
Critical H	\geq	5.99
Pre- to post post-test computed H		.1430
Critical H	\geq	5.99
Pre- to post-test computed U		124.50
Z score .90; P score .37		
Critical P	\leq	.05
Pre- to post post-test computed U		135.50
Z score 1.36; P score .17		
Critical P	\leq	.05

TABLE 4. Community health major test score difference

Group	Student Identification Number	Score Differences	
		Pre- to Post	Pre- to Post Post-
Control	1	39	40
	2	30	9
	3	26	14
	4	21	21
	5	16	24
	6	11	31
	7	10	- 4
	8	0	-12
	9	- 9	- 8
	10	-14	-24
	11	-29	-11
Experimental	1	31	30
	2	24	18
	3	21	16
	4	18	26
	5	15	-11
	6	10	18
	7	8	2
	8	6	6
	9	- 2	- 3
	10	- 3	- 1
	11	- 4	-28
	12	- 7	4
	13	- 8	- 4
	14	-10	- 3
	15	-18	9
	16	-18	- 5
	17	-26	-30

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TABLE 4. Community health major test score differences (cont.)

Kruskal-Wallace H and Mann-Whitney U computed and critical numbers

Pre- to post-test computed H		.2172
Critical H	\geq	5.99
Pre- to post post-test computed H		.1430
Critical H	\geq	5.99
Pre- to post-test computed U		71
Critical U	\leq	51
Pre- to post post-test computed U		85.50
Critical U	\leq	51

The test was able to examine the significance between group gain scores for all possible two-group comparisons.

The gain scores of each individual in a particular group were ranked in comparison with all other groups. The sums of the ranks were taken and the formula was applied. The H values were: pre- to post-test, .2172; pre- to post post-test, .1430. Since there are more than five students in each group, in order to find the critical value for a probability level of .05, the chi-square table is used with k-1 degrees of freedom (53:246). The value of H should be ≥ 5.99 (49:352). Thus, the differences between the experimental and control groups are not considered to be significant.

School Health Major

Statistical analysis resulted in acceptance of the second null hypothesis:

There is no significant difference between the gain scores of the SHMC and SHMX.

The data input for this calculation was comprised of the 11 SHMC and 27 SHMX scores. Differences for the test scores are presented in Table 2. The Mann-Whitney U test was used comparing the SHMC and SHMX gain scores. For the pre- to post-test, a U value of 167.50 was computed. Because there were more than 20 students in both of the groups in this comparison, the Z ratio of U was computed to be .63. The

probability (P) value of this Z score is .53. The U value for the pre- to post post-test is 141. The Z ratio is .23 with a P value of .82. The P value of a given Z score must be equal to or less than .05 in order for the score to be considered significant (49:227, 351). Therefore, the differences between the gain values for the SHMC and SHMX are considered insignificant.

School Health Minor

Statistical analysis resulted in acceptance of the third null hypothesis:

There is no significant difference between the gain scores of the SHMIC and SHMIX.

The data input for this calculation included 9 SHMIC and 23 SHMIX scores. Differences for the test scores are presented in Table 3. The Mann-Whitney U value for the pre- to post-test was computed as 124.50 with a Z score of .90; a probability of .37. The pre- to post post-test U value was 135.50. The Z ratio of this U value is 1.36 with a P value of .17. At the .05 level of significance, the probability of this Z score must be equal to or less than .05 (49:227, 351).

Community Health Major

Statistical analysis resulted in acceptance of the fourth null hypothesis:

There is no significant difference between the gain scores of the CHMC and the CHMX.

The data input for this calculation is reported in Table 4 including 11 and 17 student score values of the respective groups. Using the Mann-Whitney U test, the value for the pre- to post-test was 71. The pre- to post post-test U value was 85.50. Since neither group exceeded 20 participants, the value of U should be ≤ 51 for the .05 level of probability (two-tailed) (49:229, 358). The difference between the gain values are considered insignificant and the null hypothesis is accepted.

Summary

No statistical significance was detected in any of the group comparisons: experimental and control, school health majors, school health minors, or community health majors. However, the attitude change showed a trend in a positive direction.

V. SUMMARY, CONCLUSIONS, OBSERVATIONS, AND RECOMMENDATIONS

Summary

Purpose

The purpose of this study was to determine if a school health fair changes student attitude toward teaching. The health fair was used as an experiential learning method to complement classroom theory in a teacher preparation course at the University of Wisconsin-La Crosse (UWL).

A review of the literature indicated lack of scientific investigation in three related areas: (1) the effect on student attitudes when combining classroom theory with experiential learning in higher education, (2) the effect on student attitudes toward teaching when teacher preparation courses supplement the classroom approach with experiential learning, and (3) the effect on student attitudes toward teaching when a teacher preparation course incorporates with classroom theory a school health fair as an experiential learning method.

Method

The 98 university students participating in this study were selected randomly. The experimental and control groups included three

categories of teacher preparation students: school health majors, school health minors, and community health majors. A pre-test, post-test and post post-test using the Minnesota Teacher Attitude Inventory (MTAI) measured student attitude toward teaching. The Kruskal-Wallis one-way analysis of variance was selected as the appropriate statistic to test the hypothesis regarding experimental and control groups. The Mann-Whitney U was implemented to analyze where differences occurred among the gain scores of the three groups.

Findings

The findings of this study indicated the school health fair used as an experiential method with a classroom approach in a university teacher preparation course at the UWL did not change student attitude toward teaching.

This study raises serious questions about the research related to classroom theory and experiential learning and student attitude toward teaching in higher education. For example, Garber's (24) study indicated the classroom theory method created positive student attitudes toward teaching, but he did not consider experiential learning with the classroom approach. Conversely, Zerwekh's (72) results found student attitudes toward teaching were negatively influenced when classroom theory was the only consideration.

Disagreement continues when research is directed toward teacher preparation. Rex (49) and Knoll (32) indicated student attitude did change in a positive direction toward teaching through experiential

learning. However, as in the study conducted by Zerwekh, the only method used was experiential learning. Conversely, Wilcox (69) and Turk (67) found that student attitude toward teaching changed in a negative direction, but like Garber, classroom theory was not used with the experiential learning method.

Review of studies in teacher preparation give rise to the same issues brought forth in higher education. Studies have dealt only with classroom theory or experiential learning. Research has not been done using both methods concurrently. This study, a combination of both methods, found student attitude toward teaching did not change in a positive direction when classroom theory and experiential learning were combined in a teacher preparation course.

Conclusions

The school health fair seemed to be a useful experiential method in changing student attitude toward teaching. Rex (49) and Knoll (32) support this position. However, their findings are based on experiential learning only. When classroom theory and experiential learning were combined using the school health fair, the use of this method to change attitudes toward teaching becomes questionable.

Observations

Participation in the school health fair did not change teacher-preparation student attitudes toward teaching. However, other outcomes postulated about the school health fair for which there is no

statistical support are: (1) that it is a vehicle for practicum in school health environment, school health instruction, and school health services; (2) that it provides leadership development; (3) that it facilitates problem-solving abilities, (4) that it utilizes group skills; (5) that it is an outlet for presenting health knowledge to public school students; (6) that it supplies the public school teachers with curriculum units in health education; and (7) that it facilitates cooperative involvement in health education of university administrators, faculty, and students; public school administrators, teachers, and students; leaders in the community, and parents of students in the public schools.

Recommendations for Further Study

A. The following recommendations for further research were based on the conclusions of the study:

1. Additional research should be conducted to determine the effect on learning when classroom theory and experiential learning are combined in higher education.
2. Further studies should be done to determine the effect on student attitude toward teaching with conjoint experiential learning and classroom theory in teacher preparation courses.
3. Research should be done to determine the effect of the school health fair on university student attitude

toward teaching where school health majors, school health minors, and community health majors are involved separately during their senior year.

4. Additional investigation should be conducted to determine if the school health fair changes the public school student's attitude toward health.
5. Further studies should be carried out to ascertain the effect of the school health fair on attitudes of public school administrators and teachers toward teaching health in the public school.

B. The following additional recommendations are derived from the observations:

1. Further research should investigate the health fair as a vehicle to supplement classroom theory with practicum in all three areas of the school health program (environment, instruction, and services).
2. Further investigation should be conducted to determine the effect of the school health fair on university student problem-solving and group skills.
3. Research should be done to determine the effect of the school health fair on student leadership development.

4. Additional investigation should be conducted to determine if the school health fair changes the public school student's cognitive skills relating to health.
5. Further study should be done to determine if the public school teachers utilize the curriculum units in health education provided through the health fair.
6. Research should be done to determine if the school health fair does produce the cooperative involvement in health education of university administrators, faculty, and students; public school administrators, teachers, and students; community leaders; and parents of students in the public schools.

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APPENDICES

APPENDIX A

TEST SCORES

APPENDIX A

SCHOOL HEALTH MAJOR TEST SCORES (70)

Group	Student Identification Number	Pre-Test	Post-Test	Difference	Pre-Test	Post-Test	Difference
Control	1	48	94	46	48	94	46
	2	-31	-4	27	-31	22	53
	3	52	66	14	52	68	16
	4	69	73	4	69	80	11
	5	36	39	3	36	39	3
	6	51	51	0	51	38	-13
	7	6	-2	-8	6	-6	-12
	8	7	-5	-12	7	-7	-14
	9	19	4	-15	19	-15	-11
	10	34	10	-24	34	45	11
	11	36	7	-29	36	29	-7
Experimental	1	27	80	53	27	56	29
	2	-31	-14	45	-31	-7	24
	3	18	59	41	18	58	40
	4	40	77	37	40	77	37
	5	35	66	31	35	54	19
	6	-26	5	31	-26	-17	9
	7	25	52	27	25	29	4
	8	5	30	25	5	14	9
	9	43	67	24	43	42	-1
	10	16	39	23	16	35	19
	11	80	103	23	80	94	14
	12	41	54	13	41	29	-12
	13	1	12	11	1	13	12
	14	35	44	9	35	44	9
	15	58	59	1	58	62	4
	16	82	83	1	82	71	-11
	17	20	12	-8	20	46	26
	18	77	69	-8	77	68	-9
	19	69	58	-11	69	51	-18
	20	60	45	-15	60	41	-19
	21	60	42	-18	60	73	13
	22	57	38	-19	57	57	0
	23	48	27	-21	48	27	-21
	24	36	13	-23	36	19	-17
	25	-8	-32	-24	-8	-30	-22
	26	41	0	-41	41	2	-39
	27	47	-10	-57	47	39	-8

APPENDIX A

SCHOOL HEALTH MINOR TEST SCORES (70)

Group	Student Identification Number	Pre-Test	Post-Test	Difference	Pre-Test	Post-Test	Difference
Control	1	8	57	49	8	46	38
	2	49	76	27	49	70	21
	3	36	61	25	36	53	17
	4	8	12	4	8	21	13
	5	28	32	4	28	13	-15
	6	72	72	0	72	70	-2
	7	15	11	-4	15	15	0
	8	21	15	-6	21	16	-5
	9	33	22	-11	33	23	-10
Experimental	1	-11	39	50	-11	28	39
	2	9	54	45	9	40	31
	3	46	79	33	46	84	38
	4	-2	29	31	-2	7	9
	5	27	56	29	27	70	43
	6	74	97	23	74	97	23
	7	46	69	23	46	69	23
	8	10	31	21	10	53	43
	9	58	79	21	58	63	5
	10	47	67	20	47	59	12
	11	21	38	17	21	38	17
	12	63	77	14	63	83	29
	13	37	46	9	37	36	-1
	14	55	63	8	55	69	14
	15	76	83	7	76	82	6
	16	72	76	4	72	76	4
	17	22	25	3	22	27	5
	18	58	58	0	58	58	0
	19	68	67	-1	68	68	0
	20	-1	-4	-3	-1	32	33
	21	23	18	-5	23	18	-5
	22	26	21	-5	26	20	-6
	23	26	16	-10	26	12	-14

APPENDIX A

COMMUNITY HEALTH MAJOR TEST SCORES (70)

Group	Student Identification Number	Pre-Test	Post-Test	Difference	Pre-Test	Post-Test	Difference
Control	1	51	90	39	51	91	40
	2	19	49	30	19	28	9
	3	27	53	26	27	41	14
	4	42	63	21	42	63	21
	5	50	66	16	50	74	24
	6	41	52	11	41	72	31
	7	19	29	10	19	15	- 4
	8	8	8	0	8	- 4	-12
	9	36	27	- 9	36	28	- 8
	10	48	34	-14	48	24	-24
	11	47	18	-29	47	36	-11
Experimental	1	62	93	31	62	92	30
	2	52	76	24	52	70	18
	3	32	53	21	32	48	16
	4	-27	- 9	18	-27	- 1	26
	5	35	50	15	35	24	-11
	6	18	28	10	18	36	18
	7	62	70	8	62	64	2
	8	45	51	6	45	51	6
	9	48	46	- 2	48	45	- 3
	10	64	61	- 3	64	63	- 1
	11	13	9	- 4	13	-15	-28
	12	53	46	- 7	53	57	4
	13	60	52	- 8	60	56	- 4
	14	21	11	-10	21	18	- 3
	15	40	22	-18	40	49	9
	16	38	20	-18	38	33	- 5
	17	0	-26	-26	0	-30	-30

APPENDIX B
DESCRIPTION AND REVIEW OF
THE INSTRUMENT

APPENDIX B

MEASUREMENT INSTRUMENTS REVIEWED

1. The Education Scale VII, a Likert-type scale, was too narrow in scope, confined primarily to distinguishing an orientation towards traditionalism from an orientation towards progressivism in educational practice. Moreover, reliability was unsatisfactory compared to the Minnesota Teacher Attitude Inventory (MTAI) (2).
2. The Student Attitude Inventory, a set of seven scales measuring attitudes of students toward educational practices, had inadequate norms and no reliability coefficient available (7).
3. The Teaching Attitude Questionnaire was basically concerned with the subject's feelings toward himself as a person and a teacher and did not really evaluate attitudes towards behaviors specific to teaching (2).
4. A Test on Adult Attitudes Toward Children did not have adequate validity data, and the nature and number of the sample on which the reliability was based were not provided (8).
5. The measuring instrument Attitude Toward Teaching had very limited evidence concerning reliability and validity, and a sample of items from the instrument led to the conclusion that the items were inappropriate to the purposes of the investigation proposed by this study (56).

6. Attitude Toward Teaching as a Career was an eleven item Likert-type scale constructed in 1959. It was rejected because the instrument was not concerned with an overall perspective of attitudes toward educational practices. It seemed best utilized as an indicator of career preferences (56).

APPENDIX B

MINNESOTA TEACHER ATTITUDE INVENTORY (MTAI)

1. Publication Information:

Published and Validated by: Dr. Walter W. Cook
University of Minnesota

Dr. Carroll H. Leeds
Furman University

Dr. Robert Callis
University of Missouri

Publisher: The Psychological Corporation
304 East 35th Street
New York, New York

Copyrighted: 1951

2. Use of the Instrument:

The MTAI is designed to measure those attitudes of a teacher which predict how well the teacher will get along with pupils in interpersonal relationships and indirectly how satisfied the teacher will be with teaching. The major uses are: (1) selecting students for teacher preparation, (2) selecting of teachers for teaching positions, (3) career counseling, and (4) measuring effectiveness of teacher education preparation.

3. Rationale for the Test:

Investigations carried out by the authors for 10 years indicate that the attitudes of teachers toward children, toward school,

toward teaching, and toward subject matter can be measured with high reliability, and that they are significantly correlated with the teacher-pupil relations found in the teacher's classroom.

In building the attitude scale to predict the type of teacher-pupil relations a teacher will maintain in the classroom, they first defined the extremes of the scale--the characteristics of desirable teacher-pupil relations, and the characteristics of undesirable teacher-pupil relations. Items in the inventory discriminate sharply between teachers who have and those who do not have good rapport with pupils.

4. Validity of the Instrument:

Step A:

An adequate sampling of attitudes was taken by canvassing five areas of socio-educational literature about children: (1) moral status, (2) discipline, (3) principles of child development, (4) principles of education related to philosophy, curriculum, and administration, and (5) personal reactions of the teacher.

Step B:

For try-out purposes, 756 test items were written and placed in Form A and Form B (328 each).

Step C:

The first experiment included experienced teachers. Principals of 70 schools in Pennsylvania and Ohio cooperated by supplying teachers representing grades K - 12. Each principal designated two teachers who had excellent relations with their students, for a total of 100. All these teachers were asked to fill out Form A. After a few weeks, the same teachers filled out Form B. Chi-square was computed to determine the extent to which each item discriminated between the two groups. It was found that 115 of the 756 items discriminated at the five per cent level and that 188 items were discriminating at the ten per cent level.

Step D:

From the 756 questions, 164 were chosen, Form X-164. The criteria employed in the selection were: (1) Is the item adequate in differentiating the two groups of teachers? (2) Is the item unambiguous in meaning? (3) Does the content of the item duplicate that of another item? (4) Is the response pattern logical and easy to interpret?

Step E:

Further validation of Form X-164 included a random sampling of 100 teachers (4-6 grades) and a correlation of their scores with three outside criteria: (1) rating of teacher by pupil (25 pupils

for each teacher), (2) rating of teacher by principal (criteria given), and (3) rating of the teacher by a specialist (criteria given). With multiple regression weighting, their combined results had a validity coefficient of .60.

Step F:

The second experiment included students. Seventy-five questions from the original 756 were added to the 164. This became Form X-239 used to determine how student attitudes are influenced by professional educational courses.

Step G: Precautions Against Faking

"We can assume that everyone tried to 'fake' the inventory in the sense of making his answers conform to his beliefs. The data reveal, however, that a poor teacher 'fakes' it in a different way from a good teacher." The scoring procedure is such that the differences which may exist between good and poor teachers with reference to: (1) faking, (2) response set, (3) test-taking, and (4) role-playing, operate in the direction of increasing the test validity. It may be concluded that when two carefully defined criterion groups consistently respond to a given item in different ways one need not be concerned as to whether the responses are "honest". "In order to determine the fakability of the inventory, three testing sequences were set up. Each sequence involved two testings."

Step H: Validating Form A (final 150 questions)

In validating the final 150 items on the inventory, six factors were considered: (1) the discriminating power of the item, (2) the extent to which item responses are influenced by professional education courses, (3) the extent to which item responses are influenced by teaching experience, (4) the extent to which the content of the item duplicates that of another item, (5) the clearness of the statement, and (6) the consistency of the response patterns of the superior and inferior teachers.

Step I:

As a further check on validity, and using the items in final form, two studies were undertaken in South Carolina and Missouri.