THE EFFECT OF HEALTH EDUCATION AT THE POSTSECONDARY LEVEL ON THE REDUCTION OF HEALTH RISK BEHAVIORS

BY

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Abstract of Dissertation Presented to the Graduate Council of the University of Florida in Partial Fulfillment of the Requirements for the Degree of Doctor of Education

THE EFFECT OF HEALTH EDUCATION AT THE POSTSECONDARY LEVEL ON THE REDUCTION OF HEALTH RISK BEHAVIORS

By

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Chairman: Arthur J. Lewis
Major Department: Curriculum and Instruction

This research study was conducted with university students to provide answers to the following questions:

1. Will university students who enrolled in a personal health course show differences in the level of health risk behaviors, as measured by the Confidential Health Profile for Adults, from students who are not enrolled in the course?

2. Will the students who were made aware of existing health risk behaviors by a personal computerized analysis, without formal health instruction, show differences in the level of health risk behaviors, as measured by the Confidential Health Profile for Adults, from students who received no instruction or analysis?

3. Will the students who participated in the personal health course show differences in the level of health risk behaviors three months after the treatment?
4. Will the students who received only the computerized life style analysis, show differences in the level of health risk behaviors three months after the treatment?

The sample population consisted of 68 University of Central Florida students who were enrolled Fall Term 1981. Twenty-four students in experimental group one, voluntarily enrolled in a personal health course, Medical Self Assessment. This group received 45 hours of personal health instruction. Instructional methodologies revolved around normative, re-educative change strategies such as change contracts, group discussion and self-awareness exercises. Experimental group two consisted of 33 students enrolled in a speech course which met at the same time as the personal health course. These students received a computerized analysis of their life style which identified existing health risk behaviors. No formal health instruction was given.

The control group consisted of 22 students enrolled in a separate speech class which met at the same time as the personal health course.

Pretreatment, posttreatment and three months delayed posttreatment measures were taken on each group using the Confidential Health Profile for Adults. Multivariate analysis of composite health risk scores, life change units, locus of control, health ranking, weight, systolic and diastolic pressures were employed to evaluate the data.

Although there were no significant differences (.01 level of significance) in composite health risk scores for the treatment group, there were notable trends in specific health behavior categories: weight reduction, increased exercise and reduction of cigarette smoking.
CHAPTER I
INTRODUCTION

In most industrialized societies, important causes of illness and death are related to affluence and the proliferation of consumer goods, lack of exercise, highway accidents and mental illness--these are often indicative of the individual's inability to cope with the environment. Individuals choose, consciously or not, to eat or drink unwisely; to smoke or "pop pills" excessively; to drive too fast; or to drive while impaired. The life style of individuals is frequently at fault, and consequently the conditions from which they suffer are frequently referred to as diseases of "choice," "affluence" or "neglect." Knowing this, it is evident that positive gains in the health of a population should result from encouraging individuals to modify adverse life styles and change behavior patterns that leave them open to unnecessary risks.

To provide vehicles for these changes, there is renewed interest in health education, prevention and increased consumer responsibility. The purpose of the Surgeon General's report on health promotion and disease prevention, Healthy People (U.S. Government Printing Office, 1979) was to enhance both individual and national perspectives on prevention through identification of priorities and specification of measurable goals for health promotion. The National Health Planning and Resources Development Act of 1974 (P.L. 93-641) has listed public
education as one of its ten national health priorities. The Forward Plan for Health FY 1977-81 (U.S. Government Printing Office, 1976) established by the Department of Health, Education and Welfare specified "a coherent set of health education initiatives" as one of its goals (p. 3).

**Purpose of the Study**

The purpose of this study was to assess the effectiveness of a postsecondary personal health course that utilized normative, re-educative change strategies as an instructional model. Effectiveness was assessed by reduction of health risk behaviors in the experimental group over a six-month period as determined by an analysis of scores received on the Confidential Health Profile for Adults (Moody, Rienzo & Colson, 1979). This instrument is a health risk appraisal format adapted for use in the young adult age group (see Appendix A). Specifically, this study addressed the following questions:

1. Were there differences in the reduction of health risk behaviors between students who received health education and those who did not?

2. Were there differences in the reduction of health risk behaviors between students who received a computer analysis of their health risk and those who received the computer analysis and a formal health education course?

3. Were changes in health risk behaviors evident three months after the treatments?
Need for the Study

One's life style, including patterns of eating, exercise, drinking, coping with stress, and the use of tobacco and drugs, together with environmental hazards, are modifiable causes of illness. The effect of life styles on health was confirmed in a research study by Belloc and Breslow (1972). They determined that life expectancy and good health are directly related to such basic practices as daily breakfast and regular meals; moderate exercise two or three times a week; regular sleep; moderate weight; no smoking; and either abstention or moderation in alcohol consumption.

After reviewing research studies, Haggerty (1977) found that many specific diseases have been linked with habits: cigarette smoking to cancer of the lung as well as emphysema; overeating and its consequent overweight to heart disease; anemia to iron-deficient diet; overuse of alcohol to cirrhosis of the liver; risk-taking driving and nonuse of seat belts to injuries in auto accidents; early multiple sexual contacts to cancer of the cervix; promiscuous sexual behavior to venereal disease; drug taking to addiction; and refined sugar to dental caries.

Despite replication of such findings in virtually every serious investigation, members of our Western societies continue to eat as though our bulging waistlines will never bring on the many varied and crippling coronary and related diseases; smoke as though our blackening lungs will not spawn neoplasms; alter the chemistry of our brains as though our neurological systems were endlessly forgiving of our excesses; and avoid activity like a plague as though to lull our resting hearts into premature eternal rest.
Health education aimed at the consumer has not significantly altered health risk behaviors. One very sophisticated experiment evaluated the effect of emotionally gripping spot announcements on cable television relating to the use of seat belts. Using a carefully controlled population, this treatment did not result in change in the viewer's behavior (Robertson, Kelley, O'Neill, Wixom, Elswirth & Haddon, 1974). In a similar vein, repeated warnings by the Surgeon General on the harmful effects of cigarettes have not stopped their consumption.

The presence of health risk behaviors is attributable to many different causes. The first of these is an at best ambivalent commitment by both the medical and general communities to health maintenance. Knowles (1977) observed that "the health industry is pluralistic, competitive and essentially committed to the tenets of a laissez-faire ethos" (p. 5). For example, of the billions of dollars spent on health care in the United States in 1980, less than 3 percent was spent on preventive care according to the American College of Preventive Medicine (1980). Another example of ambivalent commitment includes the reluctance of third party payers, including Medicare and Medicaid, to reimburse for preventive care.

Contributing to the consumer's dilemma is the belief that the medical profession can take care of all that ails us. This belief has been fostered by the dramatic breakthroughs made by pharmacology in the conquest of polio and by spectacular advances in surgery for such things as heart and kidney transplants. All of these have conspired to lull Americans into giving up responsibility for their own health
and into relying, instead, on ever-ready drugs to painlessly overcome the problem (Haggerty, 1977).

Despite the overall failure of consumer health education efforts, some group programs employing behavior change strategies to reduce health risk behaviors have been successful. One such strategy is the client contract counselor model (Milsum & Roberge, 1980). This model employed a change contract initiated by the client and monitored by the counselor to encourage the desired change. The use of this model was described by Miller (1972) in a case study applied to the abuse of alcohol. The clients agreed, via a behavioral contract, to change reinforcement contingencies for maintaining drinking behavior. Upon written agreement, the partners agreed to limit drinking to a given level. Conditions of where the drinking was to occur were stipulated. Drinking in any other situation resulted in a monetary fine, payable to the wife, and included withdrawal of attention by the wife. With this treatment a moderate drinking pattern was established and maintained after a six-month follow-up. Other studies (Mann, 1972) applied behavior contracting to weight control programs with a high degree of success.

Kanfer and Goldstein (1975) reported on the success of Weight Watchers and Alcoholics Anonymous programs. These programs are based on (a) behavior contracting, (b) personal awareness, and (c) group identity and support. Short-term studies of both of these programs indicated a greater than 60 percent success rate of those who stay in the program for a minimum of two months.
Public school health education developed since the sixties has been aimed at reducing health risk behaviors by attempting to change passive and dependent attitudes toward health to attitudes of self-responsibility. As Moses discovered 3,000 years ago, it is much easier to reach a new generation than it is to try and influence the behavior of those accustomed to other ways of thinking. Thus, federal and state legislation has been enacted to foster the development and implementation of comprehensive health education in public schools in order to deter adoption of negative health behaviors.

School health curricula in the fifties and sixties emphasized dissemination of health information without emphasis on health behavioral or attitudinal change. Fortunately, health education has become a dynamic process. Obviously there is a wealth of factual knowledge students should learn: the body and its function, the cause and effect of the most prevalent health problems, methods of health promotion and disease prevention. However, such information is useless unless it is translated into health promoting behaviors. Health education should be a process that bridges the gap between health information and health practice.

Reviews of the field of school health education by Green (1979) indicated that changes in knowledge or behavior brought about by the curricular changes in the seventies were minimal. He found that research studies on various curriculum designs used in health curricula demonstrated that while there was an increased knowledge and attitude change consistent with the promotion of preventive health measures, there was no documented behavior change.
One possible rationale for the lack of success in public school health education is the inability to address the teachable moment. Milsum and Roberge (1980) postulated that addressing the teachable moment is a key factor in encouraging self-responsibility. He described the teachable moment as one in which the client is in the position of making life style decisions and has been made aware of the high risk behavior present in his life style. The life style of most primary and secondary students is governed by their adult caretakers, therefore, making life style changes difficult to accomplish through health education.

Students at the postsecondary education level are generally in charge of making life style decisions, which is one criterion in the teachable moment. Often this group is neglected, as health education is infrequently mandatory nor is it encouraged for this age group. Employing appropriate change strategies like those identified as effective in public health studies, postsecondary students could be prime targets for lowering health risk behaviors through health promotional projects. Such health education does exist in some institutions.

One successful project was reported by Barnes and Nybo (1978) at Eastern Carolina University. Students were individually counseled in combination with group lectures and discussions. Behavioral change contracts were used to encourage lowering of at least one health risk behavior. The study reported only on the success of the behavioral change contracted for and did not evaluate the program as a whole. They stated that the Personal Health Behavior Project (PHBP), the
change contract, was an effective tool that helped the student learn skills that may be useful throughout their lifetime to change behaviors when and as they wish.

Another study entitled the "Life Style Improvement Program," which was located at the University of Wisconsin at Stevens Point, consisted of a computerized life style assessment that identified health risk behaviors with an automated referral to support areas on campus (Hettler, 1980). This study showed significant reduction in health risk behaviors in students who chose to participate. Studies of a program at the University of South Carolina entitled "Wellness," reported similar structure and results (Love, Lamkin & Morphis, 1980).

Even though these projects proved to be effective, computer time and individual counseling for students under this model are too expensive to be adopted by most colleges and universities. Funds to support these programs are not easily available as they do not generate financial return within a fee-for-credit, academic financial model.

Further literature review revealed few attempts to lower health risk behaviors through formal classroom instruction at the postsecondary level. The studies reviewed did not contain pre- and postdata, and data from control groups to provide validity to the studies were not evident.

The research reported in this dissertation is a study of a personal health course taught for credit in a formal classroom setting at the postsecondary level and its subsequent effect on reduction of health risk behaviors in the participant. Behavioral change
strategies were used which were aimed at the reduction of health risk behaviors by promoting positive life style adoption. The course, HSC 3081, Medical Self Assessment, was taught as a restricted elective at the University of Central Florida (UCF) and included 45 hours of formal classroom instruction. The organization of the course was based on a concept proposed by Sabina Dunton (1979) which described several components and various levels or stages of motivational receptivity for life style behavior change.

The essence of Dunton's concept is that behavior change initially requires a person's awareness that current behavior is harmful. Once awareness is established, there has to be acceptance of that information. After acceptance, an integration of the information into the person's self-image should occur. At this point, the beginning of an effort to change may be observed and a decision to change or modify behavior may be made. Finally, personal application of the acquired knowledge with actual changes in life style completes the steps.

This theory is closely aligned with the steps in values clarification described by Simon, Howe and Kirchenbaum (1972), which defined seven steps in the valuing process. The valuing process is defined in three major categories: (a) prizing one's beliefs and behaviors, (b) choosing one's beliefs and behaviors, and (c) acting on one's beliefs.

The HSC 3081 course incorporated the following components:

2. Acceptance of this knowledge of risk--Method: Didactic classroom instruction on the risk factors associated with the most prevalent diseases.

3. Integration of the knowledge into personal self image--Method: Development of skills in personal physiologic monitoring and comparison of data acquired under various environmental conditions.

4. Effort toward change--Method: Behavioral change contract to reduce one identified health risk behavior during the 15-week term.

5. Application of knowledge to produce actual changes--Method: Follow-up reporting.

Reduction of health risk behaviors was determined by an analysis of experimental and control group health risk scores received on the Confidential Health Profile for Adults on pre- and posttreatment measures. This score is an analysis of self-reported behavior changes. A broader view of behavior change to include attitude and the earlier stages of choosing one's beliefs might be beneficial but more difficult to evaluate.

**Research Design**

A quasi-experimental, nonequivalent control group design was used with the three groups. Experimental group one consisted of a random sample of students who were enrolled in HSC 3081, Medical Self Assessment, at the University of Central Florida. The treatment consisted of 45 hours of health education using an instruction model employing normative, re-educative change strategies which was preceded by a computerized risk assessment of the student's lifestyle. Experimental group two consisted of students enrolled in Speech 2014.14, who
received a computerized risk assessment with no follow-up health education or counseling.

The control group consisted of students enrolled in Speech 2014.12 who received no feedback on their computerized risk assessment nor health education.

Repeated measures on each group were taken utilizing the Confidential Health Profile for Adults; pretreatment measures; posttreatment measures and three-month posttreatment measurements.

Hypotheses

1. There will be no significant different in the reduction of health risk behaviors in the students in experimental group one and the control group, as measured by the mean posttreatment scores of the Confidential Health Profile for Adults, as a result of 45 hours of health instruction utilizing normative, re-educative change strategies. (Significance level of .01.)

2. There will be no significant difference in the reduction of health risk behaviors between the students in experimental group two and the control group, as measured by the mean posttreatment scores of the Confidential Health Profile for Adults, as a result of the awareness of presence of health risk behaviors in one's life style by an individualized computer analysis. (Significance level of .01.)

3. There will be no significant difference in the reduction of health risk behaviors in the students in experimental group one and the control group three months after the treatment, as measured by the mean delayed posttreatment scores of the Confidential Health Profile for Adults, as a result of the 45 hours of personal health instruction
utilizing normative, re-educative change strategies. (Significance level of .01.)

4. There will be no significant difference in reduction of health risk behaviors in the students in experimental group two and the control group three months after the treatment, as measured by the mean delayed posttreatment scores of the Confidential Health Profile for Adults, as a result of the individualized computer analysis which identified existing health risk behaviors. (Significance level of .01.)

Limitations of the Study

One limitation of this study was that only one outcome, change in health risk score, was measured. The effectiveness of the course could also be measured by increased awareness of risk, acceptance of this knowledge of risk, integration of the knowledge into personal self-image, effort toward change and application of knowledge to produce actual change. Such measures were not used.

Another limitation of the study lay in the selection of experimental group one. Students were not randomly assigned to the experimental group, but rather elected to take the course out of a group of 30 to 40 elective courses. This may have indicated a predisposition to change. Additionally, as both groups are university students, generalizability of the results is restricted to university populations.

Definition of Terms

For the purposes of this study, the following definitions of terms were used.
Change strategies--Those planned strategies that promote adoption of new behaviors. Three categories were used for this study: (a) empirical rational--information dissemination; (b) normative re-educative--change in attitudes and values with resultant change in behavior; and (c) power coercive--use of power or force to encourage change.

Confidential Health Profile for Adults--A modified health risk appraisal that reported the results in percentage scores and was adapted for the 20 to 30 age group.

Health activation--Efforts to encourage active participation in the maintenance of one's personal health.

Health Risk Appraisal--An instrument that measures health risk age as compared to the chronological age of an individual and the prediction of life expectancy for the next ten years.

Positive life style--Those behaviors in one's life that are directly related to the maintenance of good health and low accident risk.

Health risk behaviors--An inventory of behaviors known to be statistically, but not necessarily causally, related to death or disease from these conditions.

Organization of Report

Chapter II of this report is a review of the literature describing the research relating life style to health and the various attempts at altering health risk behaviors through health education strategies. Chapter III describes the research methodology, the
treatment, evaluation instrument, data collection, processing and statistical analysis of the study.

Chapter IV presents the analysis and evaluation of the findings, and Chapter V summarizes the conclusions and recommendations drawn from the analysis of the findings.
CHAPTER II
REVIEW OF LITERATURE

Contemporary medical care is a valuable but incomplete approach to health. The individual is coming to be recognized by many providers and consumers of health care as the primary health care resource. Individual behaviors and life styles are now recognized as the most important modifiable factors influencing health and illness today.

Our life style represents a complex outcome of many personal, interpersonal, environmental and societal factors which arise not only from our present situation, but also from our life history and heredity. Any life style change we make will, therefore, inevitably involve our individual Gestalt, both as a present condition, and as a dynamic historical process. In this historical process the concept of threshold for change plays an important part; for we are typically exposed to many different messages before we accumulate enough awareness, appreciation, or concern in order to reach the threshold at which we actually initiate change.

It is difficult to stimulate the development of, or change to, a healthy life style with traditional health education methods which use the empirical, rational approach. Therefore, instructional strategies utilizing normative, re-educative behavior modification change strategies are emerging to encourage positive life style adoption. The
The goal of this movement is to transfer the traditionally passive patient into an active, informed and effective participant in health care and health promotion. The purpose of this study was to evaluate the effectiveness of this type of health education offered at the post-secondary level.

This review provides an examination of the effects of life style behaviors on health and the methods of education that have attempted affecting new positive behavior changes.

Relation of Life Style and Health Habits to Health and Illness

One's life style, including patterns of eating, exercise, drinking, coping with stress, and use of tobacco and drugs, together with environmental hazards, is the major known modifiable cause of illness in America today. The effect of life styles on health was confirmed in a five-year study by Bellow and Breslow (1972). Examining the health habits of 7,000 healthy Californians, they determined that life expectancy and good health are directly related to daily breakfast and regular meals; moderate exercise two or three times a week; regular sleep; moderate weight; no smoking; and either abstention or moderation in alcohol consumption.

The relationship of the above-mentioned activities was cumulative; those who followed all of the good practices being in better health, even though older, than those who failed to do so. Thus, based on a statistical average, hypothetically a 45-year-old man who observes three of these practices can expect to live to age 68. By practicing all seven, he can add eleven years to his life. Women who practice all seven could increase their life expectancy by seven
years. This association was found to be independent of age and economic status.

A further example of the relationship of life style and health habits to health and illness is the dramatic difference in death rates at each age between residents of Utah and Nevada. For those aged 40-49 years, the Nevada rate is over 50 percent higher than that of the Utah residents (Fuchs, 1974). Yet the two states are much alike with respect to climate, income, schooling and urbanization. Indeed, the number of physicians and hospital beds per capita are also similar. Fuchs concluded that the difference is very likely due to the Mormon-oriented abstemious life style in Utah and a more hard-living style in Nevada.

**Public School Health Education**

The following review summarizes the research findings to date relative to the effectiveness of health education curricula in promoting knowledge, attitudes and behaviors needed for a nation of healthy people. Using the definition of curriculum as a set of intentions about opportunities for an identifiable population to achieve learning goals, the review will include experimental designs testing effectiveness of comprehensive and single purpose health curricula in public schools.

**School Health Curriculum Project (SHCP)**

The Berkeley Project was a nationally validated, comprehensive health education program that was inclusive of the subject matter of health and disease. This project emphasized integration of classroom learning experiences with other life situations and activities and
people contacts, making it life related. The School Health Curriculum Project (SHCP) was developed from the original Berkeley Model with support from the National Clearinghouse for Smoking and Health. The SHCP was initiated because of concern for the growing number of students who were beginning to smoke at an early age. A core curriculum approach was used and each grade level unit (grades two through seven) was organized around multimedia instructional methods to learn about selected body systems and their relationship to well-being. The purpose of each unit was to provide students with a greater number of learning experiences that encouraged the development of decision making skills related to health attitudes and practices.

Although studies of the Berkeley Model have been reported since the sixties, Caramanica, Feiler and Olson (1974), were among the first to study the updated SHCP by assessing the fifth grade unit's effectiveness on attitudes toward cigarette smoking and knowledge of the respiratory system. Data from a 35-item knowledge test with .65 reliability coefficient were defended as reliable for group comparison and analyzed to show that instruction did significantly change the health knowledge of student exposed to the unit. The investigators made no mention of the design used, but from descriptions of the method, it is likely that a quasi-experimental, nonrandomized control group, pretest, posttest design was employed with 280 fifth grade students in three selected school districts. A 28-item attitude belief instrument which was included in the design had been previously developed by the investigators to elicit students' self-perceptions of their smoking behavior as well as the smoking behavior of their
parents, peers and older siblings. Significant correlations were found between students' health knowledge and attitudes toward cigarette smoking and the smoking behavior of their parents, their older siblings and their peers. These findings gave rise to the hypothesis that as students' health knowledge, attitudes and practices change, they begin to exert more influence on the health habits of those around them. Although the study showed the positive influence of SHCP on the smoking habits of fifth grade students exposed to the curriculum, the investigators wisely recommended a longitudinal study to ascertain long-range effects.

Cook and Olsen (1975) assessed the cognitive effects of the sixth grade unit on the cardiovascular health knowledge of approximately 300 students from four school districts. The unit was taught by teachers trained in an intensive two-week, performance based workshop and was tested with the Revised Cardiovascular Knowledge Test designed for the Heart Unit which had a reliability coefficient of .879. Data from a quasi-experimental, nonrandomized control group, pretest, posttest design were statistically analyzed with analysis of variance and t-tests among and between experimental and control groups. Despite nonrandomized assignments, the equivalency of the groups was confirmed by nonsignificant differences in pretest scores. Posttest mean scores showed significant differences between experimental and control groups with no significant difference between control group pretest-posttest mean scores found. According to Cook and Olsen, these results indicated positive effects on the cardiovascular knowledge of students exposed to the curriculum implemented by specially trained teachers.
Stone (1978) studied the effects of the SHCP curriculum on attitudes toward smoking and perceived vulnerability to illness. In 1976 a total of 635 fifth grade students in the Albuquerque public schools were divided into three groups for a modified, nonrandomized control group, pretest, posttest, quasi-experiment. The Gochman Perceived Vulnerability Instrument measured students' expectancies of health problems based on their responses to a series of fourteen questions. Two subtests from the Teenage Self Test for Cigarette Smoking were used to measure knowledge and attitudes. Analysis of these data showed the tests to be reliable and valid. Findings led to the following conclusions: (a) SHCP affected students' attitudes toward smoking; (b) SHCP appeared to have no effect on students' perceived vulnerability to illness; and (c) differences among students on variables such as sex, ethnicity, income and reading level may have had implications for locating high risk students in the area of preventive health behavior.

In 1978 a different approach was taken by Redican, Olsen and Mathis (1979), when they compared SHCP's sixth grade unit with that of a similar educational program developed by the A. J. Nystrom Company (Being Healthy). A total of 168 students from six different classrooms in three Midwest schools were measured against a control group and each other. In School I the experimental group received SHCP, while the control group received their regular health instruction. In School II the experimental group received Being Healthy, while the control group received their regular instruction. In School III there were two experimental groups; one received SHCP
and one received *Being Healthy*. A quasi-experimental, pretest, posttest design and one way ANOVA with Scheffe were employed to determine if significant differences occurred between groups and between programs. All groups made significant gains; however, the greatest pre-, posttest gains were found between the two groups that received SHCP. The investigators concluded that health education can be effective in increasing health knowledge, and that knowledge gains can vary greatly depending on type of curriculum. Since the *Being Healthy* curriculum used a more limited variety of materials than SHCP and did not require intense inservice teacher training as did SHCP, the investigators theorized that the "superiority" of SHCP may have been due to number and quality of activities in the unit and to the emphasis placed on teacher training.

The SHCP approach has spread to both Saudi Arabia and England according to a 1979 report published by the Center for Disease Control (Stone, 1979). Preliminary data from Saudi Arabia indicated significant cognitive and less significant affective gains, which demonstrated potential for SHCP's implementation in multicultural, multiethnic, multiracial and multilingual settings.

It was the findings from Sheffield, England, however, that crowned the research efforts to evaluate effectiveness of this comprehensive health education curriculum. A report by Wilcox, Engel and Reid (1978) summarized data derived from 1977-78 "trials" of the "lung" unit in a sample of five schools and concluded with a verification of the efficacy of SHCP reported elsewhere. The investigators stated that there was reasonable evidence to suggest
(a) the projected increased knowledge about the functioning of the respiratory system and the deleterious effects of smoking; (b) children thought their attitudes toward smoking had shifted toward a more antismoking position, and teachers and parents corroborated this view; and (c) there may have been a small effect on parent smoking behavior. They particularly appreciated the curriculum's involvement of parents and the use of outside speakers, which linked the school to the outside world and demonstrated to the children that adults other than teachers were concerned with their learning.

American evaluation methodologies which stressed measurement of student effects against objectives, and which relied heavily on statistical analysis of psychometric instruments were, themselves, subject to evaluation by these English investigators. Reservations were expressed about over reliance on questionnaire methods in health education research, and the importance of including more data from interview studies was expounded. The points made by Wilcox and colleagues were germane; they were supported by Schriven (1978) in America and should be considered in research reviews.

School Health Education Study (SHES)

This comprehensive curriculum was developed during the late sixties by a research group in cooperation with the 3M Company. Extensive study preceded its final form as a conceptual approach to curriculum design. This curriculum organized ten concepts and their subconcepts into behavioral objectives presented according to four levels of progression rather than by specific grade levels. Results of subsequent evaluation studies were not found in the
literature--except for two related reports by Allen and Holyoak (1972 and 1973). These University of Florida faculty members evaluated the Title III Project for Health Education centered in Sanford, Florida, which used the SHES material.

Allen and Holyoak reported that in 1970 and again in 1971 scores on a self-report, health behavior inventory were used to measure change in students enrolled in health education classes in three elementary, two junior high and three senior high schools. In the first study one school on each level was designated "control" and used the traditional approach, while the remaining schools were designated "experiment" and used the SHES curriculum. Statistical analysis of pretest, posttest scores indicated the superiority of the SHES curriculum. The study conducted in 1971 compared posttest scores of the two years and found that while the conceptual approach resulted in positive health behavior change for elementary and senior high school students, it had no appreciable positive effect on the behavior of junior high school students, and even more provocatively, there was a decrease in the percentage of preferred responses for all variables at each educational level. Since no actual data figures were given in these two reports, it can only be assumed that the SHES curriculum is no better or no worse than other curricula in promoting wellness and preventing disease.

Health Activities Project (HAP)

This activity-centered, supplementary health education program for fifth and sixth graders was developed during the late seventies to create positive health attitudes by providing students with a sense of
control over their bodies and by imparting specific understanding about their potential for change. Sheldon's (1980) investigation of the extent of HAP's influence on 305 elementary school students in Iowa City, Iowa, used a modified attitude inventory on a pretest, posttest basis. Results of statistical analysis indicated that the sample students' attitudes about health changed positively, and strongly suggested that experimental health education techniques may have helped to develop positive attitudes in early adolescents. Although Sheldon noted that the changes may have been due to the highly motivational and manipulative nature of HAP, he did not elucidate on the actual content of the activities.

Cardiovascular Curriculum Education Project (CCEP)

The immediate goal of this curriculum was to provide students with essential knowledge through which they can modify their health behavior. Developed under the auspices of the National Heart, Lung and Blood Institute, it consisted of self-instructional modules focused on the circulatory system and heart; cardiovascular diseases; risk factors and warning signs and emergency procedures for heart attack victims.

Weinberg, Holcomb and Iammarino (1979) field tested CCEP with 150,000 students in grades nine through twelve in nine school districts, randomly assigning them to four different treatment and control groups in a Solomon IV design. Significant changes in pre-, posttest scores, as well as other results of the experimental design, suggested that the curriculum was effective in terms of increasing students' knowledge of the primary and secondary risk factors of
cardiovascular disease (only this one example of the units was reported on). To assess the effect of the risk factor modules over time, a knowledge retention test was given to each student in five school districts. Findings indicated that there was no significant decrease in knowledge from posttest to retention test. Field testing of the CCEP program was, therefore, judged as successful in proving its effectiveness for disseminating preventive health information which the investigators felt would lower probability of death or long-term disability from heart and blood vessel disease.

**Virginia School Blood Pressure Education Model**

This curriculum encouraged students to take responsibility for their own health. It provided lectures as well as demonstrations and hands-on experiences in an attempt to establish attitudes, behaviors and a knowledge base conducive to the prevention and possible early treatment of high blood pressure. Fang (1980) reported the effectiveness of a pilot program in 1978. Sixth graders at a rural middle school were randomly divided into two comparison groups and one study group, which received instruction in the model. A Student Questionnaire with a demographic section and multiple choice questions was administered on a pre-, posttest basis to assess knowledge, and a Checklist for Blood Pressure Skill Assessment was used to determine competency in eleven behaviors. Rigorous statistical analysis of the data supported the conclusion that sixth graders' cardiovascular knowledge levels increased significantly as a result of participation in this heart education curriculum—the study group was the only one of the three groups that improved its score from pretest to posttest.
These findings replicated the findings in cited studies of the SHCP's unit on the circulatory system. While they demonstrated increased knowledge and attitude change consistent with the promotion of preventive health measures, they did not document behavioral change. Follow-up studies were recommended in order to assess long-term effects of these curricula.

Health curricula since the sixties have been dynamic. It is evident by these studies that the curricula are aimed at changing passive, dependent attitudes toward health to attitudes of self-responsibility. An evaluation of the studies performed on the experimental programs indicated increased knowledge and attitude change consistent with the reduction of health risk behaviors; however, actual behavior change was not documented. Failure to document change could be the result of the life style control and influence exerted by the students' primary caretaker.

**Health Education at the University Level**

Students at the postsecondary educational level are generally in charge of making life style decisions--many for the first time. Health information to help guide these life style choices is frequently unavailable. Students at this level are encouraged to pursue career choices and are given guidance and entire courses of study in preparation for making a living but receive little or no instruction in healthful living. The following summarizes the findings in the literature on the effect of programs that do exist in colleges and universities.
Hall (1979) reported on the effectiveness of the Health Risk Profile Curriculum in decreasing risks in a group of students in a college personal health class. A pretest, posttest design of 55 students enrolled in a course indicated a significant decline in the Potential Risk Reduction Percentage and Risk Age. The course and the use of the Health Risk Profile led to a difference in the risk behavior of the students by reducing the number of potential improvement areas and reducing their risk age.

Hettler (1980) reported on a program at the University of Wisconsin, Stevens Point, devoted to life style improvement. In this program, a Lifestyle Assessment Questionnaire was administered to all students. The questionnaire consisted of four sections: (a) wellness inventory; (b) personal growth; (c) risk of death (Health Hazard Appraisal); and (d) medical alert sections. The students received an individualized printout based on the responses they made to the questionnaire. Each section provided specific information for behavior change indicated.

The student health programs were planned based on the needs as indicated by the questionnaire. Although the evaluation of the impact of the program was still underway, a preliminary evaluation of 268 students was accomplished in the spring of 1979. Twenty-three percent of these students indicated that the computer printout results, coupled with the minicourse follow-up, led them to change one or more of their life style factors.

Love et al. (1980), reported on a university campus health education program that emphasized wellness promotion by Health Hazard
Appraisal and individual and group counseling. One hundred participants were randomly selected from 300 volunteers for the study. A pretest, posttest design was used. Dependent t-tests were calculated for the variables measured: knowledge, psychological factors (locus of control, profile of mood states and Health Hazard Appraisal) and physiology (weight, body fat percentage, diastolic blood pressure, vital capacity and cholesterol). Significant changes were observed on a variety of variables. There was an increase in health knowledge and reported feelings of vigor; reported feelings of tension, anger and confusion decreased. There were significant decreases in weight, percentage of body fat, diastolic blood pressure and serum cholesterol. Cormier, Prefontane and Stuart (1980) described a program in Canada similar in design and results to the one reported by Love et al. Barnes and Nybo (1978) described a Personal Health Behavior Project (PHBP) which was a behavior modification program that included a goal, a baseline measurement, a system of rewards and penalties and a method of recording behavior; again with similar results. These studies suffered from a number of very important limitations. For example (a) they all utilized a posttest only rather than a more rigorous pretest, posttest control group design and (b) follow-up data were not available to determine retention of the behavioral changes.

Public Health Education

Health education directed to the general public usually occurs in an informal setting using media designed to reach large groups. Special health news series, television spot announcements on substance
abuse, strong public media campaigns emphasizing health hazards and small interest group activities all have been attempted to change health risk behaviors of the general public. These program have met with varying degrees of success.

Accidents are a medical problem of great importance and major education programs have been mounted to prevent them. The results, however, have been discouraging. One very sophisticated experiment, with emotionally gripping spot announcements on cable television and carefully controlled populations, showed no change in viewers' behavior (Robertson et al., 1974).

Warner (1977) studied the effects of an antismoking campaign on cigarette consumption by fitting cigarette demand function to precampaign data, projecting ahead as if the campaign had not occurred, and then comparing these predictions with realized consumption. The analysis suggested that the Surgeon General's report caused immediate, though transitory decrease of 4 to 5 percent in annual per capita consumption. Annual per capita consumption returned to the predicted rate within six months of the end of the campaign.

Health activation is an educational approach to health care that emphasizes self-care and self-help. It focuses on what individuals can appropriately do for themselves and how they can establish a health partnership with professionals. Self-care indicates an individual's deliberate action on behalf of his own, his family's or his neighbor's well-being. Self-help, in contrast, refers to clusters of like-minded or like-afflicted individuals who share experiences and
offer one another mutual support and aid. Although the endpoint in self-care is the individual, not all self-care is solitary. It encompasses formal consumer health education programs to teach self-care knowledge and skills. Studies on this approach to health promotion are encouraging.

The American Journal of Public Health (McGrath Project, 1975) reported that a demonstration study, headquartered in McGrath, Alaska, was inaugurated in six isolated villages in rural Alaska. Its purpose was to determine the effect of self-care, self-help education on the prevalence of upper respiratory infection and the prevention of complications. Extensive training was given in the cause, physiologic manifestation, care and treatment of upper respiratory infections. Substantial changes in health knowledge and in many practices occurred. Improvement in physical status, as measured by healed tympanic membranes, lowered incidence of newly ruptured drums and decreased chronic middle ear infections was achieved at a significantly measurable level.

Another self-care study was reported by Zapka and Averill (1979) in which a Cold Self-Care Center (CSC) was established in a prepaid ambulatory care setting serving 21,500 subscribers and their dependents. Subscribers were provided with self-care information concerning physiologic monitoring and treatment of symptoms as well as prevention of colds. After CSC establishment, a significant decrease in visits to practitioners for common colds was demonstrated. The operating cost ratio of an outpatient visit as compared to a CSC visit
was 14.7 to 1, which indicated that self-care for the common cold could help reduce individual health care cost.

Sehnert (1977) evaluated the impact of a health activation, self-care, self-help course. Data collected indicated (a) a significant increase in knowledge about health and clinical skills; (b) a decrease in the number of primary care visits per person per year was observed; and (c) an increase in the number of positive life style behaviors reported after having taken the course. However, the research design did not include a control group to control history. Nor was selection bias addressed, as the treatment was administered to a population motivated for health change as indicated by voluntary enrollment in the course. Additionally, no data were available on the long-term retention of the behavior pattern changes. Further studies utilizing more rigorous research methods need to be undertaken to validate the effects of these courses.

Health Risk Appraisal Instruments

In order to stimulate motivation for behavioral change in people, it is important that good evidence be established that changes made in life style will, in fact, result in reduced risk. Health risk appraisal is a system designed for estimating the risk of illness for an individual and, through this awareness of risk, stimulate life style change. The technique for estimating the risk of illness was developed by Lewis Robbins and Jack Hall--both physicians from the Methodist Hospital of Indiana (1970).

Risk assessment involves the computer analysis of the probability of reduced life expectancy, or death, in the next ten years, posed by
the particular constellation of risk factors in an individual. The average probability of death for all causes is known. Each of the major causes is also known by race, sex and age group with some degree of reliability. The data on death rates by the major specific cause of death have been arranged in five-year age groups by race, sex and age. Deaths are expressed as expected deaths over the next ten years for a unit population of 100,000. The data were derived from death rates determined by the U.S. National Center for Health Statistics from death certificates. The original tables were prepared by Harvey Geller, a statistician in the U.S. Public Health Service. Recent tables have been prepared at the Methodist Hospital of Indiana. These tables are commonly referred to as the Geller-Gesner tables (Hall and Zwemer, 1979).

Using an inventory of items known to be statistically, but not necessarily causally, related to death from these conditions, an individual is given a ten-year estimate of their probability of dying from specific and all causes. This procedure generates a statement of probability, not a "diagnosis." Alternately, the subject may be given a "physiologic age" that may differ considerably from his or her chronological age. The presentation of such an age to an adult is thought to create what Milsum and Roberge (1980) have called the "teachable moment." At that time they become receptive to suggestions of change in health behavior as a result of being told that they are physically older than their chronological age.

Identification of the variables known to influence individual risk, quantifying their effect and interaction, and constructing
algorithms to estimate risk are fundamental to risk appraisal instruments. Most available instruments appear to change only the packaging of the information, relying on the Geller-Gesner tables as the database. Repeated measures of the instrument have been used to document effectiveness of interventions designed to alter risk behaviors.

A study by Hettler (1977) compared seven risk appraisal instruments commercially available in the United States and Canada. Ten sample patients with a variety of behavioral, genetic and laboratory value differences were created. The resulting health age and health risk scores for all instruments surveyed were not significantly different.

The most frequently used instrument is the Health Hazard Appraisal developed by Robbins and Hall in 1970. This instrument is a computerized risk assessment that provides the client and the counselor with information regarding the clients' life style and subsequent risk for mortality of certain diseases within a ten-year period. The instrument has been used with varying degrees of success in intervention programs, predominantly in the industrial setting.

Reliability of the Health Hazard Appraisal was evaluated by Best and Milsum (1978) and Sacks, Krushat and Newman (1980). They questioned the reliability of the instrument as a measure of behavior change because of inconsistencies found in a study of 203 subjects where only 15 percent had no contradictions when comparing the responses of the follow-up with the baseline questionnaire. In response, Elias and Dunton (1980) stated that for most age groups, reliability of response had a relatively small effect on risk age
accuracy. Additionally, the reliability of a question itself had no meaning unless coupled with its effect on calculated values; unreliability of a Health Hazard Appraisal questionnaire would not necessarily produce unacceptable appraisal ages.

Moody et al. (1979) developed and pilot tested a computerized health profile for adolescents directed toward helping youth select (at an early age) life styles conducive to health. The initial goals of the project were to develop and field test a computerized Health Profile (HP) model for youth to help them clarify their values about health; promote life styles conducive to health; and, consequently, reduce the incidence of premature death and disability from life style related diseases and accidents.

The instrument was developed based on the health risk appraisal model with several significant adaptations. First, data were used to generate a "health risk score" based on a 100-point scale rather than the "health risk age" used by most risk assessment instruments. Secondly, in order to represent only life style behavior, the scoring system did not penalize participants who had positive family histories of certain diseases. The scoring system was adjusted so that each person could achieve a top score of 100 by taking prescribed steps to reduce risk. Another adaptation of this model was the inclusion of questions that relate to morbidity factors specific to young adults and teens: primarily stress, depression and safety. An educational component was included on the printout. A left hand column explained why points were deducted and a right hand column listed several actions participants could take to reduce their risks and increase
their health risk score. Finally, a values scale and locus of control scale were added to the Health Profile to assist adolescents in clarification of their values about health and in examination of their belief about how much control they think they have over their own health.

Responses from 96 teen volunteers who completed a study in four Florida counties were encouraging. The computerized Health Profile was used in this study. Although significant behavioral changes were difficult to assess (a problem inherent in self-reported surveys), 49 percent indicated they had exercised more. This was confirmed by the message from the Health Profile computer printout. Other behavioral changes reported were improved eating habits, weight loss and an increased use of seat belts. Three teens indicated they had stopped smoking. Seventy-seven percent reported that the program had helped them improve their life style "much or some." Forty-nine percent utilized health related resources in their communities as a result of the program.

Strategies for Change to Better Health Practices

Since the goal of all health education, public school or consumer, is behavior change, then instructional models must be based on effective change strategies. Chin and Benne (1976) described three topologies for change:

1. **Power Approaches**—impose power to alter the conditions under which people act, limiting alternatives or by directly influencing persons.
2. **Empirical Rational Approaches**—persons are reasonable and will act in some rational calculus in changing behavior (demonstrate obvious need for change, point out benefits to be gained).

3. **Normative Re-educative Approaches**—direct intervention in the system--treat the client system to activate forces within it.

Several strategies for change have been suggested as means for promoting healthier life styles. Consistent with the admonition that, "The society which can reduce professional intervention to the minimum will provide the best conditions for health" (Illich, 1976, p. 167), several writers have advocated the use of "managerial prevention" or the power approach through external controls, laws and technological bypass. For example, the reduction in deaths caused by auto accidents following the lowering of the speed limit, the reduction of dental caries following the introduction of fluoridation and the reduction in poisoning deaths following introduction of child-proof caps for medical bottles are all indications of positive outcomes from such managerial decisions (Haggerty, 1977). Other programs such as restricted use of carcinogenic dyes in food and cosmetics, federally supervised standards for the testing of new drugs and air quality control measures have a rather high probability of producing productive life style changes. However, the proponents of the methods were quick to point out that any such measures limit individual freedom and may promote better health only through an intolerable compromise of that freedom.

Traditional health education courses are examples of an empirical rational approach. Unfortunately, most of those who have studied the
effects of health education programs have rated them somewhere between merely "unsuccessful" (Haggerty, 1977) to being "nothing more than a slogan" (American College of Preventive Medicine, 1976, p. 3).

In terms of the scope of its potential effects, health education aimed at life style changes has the greatest potential in the promotion of healthy life styles. Health education utilizes normative, re-educative approaches and is defined as including activities which (a) inform people about health, illness, disability and ways in which they can improve and protect their own health including more efficient use of the delivery system; (b) motivate people to want to change to more healthful practices; and (c) help them to learn the necessary skills to adapt and maintain healthful practices and life styles (American College of Preventive Medicine, 1976).

Some of the change strategies that follow have characteristics that could possibly place them in more than one of the Chin and Benne (1976) classifications.

Dalbecq and Van deVan (1971) described a model for change that could be adapted for health education and would be classified as an empirical rational strategy. This is a process model which could be used for (a) identifying strategic problems and (b) developing appropriate and innovative programs to solve them. It was a model originally developed from social-physiological studies of decision conferences. The model was called the Program Planning Model (PPM). It sought to provide an orderly process of structuring decision making.
The Program Planning Model divided program planning into five phases. The entire process may be summarized as follows:

Phase I--Problem Exploration involved the student or consumer group in a structured process designed to (a) facilitate problem definition, (b) prioritize problems, (c) force professional members to react to the student's perceptions rather than their own biases, and (d) provide a method for interfacing students and professionals in a manner which avoids frustration.

Phase II--Knowledge Exploration required involvement of internal and external specialists. This phase was designed to (a) reconceptualize priority problems from Phase I in terms of essential solution components and resources through the use of health experts, (b) focus on new combinations of solution components and resources, and (c) activate differentiated types of creative insight by mixed group composition.

Phase III--Priority Development involved reviewing the problem definition and critical solution elements.

Phase IV--Program Development involved the health educator or specialist who developed a finalized, specific individualized health program.

Phase V--Program Evaluation involved the student or consumer group as well as the health educator or specialist.

The PPM process highlighted critical issues and provided a guideline for developing innovative solution strategies where clients or consumers and health specialists interact. Acquiring more and
better information to make more informed decisions was an important objective of this model.

An example of the PPM as an instructional tool in health education was the use of the Health Risk Counselor described by Hettler (1977). The counselor in this model worked with the student individually to develop a program of positive life style adoption. This counselor would need extensive experience in the following areas: (a) health, (b) psychology, (c) communications, and (d) education.

Schein (1969) described a model called process consultation which would fit most logically under the normative, re-educative classification and can be modified for health education. Process consultation served to help define diagnostic steps which led to action programs and concrete changes.

Process consultation involved the counselor and the student in joint diagnosis. It includes a set of activities on the part of the counselor which helped the student to perceive, understand and act upon process events which occur in the student's life. It is of prime importance that the counselor be expert in how to diagnose and how to establish effective helping relationships with students.

There are five underlying assumptions that process consultation was based upon:

1. Individuals often do not know what is wrong with their life style and need help in diagnosing the problem.

2. Individuals need to be helped to know what type of assistance to ask for.
3. Most individuals have a constructive intent to improve things but need help in identifying what to improve and how to improve it.

4. Most individuals can be more effective if they learn to diagnose their own strengths and weaknesses.

5. The individual must learn to see the problem for himself, to share in diagnosis and to be actively involved in generating a remedy. The counselor provided the student with alternatives. Decision making was among these alternatives and remained in the hands of the individual.

This model's primary objectives appeared to be sensitizing the student to his situation and helping him to more clearly analyze the data available to identify needed life style changes and effective behavior modification techniques.

**Summary**

There is good evidence that many of the causes of death at age 40 are the result of behaviors that were established during the adolescent and young adult years. Collectively, these behaviors can be described as life style. Data collected on one's life style can be compared to epidemiological and public health data to describe one's risk of death or certain diseases resulting in a health risk score.

Public health information dissemination projects have not proven effective in altering these behaviors for most Americans. Having knowledge of facts has not proven to be an effective change strategy. Some success with the client contract model used to alter behaviors of an individual in one-on-one counseling or within support groups has been reported.
Public school health education projects have been attempted with few reports of behavioral change in the individual's lifestyle. This failure may well be due to poor lifestyle modeling by adults and by the lack of control by the student over most lifestyle choices within the home.

Health education utilizing proven change strategies at the post-secondary educational level is now being offered in a few institutions. These programs have the potential to affect a large portion of the population who may enter the work force into highly technical, stress related jobs; public school education, where adult modeling is critical; and management positions where decisions regarding health promotion in industry are being made.

This study evaluated a credit earning personal health course at the university level that utilized effective change strategies. Effectiveness of the course was determined by repeated measures on a health risk assessment instrument.

In conclusion, although positive lifestyle adoption is directly related to health, research on the effectiveness of educational programs to produce these changes in individuals in public schools, postsecondary education and consumer groups is not conclusive. Instructional programs employing normative, re-educative methodologies appear to have the most success. As students at the university are at the age to choose their own lifestyle course, these instructional programs have the potential to be the most effective.
CHAPTER III
METHODOLOGY

The purpose of this study was to ascertain the effectiveness of a postsecondary health education course that utilized normative, re-educative change strategies as an instruction model. Effectiveness was determined by evaluating the reduction of health risk behaviors in the experimental groups over a six-month period. This evaluation was determined by an analysis of scores received on the Confidential Health Profile for Adults (Moody et al., 1979). Specifically, this study addressed the following questions:

1. Were there differences in the reduction of health risk behaviors between students who received health education and those who did not?

2. Were there differences in the reduction of health risk behaviors between students who received a computer analysis of their health risk and those who received the computer analysis and a formal health education course?

3. Were the changes in health risk behaviors evident three months after the treatment?
Research Design

A quasi-experimental, nonequivalent control group design with repeated measures was used as described by Campbell and Stanley (1963).

\[
\begin{array}{ccc}
0 & X_1 & 0 \\
0 & X_2 & 0 \\
0 & 0 & 0 \\
\end{array}
\]

Experimental group one was pretested using a life style assessment instrument, Confidential Health Profile for Adults (Appendix A). This was followed by discussion of the resulting individualized health profile and 45 hours of instruction with activities designed to promote behavioral change. Postevaluation and three months delayed post-evaluation were achieved after the end of the treatment utilizing the same instrument but without further instruction or counseling.

Experimental group two was pretested using the life style assessment instrument. Students in this group received only the resulting individualized health profile. No further instruction or counseling was offered. The control group was pretested using the life style assessment instrument with no feedback given.

All groups completed the Confidential Health Profile for Adults during the first week of Fall Semester with repeated measures taken during the 15th and 27th weeks, and the last measure being administered by mail. Experimental group two received the resulting health profile from the first measure--no further health instruction or counseling was offered to this group. See Table 1 for a description of the research design.
Table 1
Description of Research Method

<table>
<thead>
<tr>
<th>Group</th>
<th>Evaluation Instrument Week 1</th>
<th>Treatment</th>
<th>Evaluation Instrument Week 15 Posttest</th>
<th>Evaluation Instrument Week 27 3 Months Posttest</th>
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<tbody>
<tr>
<td>Students Enrolled in HSC 3081</td>
<td>0</td>
<td>Instruction* + Computer Analysis</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Students** Enrolled in Speech 2014.14</td>
<td>0</td>
<td>Computer Analysis Only</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Students** Enrolled in Speech 2014.12</td>
<td>0</td>
<td>(Control)</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Legend: *Instruction provided in HSC 3081, Medical Self Assessment **Represents two sections of the same speech course which met on the same day and at the same time as HSC 3081.
Population

Experimental group one consisted of 26 students randomly selected from a group of 110 students enrolled in HSC 3081, Medical Self Assessment, Fall Semester 1981, at the University of Central Florida. The sample size was restricted to match the size of experimental group two and the control group. Those selected for experimental group one were unaware until the end of the treatment that they would be asked to complete follow-up life style assessments.

Experimental group two consisted of 26 students enrolled in Speech 2014.14, Fall Semester 1981, at the University of Central Florida, and the control group consisted of 26 students enrolled in Speech 2014.12. Two sections of Speech 2014 were chosen as experimental group two and the control group because they met on the same day and time as the experimental health course. As Speech 2014 is required for graduation, a wide spectrum of academic majors was represented. These students were asked to complete a consent form and family history form (see Appendix B) prior to taking the paper and pencil life style assessment questionnaire.

Responses on seven demographic items on the second and third inventory were compared to the baseline questionnaire for each participant in the study. The items compared were age, sex, living accommodations, perceived status in the community, occupation, spouse and highest educational level achieved. If a discrepancy in any of these items was observed, the participant was eliminated from the group. This procedure was employed to increase the reliability of the
study. It was assumed that if care was not taken in recording demographic information, then inaccuracies in the self-reporting behaviors were more likely.

Of the 26 students selected for experimental group one, one student did not return the follow-up inventory and one was disqualified. Twenty-six students agreed to participate in experimental group two and the control group. Of the 26, four in each group were disqualified for inconsistencies in the demographic information. The resulting groups contained the following numbers of students: experimental group one--24; experimental group two--22; and control group--22.

**Instruction Model**

The instruction model was modified from work by Kreuter (1976). The model consisted of four stages: Stage I--Conceptualizing Health; Stage II--Generating Data; Stage III--Personal Commitment/The Change Process; and Stage IV--Health Activation. Modifications of the model included the use of a computer scored life style assessment for health risk assessment, behavioral contracting and hands-on laboratory experiences.

**Stage I.** Conceptualizing health was the first step of the model and involved the conceptualization of a functional definition of health for the participants. It was emphasized that the major health problems which confront us today are behaviors which we have responsibility for changing on our own. They were to include this emphasis in a working definition of the concept of "health."
Stage II. Generating the data involved the administration of a health risk assessment instrument, Confidential Health Profile for Adults. The computer scored results of the health profile helped students place themselves on a continuum ranging from "Bad Health" to "Optimum Health." Additionally, they received instruction on lifestyle changes they could make to improve their health risk scores (see Appendix C).

Stage III. In personal commitment, participants were asked to identify which, if any, of the behaviors they would be willing to change. The intent here was to help participants exercise personal responsibility. Once it became clear which of the blocking behaviors the participant was willing to change, the instructor employed various approaches to facilitate change relative to a given behavior. One approach used was behavioral contracting. A contract was instigated for the identified behavior they were willing to change. The contract identified the goal, plan of action and celebration plan. A partner was selected to help monitor progress on the change throughout the term. Most students were encouraged to alter a life style behavior identified in their health profile.

Additional behavioral change strategies such as a weekly nutrition log, analysis of their medicine chest, and completion of a life stress units scale helped students become aware of potential health risk behaviors. These strategies are examples of normative, re-educative strategies described by Robert Chin and Kenneth Benne in The Planning of Change (1976). This group involved strategies for affecting change in attitudes, values and significant relationships,
not just acquisition of knowledge or information. Chin and Benne described two other change groups: (a) empirical rational—information dissemination and (b) power coercive—application of power. These two groups of strategies for change were not emphasized.

Stage IV. Health activation embraces two theoretical tenets. The first deals with the notion of adaptation as described by Sehnert (1977). Simply stated, adaptation theory suggests that young adults in today's highly complex and technological society have to cope with rapid, unprecedented social and cultural changes. Growing, or even surviving under such conditions is in a large part dependent upon the effective use of very specific skills. When adults do not possess adaptation skills, many of them become alienated, dysfunctional members of our society; feeling vulnerable to the whims of the environment and believing that much of their testing is beyond personal control. Adaptation involves thinking, planning and action in terms of conscious behavioral choices in anticipation of events, as well as reacting to an event as it occurs. Most adults lack adequate information about themselves in terms of how their bodies function in health and illness. They do not understand what signs and symptoms mean; therefore, they do not know when or where to go for what type of help. The course emphasized the skills needed to negotiate within a complex system such as the health care delivery system.

The second theoretical position is based upon Piaget's growth and development theory (Wadsworth, 1979). Piaget contended that students learn best through concrete learning experiences which have direct and interpersonal meaning and can then move to formal operations.
Although the health activation stage strongly emphasized the holistic, total person concept of health, the primary vehicle for motivating students toward personal health awareness and action was the use of concrete experiences which focused on selected body functions. Within this stage, students were taught how to "listen" to their bodies. They were instructed in the purpose and use of sphygmomanometer, stethoscope, otoscope and thermometer. Through each of these "hands-on" experiences, students were guided into a sequential series of learning activities designed to prove and examine biological, emotional and social/environmental roadblocks to wellness.

Evaluation Instrument

The evaluation instrument was a 104-item, computer scored, pencil and paper questionnaire, Confidential Health Profile for Adults described by Moody et al. (1979) (Appendix A). The instrument is a health risk appraisal format adapted for use in the young adult age group. The profile included data for determining a health risk score, a values scale and a locus of control scale.

Health Risk Score

The technique by which a health risk score is assigned to this instrument involved comparing life style behaviors to an inventory of items known to be statistically related (but not necessarily causally) to death from these behaviors. The inventory of risk factors was taken from the Geller-Gesner tables which present average ten-year mortality rates for leading causes of death for each five-year age, sex and racial group (Hall & Zwemer, 1979). The subject's risk is then identifiable, to an approximation, with respect to a cohort of
others who have had a similar constellation of life style behaviors but whose disease and mortality experience have already been observed. The calculation model not only addressed mortality risk but morbidity factors specific to young adults. Primarily these were stress, depression and safety.

The risk score was then converted to a scoring system based on a 100-point scale. The scoring system for this instrument has been adjusted to eliminate family histories of certain diseases. The system is based strictly on life style behaviors and does not penalize anyone for factors beyond personal control.

Values Scale and Locus of Control

A values scale was included in the instrument to assist students in clarifying their values about health. A locus of control scale was included to help students examine their belief about how much control they think they have over their health. These scales were adapted from the original model by Wallston, Wallston and DeVellis (1978).

Reliability

The accuracy of information received from the instrument depended on the accuracy of self-reporting behaviors. Additionally, repeated measures utilizing the same instrument were subject to contamination.

Reliability in the use of the instrument was increased for this study by eliminating all participants when contradictions were found in seven demographic items when comparing the responses of the follow-up with the baseline questionnaire.
Health risk score reliability coefficients for use with the Health Profile in the adult population are: health risk score--0.51; health values--.72; locus of control--.93; and stress scale--.76.

Procedure

Students in the control group and experimental groups were met during the first week of class. Each student was asked to take home and complete a family history questionnaire with assistance from family members. Students were requested to bring the questionnaire to the next scheduled class meeting. A signed consent form was secured from each participant. Students not enrolled in the health course were given a brief description of the study. Their role and the importance of continuing in the study were emphasized.

On the second day of class all groups were given a copy of the Confidential Health Profile for Adults and a ten-minute orientation to the inventory and questionable areas were explained. Cholesterol and HDL levels were not measured for this study and were not entered on the form.

Two weeks after completing the baseline questionnaire, the experimental groups received a computer health profile based on the results of the inventory. The health profile contained a personalized health risk score with an explanation of why points were deducted and lists of several courses of action participants could choose to reduce their risks and increase their health risk score. Following this, experimental group one received 45 hours of instruction. Experimental group two and the control group received no further information or counseling.
All groups were tested again using the Confidential Health Profile for Adults during the 15th week of the study. Participants were again given an orientation to the inventory and accuracy was stressed. Additionally, students were reminded that they would be receiving another inventory by mail during the 27th week and were encouraged to respond quickly.

Baseline test and posttest for all groups were administered during regular class hours between 10:00 a.m. and 12:00 Noon in a classroom setting. Students were given one hour to complete the inventory. Monitors and facilitators were available at each session to answer questions and assist students during the procedure.

The third inventory was sent by mail to each participant in the three groups. Directions for taking the inventory were included and participants were encouraged to complete the inventory in a controlled, quiet environment between the hours of 10:00 a.m. and 12:00 Noon. A self-addressed, stamped envelope was enclosed to encourage completion. Only five students in all groups needed to be reminded to complete the inventories.

**Data Processing and Analysis**

Posttreatment measures for seven variables of the instrument were analyzed: health risk score, weight, systolic pressure, diastolic pressure, life change units, locus of control and health rank. The dependent measures were analyzed for significant difference across the groups using multivariate analysis of variance according to the procedures specified by Bock (1963). The program Multivariate was used at the University of Central Florida computing center. The routine
performs an exact least squares analysis according to the specification of single degree of freedom planned contrasts. The model for the procedure is $Y = A\xi = \varepsilon$ where $Y$ is a matrix of cell means, $A$ is the appropriate design matrix, $\xi$ is the matrix of parameter to be tested and $\varepsilon$ is the matrix of error variates. In addition to the multivariate ratio, univariate values were computed for each of the pre- and posttest measures. The results of the data pertaining to the hypotheses are presented in Chapter IV.
CHAPTER IV
FINDINGS

The purpose of this study was to assess the effectiveness of a postsecondary personal health course that utilized normative, re-educative change strategies as an instructional model. Effectiveness was assessed by reduction in health risk scores on the Confidential Health Profile for Adults over a six-month period. The instrument was used to test null hypotheses in four areas:

1. reduction of health risk behaviors in students who received health education;
2. reduction of health risk behaviors three months post-treatment in students who received health education;
3. reduction in health risk behaviors in students who received a computer analysis of their health risk but no formal health education;
4. reduction in health risk behaviors three months post-treatment in students who received a computer analysis of their health risk but no formal health education.

The Confidential Health Profile for Adults was used to measure the effect of the personal health course on the reduction of health risk behaviors in those students who participated in the course as compared with the health risk behaviors of students who were in the
control group and did not receive training. A second experimental group received only an individualized computer analysis of their health risk behaviors as a treatment. This was done to determine the effect that "awareness" has on changing health risk behaviors.

Means and standard deviations for the dependent variables are presented in Table 2. Total health risk scores on pretreatment measures were highest in the experimental group which would indicate that those who elected to take the health course had fewer health risk behaviors present in their life styles than those in the experimental group two or the control group. Pretreatment measures for the three groups are experimental group one--86.63, experimental group two--80.5 and control group--82.23.

Other initial differences in experimental group one that might indicate a predisposition to healthy life styles were seen in scores on locus of control and health rank. Locus of control indicates the degree of control one feels he or she has over acquiring most diseases. A high score indicates the belief of greater personal control. Health rank is an indication of the importance one places on health as compared to success, happiness, etc. One is the highest rank. Experimental group one's scores on locus of control were higher than the scores of the two other groups. Additionally, group one ranked health higher than did the other two groups. Pretreatment measures for the three groups are experimental group one--control 41, rank 2.54; experimental group two--control 38, rank 3.77; and control group--control 37.86, rank 3.14.
Table 2
Means and Standard Deviations (S.D.) for the
Dependent Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Experimental Group One</th>
<th>Experimental Group Two</th>
<th>Control Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Risk Score</td>
<td>86.63 10.34</td>
<td>80.59 10.15</td>
<td>82.23 11.63</td>
</tr>
<tr>
<td></td>
<td>87.46 8.64</td>
<td>82.64 10.30</td>
<td>79.77 11.84</td>
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<td>87.46 9.90</td>
<td>82.05 71.38</td>
<td>83.13 9.37</td>
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<tr>
<td>Locus of Control</td>
<td>41.00 4.42</td>
<td>38.48 5.18</td>
<td>37.86 7.36</td>
</tr>
<tr>
<td></td>
<td>42.64 6.79</td>
<td>38.82 7.82</td>
<td>37.46 6.70</td>
</tr>
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<td></td>
<td>42.25 3.78</td>
<td>37.64 8.01</td>
<td>38.58 6.57</td>
</tr>
<tr>
<td>Health Rank</td>
<td>2.54 1.47</td>
<td>3.77 2.35</td>
<td>3.14 1.67</td>
</tr>
<tr>
<td></td>
<td>2.17 1.13</td>
<td>3.46 2.22</td>
<td>3.37 1.94</td>
</tr>
<tr>
<td></td>
<td>2.54 2.15</td>
<td>2.91 1.93</td>
<td>3.55 2.13</td>
</tr>
<tr>
<td>Weight</td>
<td>138.88 33.34</td>
<td>138.86 26.83</td>
<td>135.18 20.38</td>
</tr>
<tr>
<td></td>
<td>137.54 30.74</td>
<td>138.90 26.30</td>
<td>137.23 22.26</td>
</tr>
<tr>
<td></td>
<td>136.92 31.09</td>
<td>139.23 24.33</td>
<td>136.46 22.64</td>
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<tr>
<td>Systolic Pressure</td>
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<td>117.68 6.78</td>
<td>118.64 4.68</td>
</tr>
<tr>
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<td>115.58 10.77</td>
<td>117.32 6.34</td>
<td>120.00 6.17</td>
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<td></td>
<td>116.88 12.99</td>
<td>116.73 6.74</td>
<td>118.73 7.00</td>
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<tr>
<td>Diastolic Pressure</td>
<td>78.46 5.98</td>
<td>78.32 7.95</td>
<td>77.73 6.12</td>
</tr>
<tr>
<td></td>
<td>77.00 6.72</td>
<td>77.27 7.38</td>
<td>79.09 4.27</td>
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<td></td>
<td>76.79 7.47</td>
<td>75.59 9.39</td>
<td>78.64 4.68</td>
</tr>
<tr>
<td>Life Change Units</td>
<td>189.13 121.04</td>
<td>257.68 137.15</td>
<td>203.00 97.22</td>
</tr>
<tr>
<td></td>
<td>223.58 118.56</td>
<td>226.05 126.06</td>
<td>221.77 115.12</td>
</tr>
<tr>
<td></td>
<td>221.67 105.85</td>
<td>211.32 116.74</td>
<td>191.64 129.80</td>
</tr>
</tbody>
</table>

1Scores for variables are listed in the following order: Pretreatment, posttreatment and delayed posttreatment measures.
Physiological differences were not indicated between the group means in areas of weight, systolic and diastolic pressure in Table 2. Life change units, which is an indication of stress level for each group, are elevated for the experimental group two.

Multivariate analysis of pretreatment measures described above is presented in Table 3. It can be noted that the F-values for confidence for all pretreatment measures were not significant at the .01 level, indicating no significant difference in the groups, although trends were observed in the pretreatment means.

It can be noted in Table 3 that the F-ratio for the analysis of all variables of all groups and subgroups was 1.37, probability less than .11, a value which was not significant at the .01 level of significance. Specifically, there was no significant difference between the groups regardless of the treatment.

It was hypothesized that the mean health risk scores for experimental group one would not be significantly higher than the mean score for students in the control group. It can be noted that the F-value for health risk scores in Table 4 was 3.52, a value which was not significant at the .01 level of significance. Therefore, the null hypothesis for health risk score of the treatment was accepted. Specifically, students who participated in 45 hours of personal health instruction showed no significant reduction of their health risk behaviors.

It was hypothesized that the mean health risk scores for experimental group two would not be significantly higher than the mean scores for students in the control group or experimental group one.
Table 3
Results of the Multivariate Analysis of Health Risk Data: Pretreatment Measures

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean Squares</th>
<th>Univariate F</th>
<th>P less than</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Risk Scores</td>
<td>225.97</td>
<td>1.97</td>
<td>.15</td>
</tr>
<tr>
<td>Weight</td>
<td>101.20</td>
<td>.13</td>
<td>.88</td>
</tr>
<tr>
<td>Systolic Pressure</td>
<td>5.53</td>
<td>.09</td>
<td>.91</td>
</tr>
<tr>
<td>Diastolic Pressure</td>
<td>3.39</td>
<td>.07</td>
<td>.93</td>
</tr>
<tr>
<td>Life Change Units</td>
<td>29635.62</td>
<td>2.07</td>
<td>.13</td>
</tr>
<tr>
<td>Locus of Control</td>
<td>65.31</td>
<td>1.97</td>
<td>.15</td>
</tr>
<tr>
<td>Health Rank</td>
<td>8.70</td>
<td>2.54</td>
<td>.08</td>
</tr>
</tbody>
</table>

F-Ratio = 1.37      D.F. = 42 and 90
P less than .11

N = 68 (24 experimental group one--22 experimental group two--22 control)
Table 4

Results of the Multivariate Analysis of Health Risk Data: Posttreatment Measures

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean Squares</th>
<th>Univariate F</th>
<th>P less than</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Risk Scores</td>
<td>373.28</td>
<td>3.52</td>
<td>.04</td>
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<tr>
<td>Weight</td>
<td>17.71</td>
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<td>.98</td>
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<tr>
<td>Systolic Pressure</td>
<td>113.02</td>
<td>1.70</td>
<td>.19</td>
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<tr>
<td>Diastolic Pressure</td>
<td>29.03</td>
<td>.74</td>
<td>.48</td>
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<tr>
<td>Life Change Units</td>
<td>101.03</td>
<td>.00</td>
<td>.99</td>
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<tr>
<td>Locus of Control</td>
<td>169.59</td>
<td>3.35</td>
<td>.04</td>
</tr>
<tr>
<td>Health Rank</td>
<td>12.03</td>
<td>3.69</td>
<td>.03</td>
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</table>

N = 68 (24 experimental group one--22 experimental group two--22 control)
It can be noted that the F-value for confidence in Table 4 was 3.52, a value which was not significant at the .01 level of significance. Therefore, the null hypothesis for health risk score of the treatment was accepted. Specifically, students who were made aware of existing health risk behaviors in their life style by an individual computer analysis showed no significant reduction of their health risk behaviors.

It was hypothesized that the mean health risk scores for the experimental groups would not be significantly higher on three months posttreatment measures than the mean scores for students in the control group. It can be noted that the F-value for confidence in Table 5 was 1.81, a value which was not significant at the .01 level of significance. Therefore, the null hypothesis for the continued reduction of health risk behaviors after the treatments was not rejected. Specifically, there was no significant reduction of health risk behaviors in the experimental groups 12 weeks posttreatment.

Intercorrelations among the variables in Table 6 show strong correlation between the repeated measures of the variables studied. Additionally, systolic and diastolic measures correlate directly as the diastolic and systolic are interrelated parameters; one generally having a corresponding effect on the other.

In determining locus of control, questions 12-19 on the instrument (Appendix A) were used. It was expected that participants who believed they had a great deal of control or influence over their health status would have higher health risk scores, but the data in Table 6 failed to demonstrate high correlation.
### Table 5
Results of the Multivariate Analysis of Health Risk Data: Delayed Posttreatment Measures

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean Squares</th>
<th>Univariate F</th>
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<tr>
<td>Health Risk Scores</td>
<td>189.35</td>
<td>1.81</td>
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<td>Weight</td>
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<td>Diastolic Pressure</td>
<td>51.82</td>
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<td>Life Change Units</td>
<td>2785.65</td>
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<td>Locus of Control</td>
<td>137.86</td>
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<td>.04</td>
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<tr>
<td>Health Rank</td>
<td>5.88</td>
<td>1.37</td>
<td>.26</td>
</tr>
</tbody>
</table>

\( N = 68 \) (24 experimental group one--22 experimental group two--22 control)
Table 6

Intercorrelations Among the Variables*

<table>
<thead>
<tr>
<th></th>
<th>Health Risk Score</th>
<th>Weight</th>
<th>Systolic Pressure</th>
<th>Diastolic Pressure</th>
<th>Life Change Units</th>
<th>Locus of Control</th>
<th>Health Rank</th>
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<th>Weight 2</th>
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*Decimals omitted
It was expected that participants who placed a high value on health as indicated by the health rank scale would have higher health risk scores but the data in Table 6 failed to demonstrate any positive correlation.

Additional Findings

Although no significant differences were found in the reduction of health risk variables in the experimental groups, analysis of Table 3 (page 57) indicates a trend in weight loss in the experimental group one not indicated in the two other groups.

At the conclusion of the study, a program became available at the University of Florida designed to assess the number of mean points lost by risk category: motor safety, exercise, emotional health, etc. Mean points lost refers to the average number of points subtracted from a 100-point maximum due to the presence of identified risk behaviors in one's life style which correlate to a risk category. For example, the average number of points lost in the control group due to presence of high risk motor safety behaviors on pretreatment measures was 12.44, as seen on Table 7. Participants who scored 100 are not included in the data in Table 7. The risk categories are based on the ten leading causes of mortality for young adults and the risk factors are weighted according to the method developed by Robbins and Hall (1970). This method of analysis is described by Moody (1982). The results of the data pertinent to the mean points lost are also found in Table 7.
<table>
<thead>
<tr>
<th>Risk Category</th>
<th>Experimental Group One</th>
<th>Experimental Group Two</th>
<th>Control Group</th>
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<tr>
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<td>Points* f</td>
<td>%</td>
<td>Points* f</td>
</tr>
<tr>
<td>Motor</td>
<td>8.84 19  86.36</td>
<td>14.92 18  94.74</td>
<td>12.44 18  85.71</td>
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<td></td>
<td>10.05 16  72.72</td>
<td>11.95 18  100.00</td>
<td>13.41 16  88.88</td>
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<tr>
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<td>9.24 16  76.19</td>
<td>13.39 18  100.00</td>
<td>15.45 16  88.88</td>
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<td>Safety</td>
<td>.87 3  13.64</td>
<td>.10 1  5.50</td>
<td>.20 2  9.52</td>
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<td>.56 5  22.73</td>
<td>.10 1  5.50</td>
<td>.10 1  5.50</td>
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<td>.82 4  19.05</td>
<td>.10 1  5.50</td>
<td>.10 1  5.50</td>
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<tr>
<td>Exercise</td>
<td>14.60 1  4.54</td>
<td>23.18 5  26.32</td>
<td>21.35 2  11.11</td>
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<td>21.07 3  13.64</td>
<td>18.24 8  44.44</td>
<td>20.85 4  19.05</td>
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<td>20.30 2  9.52</td>
<td>21.12 6  33.33</td>
<td>18.33 6  33.33</td>
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<td>3.20 9  40.90</td>
<td>.15 4  21.05</td>
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<td>2.48 9  38.10</td>
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<td>4.80 1  5.50</td>
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<td>4.80 1  5.50</td>
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<td>Weapons</td>
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<td>.55 2  9.50</td>
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<td>.90 3  13.67</td>
<td>1.40 1  5.50</td>
<td>.70 2  11.11</td>
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<td>2.85 8  36.36</td>
<td>.60 1  5.50</td>
<td>12.00 1  5.50</td>
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<td>2.60 10 45.45</td>
<td>.60 1  5.50</td>
<td>7.00 2  11.11</td>
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<tr>
<td>Self Breast Exam</td>
<td>10.40 5  22.70</td>
<td>.30 1  5.26</td>
<td>22.05 2  9.52</td>
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<td>2.60 1  4.76</td>
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<td>Alcohol Consumption</td>
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<td>Blood Pressure</td>
<td>1.50 1  4.54</td>
<td>6.60 1  4.76</td>
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*Mean Points Lost
f = frequency
Major risk categories for these samples are motor safety, exercise, emotional health, weight, weapon use, smoking, self breast examination, alcohol consumption, PAP test and blood pressure. It is interesting to note in Table 7 that experimental group one lost more points due to lack of exercise, weight and smoking than the other two groups. It could be interpreted that they were aware of those negative behaviors and took the personal health course in anticipation of change. Some trend toward changing those behaviors is noted by the decrease in mean points lost for experimental group one on repeated measures in exercise, weight, smoking and alcohol consumption. Additionally, experimental group one shows a decrease in mean points lost under risk category self breast examination. The N for most risk categories were too small to determine variance.

Summary of Findings

Data pertaining to the hypotheses formulated for this study revealed the following:

1. Students who participated in a personal health course did not show significantly greater gains in composite health risk scores, physiological parameters and attitudinal parameters than those students in the control group.

2. Students who received a computerized analysis of existing health risk behaviors did not show significantly greater gains in composite health risk scores, physiological parameters and attitudinal parameters than students in the control group.

3. Students who participated in the personal health course did not show significantly greater gains in composite health risk scores,
physiological parameters and attitudinal parameters on three months delayed assessments.

4. Students who received a computerized analysis of existing health risk behaviors did not show significantly greater gains in composite health risk scores, physiological parameters and attitudinal parameters on three months delayed assessment.

Although there were no significant differences (.01 level of significance) in composite health risk scores for the treatment group, there were notable trends in specific health behavior categories: weight reduction, increased exercise, and reduction of cigarette smoking.
CHAPTER V
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The purpose of this study was to assess the effectiveness of a postsecondary personal health course in reducing health risk behaviors. The specific objectives of this study were utilizing the Confidential Health Profile for Adults, test the effects of health education utilizing the normative, re-educative change strategies known to be effective in the counselor client model in a large group academic setting and test the effects of awareness of risk behaviors in one's life style on altering those risk behaviors without formal instruction.

The population chosen for the study were students enrolled Fall Semester at the University of Central Florida. All samples were drawn from students enrolled for class on Tuesday and Thursday at 10:00 a.m. Experimental group one was a random sample of 24 students drawn from 110 students who electively enrolled in a personal health course. Experimental group two was drawn from students who enrolled in a beginning speech course and the control group was drawn from students who enrolled in a duplicate speech course.

A signed consent form was secured from each participant. Students in experimental group two and the control group were given a brief description of the study. Their role and the importance of continuing in the study were emphasized. On the second day of class
all groups were asked to complete the Confidential Health Profile for Adults. Two weeks following the administration of the instrument, the experimental groups were presented with the computer analysis of their health risks. The printout provided information on existing health risk behaviors and behavioral changes that would reduce their health risk level.

For experimental group one the analysis was followed by 45 hours of large group personal health instruction. Change strategies, such as change contracts, physiologic monitoring and daily recording of certain behaviors as well as disease prevention instruction, were used to increase health knowledge, self-responsibility and the adoption of health-promoting behaviors.

Experimental group two received only the computer analysis of their risk behaviors and corresponding suggestions for altering those behaviors. The control group received no feedback.

Each group was assessed, utilizing the Confidential Health Profile for Adults 15 weeks following the first administration and again during the 27th week. The last administration was accomplished by mail. None of the groups received further information or instruction between the second and third assessment.

Multivariate analysis of the health risk scores, attitudinal parameters (locus of control, life change units, health rank) and physiologic parameters (weight, systolic and diastolic blood pressure) failed to show significant difference between the repeated measures.
Conclusions

This study was conducted with the expectation that the effectiveness of health education at the postsecondary level, utilizing effective change strategies, would be determined. It was concluded that health education did not significantly reduce health risk scores as determined by the Confidential Health Profile for Adults at the .01 level of significance. Trends were observed in reduction of weight, cigarette smoking and increased physical activity.

Composite health risk scores were not significantly altered by formal health education or the computerized analysis used for awareness. One possible rationale for the lack of significant change can be found in the calculation model for the profile. Health risk scores for this age group (20-25) are most easily influenced by responses on the instrument in the area of motor safety, seat belt usage, number of miles driven, adherence to the speed limit, substance use while driving and use of safety equipment. Behavioral changes in the areas of smoking, nutrition, physical fitness and stress management, although important to long-term health goals, do not significantly affect the health risk scores of this age group. Conversely, within the 40-45 age group nutrition, smoking and physical and emotional fitness are the major factors in the calculation of health risk. This confirms the findings of Moody and others (1979) that the health risk score composite index should not be used as the single measure of program success.

Another plausible explanation for the lack of significant change could be the amount of time spent with the group. A 15-week period
with three instruction hours per week could be considered inadequate. Frequent group interaction over a longer period of time tends to be more successful. This method is successfully used by Alcoholics Anonymous and Weight Watchers.

The fact that significant change was not noted in the physiologic measures of blood pressure, as well as body weight, can be explained by the fact that virtually every participant in the experimental group was well within normal limits for each of these parameters and, therefore, offered little opportunity for change. Haggerty (1977) found that health programs reporting the most significant results are those who are geared to the "worried well." "Worried well" are defined as those to whom physiologic changes have begun to occur due to the behaviors.

From this and other studies in changing health behaviors, one has to conclude that behavior change can occur, but it requires more than passive information transfer. Even with the most successful techniques, such as group discussion, behavioral contracting and self-awareness, one has to be content with modest changes in behavior unless there is strong motivation and social group reinforcement.

The generally unsatisfactory outcome of health education programs, especially as it relates to changing adult behavior, has naturally led many to suggest that we must move back in time and start health education with children. This assumption that behavior is more easily controlled or developed in children than in adults underlies the emphasis on preventive approaches for children among health educators today. Many school systems, including several in Florida,
now have compulsory health education courses from kindergarten through high school based on this belief. But there are many questions as to the validity of depending on early health education as the major strategy for seating positive behaviors. Prevention in children may be as complex and difficult as changing adult behavior. Also there is little data on the durability, stability and transferability of behavior from childhood to adulthood. Basic to children's behavior is the child's family behavior. Therefore, we still must influence adults in some ways to provide the models.

Although the summary of the data of this study indicates the probability of significance at less than .11 for the treatments, analysis of the specific questions relating to nutrition, physical and emotional fitness and smoking suggest that college students may be "susceptible to efforts of this sort." While health maintenance training should correctly be undertaken at the earliest possible age, clearly re-emphasis of the earlier message is appropriate for college youth as an adjunct to the introduction of new health behaviors that are age appropriate for young adults. Success in efforts such as these can be a crucial step toward the goal of long, healthy and productive lives.

**Recommendations**

Although there were no significant differences (.01 level of significance) in composite health risk scores for the treatment group, there were notable trends in specific health behavior categories: weight reduction, increased exercise, and reduction of cigarette smoking. Accordingly, it is recommended that institutions should not
solely rely on health education courses as the major change agent. Effective health education at this level must be part of a comprehensive program that includes repeated health messages in a variety of contexts, models and settings.

As indicated previously, there is some question regarding the use of the health risk composite index for young adults. Therefore, it is recommended that future research on postsecondary health education should not solely rely on health risk composite index for outcome data. Major causes of death for this age group (20-25) revolve around accidents. Behaviors associated with accidents, therefore, become the most weighty factors in risk calculation. This method tends to minimize the effect of behaviors that, over time, become significant precursors to disease.

It is further recommended that future research with postsecondary health education should involve a more exact determination of the effects of specific treatments. The design should include random selection and assignment of subjects and utilization of evaluation measures that do not rely on self-reporting behaviors.
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APPENDIX A

CONFIDENTIAL HEALTH PROFILE FOR ADULTS
CONFIDENTIAL
HEALTH PROFILE
FOR ADULTS

FLORIDA COOPERATIVE EXTENSION SERVICE
INSTITUTE OF食品 AND AGRICULTURAL SCIENCES
UNIVERSITY OF FLORIDA, GAINESVILLE

82
CONFIDENTIAL HEALTH PROFILE FOR ADULTS

This health appraisal program was designed to help you take a critical look at your lifestyle and your health. Your answers to the HEALTH PROFILE will help us prepare a computer printout that analyzes your HEALTH RISK SCORE and explains how you can take charge of your life to lead a healthier lifestyle.

By looking at your present health and safety habits and comparing your future risks with others in your age group, we can help you choose health practices that will not only put style in your lifestyle but may reduce your chances of getting certain diseases or being injured.

The HEALTH PROFILE is strictly CONFIDENTIAL, that's why you have a special ID number. No one else will see your printout without your approval. All questions, even those that ask about race and your daily habits are asked only because they are linked with different risks in certain diseases. So it's in your best interest to answer each question as well as you can. This way, your printout will be more accurate.

The HEALTH PROFILE is only a tool to help you identify harmful behaviors that may be taking years from your life unnecessarily. It is designed to help you make positive decisions about adopting a healthier lifestyle and only you can make those decisions. The HEALTH PROFILE is not meant to diagnose sickness or replace your usual medical care.

INSTRUCTIONS

1. Use a soft-lead pencil, #2 or 2½ -- no pens please!
2. Shade the number or numbers on the answer sheet that are the right or best choice(s) for you.
3. If you change an answer, erase your mark well.
4. Please answer ALL questions as best you can. There are no right or wrong answers so please take your time.

EXAMPLE

HAVE YOU BEEN TO A PHYSICIAN IN THE LAST SIX MONTHS?
○ No
○ Yes

The HEALTH PROFILE is meant to help you. It can only be of help if your responses are as accurate as possible.

WRITE DOWN YOUR ID NUMBER NOW AND KEEP IT

7086

IF YOU HAVE QUESTIONS NOW, PLEASE ASK YOUR LEADER. IF NOT, PLEASE BEGIN.
SECTION I - YOUR VALUES  
(the things you care about the most)

Questions 1-10 ask you to examine your personal values. First, study this list and use the work space to rank your values. As best you can, rank from 1 to 10 how important these values are to you. Do not use the same number more than once. Rank "1" for most important, "2" for second most important, "3" for third most important, and so on. Continue until you have used all ranks from 1 to 10.

* * * WORK SPACE * * *

1. A PROSPEROUS LIFE (no financial problems)
2. AN EXCITING LIFE (a stimulating, active life)
3. A SENSE OF ACCOMPLISHMENT (a feeling you have contributed to society)
4. FREEDOM (independence, free choice)
5. HAPPINESS (a good feeling about your life, a cheerful outlook)
6. HEALTH (physical and mental well-being)
7. INNER HARMONY (freedom from inner conflict)
8. PLEASURE (an enjoyable, leisurely life)
9. SELF-RESPECT (self-esteem, a feeling of worth)
10. SOCIAL RECOGNITION (respect and admiration from others)

Now, transfer your answers by marking one circle for each question below. Mark one rank for each question.

1. How did you rank "A PROSPEROUS LIFE"?  
2. How did you rank "AN EXCITING LIFE"?  
3. How did you rank "SENSE OF ACCOMPLISHMENT"?  
4. How did you rank "FREEDOM"?  
5. How did you rank "HAPPINESS"?  
6. How did you rank "HEALTH"?  
7. How did you rank "INNER HARMONY"?  
8. How did you rank "PLEASURE"?  
9. How did you rank "SELF-RESPECT"?  
10. How did you rank "SOCIAL RECOGNITION"?

Adapted with permission from E. A. Watson and B. B. Watson
SECTION II - YOUR BELIEFS

11 Think about your state of health in regard to the scale below. Mark the category that BEST describes your health now.

ILLNESS
- Disease Present
- Signs and Symptoms
- Pain or Discomfort
- No Disease

WELLNESS
- Feeling Fit
- Feeling Joyful Part of the Universe

How much can you do to prevent yourself from developing these health problems?

Not Much Very Much
- O O O O
- O O O O
- O O O O
- O O O O
- O O O O
- O O O O
- O O O O
- O O O O

Here are some statements about health and illness. Mark "1" if you agree and "2" if you disagree.

21 Good health is mostly due to luck

Agree Disagree
- O O
- O O

22 People can do a lot to stay healthy.

- O O
- O O

23 There's little you can do to prevent disease.

- O O
- O O

24 I depend a lot on my doctor to keep me healthy.

- O O
- O O

Below are some questions about your temperament. Mark "1" for YES and "2" for NO.

25 Do you usually move, walk, talk and eat rapidly?

Yes No
- O O
- O O

26 Do you usually have difficulty being patient with others?

- O O
- O O

27 Is it important for you to be best in most things?

- O O
- O O

Questions 12-24 were adapted with permission from K. A. Wallston and S. S. Wallston.
SECTION III - HEALTH RISK SCORE
PART I

28 HOW OLD ARE YOU? MARK BOTH COLUMNS

29 WHAT IS YOUR SEX?
© Male
© Female

30 WHAT IS YOUR RACE?
© Black
© American Indian
© White
© Spanish, Cuban, or Mexican American
© Other please list

31 HOW LONG HAVE YOU LIVED WHERE YOU DO NOW?
© Less than 1 year
© 1-2 years
© 2-3 years
© 3-4 years
© More than 4 years

32 HOW FAR DID YOU GO IN SCHOOL?
© Never went to school
© Some grade school
© Completed 8th grade
© Some high school
© High school or GED
© 2-year or vocational school
© Completed college (4 years)
© Graduate or professional school

33 DO YOU LIVE?
© With spouse
© Alone
© With relatives or friends
© Other please list

34 MARK THE CORRECT ANSWER
© I am married
© I am separated
© I am divorced
© I am widowed
© I am single
© Other please list

35 ARE YOU (MARK ALL THAT APPLY)
© A full-time student?
© A full-time homemaker?
© Working full-time outside the home (usually 35 or more hours a week)?
© Working part-time?
© Disabled and unable to work?
© Retired?
© Unemployed?

36 IS YOUR SPOUSE (MARK ALL THAT APPLY)
© A full-time student?
© A full-time homemaker?
© Working full-time (usually 35 or more hours a week)?
© Working part-time?
© Disabled and unable to work?
© Retired?
© Unemployed?

37 WHAT KIND OF WORK DO YOU DO?
(MARK ALL THAT APPLY)
© Unemployed
© Clerical (Secretary, Bookkeeper, Receptionist)
© Craftsmen (Foreman, Carpenter, Plumber, Electrician)
© Farmer
© Laborer (Garbage Collector, Construction Worker, Fisherman)
© Manager (Administrator, Business Manager, Have Own Business)
© Professional (Doctor, Lawyer, Engineer, Teacher, Registered Nurse)
© Sales (Insurance Agent, Sales Clerk, Real Estate Agent)
© Service Worker (Waitress, Maid, Fireman, Policeman)
© Transportation (Bus Driver, Truck Driver, Taxi Driver)
© Other? Please list
51. HAVE YOU EVER BEEN TOLD THAT YOU HAD LUNG TROUBLE OR BREATHING TROUBLE? (MARK ALL THOSE THAT APPLY)
   - No
   - Yes, bronchitis, asthma or emphysema
   - Yes, pneumonia
   - Yes, tuberculosis (TB)
   - Yes, I am being treated for tuberculosis now
   - Yes, other, please list

52. HAVE YOU EVER BEEN TOLD THAT YOU HAD DIABETES (TOO MUCH SUGAR IN THE BLOOD)? MARK ALL THOSE THAT APPLY
   - No
   - Yes, and I follow a diet for diabetes
   - Yes, but I don’t do anything for it
   - Other, please explain

53. MARK ANY OF THESE DISEASES THAT RUN IN YOUR FAMILY (MOTHER OR FATHER, BROTHERS OR SISTERS)
   - Diabetes
   - Heart Disease
   - High Blood Pressure
   - None
   - Don’t Know

54. OO YOU HAVE SICKLE CELL ANEMIA? (THIS DISEASE OCCURS MOSTLY IN BLACK PEOPLE. IT IS AN INHERITED CONDITION THAT AFFECTS THE RED BLOOD CELLS)
   - No
   - No, but I have sickle cell trait
   - Yes
   - Don’t Know

55. DOES ANYONE IN YOUR FAMILY (MOTHER, FATHER, BROTHER OR SISTER) HAVE SICKLE CELL ANEMIA?
   - No
   - Yes
   - Don’t Know

PART III

56. DO YOU FEEL HOPEFUL AND POSITIVE ABOUT YOUR FUTURE?
   - No
   - Yes

57. DO YOU DO IMPULSIVE OR RECKLESS ACTS THAT CAUSE YOU PROBLEMS AT HOME, SCHOOL, OR WORK?
   - No
   - Yes

58. HAVE YOU LOST YOUR APPETITE OR HAVE YOU HAD LESS DESIRE TO EAT?
   - No
   - Yes

59. OO YOU HAVE OR HAVE YOU EVER HAD FEELINGS THAT LIFE IS NOT WORTH LIVING?
   - No
   - Yes

60. OO YOU FEEL THAT OTHERS WOULD BE BETTER OFF IF YOU WERE DEAD?
   - No
   - Yes

61. DO YOU HAVE DIFFICULTY FEELING CLOSE TO PEOPLE?
   - No
   - Yes

62. HAVE YOU EVER SERIOUSLY THOUGHT ABOUT ENDING YOUR LIFE OR HAVE YOU TRIED TO END YOUR LIFE?
   - No
   - Yes

63. HAS ANYONE IN YOUR FAMILY (PARENTS, BROTHERS OR SISTERS) TAKEN HIS OR HER OWN LIFE?
   - No
   - Yes
   - Don’t Know

64. OO YOU CARRY A GUN OR KNIFE (OTHER THAN A POCKET KNIFE)? THIS INCLUDES CARRYING A WEAPON AT SCHOOL, WORK, OR HOME
   - No
   - Yes
   - Don’t Know

65. HAVE YOU EVER BEEN ARRESTED FOR A SERIOUS CRIME SUCH AS ROBBERY OR ATTACKING SOMEONE? (DO NOT INCLUDE TRAFFIC VIOLATIONS)
   - No
   - Yes

66. COMPARSED TO MOST PEOPLE IN YOUR TOWN, HOW DO YOU AND YOUR FAMILY LIVE?
   - Better than most in my town
   - About as well as most in my town
   - Not as well as most people in my town
### Findings

#### Part IV

- **68.** Do you regularly smoke cigarettes?
  - No
  - Yes, 2 or more packs per day
  - Yes, 1½ packs per day
  - Yes, 1 pack per day
  - Yes, less than ½ pack per day

- **69.** Number of years smoked?
  - None
  - 2 years or less
  - 3-5 years
  - 6-10 years
  - 11 or more years

- **70.** Did you use to smoke cigarettes but no longer do?
  - No
  - Yes, it's been less than 1 year since I stopped
  - Yes, it's been 1-3 years since I stopped
  - Yes, it's been 3-5 years since I stopped
  - Yes, it's been 5 or more years since I stopped

- **71.** Do you drink any alcoholic beverages (beer, wine, whiskey, gin, vodka, etc.)?
  - No
  - Yes, less than 3 drinks a week
  - Yes, 3-6 drinks a week
  - Yes, 7-14 drinks a week
  - Yes, 15-24 drinks a week
  - Yes, 25-40 drinks a week
  - Yes, more than 40 drinks a week

- **72.** Have you ever taken any of these substances before or while driving or riding a motor vehicle? Mark all that apply:
  - Marijuana
  - Alcohol (more than 1 drink)
  - Angel dust or LSD
  - Amphetamines (uppers)
  - Tranquilizers, sedatives, nerve or sleeping pills such as Miltown, Valium, Librium, Phenobarb, Nembutal, Seconal, etc.
  - Pain Pills (Demerol, codeine, morphine, etc.)
  - Antihistamines or allergy pills (Dristan, Sinutab, etc.)
  - Inhalating glue or sniffing aerosols
  - Yes, but I don't know the names of the drugs
  - No

- **73.** Do you ride with drivers who have taken one or more of the substances listed in question #72 before or while driving?
  - No
  - Yes
**74** HOW MANY MILES EACH YEAR DO YOU TRAVEL IN A CAR OR MOTOR VEHICLE AS A DRIVER OR PASSENGER?

<table>
<thead>
<tr>
<th>EXAMPLES TO AND FROM -</th>
<th>work</th>
<th>8,000 miles</th>
<th>shopping and other personal business</th>
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<th>school and church</th>
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**75** HOW MANY OF THESE ARE ON A FREEWAY, EXPRESSWAY OR TOLL ROAD?

- Most (75% or more)
- Some (25-74%)
- Little (0-24%)

**76** ARE THESE MILES USUALLY WITHIN FIVE MPH OF THE SPEED LIMIT?

- No
- Yes

**77** WHEN RIDING IN A MOTOR VEHICLE (CAR, TRUCK, VAN, ETC.) DO YOU WEAR A SEAT BELT OR SHOULDER HARNESS?

- No
- Yes - less than 10% of the time
- Yes - 10-24% of the time
- Yes - 25-74% of the time
- Yes - 75% or more of the time

**78** MARK ANY OF THESE ACTIVITIES THAT YOU DO

- Fly a private plane
- Sky dive
- Skin dive, scuba dive, surf or water ski
- Drive a racing car, dune buggy, snowmobile or motorcycle in desert (all the road)
- Drive a motorcycle, moped or bicycle in the street
- Some other daring or dangerous sport, which one?

- None

**79** DO YOU WORK WITH FARM OR INDUSTRIAL EQUIPMENT (TRACTORS, CHAINSAWS, SPREADERS, ETC.)?

- No
- Yes

**80** HAVE YOU BEEN EXPOSED TO OR WORKED WITH ANY OF THESE AGENTS? MARK ALL THAT APPLY

- Aromatic amines (chemical dyes)
- Asbestos (brake linings, construction sites, insulations, power houses)
- Benzene (solvents, oil refineries, insecticides)
- Benzidine (rubber making, dyes)
- Coal combustion products (steel mill, petrolium industry asphalt, coal tar)
- Nickel or cadmium compounds (metal industry alloys)
- Radiation x-rays
- Synthetic estrogens (mug)
- Vinyl chloride (plastic industry)
- No

**81** HOW MANY YEARS WERE YOU EXPOSED OR DID YOU WORK WITH THESE AGENTS IN #80?

- 0
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- 2
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- 84

**82** HOW MUCH EXERCISE DO YOU GET AT SCHOOL, HOME OR WORK (COMBINED)?

- I take brisk walks, jog, run, swim, play racquetball, handball, soccer or do some other strenuous exercise for 20 minutes periods or longer at least three times a week
- I do more than the above
- I do less than both of the above
- I hardly exercise at all

**83** MARK ANY OF THE COURSES YOU HAVE TAKEN (MARK ALL THATS E THAT APPLY)

- Swimming or Water Safety
- Driver Education
- Sex Education (Family Life or Parenting)
- CPR (Cardiopulmonary resuscitation)
- First Aid (Not including CPR)
- None of these

**84** DO YOU KNOW HOW TO SWIM OR STAY AFOAT IN WATER TO PREVENT DROWNING?

- No
- Yes
PART V

85. How many hours do you sleep most nights?
   - Less than 4
   - 5-6
   - 7-8
   - 9 or more

86. Do you floss and brush your teeth daily with a fluoride toothpaste?
   - No
   - Yes

87. Do you have your teeth checked and cleaned at least once a year?
   - No
   - Yes

88. Do you take vitamin or mineral pills?
   - No
   - Yes

89. Do you add extra salt to foods that have been cooked?
   - No
   - Yes

90. During sexual intercourse, would you use some birth control method or ask your partner to?
   - No
   - Yes

91. Do you know how to relax without using alcohol, marijuana or other drugs?
   - No
   - Yes
   - Don't know
   - Yes please list:

92. Do you have any other problems that affect your health?
   - No
   - Don't know
   - Yes please list:
PART VI
FOR FEMALES ONLY
93 DO YOU EXAMINE YOUR BREASTS EACH MONTH TO DETECT LUMPS?
© No
© I don't know how
© No I know how but I just don't bother
© No, I never think about it
© Yes

94 HAS A DOCTOR OR OTHER HEALTH PROFESSIONAL SHOWN YOU HOW TO EXAMINE YOUR BREASTS FOR LUMPS?
© No
© Yes

95 HAS YOUR MOTHER OR SISTER HAD BREAST CANCER?
© No
© Yes

96 DO YOU HAVE MONTHLY MENSTRUAL PERIODS (BLEEDING FROM THE BIRTH CANAL EACH MONTH)?
© No
© Yes

97 HAVE YOU HAD BLEEDING FROM THE VAGINA (BIRTH CANAL) THAT WAS NOT DUE TO YOUR MENSTRUAL PERIOD?
© No
© Yes - between menstrual periods
© Yes - during or after sexual relations
© Yes - for some other reason Please list

98 HAVE ANY OF YOUR ORGANS (CERVIX, OVARIIES, UTERUS, BREASTS) BEEN REMOVED BECAUSE OF CANCER?
© No
© Yes which ones?

99 PLEASE INDICATE THE RESULTS OF ANY PAP SMEARS, CANCER SMEARS, THAT YOU HAVE HAD BY MARKING THE ONE MOST CORRECT ANSWER.
© I have not had a Pap Smear in the past 5 years
© I have had 1 normal Pap Smear in the past year
© I have had 1 normal Pap Smear in the past 5 years
© I have had 3 normal Pap Smears in the past 5 years
© I have had 5 normal Pap Smears in the past 5 years
© I have had a Pap Smear in the past year, but it was abnormal
© I have had a Pap Smear in the past year, but I do not know the results

100 HAVE YOU HAD GERMAN MEASLES (RUBELLA)?
© No
© Yes
© Don't know

101 HAVE YOU HAD A BLOOD TEST SHOWING IMMUNITY TO GERMAN MEASLES OR HAVE YOU HAD A RUBELLA IMMUNIZATION?
© No
© Yes
© Don't know

102 HOW OLD WERE YOU WHEN YOU BEGAN HAVING SEXUAL INTERCOURSE REGULARLY. DO NOT ANSWER UNLESS YOU WANT TO MEDICAL RESEARCHERS HAVE FOUND AN INCREASE IN THE RATE OF CANCER OF THE CERVIX THAT IS ASSOCIATED WITH THE AGE A PERSON BEGAN HAVING SEXUAL INTERCOURSE REGULARLY. YOUR PRIVACY WILL BE PROTECTED. THESE QUESTIONS ARE NOT MEANT TO INVADE YOUR PRIVACY BUT ARE ASKED SO YOU WILL KNOW WHAT YOUR RISK FACTORS ARE FOR CERVICAL CANCER.
© Age 20 or younger
© Age 21- 25
© Age 26 or older
© Other

103 DO YOU TAKE BIRTH CONTROL PILLS REGULARLY?
© No
© Yes

104 ARE YOU SEEING A DOCTOR OR NURSE FOR PREGNATAL CARE?
© No I'm not pregnant
© No
© Yes

END OF PROFILE --
KEEP YOUR ID NUMBER
You will receive the results of your HEALTH PROFILE in a few weeks and learn what you can do to promote your well-being and safety. This program is based on the concept of health promotion to extend useful life expectancy by preventing those diseases and injuries that are lifestyle related.

Developed by:

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Extension Health Education Specialist,
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Ron Blankenbaker, M.D.,
State Health Commissioner, Indianapolis, IN

and

Irma Velez, B.S.
Computer Programming, U. of Fl. Gainesville, FL

Acknowledgement to

Health Care Services, Inc., Indianapolis, IN

"OUR BODIES ARE AP1 TO BE OUR AUTOBIOGRAPHIES" F Burgess

REMEMBER YOUR ID NUMBER SO YOU WILL BE ABLE TO RECEIVE YOUR RESULTS.

No part of this booklet may be reproduced.
APPENDIX B

CONSENT AND FAMILY HISTORY FORM
CONSENT FORM—HEALTH PROFILE

Please ask your parents to help you with these questions and take this with you to help you answer the questions when you take the Health Profile.

In your immediate family (brothers, sisters, parents and grandparents), are there any of these diseases? Check Y for yes and N for no.

1. Diabetes ...................... /Y/  /N/
2. Heart Disease .................. /Y/  /N/
3. Breast Cancer .................. /Y/  /N/
4. Sickle Cell Anemia .............. /Y/  /N/
5. High Blood Pressure (Hypertension) .../Y/  /N/
6. Which of these immunizations have you had? Check all that apply.
   /1/ Polio Vaccine
   /2/ Baby shots for DPT (Diphtheria, Pertussis and Tetanus)
   /3/ Baby shots for mumps, measles and rubella
   /4/ No immunizations
   /5/ Don't know
7. Mother's occupation ________________________________
8. Father's occupation ________________________________

I have been informed about the program and understand it. I would like to take part in the program.

(Sign Here)

Address: _______________________________________

Phone: ______________

Major: ______________

Expected Date of Graduation: ______________
APPENDIX C

HEALTH RISK ANALYSIS
SEX: MALE
RACE: WHITE
BLOOD PRESSURE: 138/088
HDL: **

HEIGHT: 65 INCHES
WEIGHT: 215
IDEAL WT.: 132
CHOLESTEROL: ***

OUR HEALTH RISK ANALYSIS OF YOUR LIFE STYLE HABITS, FAMILY HISTORY, BLOOD TESTS AND PHYSICAL DATA HAS REVEALED SOME IMPORTANT FACTS ABOUT YOU AND THE WAY YOU ARE NOW LIVING.

YOUR HEALTH RISK SCORE IS 80.0 OUT OF A POSSIBLE 100 POINTS. YOUR SCORE HAS BEEN ADJUSTED FOR THOSE FACTORS THAT ARE BEYOND YOUR CONTROL, SUCH AS FAMILY HISTORY OF CERTAIN DISEASES. EACH PERSON CAN SCORE 100 BY FOLLOWING A HEALTHY LIFE STYLE.

YOUR LIFE STYLE HABITS ARE PROMOTING YOUR HEALTH AND SAFETY AND ARE PREVENTING CERTAIN DISEASES, BUT THERE ARE SOME AREAS YOU COULD CHANGE TO IMPROVE YOUR SCORE.

IF YOU ARE WONDERING HOW TO IMPROVE YOUR HEALTH RISK SCORE, THEN READ ON. THE LEFT-HAND COLUMN EXPLAINS WHY YOU LOST POINTS; THE RIGHT-HAND COLUMN LISTS POSITIVE STEPS YOU CAN CHOOSE FROM THAT WILL HELP YOU ADD POINTS TO YOUR HEALTH RISK SCORE.
MOTOR SAFETY

WHY YOU LOST POINTS:

YOU LOST POINTS ON YOUR HRS BY NOT:
* WEARING SEAT BELTS REGULARLY.
* DRIVING WITHIN 5 MILES OF THE SPEED LIMIT.
* DRIVING WITHIN THE AVERAGE NUMBER OF MILES.
* DRIVING MOST OF YOUR MILES ON A SAFE ROADWAY.

HERE IS HOW TO ADD 20.0 POINTS:

1. ALWAYS WEAR YOUR SEAT BELT!!!
   * ON LONG TRIPS
   * ON SHORT TRIPS
2. BUCKLE UP AS SOON AS YOU GET IN VEHICLE.
3. WEAR SHOULDER BELT, IF AVAILABLE.
4. MAINTAIN PROPER SPEED LIMIT AND STAY ON FREEWAYS OR EXPRESSWAYS FOR SAFE TRAVEL.

RESEARCH SHOWS THAT IF ALL VEHICLE OCCUPANTS USE THEIR SEAT BELTS 100% OF THE TIME--ALMOST 9,000 LIVES OR 20% OF CASUALTIES WOULD DECREASE ANNUALLY. THE USE OF SHOULDER HARNESS WOULD FURTHER REDUCE INJURIES AND DEATH.

YOUR VALUES

YOU RANKED HEALTH 01 ON A SCALE OF 1 to 10.

YOUR VALUES WILL INFLUENCE YOUR LIFE STYLE AND OVER A NUMBER OF YEARS YOUR LIFE STYLE WILL INFLUENCE YOUR HEALTH--HOPEFULLY IN A POSITIVE WAY.

YOU RANKED YOUR STATE OF HEALTH AS +5.

YOU INDICATED YOU FEEL IN A HIGH STATE OF PERSONAL WELL BEING...GREAT! WE HOPE THIS HEALTH APPRAISAL CONFIRMS THIS AND HELPS YOU TO ASSESS THOSE THINGS YOU CAN KEEP DOING TO STAY WELL.

YOUR BELIEFS

SCORES ON QUESTIONS 12-20 USUALLY RANGE FROM 22-45; YOUR SCORE WAS 034.

THE LOWER YOUR SCORE THE LESS CONTROL YOU BELIEVE YOU HAVE OVER YOUR HEALTH. IF YOU SCORED HIGH, THEN YOU BELIEVE THAT YOUR LIFE STYLE AFFECTS YOUR HEALTH--EITHER POSITIVELY OR NEGATIVELY. ALTHOUGH ENVIRONMENT AND HEREDITY AFFECT YOUR HEALTH, THERE ARE MANY THINGS YOU CAN DO TO PROMOTE

SCORES ON QUESTIONS 21-24 USUALLY RANGE FROM 4-8; YOUR SCORE WAS 07.
TEMPERAMENT

YOUR ANSWERS TO QUESTIONS ABOUT YOUR TEMPERAMENT REVEAL YOU MAY BE OVERLY AMBITIOUS AND SET VERY HIGH GOALS FOR YOURSELF AND OTHERS.

STRESS SCALE

YOUR SCORE ON THE STRESS SCALE WAS 068.

RESEARCH POINTS OUT THAT IF YOU SCORE 300 OR MORE POINTS IN A YEAR THEN YOU HAVE A 90 PERCENT CHANCE OF GETTING SICK IF YOU CONTINUE YOUR PRESENT LIFE STYLE; A SCORE OF 150 TO 299--A 50% CHANCE OF BECOMING ILL; AND, A SCORE OF 150 OR LESS--A 30% CHANCE THAT YOU WILL BECOME SICK IN THE NEAR FUTURE.

EXAMINE WAYS TO SIMPLIFY YOUR LIFE. IF YOU SCORED MORE THAN 150 POINTS, YOU MAY WANT TO AVOID ANY MAJOR CHANGES THAT WOULD DISRUPT YOUR ROUTINE OR REQUIRE YOU TO MAKE A LOT OF ADJUSTMENTS.

IMMUNIZATIONS

BECAUSE YOU FAILED TO HAVE THE PROPER IMMUNIZATIONS YOU ARE AT INCREASED RISK.

CHECK WITH YOUR LOCAL HEALTH DEPARTMENT OR DOCTOR AND UPDATE YOUR IMMUNIZATIONS TO PREVENT SERIOUS DISEASES SUCH AS:
* POLIO
* TETANUS (LOCKJAW)
* DIPHTHERIA

YOUR HEALTH AND PREVENT CERTAIN DISEASES.

DOCTORS CAN HELP TREAT MEDICAL PROBLEMS BUT YOU ARE RESPONSIBLE FOR YOUR HEALTH HABITS AND THE WAY YOU LIVE. IT IS WITHIN YOUR POWER TO PREVENT MANY PROBLEMS BY CHOOSING TO LIVE A HEALTHY LIFE STYLE.

THIS IS OKAY AS LONG AS IT DOESN'T CAUSE YOU SO MUCH STRESS THAT IT AFFECTS YOUR HEALTH.
COMPLICATIONS FROM MEASLES OR MUMPS
*WHOOPING COUGH

SMOKING

CONGRATULATIONS FOR NOT SMOKING.
YOU HAVE ALREADY REDUCED YOUR
RISKS OF HEART DISEASE, STROKE,
CANCER, BRONCHITIS, AND EMPHYSEMA.

HAZARDOUS RECREATION

YOU ARE AT HIGHER RISK BECAUSE
YOU PARTICIPATE IN HAZARDOUS
RECREATION.

1. DO NOT PARTICIPATE UNLESS
YOU HAVE HAD SPECIFIC IN-
STRUCTIONS AND SAFETY TRAIN-
ING.
2. OBSERVE ALL SAFETY PRECAU-
TIONS RECOMMENDED FOR EACH
SPORT.
3. AFTER RECEIVING PROPER IN-
STRUCTION ON ALL SAFETY PRE-
CAUTIONS YOU CAN WEIGH THE
BENEFITS WITH THE RISKS TO
DETERMINE IF IT'S WORTH THE
RISK.

HERE ARE SOME OTHER TRIED AND TRUE PRINCIPLES OF A HEALTHY LIFE STYLE
THAT HAVE BEEN KNOWN FOR A LONG TIME AND CONTINUE TO BE SUPPORTED BY
RESEARCH.

1. EAT THE BASIC FOOD GROUPS EACH DAY. BY EATING A WELL
BALANCED DIET, YOU WILL NOT NEED SUPPLEMENTAL VITAMINS OR
MINERALS (UNLESS PRESCRIBED BY YOUR DOCTOR).
2. FLOSS AND BRUSH TEETH DAILY WITH A FLUORIDE TOOTHPASTE.
3. HAVE YOUR TEETH CHECKED AND CLEANED AT LEAST ONCE A YEAR.
4. SLEEP 7 TO 8 HOURS A NIGHT.
5. KEEP WITHIN 10 POUNDS OF YOUR IDEAL WEIGHT.
6. LIMIT YOUR INTAKE OF THESE SUBSTANCES:
   - TOBACCO
   - ALCOHOL
   - REFINED SUGAR AND SALT
   - FOOD ADDITIVES
   - HIGH CHOLESTEROL FOODS
7. EXERCISE VIGOROUSLY FOR 30 MINUTES AT LEAST EVERY OTHER DAY.
8. DEVELOP A STRONG SUPPORT SYSTEM--FAMILY AND FRIENDS.
9. DEVELOP A SENSE OF PURPOSE ABOUT YOUR LIFE.
10. STAY IN TOUCH WITH YOUR BODY.
    - LEARN WHAT IS NORMAL OR ABNORMAL FOR YOU.

WE WISH YOU WELL!!

* * * *
PLEASE TEAR OFF THIS PAGE AND SHARE IT WITH YOUR DOCTOR IF YOU WISH.

SEX: MALE
RACE: WHITE
BLOOD PRESSURE: 138/088
HDL: **

HEIGHT: 65 INCHES
WEIGHT: 215
IDEAL WT.: 132
CHOLESTEROL: ***

YOUR HEALTH RISK SCORE WAS 80.0 OUT OF A POSSIBLE 100 POINTS.

THESE ARE THE MAIN AREAS WHERE YOU LOST POINTS.

*MOTOR SAFETY

LIST ANY OTHER TOPICS YOU WOULD LIKE TO DISCUSS WITH YOUR DOCTOR OR OTHER HEALTH PROFESSIONAL:

* __________________________________________

* __________________________________________

* __________________________________________

MY DOCTOR HAS MY PERMISSION TO KEEP THIS IN MY HEALTH RECORD.

SIGNATURE __________________________
BIOGRAPHICAL SKETCH

Jo Edwards was born to Reverend and Mrs. G. L. Geren on January 5, 1947, in Cleveland, Tennessee. A 1965 graduate of Everett High School, Maryville, Tennessee, she attended the University of Tennessee Memorial Research Center and Hospital, School of Radiologic Technology. She was registered as a Radiographer by the American Registry of Radiologic Technology in 1968.

She received a Bachelor of Science degree in radiologic technology from the University of Alabama in Birmingham, Master of Education from Memphis State University, Memphis, Tennessee, and has completed the requirements for the Doctor of Education from the University of Florida, Gainesville.

Mrs. Edwards' professional career includes four years as a clinical Radiographer and ten years as an instructor in Radiologic Sciences. In 1972, she accepted a position as Instructor at the University of Tennessee, Center for the Health Sciences. In 1975, as an Assistant Professor and Director, she developed an Associate of Science program at Brevard Community College. Since 1976, she has been employed as Assistant Professor and Director of the Radiologic Sciences Program, College of Health at the University of Central Florida. In addition to her duties as Director of Radiologic Sciences, she has developed the consumer health curriculum for the College. She received tenure in the College of Health in 1981.
She has served professionally as the education counselor for Florida for the American Society of Radiologic Technologists and has been selected to serve on numerous national committees including the Education Committee. In 1980, she was elected to serve as Vice President for the Florida Society of Radiologic Technologists and in 1981 as President of the Central Florida Society of Radiologic Technologists. She has served on numerous committees on the state, regional and national level. She is active as an accreditation site surveyor for the Joint Review Committee on Education in Radiologic Technology.

Mrs. Edwards has co-authored a chapter in a textbook and has written a curriculum guide as well as published articles in the field of radiologic technology. She has presented 36 papers and workshops at state, regional and local meetings in radiologic technology and allied health.

In 1979 and 1980, she was the recipient of the College of Health Excellence in Teaching, University of Central Florida Foundations Award. Additionally, she is a candidate for Fellow in the American Society of Radiologic Technology.

Mrs. Edwards resides in Maitland, Florida, with her husband, Roy Edwards. She is active in her church and health screening clinics in the community.
I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Education.

Arthur J. Lewis, Chairman
Professor of Instructional Leadership and Support

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Education.

Charles D. Dziuban
Professor of Instructional Leadership and Support

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Education.

William D. Hedges
Professor of Instructional Leadership and Support

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Education.

Linda E. Moody
Associate Professor of Physical Education, Health and Recreation
I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Education.

Arthur H. Olson
Associate Professor of Instructional Leadership and Support

This dissertation was submitted to the Graduate Faculty of the Division of Curriculum and Instruction in the College of Education and to the Graduate Council, and was accepted as partial fulfillment of the requirements for the degree of Doctor of Education.

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Dean for Graduate Studies and Research