

AN ABSTRACT OF THE THESIS OF

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Title: Impact of a Human Sexuality Course on University Students'

Knowledge, Attitudes, and Acceptability of Sexual Behaviors

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The purpose of this research was two-fold: (1) to assess the effectiveness of the Sexual Attitude Inventory for measuring sexual attitudes and (2) to assess the impact of a university human sexuality course on students' knowledge, attitudes, and acceptance of certain sexual behaviors for self and for others. The relationship between these changes and the variables sex and college class was analyzed. Analysis of variance and t-tests were used to test the hypotheses.

The instruments used included the Sex Knowledge Inventory (SKI) and the Sexual Attitude Inventory (SAI). The SAI, developed by the investigator using the semantic differential technique, consisted of fourteen sexual concepts, each of which were rated

by the subjects on a minimum of thirteen seven-point bipolar adjective scales.

The "before-after" experimental design with two control groups" was employed. The 338 subjects were nearly equally divided between the three groups by stratified random sampling. A fourth group consisted of 66 students who had not sought admission to the course.

The Sexual Attitude Inventory proved to be an effective instrument. It was found to be reliable, valid, flexible, and relatively easy to administer and score. Furthermore, the same set of bipolar scales may be used to measure attitudes toward a wide variety of sexual concepts.

Analysis of pretest responses revealed that students who had registered for the course held attitudes significantly different from those who did not seek admission. However, because this latter group of students was not randomly selected from the university undergraduate population, caution must be exercised in the interpretation of this finding.

Students enrolled in the course increased significantly in their knowledge about sex; however, the pretest may have elevated posttest responses. These students also became significantly more favorable in their attitudes toward eleven of the fourteen sexual concepts on the SAI.

In general, an increase in favorable attitudes did not result in increased acceptance of sexual behaviors for self. On

fourteen of the Acceptance of Sexual Behavior for Self Scales, significant changes were recorded on only two of the scales: masturbation for females and infant playing with his/her genitals. Thus, the assertion that sex education courses have a potentially negative effect on sexual behavior was not supported by this study. Students, however, became significantly more accepting of the sexual behavior of others. Of the eleven Acceptability of Sexual Behavior for Others Scales, significant changes in a favorable direction were recorded for seven scales. Evidence suggested minimal pretest effect.

There were no significant differential reactions to course material by sex. On the pretest, however, males were significantly more favorable than females toward the sexual concepts and behaviors for self and for others related to premarital sex and abortion. Females held more favorable attitudes toward virginity for both males and females. These sex differences remained at the conclusion of the course.

The analyses by class revealed no significant trends. In general, the higher the college class, the more knowledgeable students were about sex, the more favorable were their attitudes, and the more accepting they were toward the sexual behaviors for self and for others. Change in sexual attitudes was not significantly related to college class.

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Impact of a Human Sexuality Course on
University Students' Knowledge,
Attitudes, and Acceptability of Sexual Behaviors

by

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IMPACT OF A HUMAN SEXUALITY COURSE ON UNIVERSITY STUDENTS' KNOWLEDGE, ATTITUDES, AND ACCEPTABILITY OF SEXUAL BEHAVIORS

CHAPTER I

INTRODUCTION

The introduction of sex education into the public schools represented a very significant development in the field of education during the decade beginning with 1960. Although the sex education movement in the United States can be traced back to 1905 when Dr. Prince A. Morrow founded the American Society of Sanitary and Moral Prophylaxis (Bernard, 1973), it is only within the last fifteen years that public schools have become a primary agent for providing this segment of education.

By 1965, almost fifty percent of the public schools had added some aspects of sex education to their curricula (Kelley, 1974); however, the subject matter appeared in a variety of courses with different degrees of emphasis and integration. For example, in some schools sex information was integrated into existing courses such as biology, health, and family life, while in others, single courses were organized to focus on the biological, psychological, and/or social aspects of sexual behavior. The development of these programs was listed as one of the "Top Ten" educational events in 1967 (Brodinsky, 1968).

Surveys during that period indicated that the majority of parents supported sex education in the schools (Reiss, 1971); nevertheless, controversy developed. For example, by 1970 legislation had been

introduced in at least nineteen states to curtail or abolish sex education courses and active opposition was evident in forty-one states (Fulton, 1970). Many topics received attention as the controversy grew; however, the major issue which evolved was the question of the impact of sex education courses on the sexual attitudes and behavior of participants (Baker, 1969; Bjork, 1969; Fulton, 1970; Haims, 1973; Juhasz, 1971; Oberteuffer et. al., 1972; Weichman and Ellis, 1969).

As one would expect, numerous claims were voiced by both opponents and proponents. Opponents argued that sex education programs had a negative influence on individuals by stimulating sexual experimentation. Unfavorable statistics, such as increases in unwed mothers, venereal disease, early marriages, divorce rates, and sexual permissiveness, were attributed to existing courses. On the other hand, proponents contended that such statistics were the result of inadequate sex education, and therefore supported the need for such programs. They believed the courses contributed to the development of healthy attitudes and behavior toward sex.

In retrospect, it appears that the impact of these programs was often grossly exaggerated and in most instances, the "facts" presented were not documented by research findings. To make matters worse, many educators tended to rely solely on personal judgements for justification of their programs. However, as the controversy spread, school administrators and instructors were pressured to provide research based support for their programs and eventually, evaluative research was implemented.

In the late 1960's, Diamond (1968) asserted that the effects of sex education had not been assessed. Although this statement was not completely accurate, and while additional research has since been conducted, it is true that comprehensive assessments of the outcomes of sex education courses have been limited (Cornacchia, 1971; Haims, 1973; Kirkendall and Miles, 1968; Juhasz, 1971; Youngs, 1970).

The stated goals of most sex education courses are (1) the acquisition of knowledge, (2) the development of favorable attitudes toward sex, and (3) the development of appropriate sexual behavior patterns (Bennet, Taylor, and Ford, 1969; Bernard, 1973; Coates, 1970; Dearth, 1972; Hurster, 1968; Johnson, 1967; Kilander, 1972; Oberteuffer, et. al., 1971; Renshaw, 1973; Youngs, 1970). However, very few studies have concentrated on measuring the degree to which these goals have been achieved. Rather, evaluations have focused primarily on the adequacy of teacher preparation (Carrera, 1972; Gendel and Green, 1971; Juhasz, 1970; Malfetti and Rubin, 1968; Shimmel, 1973); the subjective responses of students, instructors, school administrators and parents toward the programs (Gendel and Green, 1971; Herold, 1973; Juhasz, 1971; Maxwell, 1969; Nations Schools, 1966; Reed, 1973; Youngs, 1970); and knowledge assessment (Haims, 1973).

The body of existing research is not only limited, but also can be questioned on methodological grounds, particularly research focused upon attitudinal and behavioral changes. The methodological problems include: (1) the use of subjective evaluation techniques alone, (2) the lack of control groups, and (3) the possibility of

instructor-researcher bias. Although objective evaluation techniques have been employed in assessing gains in sexual knowledge, the most common methodology used in measuring the impact of sex education courses on the attitudes and behavior of individuals has been subjective techniques. These include interviews, surveys, or observations by participants and/or staff (Haims, 1973).

This reliance on subjective evaluation has been primarily the result of two factors: (1) sex education courses generally were not open to outside observation and evaluation (Sommerville, 1971), and (2) standardized and refined measurement instruments were lacking (Burlison, 1973; Calderone, 1968; Haims, 1973; Williams, 1969). In addition, the validity of such subjective evaluations has been questioned by a number of researchers (Bee, 1952; Haims, 1973; Kerckhoff, 1960; Kilander, 1970; Landis, 1960).

Control groups generally have not been employed in the research; for example, prior to 1972 only three studies could be found in the literature in which they were utilized (Coates, 1970; Hoch, 1971; Gravatt and Olson, 1968). Without such groups, it is difficult to arrive at valid conclusions regarding the impact of a sex education course on participants. Accurate interpretation of results is precluded because if subjects show a significant increase on the post-test measures, it is not known whether the changes were due to the treatment to which they were subjected, to practice effect from having taken a pretest, or to pretest-treatment interaction (Kerlinger, 1973; Selltiz et. al., 1959). Control for the possibility

of pretest sensitization was not evident in any of the studies which employed control groups and thus, this remains a major research question.

Instructor-researcher bias may have operated in all of the studies since the research was conducted by the same individuals involved in course instruction. The reliability of such studies has been questioned on the basis of the vested interest instructors have in their own programs (Kerckhoff, 1960).

Additional pressures presently being placed on schools further necessitate comprehensive evaluation of sex education courses. Two primary pressures are (1) course accountability and (2) limited funding. The need for evaluation is emphasized in the following statement.

... current demands upon schools for accountability in terms of educational product make the planning and implementing of such (evaluation) procedures a more critical problem for the 1970's and beyond than ever before (Oberteuffer et. al., 1971, p. 162).

Burleson further supported the need for demonstrating accountability by stating that

If the field (sex education) is to become established as a regular part of the curriculum, then we must accept the challenge of accountability for what we are doing, with accountability being in terms of what we can reasonably accomplish in an educational setting (Burleson, 1973, p. 2).

Evidence suggests that in the future the development, expansion, and retention of curriculum offerings may be largely based on available funding (Amdur, Nichols, Borato, and Shay, 1974). Consequently,

because of limited funds, the commitment of resources to sex education may be dependent upon demonstrating that such courses have positive impact on participants. For example, O'Rourke and Conley stated that the results of program evaluations may

... be used as an effective argument for the expansion of offerings, or on the other side of the coin, for the retention of current offerings in these days of budget squeezes (O'Rourke and Conley, 1974, p. 237).

However, as noted earlier, the field of sex education lacks well-developed instruments for conducting the necessary evaluative research to provide the data base needed for substantive arguments for obtaining funds.

In general, a review of the literature indicates a need for further research on sex education courses, particularly research which focuses on the generally stated goals of sex education and which couples objective measurement with more encompassing research design. With the increase in sex education courses across the country and limited funding, educators must secure objective information concerning the influence of such programs on not only the knowledge of students, but also on their attitudes and behavior. According to Reiss

Within the next decade the majority of our public schools will in all likelihood have some form of sex education program. Whether this change in our public school curriculum will be the solution to existing problems in the area of sex or whether it will create more problems is a vital question (Reiss, 1967).

Purpose of the Study

From the general desire to increase both the quality and the quantity of evaluations of sex education courses, two major purposes evolved for this study. The first was dictated by the dearth of adequate instrumentation and was concerned with the construction of a measure of attitudes toward human sexuality. The development of this instrument, called the Sexual Attitude Inventory, was guided by the professional needs deduced from the review of existing literature: a reliable instrument, applicable to a broad range of sexual concepts, and simple to administer.

The second purpose was to determine the impact of a specific university human sexuality course on students' sexual knowledge, attitudes, and acceptance of certain sexual behaviors for self and for others. Inherent in this purpose was the need to overcome some serious design limitations in earlier studies which precluded control of possible pretest effects and instructor-researcher bias.

The major dependent variables in the study were measured as follows: knowledge, with the Sex Knowledge Inventory (SKI) developed by McHugh (1968); attitudes, with the Sexual Attitude Inventory (SAI) developed specifically for this study using Osgood's Semantic Differential technique (Osgood, Suci, and Tannenbaum, 1971); and acceptability of sexual behaviors, with additional scales included in the SAI. In addition, a background data sheet was used to obtain relevant demographic data for all subjects.

Hypotheses

Four hypotheses were generated for this study and each was tested with respect to college class (e.g., freshman, sophomore, junior, and senior) and sex of subjects:

Hypothesis I: Participation in a university human sexuality course will have no significant effect on students' knowledge about sex.

Hypothesis II: Participation in a university human sexuality course will have no significant effect on students' attitudes toward sex.

Hypothesis III: Participation in a university human sexuality course will have no significant effect on students' acceptance of sexual behaviors for self.

Hypothesis IV: Participation in a university human sexuality course will have no significant effect on students' acceptance of sexual behaviors for others.

CHAPTER II

LITERATURE REVIEW

Historical Background and Current Concerns

Beginning in 1960, the public schools became a focal point for providing information on marriage, family life, and human sexuality. This resulted in nationwide attention which centered principally on the increased emphasis of sex-related subject matter in the curriculum. Although there was controversy regarding such an emphasis, many parents and professionals supported the inclusion of human sexuality as an area of study. They cited many of the following reasons in support of sex education: (1) the sex information many young persons received was inaccurate and obtained from peers, (2) the lack of accurate information was more harmful than factual information, (3) many parents were either uneducated about basic physiology or were too embarrassed to teach their children the "facts of life", and (4) statistics indicated that the rates of teenage pregnancy and venereal disease were increasing (Haims, 1973).

Other adults opposed sex education in the public school curriculum and pressured administrators to abolish existing courses and to curtail the development of new programs. Numerous reasons can be cited for this opposition. Some persons felt that the increased emphasis on sex education was a communist plot aimed at corrupting youth and would eventually lead to a breakdown of family bonds and control. Others felt that sex education was a family's responsibility rather

than that of the educational system (Page, 1969; Gendel, 1970). But the greatest fear seemed to be that such courses would have a negative impact on sexual behavior. Opponents voiced concern that there would be increased sexual experimentation, permissiveness, and higher incidences of unwed pregnancy, early marriage, and venereal disease among young persons (Burlison, 1972; Youngs, 1970). According to Weichman and Ellis

The effect of sex education on sexual behavior has been debated since early proponents attempted to include it in educational curricula. One of the oldest objections to education in human sexuality is that it would, in one way or another, lead students to "try what they had learned." The basic character of this argument has been phrased in a variety of ways, and although many of the assumptions underlying this approach are tenuous, the contentions continue to exist (Weichman and Ellis, 1969, p. 231).

Therefore, on one side of the issue persons stated that sex education would have a degenerative effect on students' attitudes and behavior toward sex, while others argued that increased knowledge would contribute to the development of healthy attitudes and behavior.

The major problem with the claims of both proponents and opponents was that they were not documented by adequate research. Administrators and instructors received increasing pressure both for and against the inclusion of sex education in the curricula (Weichman and Ellis, 1976); yet, they lacked research-based evaluation data concerning the impact of existing sex education courses on participants. In order for these professionals to make valid decisions regarding the implementation, expansion, improvement, or elimination of sex education programs, it

became apparent that more and better research was necessary (Cornacchia, 1971; Youngs, 1970).

Surprisingly, the research output to date has not changed the picture to any marked degree. For example, following a survey of the sex education literature in 1973, Bidgood (1973) reported that although there has been an abundance of articles attacking, defending, and promoting sex education, evaluative research was definitely lacking. His observations were further supported by Haims (1973) who concluded that "there has been no significant research on what the effects of sex education are." This is noteworthy when one considers that accountability has been increasingly required of those who offer such programs (Amdur, Nichols, and Borato, 1974; Burleson, 1973; Oberteuffer et. al., 1971). Burleson stated emphatically that

... we can no longer rely on rhetoric and good feelings to justify sex education. If the field is to become established as a regular part of the academic curriculum, then we must assume accountability, with accountability being defined in terms of what we can reasonably accomplish in an educational setting (Burleson, 1973, p. 2).

The review which follows is (1) an analysis of some of the problems associated with the evaluation of sex education programs and (2) a survey of the research concerned with the impact of sex education on participants, with particular focus on human sexuality courses in the university setting.

Problems in Evaluation

A number of problems that exist with the evaluation of sex

education programs have been identified. These include (1) diversity in the definition of "sex education," (2) lack of commonality in the stated goals of sex education, (3) lack of refined measuring instruments, and (4) lack of control groups in the research.

Definition of Sex Education

There has been widespread disparity in the definition of "sex education" (Bidgood, 1973; Youngs, 1973). Among both experts and lay persons there has been considerable confusion and differences of opinion regarding the "what, why, when, and how of sex education" (Wallace, 1973, p. 3). Often the term "sex education" has been used synonymously with "human reproductive information" and with "family life education." In actuality, reproductive information is only one phase of sex education, while "family life education," is a broader term under which sex education is subsumed.

Because of this lack of agreement as to what constitutes sex education, one finds tremendous diversity in the content, structure, and time dimension of courses labeled "sex education." While some programs consist of an entire course focusing on many dimensions of human sexuality, other programs consist of a unit, often brief, within a health, biology, or family life course, or a few lectures given in student living groups (Libby, 1970). Such diversity complicates the generalization of research results.

Identification and Measurement of Goals

Although the specific goals of individual courses may vary, a survey of the literature indicates that since the late 1960's there is general agreement that there are three primary goals: (1) acquisition of knowledge, (2) development of favorable attitudes or values, and (3) development of positive behavior patterns toward sex (Dearth, 1972; Haims, 1973; Kammeyer, 1968; Kilander, 1970; Kolesnik, 1970; Oberteuffer et. al., 1971; Shimmel, 1973). The following statement from the Journal of School Health curriculum guide exemplifies the goals outlined in many sex education curriculum guides.

Although the focus of this guide seems to be on subject matter, it is hoped that those using the curriculum will be aware that the creation of wholesome attitudes are the foundation of strong moral character. Many facts are quickly forgotten but the emotional responses and attitudes which accompany their learning tend to remain. It is hoped that these wholesome attitudes will have a favorable influence on and will result in desirable practices (American School Health Association, 1967, preface).

Few sex education courses, however, have been adequately evaluated in terms of these goals. Available research documents that, in most instances, evaluation has centered on the assessment of gains of knowledge almost to the exclusion of attitudes and behavior. The value and appropriateness of restricting the assessment to the cognitive area alone has been seriously questioned. Sturch (1970, p. 131) stated "... its value in the area of sex education is acutely challenged since the major dimension of the program is in the affective domain of learning." He suggested that cognitive appraisals are important only to the degree that "knowledge influences attitudes and

behavior."

Two factors have been identified as the most probable reasons for the heavy reliance on assessment of gains in knowledge as the primary justification for sex education programs (Burleson, 1973; Calderone, 1968). First, changes in knowledge are relatively easy to measure, and as a result, tests of knowledge are readily available in standardized form. In contrast, there is a lack of refined instruments to measure sexual attitudes and behavior.

A second factor was that school personnel generally felt more comfortable using informational tests rather than those which assessed attitudes or behavior (Burleson, 1973). Apparently, many felt that controversy would not develop over the measurement of knowledge; however, they often feared that criticism would result from the measurement of the sexual attitudes and behavior of students.] Certainly they would be more vulnerable to criticism in view of the measurement problems in these areas.

Instruments

The lack of reliable and standardized instruments for measuring sexual attitudes and behavior has been an obvious limiting factor in the evaluation of sex education courses. Not only has it dictated a heavy reliance on "knowledge testing," but also an almost complete reliance upon self reports of individuals involved in the programs. According to Sommerville (1971), this situation existed because most sex education courses were not open to outside observation and evaluation.

Arguments are contradictory with regard to the value and validity of self-reports. However, Landis (1948) and Rogers (1964) indicated that considerable weight should be given to such evaluations if courses are to be practical. Their contention was that students are in the best position to determine whether a course is meeting their needs. Schulz and Williams further supported the value of self reports:

The subjective evaluations will reflect the professional and personal competency of the teachers, the suitability of the tests and other materials used, the adequacy of the teaching methods, and the suitability of the curriculum in terms of the needs of the students (Schulz and Williams, 1969).

Nevertheless, there are problems in using such evaluations alone to justify the existence of a course. Kerckhoff (1960) expressed skepticism about the validity of student self-reports, and reported that students are poor estimators of change in themselves or in the class. Additionally, Juhasz (1967) found little relationship between college students' self-ratings of sex knowledge and their actual knowledge. Both males and females tended to underestimate or overestimate the extent of their knowledge about sex. Oberteuffer et. al. further cautioned the researcher against reliance on self-reports.

Self reports may be strongly biased by unconscious or conscious "bending of the truth." The respondent may report his behavior (and attitudes) in terms of what he had learned he ought to do (or as he does when he does what he ought to do); or in terms of what he thinks you would like him to say he does. Conversely, he may take certain delight in saying he does certain things for the shock value or as braggadocio although it may not be true (Oberteuffer et. al., 1971, p. 1966).

From the student's perspective, self evaluation may be difficult for one or more of the following reasons: (1) the subjective nature of the evaluation, (2) the nature of the rapport which has been established in the classroom, (3) the dependence on communication skills, (4) the persuasive influences of the instructor, and (5) the lack of insight the individual has into his knowledge, attitudes, and behavior (Bee, 1952; Kilander, 1970). Kilander (1970) stated that the assumptions underlying the use of self-reports are that rapport exists between student and instructor and that the student possesses effective communication skills and insight into self. However, he felt the validity of these assumptions is questionable.

In addition to difficulties inherent in student self reports, there are also problems with the evaluations by instructors. The reliability of their evaluations has been questioned on the basis of the vested interest instructors have in their own courses (Kerckhoff, 1960). Landis (1948) found, for example, that instructors were poor estimators of subject matter most valuable to students.

Although self-reports offer one method of evaluation, used alone they pose "problems in terms of justifying the program's inclusion in the curriculum" (Haims, 1973, p. 79). Nevertheless, prior to 1972 the most pronounced methodology used in the evaluation of sex education courses has been self reports. Objective evaluation has been restricted primarily to evidence of knowledge attainment (Haims, 1973). Therefore, the evidence strongly suggests the need for well-developed, standardized instruments to facilitate the adequate evaluation of courses in terms of their impact upon the attitudes and behavior of participants.

Lack of Control Groups

A limitation of most of the previous studies has been the lack of control groups, without which it is impossible to arrive at valid conclusions regarding the effects of a course. It is difficult to interpret the results because if a subject shows a significant change from the pretest to the posttest, it is difficult to know without control groups if the changes are due to participation in the course, some degree of "practice effect" from pretest to posttest, or to pretest-treatment interaction (Kerlinger, 1973; Selltitz, 1959).

The research is not devoid of studies utilizing control groups; however, their use has been quite limited. With the exception of three studies (Coates, 1970; Hoch, 1971; Gravatt and Olson, 1968), control groups were not employed. Even in studies in which control groups were used, the investigators did not control for possible practice effects. A number of researchers have expressed concern about the effects of pretesting on attitude change, particularly where the material has personal relevance for the subjects (Wallace, 1970). Since the area of sexuality has such personal relevance, consideration should be given to the possible effects of a pretest when using a pretest-posttest design to measure the sexual knowledge, attitudes, and behaviors of students.

Evaluation Studies of Sex Education Programs

As discussed earlier, the three primary goals of sex education are (1) acquisition of knowledge, (2) development of favorable attitudes, and (3) development of appropriate behavior patterns. The sections

which follow focus on each of the three goals in turn. Within each section the same format is repeated: general assessment of studies related to the goal, research at the elementary/high school levels, research at the university level, and finally a summary which is a critical evaluation of this research including limitations of the studies and the need for further research.

Acquisition of Knowledge

A number of studies have been conducted to determine the success of sex education courses in imparting information about sex and counteracting misinformation. A clear majority of these studies have focused on changes in sex knowledge as opposed to changes in either attitudes or behavior. Overall, these studies are consistent in their documentation that factual knowledge about sex increases for program participants. For example, following a review of more than eighty studies which reported on the effectiveness of family life courses, DuVail (1965) concluded that generalized gains in sex knowledge result from participation in such courses.

It is interesting to note, however, that some individuals have questioned the emphasis placed on assessing gains in knowledge about sex. They suggest that evaluation studies which focus on acquisition of knowledge would be more useful if they "provided better guidelines about the grade placement of subject matter and better knowledge of conceptual development (of the student)." This would provide a basis for including sexual information in the curriculum at the most appropriate grade levels (Burlison, 1973, p. 10).

There are a number of studies which have assessed the changes in sexual knowledge of students at the elementary and high school levels following their participation in sex education program. In addition, researchers have evaluated sexuality units in university courses such as biology, health, and family life. However, prior to 1972, no studies could be found which focused on gains in knowledge following exposure to a formal university sex education course. To add perspective to the present study, research at all grade levels will be critically reviewed.

Elementary/High School Courses

The present literature review revealed only three studies which focused on changes in the level of knowledge of students in elementary and high school sex education programs (Coates, 1970; Hoch, 1971; Wallace, 1970). In one study, Coates (1970) administered the MARIFAK, a 70-item multiple choice instrument to 318 students "consisting of five randomly intact fifth and sixth grade classes with analogous control groups." A comparison of the experimental and control groups revealed that students enrolled in the sex education classes exhibited significant increases in their knowledge about human reproduction.

The other studies (Wallace, 1970; Hoch, 1970) were very similar in that they assessed the impact of human sexuality units in biology classes on the sex knowledge acquired by the students. The experimental groups in both studies showed significant increases in knowledge about human sexuality. Control groups were employed by both investigators; however, neither research addressed the problem of

the possible influence of pretesting on posttest responses. In addition, the problem of teacher-researcher bias may have operated in both of these studies since both researchers taught the courses they were studying.

University Courses

It appears that prior to 1972, studies of sex education courses at the university level focused on units of human sexuality in biology, health, and family life courses rather than on courses designed specifically to focus on the broader concepts of human sexuality.

Studies by Perkins (1959) and Bardis (1963) were concerned with the evaluation of units on sexuality in a biology course and a family sociology class respectively. Using McHugh's Sex Knowledge Inventory, both Perkins and Bardis found significant gains in the sex knowledge of the university students. A limitation of Perkins' study was that no control groups were employed; and while a control group was utilized in the study by Bardis, he did not control for the possible effects of students having taken a pretest. Both investigators were instructors in the courses they evaluated; thus, teacher-researcher bias could have operated.

Another academic area in which sex education is commonly offered is health. Shaw (1972) assessed the changes in knowledge of university students enrolled in a general health course toward ten health issues, five of which were related to sexual behavior. These were: premarital sexual relations, contraception, abortion, sexual deviance, and venereal

disease. The questionnaire consisted of 50 factual questions, five questions on each of the ten selected topics. Each question had five possible answers, one of which was "do not know." Only correct responses were used to determine level of knowledge. The increase in knowledge about sexual health issues following course instruction was significant ($p < 0.05$), but according to Shaw, the knowledge level remained relatively low; the average number of correct responses on the posttest was 28 out of a possible 50. The investigator concluded that this was probably because "at no time during the course were the specific questions being used to test knowledge levels presented directly to the class" (Shaw, 1972, p. 54). However, if the questions had been presented to the class during course instruction, the validity of the questionnaire as an objective measure of course effectiveness could be challenged. Because the completion of the questionnaires was voluntary, and only 48 percent of the 120 students completed the pretests and posttests, the results may not be representative of the students in the class. There is some evidence to suggest that students who volunteer to participate in studies involving the measurement of sexual knowledge, attitudes, and/or behavior, may differ significantly from individuals who choose to participate (Baumann, 1973).

The largest study to investigate the impact of family life/sex education units in university health courses was conducted by Hurster (1968; 1970). Of the thirty-eight universities throughout the United States who agreed to participate in the study, only eighteen returned completed pretests. Of these eighteen, thirteen

returned posttests. This provided a total of seven hundred ten students (285 males, 425 females) who participated in the study. They were administered a knowledge inventory consisting of 68 multiple choice questions, at the beginning and conclusion of the family life/sex education units.

Results showed that females scored higher on the knowledge test than males on both the pretest and posttest; however, the difference between the scores of males and females was not significant. When asked about the relative importance of the information presented in the test, a larger proportion of women than men considered the items to be important. As students progressed through college, they tended to regard the information as more important. Significant differences were observed between the freshmen and juniors and the sophomores and juniors.

The change in knowledge scores was not consistent across universities. While some samples increased significantly in their knowledge about sex, others did not change significantly. A few samples even regressed in their knowledge.

Hurster (1970) suggested that these differential findings could have been due to any number of factors: differences in interest in sex education by teachers and students, variations in quality or style of teaching and course structure, and/or time devoted to the family life/sex education units. Again, there were no control groups in this study to which the results of the experimental groups could be compared.

In a much smaller study, Maxwell (1972) reported the impact of a series of four seminars on human sexuality (petting, coitus, masturbation, venereal disease and problematic sexual behavior, and abortion and

sterilization) presented to 25 freshmen girls living in a university residence hall. A knowledge questionnaire consisting of twelve items related to the subject matter was administered at the beginning and conclusion of the seminars. Increases in correct responses were reported on every item on the posttest. The results should be assessed cautiously because of a number of problems present in this research study including: lack of tests of significance, relatively small sample size (19 girls completed both the pre and posttests), lack of control groups, and teacher-researcher bias (the evaluation was conducted by the four persons who conducted the seminars).

Summary

In summary, these studies suggest that participation in a sex education program, even if limited in scope, can increase the generalized sex knowledge of participants. However, one or more methodological problems were present in each of the studies reviewed and, therefore, the interpretation of the results is limited. These problems included (1) lack of control groups to assess changes which might be attributed to pretesting, the educational program, and/or pretest-treatment interaction, (2) the introduction of instructor-researcher bias, and (3) the limited content; many courses covered only sub-areas within the general field of human sexuality. Also, with the exception of the study by Hurster (1970), the researchers did not investigate the possible differential impact of sex education courses on different participants; for example male versus female or freshmen versus seniors. The present study attempts to further

the research on knowledge acquisition resulting from course participation by reducing or eliminating the problems which have been addressed. Since this study focuses on only one ten-week course, it does not consider the effect of different course time dimensions on the knowledge attainment of students. However, it does provide evidence concerning the impact of a comprehensive university sex education course on students' knowledge about sex.

Impact of Sex Education on Attitudes Toward Sex

It has been said that attitudes are "at the heart of good sex education programs" (Burleson, 1973; Dushan, 1974); yet, the literature reveals that research and evaluation have not reflected this position. Assessment of the degree and kinds of attitude changes are important because (1) development of favorable attitudes is generally stated as a goal of sex education (Kilander, 1970) and (2) exposure to other points of view and new learning experiences may strengthen or change an individual's attitudes (Kilander, 1970; McConnell and McGuigan, 1961; Yarrow, 1967).

Changes in the attitudes of children as a result of educational experiences are believed to occur easily because well-integrated attitudes have not been formed (Peterson and Thurstone, 1933; Kilander, 1970; Freedman, 1974). However, some researchers have questioned the potential value of educational experiences in changing the attitudes of older students. It has been suggested that attitudes of students are fairly well established by the time they reach the college years (Foster, 1968).

Gordon suggested that the fixation of attitudes may occur much earlier. He stated that

By high school, the schools have ceased to have much effect on the attitudes of the majority of students... Most of the values and behavior that relate to sex are a result, not of a presence or absence of specific information, but from the individual's own concept of self and personality (Gordon, 1974, p. 186).

Lief and Haag (1971), on the other hand, stated that college is often a time when students begin to reexamine and reevaluate their attitudes; therefore, increased knowledge and experience may result in attitudinal changes. Lief (Lief and Haag, 1971, p. 66), in speaking about sexual attitudes, stated "there are many people whose values, belief systems, and attitudes are not so deeply entrenched that they cannot be modified by information." He indicated that a number of misconceptions, doubts, and anxieties exist in the minds of college students regarding sex, and that for many, increased knowledge results in changes in their attitudes. A question then arises: do the attitudes of university students change following participation in a sex education program and if so, in what direction? Since the research on attitudinal changes related to sex education is minimal, a review of studies at all educational levels should add perspective to the purposes of the present study.

Elementary/High School Courses

Studies by Carton and Carton (1971) and Kolesnick (1970) indicated that sex education courses produce significant changes in the sexual attitudes of children. Carton and Carton (1971) found that the ten

children, ages 10 to 12, who were the subjects in their study showed significant changes in their attitudes following 18 weeks of instruction. The changes were from lesser to greater permissiveness in regard to masturbation, same sex behavior, nudity, love-making, touch-talk, and gender identity. The researchers did not assess the effect of this "greater permissiveness" on the overt sexual behavior of the children; however, they did find that it resulted in more open communication about sex between the children and their parents.

In another study at the mid-elementary level, Kolesnick (1970) investigated the attitudinal changes of 345 subjects, including fourth, fifth, and sixth grade students, their parents, and the instructional staff. Of the twelve sexual concepts studied, the fourth, fifth, and sixth grade students showed favorable changes in attitudes on eleven, nine, and eight of the concepts respectively, and significant changes on five, six, and five of these concepts respectively.

Coates (1970), on the other hand, found that increased knowledge about sex did not produce significant changes in the attitudes of upper elementary students. The only study of elementary students to employ control groups was that by Coates (1970); therefore, the results of studies focusing on attitudinal changes of elementary students following a sex education program must be interpreted cautiously. Teacher-researcher bias also may have operated in these studies.

Program evaluation at the high school level included two studies of interest, the studies by Hoch (1971) and Wallace (1970). Hoch (1971), employing a control group, assessed the impact of a ten-day sexuality unit in a high school biology class on students' attitudes.

Attitudes toward male and female permissiveness were measured by a scale developed by Reiss, while an instrument developed by Hoch and validated by a panel of experts was used to assess other attitudes toward sex. The results revealed that attitudes toward male and female permissiveness did not change significantly as a result of exposure to a unit on sexuality. The investigator cited this finding as evidence that sex education courses do not lower the moral standards of participants, a fear commonly expressed in regard to sex education courses. Attitudes toward abortion, population control, and family planning changed ($p < 0.01$) in the direction of increased liberalism. The students demonstrated a greater understanding of homosexuality and showed less hostility, hatred, and distrust of the homosexual. Furthermore, homosexuals became viewed less as criminals and more as productive and useful community members.

Utilizing Osgood's semantic differential technique and an open-ended subjective questionnaire to measure attitudes toward nine sexual concepts--genital organs, menstruation, homosexual, divorce, masturbation, pregnancy, venereal disease, prostitution, and abortion--Wallace (1970) found that significantly greater changes in sexual attitudes occurred in coeducational rather than single-sex groupings. The direction of the change was toward more liberal attitudes. Again, these studies were limited: Hoch's (1971) by the circumscribed nature of the sex education course studied and Wallace's (1970) by the fact that he did not employ control groups.

University Courses

University courses offering human sexuality information can be classified into four categories based on the type of course in which the information is presented: biology, health, marriage and family life, or human sexuality. As with other grade levels, there is a lack of studies which focus on the attitudinal component of such course units. It is particularly significant that research is lacking concerning the impact of courses designed solely for presenting information on human sexuality since there is a growing trend in universities toward the development of such courses. Only six studies conducted prior to the present study could be found which focused on determining the effects of sex education programs on the attitudes of university students. These studies were reported by Perkins (1959), Gravatt and Olson (1968), Shaw (1971; 1972), Hurster (1968; 1970), and Maxwell (1972) and will be discussed in detail.

The first study concerned with the evaluation of a sex education program in a university setting was conducted by Perkins (1959). He investigated the attitudinal changes of 138 males and 144 females enrolled in the spring and fall terms of 1956 and 1957 in a general biology class which included an eight week (four hours per week) unit on human reproduction and marital relationships. An attitude inventory, adapted from McHugh's Sex Knowledge Inventory - Form X, was administered at the beginning and conclusion of the unit to measure the attitudes of the students toward sexual activities and human reproduction. "Improvement" was reported in the attitudes of both

males and females; however, the significance, directionality, and specification of the attitudinal changes were not reported. Perkins (1959, p. 42) reported a few students who indicated "a former belief that sex was a 'dirty' aspect of life" changed in the direction of greater acceptance of sexual function as a normal and healthy activity.

Discussion of sex is often a part of university health courses. Shaw (1971) assessed the changes in university students' attitudes toward current social health issues following their participation in a health course in which class interaction was the major mode of learning. Of the sixteen subject areas comprising the course, all but one dealt with aspects of human sexuality. A questionnaire, consisting of 57 questions related to course topics, was administered to the 120 students--22 sophomores, 42 juniors, and 56 seniors--before and after course instruction. Students were assigned to one of five sections; each section was coeducational and consisted of representatives from each academic class. Results of the analyses for the total class indicated that a significant shift ($p < 0.05$) in attitude occurred on ten items. On eight of the ten items, the attitude change was toward a more liberal stance. The two additional changes were concerned more with changes in knowledge than in attitudes. Academic grade levels were also found to be more homogenous in attitude on the posttest than on the pretest. Shaw (1971, p. 277) concluded from the results that the "health attitudes of students can be changed, and further that the shift may be toward a public health orientation and toward a reduction in Calvinistic or Elizabethan philosophy."

In a subsequent study, using a before-after design, Shaw (1972) administered a health attitude instrument, consisting of three questions on each of ten topics covered in a university general health course, to 120 students enrolled in four sections of the course. Five of the ten topics related directly to sexuality--premarital sexual relations, contraception, abortion, sexual deviance, and venereal disease. Shaw reported his results in terms of percentages of students expressing agreement with various statements; however, in several instances results were reported only for the posttests, which made it impossible to assess the extent of the changes which had occurred. Significance of attitudinal changes was not reported. The one exception was changes in students' favorable responses toward therapeutic abortion. However, this change was not thought to be due to changes in attitude, but rather to students learning the meaning of "spontaneous abortion" during course instruction.

The attitudinal changes of university students participating in the family life/sex education units of required university general health courses throughout the United States were assessed by Hurster (1968; 1970). The attitude inventory consisted of students rating questions in a knowledge inventory according to how essential they felt the information was to them personally. Each question was rated on a five point scale ranging from very important to totally unimportant. Changes in attitudes occurred in the direction of increased importance; however, the changes were not statistically significant.

Education about human sexuality is often incorporated into marriage and family life courses; however, the emphasis given to this

subject unit varies. Numerous studies investigating the effects of marriage and family life courses are reported in the literature, but only a limited number have evaluated the impact of such courses on sex knowledge, attitudes, and/or behavior. After surveying more than 80 studies concerned with the effectiveness of marriage and family life courses, DuVall (1965) concluded that such courses do result in measurable changes in students' attitudes toward sex.

Gravatt and Olson (1968) measured the type and degree of attitude change of college students enrolled in a one-semester, three-hour upper division family life course. A 48-item Premarital Attitude Scale developed by the investigators was administered to an experimental group (N=97) and a control group (N=47). The control group consisted of students enrolled in a one-credit course taught in the same department. The test-retest time span was ten weeks for the experimental group, but only three weeks for the control group. In order to assess the direction of change, students' attitudes were compared with a professional standard, based on the attitudes of ten family life professionals. The attitudes of the experimental group changed significantly more than those of the control group in the direction of becoming more similar to the attitudes of the professionals.

A study by Maxwell (1972) represented the only report in the literature which evaluated a course designed specifically to focus on human sexuality. The course was an experimental, voluntary course consisting of three-hour sessions on four consecutive Mondays. The subjective ratings of 74 students along a usefulness/meaningfulness

continuum on each topical presentation revealed that students generally found the sessions to be "positive, meaningful, educational, and useful." Fifty percent of the students responded to a follow-up questionnaire one month after completion of the course. Fifty percent of these respondents indicated that their feelings and/or attitudes had changed as a result of their participation in the program; however, information regarding the specific attitudes which had changed and the direction of the changes was not reported.

Summary

In general, the results of the studies reveal that attitudes of students, regardless of grade level, tend to change in a liberal or accepting direction following participation in a sex education program. This review, however, supported Burleson's (1973) statement that the results of such studies are frequently inconclusive or statistically non-significant.

It appears relatively safe to conclude that the literature is nearly devoid of studies employing objective, rigorous research methodology. Although in part this is due to the research designs which have been employed, another important factor accounting for this situation is the lack of refined instruments.

Considering studies conducted at the university level, there are a number of limitations in the existing research which makes it difficult for one to find answers concerning the effects of university human sexuality courses on the attitudes of university students toward sex. The majority of studies reported were concerned with sexuality

units in health, biology, and family life courses, In all, only two courses in which evaluation studies have been conducted, those by Shaw (1971) and Maxwell (1972), could be labeled "human sexuality" classes. A major problem with Maxwell's (1972) study was that evaluation consisted solely of self reports. The problems with using this method of assessment alone have been discussed earlier in this chapter. In both of the studies control groups were not employed and instructor-researcher bias may have operated.

Of the other studies concerning university sex education programs, only the research by Gravatt and Olson (1968) utilized control groups. However, the investigators did not control for possible practice effect and/or sensitization of the subjects from the pretests to the posttests. The posttest measures were the same as the pretest measures and as a result, the responses on the posttests may have been influenced, in part, by having been exposed to the instrument in the pretesting. The authors stated that all items in the Premarital Attitude Scale, which was used to assess attitude changes, were purposely presented to the students during the course; consequently, their research findings are biased and, therefore, must be interpreted with caution. Also, the time frame between the administration of the pretest and posttest measures were quite different for the two groups, ten weeks for the experimental group and three weeks for the control group. This time difference alone could result in differential findings for the two groups.

The present study attempts to fill the void in the literature regarding sex education and attitude change by (1) studying attitude change as a function of a comprehensive sex education course in a

university setting, (2) developing a valid and reliable instrument which can be used to measure sexual attitudes, (3) utilizing control groups to control for potential pretest effects on posttest responses and pretest-treatment interaction, (4) specifying attitudes which change as a result of participation in a sex education course, and (5) avoidance of instructor-researcher bias.

Impact of Sex Education on Sex Behavior

A contemporary issue regarding curriculum is whether the validity of a course should be assessed by its effect on the behavior of students (Coates, 1970). However, in regard to sex education, it is commonly expected that courses will influence the behavior of participants (Kammeyer, 1968).

The hope of many persons is that sex education programs will aid in the prevention of many personal, marital, and familial difficulties which in turn will lessen the need for rehabilitation programs such as individual and conjugal therapy. Additionally, many proponents have stated that such programs could reduce the incidence of venereal disease, unwed pregnancy, and divorce. But it is unrealistic to expect courses alone to drastically change behavior and/or eliminate familial and societal problems. Education for human sexuality goes beyond classroom instruction. Rubin and Duvall have both emphasized this point.

We should be very realistic about the limits of sex education. No educator can undertake to change the moral climate of his community or to cut down the rate of illegitimacy or venereal disease. These social ills are the responsibility of society as a whole; no one agency can cure what society as a whole permits. Sex education based on this perspective is doomed to failure (Rubin, 1968, p. 18).

Realistic approaches do not expect a marriage course to eradicate divorce, eliminate illegitimacy, prevent venereal disease... Education in health and physical fitness is not insurance against illness or accident. Education in economics is no assurance of affluence. Education for marriage cannot work miracles, but it can make a difference and it does (Duvall, 1965, p. 183).

Kirkendall (1965) further cautioned against justifying sex education on the basis of anticipated behavioral changes. A complexity of factors influence sexual behavior, not exposure to a school sex education program alone (Duvall, 1965; Burleson, 1972; Rubin, 1968). Among these factors are personality, social policy, family background, individual values, peers, and interpersonal relationships (Burleson, 1973; Coates, 1970).

There are a number of difficulties involved in the assessment of behavioral changes. To adequately appraise the impact of academic coursework on behavior, measures need to be obtained not only immediately following completion of a course, but also at later dates to determine long-term as well as short-term effects (Kammeyer, 1968). Because of the expense involved in such research, it is generally prohibitive. Furthermore, from a pure research point of view, the results would be confounded by intervening variables and it would be difficult to separate the effects of these variables from the effects of the course.

Another problem with trying to establish a direct relationship between classroom instruction and sexual behavior is that "neither parents nor school administrators are particularly receptive to researchers interviewing young people about their sexual behavior" (Burleson, 1973, p. 2). In addition, it is difficult for the researcher

to be assured that an individual reports his actual behavior. Particularly in the area of sexuality, respondents may report behavior they consider to be socially acceptable rather than their true behavior. The consequence of these problems is that very little research has been done concerning the impact of sex education programs on the behavior of participants.

Only one study, that by Weichman and Ellis (1969), has attempted to assess changes in sexual behavior as a function of taking a sex education course. Students (N=545) enrolled in an undergraduate health education course at the University of Missouri were asked (1) whether they had been exposed to sex education material in some educational context from grade school through college, and (2) the extent of their present petting and coital behavior. The investigators concluded from their findings that sex education did not significantly influence premarital sexual behavior; however, methodological problems present in the study suggest caution in the interpretation of the data. A major problem with this study was that exposure to sex education was assessed only retrospectively and the assessment of the subjects' sexual behavior was rather elementary (Bernard, 1973).

There is some evidence that both decisions and activity related to sexual behavior change following involvement in a sex education program; however, even this evidence is meager. The most noted behavioral changes are increased ease, openness, and satisfaction in parent-child communication about sex (Coates, 1970; Crosby, 1971; Carton and Carton, 1971); increased confidence in making decisions

regarding one's sexual behavior (Hoch, 1971); and decreased embarrassment about expressing feelings and talking about sex with members of the opposite sex (Gravatt and Olson, 1968).

Additional support for the beneficial aspects of sex education on the behavior of participants have been offered by Bidgood (1973) and Gordon (Teenage Pregnancy, 1976). Bidgood stated that although studies have not been conducted to determine if there is a direct correlation between sex education programs and venereal disease or unwed pregnancy, "there are some indications that such programs can act to increase the rate of reporting V.D. (venereal disease) and may be effective in lowering rates of unwed pregnancy" (Bidgood, 1973, p. 11). Dr. Sol Gordon, Director of the Institute for Family Research and Education in Syracuse, New York, and Director of the Marriage and Family Counseling Program at Syracuse University, reported at a Congressional Briefing that the more knowledgeable an individual is about sexuality, the more likely he/she is apt to demonstrate responsible behavior. He further stated that "the earlier a person has sexual experience, the less they're likely to know about their own sexuality. People who tend to be knowledgeable about their sexuality have a tendency to delay their first sexual experience" (Teen Pregnancy, 1976, p. 2). Further support for the positive effects of sex education was reported by Sarrell (1967). He reported that sex education programs, when combined with counseling and other ancillary services, have been found to reduce the recidivism rate of teenage unwed pregnancy. The evidence, although limited, suggests that sexual ignorance rather than knowledge about sex is more likely to have negative effects on sexual behavior.

Summary

As previously noted, there have been few studies which have focused on the impact of sex education programs on the sexual behavior of the participants. To a large degree, this is because such assessment is difficult. However, since course objectives continue to include this behavioral component and persons are asking questions concerning the possible effects of these courses on behavior, it is important that attempts be made to determine if changes in sexual behavior do in fact occur as a result of course participation. Presently, there is not enough data available to state conclusively that courses have a positive, negative, or neutral effect on sexual behavior.

Because of the difficulties involved in the measurement of sexual behavior directly, indirect measures may be required. Several authorities have suggested that attitudes can be used as an indirect measure of behavior. Osgood et. al. (1971), for example, stated that attitudes are predispositions to respond; they are tendencies to avoid or approach a stimulus. This assumed relationship between attitudes and behavior was further discussed by Fishbein who stated:

An attitude is a predisposition to act which is built up by the integration of numerous specific responses of a similar type, but which exists as a neural "set" and when activated by a specific stimulus results in behavior that is more obviously a function of the disposition than of the acting stimulus (Fishbein, 1967, preface).

To the extent that attitudes are determinants of behavior, the present research furnishes empirical evidence that can be utilized to evaluate the potential effect of sex education on sexual behavior.

This researcher investigated the degree of change in students' acceptance of certain sexual behaviors for self. In addition, she considered if students' attitudes change significantly in their acceptance of the same sexual behaviors for others.

It must be noted, however, that some authorities have not postulated such a direct relationship between attitudes and behavior (Hartley, Hartley, and Hart, 1961; Krech, Crutchfield, and Bellachy, 1962). Krech et. al. (1962) for example, identified "action tendency" as one major component of attitude and stressed that action tendency is a form of readiness that is not always expressed as behavior. Other factors which complicate the prediction of overt behavior on the behavior of expressed attitude include (1) the internal consistency of the attitude, (2) its interconnectedness with other attitudes, and (3) the interaction of the attitude and other social variables (Hartley, Hartley, and Hart, 1961). Even while recognizing these limitations, it is apparent that the present research will increase the body of knowledge in regard to possible effects of sex education programs on the sexual behavior of participants.

Conclusions

An evaluation of the research prior to 1972 revealed that while some research had been conducted to evaluate the effectiveness of sex education programs, it was minimal. So few studies were comprehensive that one could not state with assurance that sex education programs met the goals which had been set forth by their proponents. This

posed a problem for the administrator and/or the teacher who was called upon to demonstrate accountability or who was asked such questions as "Does sex education influence behavior and attitudes positively or negatively?"

The problem inherent in previous research efforts were numerous and included (1) diversity in the definition of sex education, (2) lack of commonality in the stated goals of sex education, (3) lack of refined measurement instruments, (4) lack of control groups, and (5) instructor-researcher bias. The intent of the present study was to conduct a comprehensive evaluation of a university sex education course, focusing on the three goals of sex education--acquisition of knowledge, development of positive attitudes, and development of favorable sexual patterns. Furthermore, this study attempted to minimize or eliminate the problems present in earlier research.

Since 1972, two studies have been conducted which relate to the present problem. These studies were by Bernard (1973) and Venewitz (1974). Essentially, these studies do not change the overall picture of a need for precise evaluation of sex education which is guided by the goals of such programs. However, they do represent some significant improvements over previous research. Improvements were in terms of research design and breadth of coverage.

Of the two studies, Bernard's was the most inclusive. He utilized a Solomon four-group design which included students enrolled in a university sex education course, students who requested enrollment but were refused because of class size limitations, and students selected randomly from the university undergraduate population. The typical

pretest-experimental treatment exposure was employed. The results which are most pertinent to the present study are as follows: (1) no pretest practice effect or interaction effect could be determined, (2) the only statistically significant increase in sex knowledge was recorded for the experimental subjects; in addition, females recorded significantly higher increases than males; and (3) experimental subjects became significantly more accepting than control subjects on two attitudinal variables, homosexuality ($p < .01$) and masturbation ($p < .01$).

The study by Venewitz (1974) was conducted concurrently in the same course as the present research investigation. Of the 400 students in the course, approximately half were assigned to Venewitz's study (experimental group $N = 167$), with the remaining comprising the present research. A control group ($N = 89$) was utilized. It consisted of students who requested enrollment, but were denied admission because of course size limitations. No group was employed to control for main effects of pretesting and/or pretest treatment interaction. Significant findings related to the present research are as follows: (1) The sexual knowledge of the experimental subjects increased significantly. (2) The experimental subjects became significantly more tolerant of the sexual behavior of others. In addition, the attitudes of females changed significantly more than males; however, their initial attitudes were less liberal and therefore, there was more room for change. And, (3) in regard to sexual permissiveness, there were no significant changes.

CHAPTER III

METHODOLOGY

This study was concerned with assessing the impact of a university human sexuality course on students' sexual knowledge, attitudes toward selected aspects of human sexuality, and their acceptance of certain sexual behaviors for self and for others. In this context, knowledge was measured with the Sex Knowledge Inventory (SKI), Form X (McHugh, 1967), a generally accepted, widely utilized knowledge assessment instrument. Attitudes were assessed with the Sexual Attitude Inventory (SAI), developed by the investigator specifically for this study. The SAI is based on the semantic differential technique and in this study utilized fourteen concepts. Acceptance of selected sexual behaviors for self and for others was assessed using two scales incorporated into the SAI. In addition, a background data sheet was used to record pertinent demographic information for each subject; however, only the variables sex and college class were used for analysis in the present study. Other data collected but not analyzed included a modification of a questionnaire developed by Venewitz (1974) for use with college age subjects to measure sexual activity.

Research Design

The review of previous studies in this area revealed methodological weaknesses in relation to lack of control for "practice effects" and/or "sensitization" to the treatment, both of which

become concerns in a pre-post test design.

The research design employed in this investigation was the Solomon group design often described as the "before-after experimental design with two control groups" (Selltiz et. al., 1959).

Schematically, this design may be represented by the following:

Group E	R	Y_1	X	Y_2
Group C_I	R		X	Y_2'
Group C_{II}	R	Y_1''		Y_2''

Group E	=	the experimental group
Group C_I and C_{II}	=	control groups 1 and 2 respectively
R	=	stratified random assignment according to sex and academic class
Y_1, Y_1''	=	pre-test measurements
$Y_2, Y_2',$ and Y_2''	=	post-test measurements
X	=	experimental treatment

Subjects

A total of 338 students served as subjects for the present study and comprised three groups—Experimental, Control I, and Control II. For each of these groups, distributions of subjects by sex and college class are given in Table I; by socioeconomic class in Table II; and by major field of study in Table III.

The subjects in both the Experimental Group and Control Group I (N=216) were enrolled in the human sexuality course, while the remaining subjects (N=122) were university students who had registered for the course but were denied admission due to enrollment limitations. The 212 subjects comprising the Experimental Group and Control

TABLE I. Distribution of Subjects by Sex and College Class

	Experimental		Control Group I		Control Group II		Totals
	Male	Female	Male	Female	Male	Female	
Freshman	7	13	8	14	5	28	75
Sophomore	10	23	10	20	10	17	90
Junior	8	14	8	24	8	17	79
Senior	<u>15</u>	<u>12</u>	<u>16</u>	<u>14</u>	<u>23</u>	<u>14</u>	<u>94</u>
Total	40	62	42	72	46	76	338

TABLE II. Distribution of Subjects by Socioeconomic Status*

Social Class	Experimental Group		Control Group I		Control Group II	
	Absolute Frequency	Relative Frequency	Absolute Frequency	Relative Frequency	Absolute Frequency	Relative Frequency
I	12	12%	24	21%	22	18%
II	22	22%	20	18%	28	24%
III	40	39%	36	31%	37	30%
IV	21	20%	26	23%	29	23%
V	7	7%	8	7%	6	5%

*Based on Hollinghead two-factor index of social position

TABLE III. Distribution of Subjects by major field of study

Major field of study	Experimental Group		Control Group I		Control Group II	
	Absolute Frequency	Relative Frequency	Absolute Frequency	Relative Frequency	Absolute Frequency	Relative Frequency
Agricul.	2	2%	2	2%	3	2%
Business	25	24%	23	21%	18	18%
Educa.	12	12%	11	10%	9.8	10%
Engineer.	5	5%	1	1%	3	3%
Forestry					3	3%
Graduate						
Home Ec	13	13%	12	11%	18	15%
Humanity & Soc Sci	26	25%	40	35%	38	31%
Oceano.						
Pharmacy	2	2%	2	2%	4	3%
Science	11	9%	14	12%	15	12%
Health & P.E.	8	8%	7	6%	4	3%

Group I were selected from approximately 400 students actually enrolled in the course by a stratified random sampling technique which accommodated both sex and college class. This was done in conjunction with another investigation which was being conducted in the course at the same time (Venewitz, 1974). Of the enrolled students, 102 were assigned to the Experimental Group, again using stratified random sampling according to sex and college class. They were administered pretests and posttests. The remaining students (N=114) comprised Control Group I and were given posttests only to control for practice effects from having taken the pretest.

The 122 students who had registered for the course but were not admitted were selected by stratified random sampling from a pool of nearly 300 students. Approximately half of these students served as subjects in the present study; the remainder participated in the study by Venewitz (1974). These students comprised Control Group II. They completed both pre- and posttests measures, but were not subjected to the experimental treatment.

Educational Setting

The experimental treatment in this study was defined as participation in FL 200X, Human Sexuality, Spring Term, 1972, at Oregon State University. The objective of the course was to enable the university student to develop a better understanding of himself and others as sexual beings through studying the physical, psychological, and sociological aspects of human sexuality (Miller, 1972).

The class was held one night a week for three hours throughout the ten-week term. During the first two hours, guest lecturers with expertise in a specific area of human sexuality made presentations. Following each presentation, the students were given opportunities to write their questions on 3 x 5 cards and submit them anonymously or to ask questions from the floor.

The third hour consisted of small group discussions conducted by trained university students. Each discussion group consisted of approximately twenty students. The purpose of the discussion groups was to provide students with an opportunity to discuss their concerns and reactions to the lecture material with their fellow students and a trained peer. Sarrel and Coplin indicate that there are many advantages of this type of course structure.

Some of the most successful sex education courses have utilized student group leaders to augment the formal lectures. It has been recognized that fellow students are usually more effective at leading these groups because they do not have to maintain "professional distance" and are thus able to be more open about their own sexuality. This openness, in turn, may lead the participants to communicate feelings about their own sexuality (Sarrel and Coplin, 1971, p. 1030).

The instructor of the course met weekly with the discussion leaders for a minimum of one and one-half hours. The sessions consisted of in-depth discussion of the following week's lecture material the additional readings which they were assigned, and

the development of effective discussion techniques. The questions and concerns of the discussion leaders were also discussed. Three units of academic credit were available to the discussion leaders.

Three credits were given to students for completion of the Human Sexuality course, with grading on a pass/no pass basis. To encourage attendance, roll was taken each class session. Course assignments included required readings and a reaction paper in which the student wrote his impressions and evaluation of each lecture and discussion session, or a term paper in which the student researched in depth some aspect of human sexuality. The course outline and information sheet are Appendices A.

Instruments

Reports in the literature indicated that few standardized instruments are available to assess the degree to which the goals of sex education are accomplished: acquisition of knowledge, development of favorable attitudes toward sex, and the development of appropriate sexual behavior patterns. Furthermore, the majority of existing instruments were poorly developed (Kirkendall and Miles, 1968) and were concerned with measuring sex knowledge only and not attitudes about sex or sexual behavior (Williams, 1969). Kirkendall and Miles (1968) stated that many instruments were poorly developed because

Studies of sexual behavior and education have never been wholly respectable. Consequently, research in this area bears little status and is generally less sophisticated than that in other behavioral areas (Kirkendall and Miles, 1968, p. 528).

From 1971 to 1972, Venewitz (1974) conducted a comprehensive search for instruments which had been developed for assessment of sexual knowledge, attitudes, and behavior. In addition to a broad review of the published literature and unpublished dissertations, experts in the field were contacted. An examination of more than three dozen instruments revealed that all of these lacked reliability and validity data, with the exception of the Premarital Sexual Permissiveness Scale (Reiss, 1972) for which reliability had been established.

Two instruments were selected for use in the present study:

(1) the Sex Knowledge Inventory (SKI), Form X Revised (McHugh, 1968) and the (2) Sexual Attitude Inventory (SAI). The Sex Knowledge Inventory was selected on the basis that (1) normative data had been collected for it, (2) it had been used fairly widely in the research reported in the literature, and (3) its appropriateness for use with undergraduate university students had been established.

Because of a lack of valid and reliable instruments to measure university students' attitudes about sex, the decision was made to develop an instrument, the Sexual Attitude Inventory (SAI), specifically for this purpose. The Sexual Attitude Inventory was developed using the semantic differential technique (Osgood, Suci, and Tannenbaum, 1971). The semantic differential had been used to measure attitudes in a wide variety of research studies and had been found to be a reliable and valid instrument (Kerlinger, 1973). However, its application to the measurement of sexual attitudes

was limited. At the time the present study was conducted, a review of the literature revealed only three studies which had employed the semantic differential in the measurement of attitudes toward sex. One study involved the measurement of changes in the sexual attitudes of deviates following clinical treatment (Marks and Sartorius, 1965); the other two measured changes in the sexual attitudes of elementary students (Kolesnick, 1970) and high school students (Wallace, 1970) following their participation in a sex education unit.

Sex Knowledge Inventory

The Sex Knowledge Inventory is an 80-item multiple choice questionnaire used to assess an individual's knowledge about sex (see Appendix B). Although questions cover factual human reproduction information, the primary emphasis of the questions is on the psychology of the human sexual relationship (McHugh, 1968). According to McHugh (1968, p. 1) the focus of the Inventory is on "interpersonal relations as a true basis for sexual relations and as an integral part of the whole marriage relationship."

Twelve of the questions in the Inventory are general questions about human sexuality. The additional questions cover twelve specific areas of sexuality: sex-act techniques; the hymen; possible causes of poor sexual adjustment; sex dreams; birth control; sterilization and circumcision; menstruation; conception,

pregnancy, and childbirth; superstitions, misconceptions, and misinformation; masturbation; venereal diseases; effect of menopause on sex life.

Each question has five choices. The individual is instructed to select the "best" answer. The answers considered to be the "best" were determined by a consensus of experts in the fields of sex education and family counseling.

A word list with accompanying definitions is presented at the end of the Inventory to assist the individual in defining words which may be unfamiliar to him in the questions. The range of possible scores is from zero to 80, with one point given for each correct answer.

The Sex Knowledge Inventory has been widely employed by counselors and teachers. McHugh (1968b, preface) stated that the original inventory was "repeatedly used in counseling and teaching by more than twenty-five thousand professional men and women." Reliability and validity data have not been reported; however, normative data is available.

Semantic Differential

The semantic differential technique, originally developed by Osgood and his colleagues as part of their quantitative study of meaning, is a technique for the construction of an attitude instrument rather than a measurement instrument itself (Lemon, 1973). It is based on the hypothesis that meaning includes not only a denotative meaning, but also a connotative meaning which cannot be

readily described. The logic behind the instrument is that the behavior of an individual toward an object, situation, person, etc., is dependent on what it signifies to him. As such, the semantic differential is an attempt to subject connotative meaning to quantitative measurement. In practice, it has two primary applications: (1) as an objective measure of the semantic properties of words and concepts, and (2) as a generalized attitude scale. In this research project, the concern was with the semantic differential as a measure of attitudes.

As outlined by Isaac and Michael, a semantic differential consists of three elements:

1. the concept to be evaluated in terms of its semantic or attitudinal properties.
2. The polar adjective pair anchoring the scale.
3. A series of undefined scale positions which, for practical purposes, is not less than five or more than nine steps, with seven steps as the optimal number in the experience of Osgood, its originator (Isaac and Michael 1972, p. 102).

In brief, a semantic differential consists essentially of a number of seven point rating scales that are bipolar with the extreme ends defined by adjectives; examples might be good-bad, strong-weak, slow-fast. In setting up these scales, the location of the positive poles are randomized so as to counteract response set due to position. The respondent is given a set of such scales and his task is to rate a number of concepts on such scales, indicating both the direction and intensity of his feelings. The meaning of each scale position is outlined in the directions given the subject.

The ends of the scales represent extreme feelings; the middle is considered neutral. An example of a concept and a set of attendant scales follows (Isaac and Michael, 1972, p. 102):

School	
good _____	_____ bad
slow _____	_____ fast
large _____	_____ small
ugly _____	_____ beautiful
active _____	_____ passive
light _____	_____ heavy
clean _____	_____ dirty
weak _____	_____ strong
sharp _____	_____ dull
delicate _____	_____ rugged
dark _____	_____ bright
rounded _____	_____ angular

The ratings are converted to numerical quantities (+3 to -3 or 1 to 7). Sets of such ratings may then be subjected to factor analysis to determine the basic dimensions of meaning. However, if during the construction of the instrument scales were selected which have high factor loadings across concepts, factor analysis may not be necessary.

Through factor analyses of numerous scales and concepts, Osgood Suci, and Tannenbaum (1971) have found three principal factors which account for most of the variance in connotative meaning. These factors are: [1] Evaluative (e.g., good-bad), [2] Potency (e.g.,

strong-weak) and [3] Activity (e.g., fast-slow). However, other factors such as tautness, novelty, and receptivity may also play a part. An individual's scores on each factor is determined by averaging or summing his ratings on the scales which comprise each factor.

Stability of the evaluative-potency-activity framework has been found across concepts, cultures, and groups of subjects (Heiss, 1971; Osgood, Suci, Tannenbaum, 1971). According to research by Osgood (Osgood, Suci, and Tannenbaum, 1971), the primary dimension of meaning is the evaluative factor, which appears to account for approximately one-half to three-fourths of the variance in meaning. This evaluative dimension has been identified by Osgood as corresponding to the attitudinal component of an individual's cognitive structure. Attitude toward a concept may therefore be defined as "its projection on the evaluative factor in the total meaning space" (Osgood, Suci, and Tannenbaum, 1971, p. 190).

In developing an attitude inventory with the semantic differential, scales are used which load heavily on the evaluative component across concepts, and have negligible loading on other factors. An attitude score is derived by assigning numerals to each of the scale units and averaging or summing all evaluative scales. Often additional scales are employed in the instrument to obscure the purpose of the measurement and to provide additional information on the meaning of a concept.

Reliability

The reliability of an instrument reflects the degree to which it can be depended upon to yield similar results under similar conditions (Selltitz et. al., 1959). In general, research on the semantic differential by Osgood and his colleagues indicates it has high reliability, particularly with respect to the evaluative factor (Osgood, 1960). Test-retest correlations for individual semantic differential scales were reported by Osgood, Suci, and Tannenbaum (1971) as generally high, 0.85 and above. Jenkins, Russell, and Suci (1958) reported an average test-retest reliability of 0.97 for total scale scores for $N = 30$. Test-retest correlations obtained by Tannenbaum (1953) ranged from 0.87 to 0.93, with an average correlation of 0.91.

Evaluative scales have been found to exhibit greater stability in test-retest studies, evoking fewer shifts than other factors (Heise, 1971; Norman, 1968). For example, Osgood (Osgood, Suci, and Tannenbaum, 1971) reported research results which showed the average difference between ratings on the evaluative scales to be somewhat more than one-half of a scale unit in test-retest situations up to three months. For potency and activity scales, the average difference between test and retest ranged from 0.7 to 1.0 scale units.

In general, studies have indicated that factor scores are more reliable than single ratings (Heise, 1971; Norman, 1968). Norman (1968) found group ratings on a semantic differential to exhibit a

high degree of stability over time in the absence of any systematic intervening variable. Test-retest correlations averaged 0.97. In addition, other researchers have found group means tend to be very stable, more so than ratings by individual subjects (Heise, 1971; Divesta and Dick, 1966; Miron, 1961; Osgood, Suci, and Tannenbaum, 1971).

In his discussion of the construction and reliability of the semantic differential, Jozwiak concluded that

Since the semantic differential is a technique and each instrument is tailor-made to fit the research problem, each researcher has to ascertain the reliability of his particular instrument. However, what is evident in the literature is that the technique appears to be reliable in as much as the separate studies confirm this fact. (Jozwiak, 1964, p. 64).

In the present research, test-retest coefficients were calculated for the semantic differential. Pretest and posttests were administered five weeks apart to sixty-six students enrolled in a university sociology course. The five week interval was selected because it is reported to be an adequate time to prevent memorized responses on the initial measurement from influencing responses in the retest situation (Selltiz, 1959).

Validity

One concern in using rating scales such as those in the semantic differential is whether or not a researcher is justified in basing his calculations on the assumption of equality of intervals both within each scale and between different scales (Oppenheim, 1966). It is important to note that the semantic differential technique has

been employed in hundreds of studies and that its validity has been the subject of several studies (Osgood, Suci, and Tannenbaum, 1971; Heise, 1971). Messick (1957) concluded that the scaling properties implied by the semantic differential, i.e., that the ratings of the respondents are made on an interval scale, have a basis other than mere assumption. Osgood et. al. (1971) also offered valuable evidence on the validity of the scales.

A second concern is the ability of the semantic differential to accurately measure an individual's attitude. Heise (1971, p. 236), following a review of numerous research studies concerned with the semantic differential, stated that such investigations "support the validity of the semantic differential as a technique for attitude measurement." Attempts to validate the semantic differential as a measure of attitudes have been two-fold: (1) testing its ability to predict future behavior (predictive validity) and (2) correlating scores on the semantic differential with scores on traditional attitude scales (concurrent validity). Heise stated:

The general validity of the semantic differential for measuring attitudes is supported by the fact that it yields predicted results when it is used for this purpose and is also supported by studies which compare semantic differential measurements with attitude measurements on traditional scales (Heise, 1971, p. 246).

Studies reported by Osgood (Osgood, Suci, and Tannenbaum, 1971) and by Tittle and Hill (1967) indicate the validity of the evaluative component of the semantic differential to predict voting behavior. In addition, the inclusion of factors other than evaluative, especially potency, were found to improve prediction.

Relatively strong correlations have been obtained between scores on the evaluative dimension and scores derived from traditional attitude scales. For example, correlations of the semantic differential with Thurstone scales have ranged from 0.74 to 0.82 (Osgood, Suci, and Tannenbaum, 1971), with Guttman scales, 0.78 (Osgood, Suci, and Tannenbaum, 1971), with Likert-type scales, 0.62 (Tittle and Hill, 1967). Nickols and Shaw (1964), however, advise caution in accepting the semantic differential as equivalent to other forms of attitudinal measures.

Advantages/Disadvantages of the Semantic Differential

The more an instrument attempts to measure specific attitudes of an individual, the greater is the tendency for a person to conceal his attitude if it deviates from the norm. According to Diab (1967) this is a disadvantage of most attitude scales. The available evidence suggests that individuals may be, relatively speaking, more aware that their attitudes are being measured when Thurstone, Likert, and Guttman scales are used than with the semantic differential. Coates (1970, p. 47) stated that more indirect measures such as the semantic differential "constitute a great improvement in that there is less likelihood of bias being intentionally introduced by the subjects." Because individuals are not asked to respond to specific statements concerning their attitudes, it minimizes the conditions that prevent the subjects from responding truthfully. Insko (1967, p. 345) further recommended the use of the semantic differential

technique, stating it is "easier, more applicable, and more sophisticated than other available procedures for attitude measurement."

Hartley, Hartley and Hart (1961) stressed that one difficulty with many instruments is that they do not provide a substantive picture of attitudes. They indicated that attitudes can be analyzed on four dimensions and that the more of these dimensions an instrument can tap, the more information an investigator will obtain about an individual's attitude. The four dimensions that they identified were direction, degree, intensity, and salience. The semantic differential incorporates most of these components in its measurement of attitudes. However, if a researcher is interested in the specifics of an individual's attitude toward an issue and the reasons behind his/her attitude, the semantic differential may not provide as much information as other techniques (Cooper and McGaugh, 1963).

Construction of the Sexual Attitude Inventory

The semantic differential developed for this study, the Sexual Attitude Inventory (SAI), was constructed according to the recommendations by Osgood, Suci, and Tannenbaum (1971). Fourteen sex-related concepts were employed. The number of scales per concept varied; however, seven scales shown in numerous factor analytic studies to have high loadings on the evaluative factor were employed for each concept. A copy of the Sexual Attitude Inventory is presented as Appendix C.

Concept Selection

The fourteen concepts selected for investigation in this study were:

- A 65 year old married female engages in sexual intercourse on the average of once every twelve days.
- A 65 year old married male engages in sexual intercourse on the average of once a week.
- Premarital sexual intercourse between casual acquaintances.
- Premarital sexual intercourse between couples who have an affectionate relationship but are not engaged.
- Premarital sexual intercourse between an engaged couple.
- Masturbation as a sexual outlet for an unmarried female.
- Masturbation as a sexual outlet for an unmarried male.
- Virginity in males.
- Virginity in females.
- Abortion for an unmarried pregnant woman in the United States.
- Abortion for a married pregnant woman in the United States.
- Young infant playing with his/her genitals.
- Male homosexual
- Lesbian (female homosexual)

The concepts were selected because they seemed relevant to human sexuality, were sexual issues of the day, and/or were of special interest to the investigator. Also, there had been considerable writing on the attitudes of various groups of individuals toward these areas of sexuality; however, little or no research had been conducted which focused on the impact of a human sexuality course on such attitudes.

Scale Selection

Two basic criteria, as outlined by Heise (1971) and Oppenheim (1966), entered into scale selection: (1) the relevance of the contrasting adjective pairs to the concept, and (2) the factorial composition of the scales. In speaking about the relevancy of scales, Heise (1971, p. 238) stated that "subjects find it easier to use scales which relate meaningfully to the concepts being judged and which make distinctions that are familiar." In addition, such scales provide more sensitive measurement. The relevance of the scales selected for the present study was determined by conducting a pilot test of the instrument. Students who were enrolled in the human sexuality course the preceeding term were given the Inventory and were asked to respond to the relevancy of the scales to each concept. In addition, several graduate students and university professors in the field of family life education and/or attitude measurement provided their analyses and recommendations regarding the scales and concepts.

The second goal in the construction of a semantic differential is the selection of factorially pure scales, that is, scales which load heavily on only one dimension with minimal loading on other dimensions. Heise (1971) indicated that a problem which may arise in the selection of scales from previous studies is that they may not retain semantic stability; thus, bipolar adjectives which are suitable for one concept area may not be applicable to another concept area. For example,

... the words HOT and COLD are used connotatively in rating many concepts (like PEOPLE) but may be used denotatively in rating physical objectives. Since the scale takes on different meanings, its factorial composition may be different for the special class of objects (Heise, 1971, p. 239).

Heise (1971) also suggested that factor analysis of scales be conducted for each new concept area to determine the relevance and factorial composition of the scales. Since a review of the semantic differential literature had revealed very limited use of this technique in the area of sexuality, and in no instance had the scales been subjected to factor analysis for this concept area, it was considered appropriate to factor analyze the scales.

Because the attitudinal dimension of meaning is related to the evaluative component of the semantic space, seven scales which had been found in numerous published factor analytic studies to have generally high loadings on the evaluative factor, 0.75 or better, and negligible loadings on other factors across concepts were used for each concept. These bipolar adjectives were: good-bad, beautiful-ugly, clean-dirty, nice-awful, pleasant-unpleasant, valuable-worthless, and profane-sacred.

While there were additional bipolar adjective scales available with high loadings on the evaluative factor, they were judged not relevant to the concepts used in this study. Therefore, additional adjectives were selected from a review of the literature on sexuality. Contrasting adjectives were selected from Roget's College Thesaurus (Morehead, 1962) and A Dictionary of Synonyms and Antonyms (Devlin, 1961). The number of additional scales per concept varied.

To insure that they had high loadings on the evaluative dimension alone, all of the scales were subjected to factor analysis for each concept. In addition, the scales common to all concepts were factor analyzed across concepts. This was done to determine whether or not a set of evaluative semantic scales existed which were applicable to sexual concepts in general. The evaluative scales were identified as good-bad, beautiful-ugly, dirty-clean, nice-awful, unpleasant-pleasant, valuable-worthless, profane-sacred, and immoral-moral. The results of the factor analysis as well as reliability and validity data for the SAI are presented in the results chapter.

Format of Presentation

Each concept with its attendant scales was presented on a single sheet to minimize confusion and to facilitate keypunching and statistical analyses. The poles of the evaluative adjective pairs were randomly alternated to reduce response sets, and scales and concepts were randomly ordered. Once established, the same ordering was maintained in assembling the semantic differential.

Data Collection

Data collection within the course was facilitated by (1) the required participation of students in the research and (2) the administration of the inventories during class time. The pretest was given to the experimental group during the first meeting of the class following the introductory lecture. Members of Control Group I were excused from class since they were required to complete the

posttest only. The posttest was administered to the Experimental Group and Control Group I two weeks (one class period) before the end of the term. The posttest was given prior to the last class meeting because graduating seniors would not be present at the last class session.

For both pretests and posttests the names of the students were checked off the master class list prior to receiving the inventories. One or more chairs separated students from each other during the testing periods to insure privacy and to encourage honest responses. The Sexual Attitude Inventory was completed first by the students, followed by the Sex Knowledge Inventory.

Administration of the questionnaire to Control Group II was a much more complicated and time-consuming process. On March 28, 1972, all prospective members of Control Group II were contacted by letter asking them to participate in the research study (see Appendix D). The letter explained the limitation placed on course enrollment, provided general background information on the research, requested their participation, and stressed the value of their assistance in this research project. In addition, four days with various scheduled times as to when and where they could complete the questionnaires were outlined in the letter. To personalize the contact with students, they were also informed that they would be contacted by telephone later in the week in regard to their participation in the study. Telephone contacts were made with each student and times were arranged for them to complete the inventories.

The majority of the students did not show up at the designated times to complete the inventories. Therefore, a second call, and in several instances, a third call, was made to some students. Additional times, convenient for each student, were arranged.

Of the 148 prospective participants of Control Group II, approximately 86 percent (128 students) completed the pretests. The number of prospective subjects who did not complete the pretests and the reasons given were:

- 6 -- had been admitted to the course and were members of other research groups
- 1 -- in the hospital for surgery
- 6 -- the researcher was unable to contact
- 5 -- refused to participate in the study
- 2 -- did not show up to take the tests following three contacts

Members of Control Group II were contacted again by letter on May 15 in regard to taking posttests (see Appendix D). The letter emphasized the importance of their completing the posttests and the impact each student would have on the continuation of the course. Again, times and locations for completing the inventories were outlined. Although response to the letter was better than the initial contact with students concerning the pretest, it was still necessary to contact many individuals by telephone a second and a third time. Of the 128 subjects completing the pretests, approximately 95 percent (122 students) completed the posttests.

There were differences in the testing situation for the groups. Whereas the inventories were administered in a large group setting for the Experimental Group and Control Group I, they were given either individually or in small groups (no larger than 10) to the students

who comprised Control Group II. All the students were assured of anonymity and that their names would be removed from the questionnaires after completion. Testing time was approximately one hour.

CHAPTER IV

RESULTS

The purpose of this research was two-fold. First, the investigator attempted to assess the effectiveness of the semantic differential as a method for measuring the sexual attitudes of university students. The second major purpose was to assess the impact of a university sex education course on students' knowledge, attitudes, and acceptance of certain sexual behaviors for self and for others. In addition, the relationship between the aforementioned changes and two primary variables, sex and college class, was analyzed.

To assess students' attitudes and their acceptance of sexual behaviors, a semantic differential developed by the researcher was utilized. This instrument is called the Sexual Attitude Inventory (SAI). Changes in knowledge about sex were assessed with the Sex Knowledge Inventory (SKI).

Three-hundred thirty-eight students served as subjects for the study; 212 of these were enrolled in the course. One-hundred-two of the enrolled students were administered the test instruments at the commencement and conclusion of the course. These students comprised the Experimental Group. The remaining 114 students comprised Control Group I and were given the tests at the close of the class only; therefore, they were not subjected to a pretest.

One-hundred twenty-two subjects not enrolled in the class completed both pretests and posttests. They had registered for the

course but were not admitted because of size limitations placed on course enrollment. These students comprised Control Group II.

The following sections focus on (1) discussion of the Sexual Attitude Inventory as a measure of sexual attitudes and (2) a presentation of the results of the tests of hypotheses.

Sexual Attitude Inventory

The Sexual Attitude Inventory was developed using the semantic differential technique (Osgood, Suci, and Tannenbaum, 1971). This technique had been used quite extensively in the measurement of attitudes; however, in regard to sexual attitudes, its use had been very limited. Therefore, there were three concerns surrounding the Sexual Attitude Inventory: (1) the factor loadings of the scales, (2) its validity, and (3) its reliability. Results related to each of these concerns follow.

Factor Analysis

Factor analysis was used to determine the patterns of inter-correlation among the bipolar scales employed in the semantic differential and to isolate the dimensions accounting for the correlation patterns. Initially the fourteen concepts were individually factor analyzed utilizing seven factors. The results of this factor analysis revealed that scales common to all concepts tended to factor out along the same dimensions. Since a primary interest as this study progressed was in the development of an instrument which could be utilized to measure attitudes toward a broad range of sexual concepts,

the decision was made to conduct another factor analysis, this time across concepts. According to Dr. Robert Mason, Survey and Research Center, Oregon State University, Corvallis, Oregon, this would result in a stronger instrument for the measurement of sexual attitudes.

Ten bipolar scales were common to the fourteen concepts. These were good-bad, beautiful-ugly, dirty-clean, nice-awful, unpleasant-pleasant, valuable-worthless, profane-sacred, immoral-moral, socially acceptable-socially unacceptable, and rare-common. Previous research by Osgood et. al. (1971) had revealed the first seven scales to be highly evaluative across concepts.

A factor analysis with seven factors extracted was conducted. The results of the unrotated factor matrix is presented in Table IV.

Table IV. Unrotated Factor Analysis with Seven Factors Extracted

Bipolar Scale	Factor Loading						
	I	II	III	IV	V	VI	VII
good-bad	.91	.05	.08	.05	.17	-.06	.01
beautiful-ugly	.92	.14	-.14	.08	-.004	-.13	.04
dirty-clean	.89	.05	.01	.05	-.14	-.01	-.08
nice-awful	.93	.16	-.05	.09	-.04	-.05	.04
unpleasant-pleasant	.88	.18	-.10	.07	-.05	-.20	-.01
valuable-worthless	.85	.04	-.02	-.21	.17	.08	-.008
profane-sacred	.73	-.10	-.07	-.29	-.14	-.59	.02
immoral-moral	.84	-.16	.26	-.008	.01	-.02	-.04
socially acceptable- socially unacceptable	.52	-.45	.001	.10	-.02	.06	.12
rare-common	.41	-.34	-.02	.06	.05	-.02	-.01

A study of Table IV reveals that the first eight scales loaded high on factor I, the evaluative factor. All of these loadings were 0.73 or better. These scales are "purely" evaluative in the sense that their loadings are restricted primarily to this one factor. The last two scales loaded rather highly on factor I, but not nearly as high as the preceding eight scales. Also, these scales loaded nearly equally high on factor II. Such findings suggested that these scales should be deleted from factor I.

However, Kerlinger (1973) has stated that unrotated factor analysis is somewhat difficult to interpret because of the arbitrary nature of the factor loadings; therefore, ambiguity tends to be present in the interpretation of the factors. In order to achieve the simplest possible interpretation of the factors, a rotated factor analysis was conducted. The axes were rotated maintaining orthogonality, i.e., the axes were maintained at 90 degree angles during rotation, thus maintaining the independence of the factors.

The results of the rotated factor analysis are presented in Table V. Again, the first eight scales were found to comprise factor I, the evaluative factor. The substantial drop in factor loadings for the last two scales reinforced the decision to exclude them. Therefore, responses of subjects on the first eight scales of the SAI were used to determine the attitudes of subjects.

Table V. Rotated Factor Analysis with Seven Factors
Extracted

Bipolar Scales	Factors						
	I	II	III	IV	V	VI	VII
good-bad	.74	-.30	.38	-.16	.22	-.12	.05
beautiful-ugly	.84	-.30	.16	-.24	.03	-.12	.03
dirty-clean	.71	-.24	.45	-.25	-.01	.09	.04
nice-awful	.85	-.26	.23	-.23	-.02	-.04	.07
unpleasant-pleasant	.82	-.24	.15	-.19	-.10	.19	.09
valuable-worthless	.64	-.26	.24	-.35	.37	.02	.03
profane-sacred	.45	-.30	.20	-.55	.07	.002	.05
immoral-moral	.52	-.34	.58	-.24	.12	-.009	.09
socially acceptable- socially unacceptable	.19	-.54	.26	-.12	.03	.007	.30
rare-common	.17	-.55	.006	-.10	.04	.0002	-.04

In addition, the results of both the unrotated and rotated factor analyses supported Osgood's (1971) findings that the first seven scales utilized in this study are evaluative in nature across concepts. The results of this research indicate that these scales continue to be evaluative when applied to sexual concepts.

Content Validity

Content validity, generally described as the representativeness or sampling adequacy of the content of a measuring instrument (Kerlinger, 1973), was evaluated the term prior to conducting the present study. Items in the Sexual Attitude Inventory were evaluated by seven professionals in the field of family life and sex education, 232 students

enrolled in the human sexuality course, and 57 students not enrolled in the course. They were asked to critically examine each of the concepts and its accompanying scales for their relevance to human sexuality. The general consensus was that the content of the instrument was representative of sexual attitudes.

The responses indicated that the scales were relevant to the concepts. In total, there were only 36 out of a possible 60,000 responses in regard to scale irrelevancy. Thus, there were no consistent responses. Therefore, the decision was made to maintain the original scales for each concept. The conclusion was that the Sexual Attitude Inventory has high content validity.

Reliability

To determine reliability of the instrument, a test-retest procedure was followed. The Sexual Attitude Inventory was administered to 66 students enrolled in a sociology class at the beginning of the course and again five weeks later. According to Selltitz (1959), this time interval is long enough for the effects of the first testing to abate, and yet not long enough for a significant amount of real change in attitudes to occur.

The test statistic employed to determine reliability was the t-test for paired samples. The evaluative factor score, rather than the individual scales were used to determine the reliability of the SAI as a measure of attitudes. The scales concerned with the acceptability of certain sexual behaviors for self and for others were individually analyzed for reliability. These results, presented in

Appendix E, indicate that with the exception of two items there were no significant differences between the responses of the subjects on the pretests and posttests. These two items were Concept 12, Infant playing with his genitals, and Behavior Acceptability Item 20, Accept for others—Virginity in males. The significant difference recorded could very well be reflecting chance variation in that only these two, of a total of 39 tests, were significant. Therefore, the conclusion that the SAI is a reliable instrument, as reflected in test-retest analyses, seems justifiable.

Tests of Hypotheses

Four null hypotheses were generated for this study. The test of each hypothesis included overall comparisons as well as analyses by sex and class. Statistical tests employed included t-tests and analysis of variance. In all analyses, the .05 level of significance was selected as the criterion for statistical significance.

The results are presented in the following format: descriptive statistics related to establishing the initial equivalence of the groups including tests of significance; then the analysis of posttest data by groups; and, finally, analyses by sex and class.

Hypothesis I

Hypothesis I. Participation in a university human sexuality course will have no significant effect on students' knowledge about sex.

The Sex Knowledge Inventory (SKI) was administered to the Experimental Group and Control Group II at the beginning of the term and again at the end, whereas Control Group I was given the test only at the conclusion of the term. The mean pretest and posttest scores and standard deviations for these groups are presented in Table VI. Average pretest scores were generated mathematically for Control Group I in order to provide comparative data for the groups. This estimation was determined using procedures recommended by Selltiz (1959). Additional justification for this estimation was based on the homogeneity of the samples and the similarity of the recorded pretest average scores for the Experimental Group and Control Group II; 50.58 and 49.86 respectively.

TABLE VI. Summary of ANOVA on Pretest Scores and t-tests for Significance of Change on the Sex Knowledge Inventory

	Experimental Group		Control Group I		Control Group II	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Pretest	50.58	6.71	---		49.86	7.62
Posttest	55.21	5.60	52.32	7.39	50.40	9.06
Change (Post-Pre)	5.45	5.91			0.93	4.59
t-value	9.31***				2.24*	

Significance level: *.05, **.01, ***.001

An analysis of variance, applied to the pretest scores of the Experimental Group and Control Group II on the SKI, indicated there was no significant difference ($F=0.19$); therefore, the posttest scores could be analyzed without adjustment. The results of the analysis of

change utilizing t-tests is also presented in Table VI. The pattern of greatest to least amount of change is quite clear; however, all changes are significant.

Often, a pattern of results such as this has been used as a basis for inference in the test of hypothesis; however, the validity of inference based on change scores has been strongly challenged (Kerlinger, 1973). A question arises as to whether the difference in the Experimental Group was due to the influence of the course alone, or if the pretest had a sensitizing effect on subjects. The absence of sensitization effects is deduced when the means of the Experimental Group and Control Group I are not significantly different from each other, but yet, are significantly different from the mean of Control Group II. The tests of significance, presented in Table VII, reveal that for the Sex Knowledge Inventory, the posttest mean of the Experimental Group was significantly different from the posttest mean of Control Group II but the mean of Control Group I was not significantly different from that of Control Group II. This finding suggests that the change recorded in the Experimental Group may not be the result of the treatment alone, but that pretest influence may also be operating to elevate the posttest scores of the Experimental Group.

TABLE VII. Comparison of Experimental and Control Group Responses on the Posttest of the Sex Knowledge Inventory

Groups	t-value
Experimental and Control II	4.78***
Experimental and Control I	3.04***
Control I and Control II	-1.76
Significance level: ***.01	

The change in Control Group II of 0.93 points is the best estimate of the probable effects of the pretest; therefore, the average change score of the Experimental Group due to the treatment is adjusted downward to approximately four and one-half points. Additionally, since the best estimate of the pure effects of the treatment is obtained in Control Group I (average change estimated at 2.10 points), indications are that the pretest with the SKI may have sensitized students to elements of the course and thereby, inflated posttest scores.

The extent of this "sensitization" or interaction can be estimated by the formula $I = d - (d' + d'')$, where I is interaction and d, d' and d'' are the change scores in the Experimental, Control Group I, and Control Group II respectively.

Analysis by Sex

The Sex Knowledge Inventory data was further analyzed by sex and by class. The results of the analysis by sex are presented in Table VIII.

TABLE VIII. Analysis of Change Scores on the Sex Knowledge Inventory by Sex of Subjects

	<u>Pretest</u>		<u>Posttest</u>		<u>Difference</u>		<u>Difference</u>
	Mean	S.D.	Mean	S.D.	Mean	S.D.	t-value
<u>Experimental Group</u>							
Males (N = 40)	49.90	7.53	55.70	6.78	5.80	4.30	8.53***
Females (N = 62)	50.49	6.17	54.90	5.46	5.23	6.78	6.07***
<u>Control Group I</u>							
Males (N = 42)	---		49.83	9.06	---		---
Females (N = 72)	---		53.78	6.85	---		---
<u>Control Group II</u>							
Males (N = 46)	50.70	6.78	51.09	8/78	0.39	3.61	.74
Females (N = 75)	49.35	8.35	49.96	9.20	1.26	5.08	2.14*

Significance level: *.05, **.01, ***.001

An analysis of variance was performed comparing males and females of the Experimental Group and Control Group II on their pretest performance. There were no significant group x sex interactions. The F-value for the main effect by sex ($F = .21$) was not significant, which indicated equivalence of the responses of males and females. As the results in Table VIII indicate, both sexes in the Experimental Group improved significantly in their knowledge about sex. In Control Group II, females also increased significantly in their knowledge about sex; however, males did not.

In the Experimental Group, the amount of change recorded for males compared to that recorded for females was not significant ($t = .52$). This finding suggests there was not a differential reaction by sex to the course material.

Analysis by Academic Class

The results of the analysis by academic class are presented in Table IX. The analysis of variance comparing the four classes—freshman, sophomore, junior, and senior—on the pretest yielded an F-value of 4.389, which was significant at the .01 level of significance. An inspection of the pretest means indicated that, in general, academic class was associated with higher knowledge about sex.

To assess if the change which occurred in each academic class from pretesting to posttesting was significantly different from the change which occurred in other classes, t-tests were conducted. The results revealed that the change in knowledge for any one

class was not significantly different from the change which occurred in any other class. Thus, although knowledge about sex was significantly related to class, gains in sexual knowledge, were not.

TABLE IX. Analysis of Change Scores on Sex Knowledge Inventory by Academic Class of Subjects

	<u>Pretest</u>		<u>Posttest</u>		<u>Difference</u>		<u>Difference</u>
	Mean	S.D.	Mean	S.D.	Mean	S.D.	t-value
<u>Experimental Group</u>							
Freshmen (N = 20)	48.55	5.97	53.40	5.87	4.85	4.26	5.09***
Sophomore (N = 32)	50.16	6.79	55.66	5.10	5.50	3.92	7.94***
Juniors (N = 22)	49.91	6.67	54.68	5.80	4.77	4.58	4.89***
Seniors (N = 27)	51.93	7.15	56.74	6.99	4.81	4.09	6.12***
<u>Control Group I</u>							
Freshmen (N = 22)	----		50.82	10.60	----		----
Sophomores (N = 29)	----		51.66	6.49	----		----
Juniors (N = 32)	----		51.34	6.73	----		----
Seniors (N = 30)	----		54.73	8.11	----		----
<u>Control Group II</u>							
Freshmen (N = 32)	47.56	8.86	48.94	10.70	1.38	4.49	1.73
Sophomores (N = 27)	47.25	7.96	48.26	8.80	1.00	3.76	1.38
Juniors (N = 25)	51.67	6.86	51.79	8.71	0.12	3.93	0.16
Seniors (N = 37)	52.59	6.24	52.84	6.90	0.24	2.66	0.56

Significance level:

- *.05
- ** .01
- ***.001

Hypothesis II

Hypothesis II: Participation in a university human sexuality course will have no significant effect on students' attitudes toward sex.

The question of equivalence of groups—Experimental Group, Control Group II, and Sociology Group—at the time of pretesting was addressed by using a Least Significant Difference (LSD) test. This analysis computes a standard test for significance of difference and provides information on those tests by forming "subsets" of groups with similar mean values and isolating those groups which are significantly different. A summary of the subsets generated and the mean values of the groups on each of the fourteen concepts is presented in Table X.

The information of prime concern, with respect to equality can be found from the groupings in Subset I. The Experimental Group and Control Group II clustered together for thirteen of the fourteen concepts, indicating that there were no differences in their attitudes regarding these concepts. Only on one concept, premarital sex for a couple with an affectionate relationship, did the two groups differ significantly. This was also the only concept on which the three groups split into three distinct subsets, which indicates a much greater diversity of opinion than that for any of the other concepts.

The placement of the Sociology Group produced an interesting pattern. On six concepts the attitude of the Sociology Group were similar to the other two groups, while on seven others their attitudes were significantly different.

In addition to subset placements of the groups, the results in Table X can also be viewed in relation to the absolute mean values of the various research groups.

TABLE X. Subsets Formed from the Least Significant Difference Analysis of Pretest Scores on the Sex Attitude Inventory

Concept	<u>Subset I</u>			<u>Subset II</u>			<u>Subsett III</u>		
	Exp. Grp	Con II	Soc.	Exp Grp.	Con II	Soc	Exp Grp.	Con II	Soc.
	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean
1 Elderly female	17.14	17.10	18.18						
2 Premarital sex, casual acquaint.	33.12	33.97	35.17						
3 Abortion, unmarried	27.32	28.26				33.05			
4 Masturbation, male	25.25	24.28				28.71			
5 Elderly male	16.33	16.92	18.12						
6 Virginity, female	23.08	21.57			21.57	18.79			
7 Abortion, unmarried	27.29	27.84				35.28			
8 Premarital sex, engaged couple	16.15	18.38				23.38			
9 Premarital sex, affectionate relationship	20.68				23.86				28.83
10 Masturbation, female	27.65	27.27	30.05						
11 Virginity, male	28.74	28.57				25.16			
12 Infant handling genitals	26.09	26.30	28.53						
13 Male homosexual	38.29	37.54				41.59			
14 Female homosexual	38.49	38.17	40.89						

Keeping in mind that higher scores reflect less favorable attitudes toward a concept, Table X shows that the means of the Sociology Group were higher on twelve of the concepts, reaching significance on eight when compared to the Experimental Group, and seven when compared to Control Group II. The Sociology Group, held more favorable attitudes toward only two of the fourteen concepts: Concept 6, Virginity for females; and Concept 11, Virginity for males. Thus, the results indicated that the pretest scores of the Experimental Group and Control Group II were highly comparable, but the pretest scores of the Sociology Group were significantly different from those of the Experimental Group and Control Group II.

Since there were no significant differences between the Experimental Group and Control Group II on the pretests, with the exception of Concept 9, the posttest data were analyzed without adjustment. Posttest performance of the Experimental Group and Control Group II were then analyzed to ascertain if the attitudes of the students enrolled in the human sexuality course were significantly different from those of the students not enrolled in the class. The results are presented in Table XI. Eleven of the fourteen t-values generated were significant, and in every case the students involved in the course expressed more favorable attitudes. There were no significant differences in the means of the two groups for Concept 2, Premarital sex between casual acquaintances; Concept 6, Virginity for females; and Concept 11, Virginity for males.

Although the attitudes of the Experimental Group were significantly more favorable than the attitudes of Control Group II, the

TABLE XI. Summary of t-values from Comparison of Posttest Scores of the Experimental Group, Control Group I, and Control Group II on the Sexual Attitude Inventory

Concept	Exper Group		Control Grp I		Control Grp II		Exp Grp vs CG I	Exp Grp vs CG II	CG I vs vs CG II
	Mean	S.D.	Mean	S.D.	Mean	S.D.	t-values	t-values	t-values
1 Elderly female	14.06	6.39	14.60	6.07	16.60	7.16	-0.61	-2.70**	2.24*
2 Premarital sex, casual acquaint.	29.81	10.57	32.10	13.38	32.69	12.23	-1.40	-1.88	0.38
3 Abortion, unmar	24.40	9.46	24.76	9.93	27.83	9.35	-0.28	-2.70**	2.43*
4 Masturbation, male	19.95	7.33	21.62	7.25	23.52	8.22	-1.65	-3.40***	1.87
5 Elderly male	14.18	7.09	13.94	5.67	17.56	7.78	0.26	-3.31***	3.99***
6 Virginity, female	22.74	9.16	21.14	9.41	22.00	9.91	1.25	0.58	0.68
7 Abortion, mar.	23.77	9.25	24.65	10.38	27.87	9.65	-0.65	-3.20**	2.43*
8 Premarital sex, engaged couple	15.64	8.11	15.23	7.70	18.88	9.70	0.37	-2.68**	3.18**
9 Premarital sex, affectionate relationship	19.61	9.65	20.77	10.09	23.88	10.99	-0.85	-3.06**	2.23*
10 Masturbation female	21.04	8.41	22.04	9.28	26.19	9.54	-0.83	-4.29***	3.38***
11 Virginity, male	26.94	8.88	29.30	8.60	28.87	9.44	-1.96	-1.54	-0.36
12 Infant handling genitals	22.32	8.12	22.74	7.62	25.30	9.36	-0.39	-2.54*	2.30*
13 Male homosexual	31.70	11.53	32.94	11.71	35.91	10.79	-0.78	-2.79**	2.02*
14 Female homosex.	31.18	11.09	32.59	11.69	36.64	10.67	-0.91	-3.72***	2.78***

Significance level: *.05, **.01, ***.001

analysis of the data from these two groups alone did not indicate whether these differences were due solely to the treatment or if they were due in part to increased sensitization of the subjects after the pretest and interaction of their sensitization and the treatment (Kerlinger, 1973). Therefore, it was necessary to determine if pretesting or pretesting-treatment interaction had a significant effect on posttest scores.

To assess the main effect of the pretest, the posttest scores of the Experimental Group and Control Group I were compared. The results are also presented in Table XI. The t-values indicate no significant differences between the means of the two groups on any of the fourteen concepts. Thus, there was no main effect of the pretest.

To test for interactive effects of pretest and treatment, the posttest performances of Control Group I and Control Group II were compared. The results, presented in Table XI, reveal that the means of the two groups were significantly different on ten of the fourteen concepts. The findings suggest that it is relatively safe to assume that the pretest did not unduly sensitize the subjects except perhaps in Concept 4, Masturbation for a male. Therefore, on the basis of the group analyses of the comparison of the pretest scores and after determining that there was no discernible main effect from the pretest, Hypothesis II is rejected for ten of the fourteen concepts under review.

Analysis by Sex

To determine if the human sexuality course had a differential impact on the attitudes of males or females, the data were analyzed by

sex of subjects. The Experimental Group, Control Group II, and Sociology Group were included in the analysis. The pretest means and standard deviations for males and females in each of these groups are presented as Appendix F.

Analyses of variance were conducted to determine if there were significant differences by sex on the pretest. The results of the initial analysis revealed group x sex interaction on concepts three and seven. A subsequent analysis indicated that it was the sociology group which contributed to this interaction; therefore, the sociology group was removed for the analysis of these two concepts. The significant F-values for main effects by sex are presented in Table XII.

TABLE XII. Summary of Significant Results of the Analysis of Variance on 14 Sexual Concepts by Sex of Subject on the Pretest

Concept	F-value	More Favorable Attitude
2 Premarital sex, casual acquaintance	79.63***	Male
3 Abortion, unmarried	6.59***	Male
6 Virginity, female	14.79***	Female
9 Premarital sex, affectionate relationship	13.06***	Male
10 Masturbation, female	15.69***	Male
11 Virginity, male	13.83***	Female

***significant at .001 level

The results indicated that males were significantly more favorable than females on four of the concepts. These were: Concept 2,

Premarital sex between casual acquaintances; Concept 3, Abortion for an unmarried woman; Concept 9, Premarital sex for a couple who have an affectionate relationship; and Concept 10, Masturbation for an unmarried female. Females were significantly more favorable toward two of the concepts: Concept 6, Virginity for females; and Concept 11, Virginity for males.

The Experimental Group was then analyzed separately by sex. The mean pretest, posttest, and change scores for males and females in the Experimental Group are presented as Appendix G. The t-tests indicated perfect concordance: both males and females changed significantly in their attitudes in a favorable direction on the same ten concepts. The concepts on which neither males or females showed a significant change were: Concept 6, Abortion for a married woman; Concept 8, Premarital sexual relations between an engaged couple; Concept 9, Premarital sex between couples who have an affectionate relationship, and Concept 11, Virginity for males.

The results of additional t-tests revealed that the degree of attitude change was not significantly related to sex. Thus, although sex of participant was significantly related to attitudes toward a number of sexual concepts, being male or female was not significantly related to degree of attitude change following participation in a human sexuality course.

Analysis by College Class

Another concern of this study was the relationship between college class and changes in sexual attitudes. Analysis of variance by class for the pretest of the Experimental Group, Control Group II, and Sociology Group, revealed no group x class interaction. Therefore, main effects due to class were determined. The results are presented in Table XIII. F-values were significant for seven of the concepts: Concept 2, Premarital sex between casual acquaintances; Concept 6, Virginity for females; Concept 8, Premarital sex between an engaged couple; Concept 10, Masturbation for an unmarried female; Concept 11, Virginity for males; Concept 13, Male homosexual; and Concept 14, Female homosexual.

TABLE XIII. Summary of Significant Results of the Analysis of Variance on 14 Sexual Concepts by Academic Class of the Participant on the Pretest of the Sexual Attitude Inventory

Concept	F-value
2 Premarital sex, casual acquaintance	5.055**
6 Virginity for females	5.457**
8 Premarital sex, engaged couple	3.828**
10 Masturbation, male	4.007**
11 Virginity for males	2.707*
13 Male homosexual	3.959**
14 Female homosexual	4.012**

Significance level:

*.05

** .01

*** .001

Investigation of the pretest means for these concepts, displayed in Appendix H indicate that in general, students in higher college classes were more favorable toward Concepts 2, 8, 10, 13, and 14. For Concepts 6, Virginity for males, and Concept 11, Virginity for females, higher college class was associated with less favorable attitude. However, the findings were not consistently linear.

Change score means were calculated for each college class of the Experimental Group. The t-tests conducted on the change scores revealed that the only significant difference in degree of attitudinal changes were between freshmen and sophomores on Concept 8, Premarital sexual intercourse between an engaged couple ($p < .05$) and Concept 12, Young infant playing with his/her genitals ($p < .01$). Since there were only two significant findings out of 84 t-tests, it can be assumed that these differences occurred by chance. Thus, the results indicate that college class was not significantly related to change in attitudes. However, class was significantly related to attitudes toward certain sexual concepts; that is, in general, the higher the college class, the more favorable students tended to be in their attitudes toward the sexual concepts.

Hypothesis III

Hypothesis III. Participation in a university human sexuality course will have no significant effect on students' acceptance of certain sexual behaviors for self.

The initial concern in testing this hypothesis was with the equivalence of the groups at the time of pretesting on the Behavior Acceptability Scales (BaS) of the Sexual Attitude Inventory. The degree of this similarity was determined with a Least Significant Difference Analysis, a summary of which is presented in Table XIV.

TABLE XIV. Summary of Least Significant Difference Analysis on Pretest Scores of the Behavior Acceptability Scales for Self

Behavior Acceptability Scales	<u>Exp.</u> Mean	<u>Con II</u> Mean	<u>Soc.</u> Mean	<u>Exp.</u> Mean	<u>Con II</u> Mean	<u>Soc.</u> Mean
1 Premarital sex, casual acquaintance	4.96	5.09	5.33			
2 Abortion, unmarried	3.10	3.28				4.70
3 Masturbation for male (males only rated)	2.68	2.65				3.67
4 Virginitv for female (females only rated)	3.21	3.42				2.29
5 Virginitv for female (males only rated)	2.84	2.40	3.21			
6 Abortion, married	3.44	3.40				5.23
7 Premarital sex, engaged couple	2.14	2.42				3.38
8 Premarital sex, affectionate relationship	2.77				3.57	4.22
9 Masturbation, females (females only rated)	4.45	4.45	5.11			
10 Virginitv for males (males only rated)	5.13	4.30	4.38			
11 Virginitv for males (females only rated)	3.02	3.00	2.23			
12 Infant playing with genitals	2.64	2.86	3.18			
13 Male homosexuality	6.74	6.75	6.70			
14 Female homosexuality	6.54	6.44	6.50			

For the Experimental Group and Control Group II, the results show almost perfect agreement in that their means were equivalent on

thirteen of the fourteen scales. The only significant difference was found on BaS 8, Premarital sex between couples with an affectionate relationship. The Sociology Group, on the other hand, expressed attitudes significantly different from both of these two groups on five of the scales and similar attitudes to both groups on eight scales. The mean values indicate that, in general, the average score of the Sociology Group was higher than the Experimental or Control Group, thus reflecting less favorable attitudes. Only one BaS scale was rated significantly lower: BaS 4, Virginity for females, rated by the females.

Since there were no significant differences between the Experimental Group and Control Group II, with the exception of one scale, the posttest data were analyzed without adjustment. Table XV contains a summary of the comparisons of posttest data for the Experimental Group, Control Group I, and Control Group II. These analyses were used to determine whether or not the attitudes of students enrolled in the class were significantly different from the students not enrolled. Only two significant differences were revealed between the Experimental Group and Control Group II: BaS 9, Masturbation for females, rated by females; and BaS 12, Infant playing with his/her genitals. One significant difference was found between the Experimental Group and Control Group I: BaS 9, Masturbation for females, rated by females.

On the basis of the group analyses of posttest scores, Hypothesis III could be rejected for only two of the fourteen behaviors under consideration. Overall, the null hypothesis seems tenable.

TABLE XV. Summary of the Analysis of Posttest Comparison Scores of the Experimental Group, Control Group I, and Control Group II for the Behavior Acceptability Scales for Self

Behavior Acceptability Scales	Exp Group		Con Grp I		Con Grp II		Exp Gr vs CGI	Exp Gr vs CGII	CGI vs CG II
	Mean	S.D.	Mean	S.D.	Mean	S.D.	t-value	t-value	
1 Premarital sex, casual acquaintance	4.70	2.51	4.86	2.48	5.10	2.23	-0.38	-1.26	0.88
2 Abortion, unmarried	2.81	2.22	3.09	2.43	3.23	2.30	-0.99	-1.37	0.33
3 Masturbation male (M)	2.12	1.29	2.73	2.00	2.30	1.60	-0.64	-0.28	-0.38
4 Virginitiy, female (F)	3.29	2.27	3.02	2.22	3.10	2.40	0.24	0.08	0.16
5 Virginitiy female (M)	3.10	2.20	2.88	1.97	2.52	1.81	0.37	0.94	-0.60
6 Abortion, married	3.31	2.54	3.39	2.49	3.40	2.31	-0.36	-0.38	0.00
7 Premarital sex, engaged couple	2.08	1.95	1.93	1.68	2.34	1.95	0.38	-0.92	1.40
8 Premarital sex, affectionate relationship	2.74	2.24	3.10	2.22	3.45	2.32	-1.21	-1.92	0.94
9 Masturbation females (F)	3.37	2.05	4.45	2.47	4.46	2.25	-2.36*	-2.14*	-0.29
10 Virginitiy, males (M)	4.95	2.09	5.17	2.12	4.28	2.44	0.22	0.87	-0.65
11 Virginitiy, males (F)	2.75	1.95	3.32	2.13	3.24	2.19	-1.53	-1.20	-0.34
12 Infant	2.15	1.43	2.36	1.61	2.68	1.78	-1.16	-2.53*	1.37
13 Male homosexual	6.49	1.14	6.40	1.36	6.32	1.31	0.04	0.48	-0.05
14 Female homosexual	6.35	1.46	6.50	1.20	6.32	1.35	-0.97	-0.47	-0.60

Analysis by Sex

Analysis of variance of pretest responses of the groups revealed group x sex interaction on two scales: BaS 1, Premarital sex between casual acquaintances, and BaS 4, Virginity for females. A subsequent analysis revealed that it was the Sociology Group which contributed to this interaction; therefore, that group was removed for analysis of these two scales. The significant F-values for main effects by sex on scales rated by both males and females are presented in Table XVI.

TABLE XVI. Summary of Significant Results of the Analysis for Sex Differences on Pretest Scores of the Behavior Acceptability Scales for Self

Behavior Acceptability Scale for Self	F-value	More Favorable Attitude
1 Premarital sex between casual acquaintances	121.259***	Males
3 Abortion for an unmarried woman	6.150*	Males
6 Abortion for a married woman	17.050***	Males
7 Premarital sex for an engaged couple	18.661***	Males
8 Premarital sex for a couple with an affectionate relationship	32.425***	Males

Significance level:

*.05

** .01

***.001

Males were significantly more favorable than females on five of the attitudinal dimensions. These were BaS 1, Premarital sex between casual acquaintances; BaS 3, Abortion for an unmarried woman; BaS 6, Abortion for a married woman; BaS 7, Premarital sex for an engaged couple; and BaS 8, Premarital sex for a couple with an affectionate relationship.

The Experimental Group was then analyzed separately by sex. The mean pretest, posttest, and change scores for males and females in the Experimental Group are presented in Appendix I. indicated that males became significantly more accepting of the following behaviors for (to) self: BaS, 2, Abortion for an unmarried woman; BaS 3, Masturbation for males; and BaS 12, Infant handling his/her genitals. Females, on the other hand, became significantly more accepting of the following behaviors for self: BaS 7, Premarital sex for engaged couple, and BaS 9, Masturbation for females. However, t-tests revealed there were no significant differences between males and females in the degree of change on scales to which both responded.

Analysis by College Class

Analysis of variance by college class for the research groups on the pretest, with removal of the Sociology group where it contributed to class x group interaction, revealed some main effects due to class. The significant F-values are presented in Table XVII.

Investigation of the pretest means by class, which are presented in Appendix J revealed that the significant differences between

TABLE XVII. Summary of Significant Results of Analysis of Variance by College Class of Subjects on the Behavior Acceptability Scales for Self

Behavior Acceptability	F-value
6 Abortion for a married woman	3.256**
7 Premarital sex for an engaged couple	6.270***
8 Premarital sex for a couple with an affectionate relationship	3.518**
9 Masturbation (females only)	3.741**
11 Virginity for males (females only)	3.563**

Significance level:
 *.05
 **.01
 ***.001

classes were not consistent across scales. In general the higher the class, the more accepting students were toward these behaviors for self. The one exception was BaS 11, Virginity for males, rated by the females. For this scale, higher class was associated with less favorable attitudes. Additional t-tests revealed that class was not significantly related to change in the acceptance of sexual behaviors for self.

Hypothesis IV

Hypothesis IV. Participation in a human sexuality course will have no significant effect on students acceptance of certain sexual behaviors for others.

The initial concern with testing this hypothesis was the equivalence of the groups at the time of pretesting on the eleven Behavior Acceptability for Others (BaO) Scales of the Sexual Attitude Inventory. To determine the degree of similarity, a Least Significant Difference (LSD) analysis was used. The results are presented in Table XVIII.

TABLE XVIII. Summary of Least Significant Difference Analysis of the Behavior Acceptability Scales for Others

Behavior Acceptability Scales	Subset I			Subset II		
	Exp.	Con II	Soc.	Exp.	Con II	Soc.
1 Premarital sex, casual acquaintance	2.89	2.98	3.41			
2 Abortion, unmarried	2.13	1.90				2.91
3 Masturbation, Male	2.10	2.02				2.97
4 Virginity, female	1.64	1.55	1.70			
5 Abortion, married	2.41	2.11				3.53
6 Premarital sex, engaged couple	1.47	1.57				2.14
7 Premarital sex, affectionate relationship	1.79	2.08				2.59
8 Masturbation, female	2.64	2.49	2.97			
9 Virginity, male	1.75	1.63	1.97			
10 Male homosexual	4.09	4.02	4.68			
11 Female homosexual	4.17	4.12	4.61			

The results of the LSD revealed that the means of the Experimental Group and Control Group II were equivalent on all "Behavior Acceptability for Others" scales. The means of the Sociology Group, on the other hand, were significantly different from both of these groups on

five of the scales. In general, the mean values of the Sociology Group were higher than either the mean values of the Experimental Group or Control Group II, and thus, the findings reflect that these subjects were less accepting of the sexual behavior of others.

Because there were no significant differences between the Experimental Group and Control Group II, the posttest data were analyzed without adjustment. Table XIX presents the results of the posttest analysis. The analysis revealed that the responses of the Experimental Group were significantly different from those of Control Group II on seven of the eleven scales. The change in the Experimental Group was in the direction of increased acceptance of sexual behavior for others. The four scales for which there were no significant differences between the two groups were: Ba0 2, Abortion for an unmarried woman; Ba0 4, Virginity for females; Ba0 6, Pre-marital sex between on engaged couple; and Ba0 9, Virginity for males.

Data presented in Table XIX indicates that the pretest may have influenced posttest responses of subjects. Although there were no significant differences between the posttest means of the Experimental Group and Control Group I, there also were no significant differences between means of Control Group I and Control Group II, with the excpetion of three scales. These scales were: Ba0 8, Masturbation for females; Ba0 10, Male homosexual, and Ba0 11, Female homosexual. It appears that posttest responses to these scales were not unduly influenced by subjects having taken the pretest.

On the basis of the preceeding results, hypothesis IV was rejected for seven of the eleven behaviors under consideration. However, if

TABLE XIX. Summary of t-values from Comparison of Posttest Scores of the Experimental Group, Control Group I, and Control Group II on the Behavior Acceptability Scales for Others

Behavior Acceptability Scales	Exp Group		Con Grp I		Con Grp II		Exp Grp vs CG I	Exp Grp vs CGII	CG I vs CG II
	Mean	S.D.	Mean	S.D.	Mean	S.D.	t-value	t-value	t-value
1 Premarital Sex, casual acquaintance	2.39	1.60			2.86	1.83	-0.41	-1.99*	1.56
2 Abortion, unmarried	1.74	1.35			1.82	1.36	0.28	-0.32	0.62
3 Masturbation, male	1.56	0.94			2.00	1.32	-1.54	-2.80**	1.24
4 Virginity, female	1.33	0.94			1.45	1.02	-1.42	-0.98	-0.44
5 Abortion, married	1.65	1.22			2.07	1.52	-1.66	-2.24*	0.45
6 Premarital sex, engaged couple	1.28	0.69			1.48	0.97	-0.50	-1.63	1.18
7 Premarital sex, affectionate relationship	1.59	1.12			-1.91	1.38	-1.21	-2.14*	0.94
8 Masturbation, female	1.74	1.14			2.27	1.48	-0.06	-2.89**	-2.74**
9 Virginity, males	1.62	1.19			1.64	1.28	-0.74	-0.21	-0.55
10 Male homosexual	2.80	1.97			3.94	2.13	-1.04	-4.25***	3.23***
11 Female homosexual	2.76	1.99			4.07	2.08	-0.73	-4.89***	4.15***

Significance level: *.05, **.01, ***.001

pretesting did elevate scores, then this hypothesis could be rejected for only three of these behaviors.

Analysis by Sex

Analysis of variance of the pretest responses of the groups revealed group x sex interaction on three scales: BaO 2, Abortion for married woman; and BaO 9, Virginitiy for males. A subsequent analysis revealed that it was the Sociology Group which contributed to this interaction; therefore, this group was removed for analysis of these two scales. The significant F-values for main effects by sex are presented in Table XX.

TABLE XX. Summary of Significant Results of the Analysis of Variance for Sex Differences on the Pretest Scores of the Behavior Acceptability Scales for Others

Behavior Acceptability Scale	F-value	More Favorable Attitude
1 Premarital Sex, casual acquaintances	7.458**	Male
4 Virginitiy for females	33.851***	Female
9 Virginitiy for males	6.958**	Female

Significance level:
 *.05
 **.01
 ***.001

The results indicated that males were significantly more accepting than females on BaO 1, Premarital Sex between casual acquaintances. Females, on the other hand, were significantly more accepting of the

following sexual behaviors for others: BaO 4, Virginity for females, and BaO 9, Virginity for males.

The Experimental Group was then analyzed by sex of the subjects. The mean pretest, posttest, and change scores (posttest-pretest) for males and females in the Experimental Group are presented in Appendix K. Also included is the significance level of the change scores.

The results indicated that both males and females became significantly more accepting of the following behaviors for others: BaO 2, Abortion for unmarried women; BaO 5, Abortion for married women; BaO 8, Masturbation for female; BaO 10, Male homosexual; and BaO 11, Female homosexual. Females also evidenced significant change on three additional scales: BaO 1, Premarital sex for casual acquaintances; BaO 3, Masturbation for males; and BaO 6, Premarital sex for an engaged couple. Males changed significantly on one additional scale, BaO 9, Virginity for males; All changes were in the direction of increased acceptance. The results of further t-tests revealed there were no significant differences in the amount of attitudinal change between males and females.

Analysis by College Class

Analysis by college class revealed no class by group interaction on the pretest. Significant main effects due to class, presented in Table XXI, were found for six of the eleven scales.

Investigation of the pretest means by class, which are presented in Appendix L revealed that the significant differences between classes were not consistent across the behavior acceptability scales.

TABLE XXI. Summary of Significant Results of the Analysis of Variance by College Class of the Subjects on the Behavior Acceptability Scales for Others

Behavior Acceptability Scales	F value
5 Abortion, married	2.81*
6 Premarital sex, engaged couple	3.06*
7 Premarital sex, affectionate relationship	3.51*
9 Virginity for males	3.74*
10 Male homosexual	3.64*
11 Female homosexual	5.05**

Significance level: *.05, **.01

In general, however, the higher the class, the more accepting students were toward these behaviors for others on the pretest. The one exception was BaO 9, Virginity for males. For this scale, higher college class was associated with less favorable attitudes. Additional t-tests revealed that class was not significantly related to change in the acceptance of sexual behaviors for others.

CHAPTER V

SUMMARY, DISCUSSION, AND RECOMMENDATIONS

Summary

There were two primary purposes for the present research. The first was to assess the feasibility of the semantic differential technique as a measure of sexual attitudes. The second major purpose was to assess the impact of a university human sexuality course on students' sexual knowledge, attitudes, and acceptability of sexual behaviors for self and for others.

There were four null hypotheses tested in this study; each was investigated with respect to overall group analyses and according to sex and college class of subjects. The four hypotheses were:

- Hypothesis I. Participation in a university human sexuality course will have no significant effect on students' knowledge about sex
- Hypothesis II. Participation in a university human sexuality course will have no effect on students' attitudes toward sex
- Hypothesis III. Participation in a university human sexuality course will have no significant effect on students' acceptance of sexual behaviors for self
- Hypothesis IV. Participation in a university human sexuality course will have no significant effect on

students' acceptance of sexual behaviors
for others

A summary of major results of the testing of the hypotheses is presented in Figure I.

Hypothesis	Subject	Conclusion	Sex Comparison	Class Comparison
I	Knowledge	Rejected null hypothesis	No significant difference in degree of attitude change	No significant difference in degree of change
II	Attitudes	Rejected null hypothesis for 11 of the 14 concepts	No significant difference in degree of attitude change	No significant difference in degree of attitude change
III	Acceptance of behavior for self	Rejected null hypothesis for 2 of the 14 scales	No significant difference in degree of attitude change	No significant difference in degree of attitude change
IV	Acceptance of behavior for others	Rejected null hypothesis for 7 of the 11 scales	No significant difference in degree of attitude change	No significant difference in degree of attitude change

Figure 1. Summary of the results of the testing of hypotheses.

In addition to this specific view of the results, the results may be presented in a broader context, related to both the purposes of the research and the salient questions raised in the literature review.

Seven major findings follow:

1. The Sexual Attitude Inventory (SAI) is an effective method for measuring the sexual attitudes of university students.

2. Students who requested admission to the human sexuality course were similar in levels of knowledge and sexual attitudes to the students enrolled in the class. A comparison of these groups with a group of students who had not sought admission indicated that there may have been significant attitude differences. However, this latter group was not randomly selected from the university undergraduate population; therefore, caution should be exercised in interpreting this finding.
3. Students enrolled in the university sex education course increased significantly in their knowledge about sex. Data indicated pretest effects may have operated.
4. Students enrolled in the university sex education course became significantly more favorable in their attitudes toward sexual concepts than students who were not registered for the course, but who had sought admission. Data indicated there were no significant pretest effects.
5. The opinion that sex education courses have a negative impact on sexual behavior was not supported by this study. In general, an increase in favorable attitudes toward sexual concepts did not result in increased acceptance of sexual behaviors for self. However, students

became significantly more accepting and tolerant of the sexual behaviors of others. Evidence suggested that pretest effects may have operated.

6. The analyses by sex indicated no significant differential reaction to course material by males or females. On the pretest, however, males were more favorable toward the sexual concepts than females, with the exception of Virginitv for males and Virginitv for females. These differences remained at the conclusion of the course.
7. The analyses by college class revealed no consistent trends. In general, however, the higher the college class, the more knowledgeable students were about sex, the more favorable were their attitudes, and the more accepting they were toward sexual behaviors of others. Change in sexual attitudes was not related to college class.

These results are discussed in more detail in the following text. The Sexual Attitude Inventory (SAI) will be discussed first, followed by methodological issues, and finally, the impact of the university sex education course on participants.

Discussion

Sexual Attitude Inventory

The Sexual Attitude Inventory (SAI), developed using the semantic

differential technique (Osgood, et.al., 1971), proved to be an effective instrument for measuring the sexual attitudes of university students. Evidence was found for both its validity and reliability. In addition, it is flexible and relatively easy and economical to administer and to score. A major advantage is that the same set of bipolar scales may be used to measure attitudes toward a wide variety of sexual concepts. This provides for potentially greater comparability of students' attitudes toward different sexual concepts in future research.

The results of this study indicated that scales previously found by Osgood to be highly evaluative across non-sexual concepts were also evaluative when applied to sexual concepts. Heise (1971) stated that when the semantic differential is applied to a new concept area, the scales should be factor analyzed to determine their factor composition. However, based on the results of this study, it may be relatively safe when analyzing sexual attitudes to select semantic differential scales from previous factor analytic studies rather than conducting a new factor analysis. The researcher should keep in mind, however, that selected scales must have high factor loadings on the dimension under consideration and must be relevant to the concepts if they are to serve as effective measures.

In the present study, only the evaluative dimension of the semantic differential was considered in the measurement of sexual attitudes. This was done because of Osgood's assertion that the evaluative dimension is synonymous with attitude. However, he did suggest that scales other than evaluative should be included in an

instrument to obscure its purpose and that scales such as Potency and Activity could provide additional information. Such scales were included in the instrument. However, adequate assessment of the SAI with all three dimensions was beyond the scope and purpose of this study and may have precluded the thorough assessment of the evaluative factor.

Having established the SAI in its present form as a usable and meaningful measurement instrument, future studies are recommended to determine areas of improvement. In retrospect, it appears that the incorporation of scales to comprise Potency and Activity dimensions might improve the SAI as a measure of attitudes, and possibly improve its ability to predict behavior. The additional benefits provided by Potency and Activity dimensions is illustrated by the following example: Two students rate a male homosexual on the evaluative dimension as undesirable and unfavorable. Although it may appear that the two students' attitudes are the same, the inclusion of the Activity and Potency dimensions can provide additional information in regard to their attitudes. For example, one student may rate a homosexual as "weak" on the potency dimension and "passive" on the activity dimension; the other student may rate the homosexual as "strong" and "active" on the two dimensions. Therefore, although their attitudes are partially similar, in totality they are quite different.

It is suggested that further research with the SAI focus on the development of potency and activity scales which are applicable to sexual concepts in general. The development of such scales has the

advantage of allowing comparisons and analyses among different sexual concepts. This is a particularly strong advantage which the semantic differential has over traditional attitude instruments. It is important that the selected scales are clearly relevant to sexual concepts and that their factorial composition be statistically determined as high for the dimension under consideration.

Revision of the SAI might also include a reduction in the number of scales that presently comprise the evaluative factor. Heise (1971) indicated that four scales per dimension generally provide adequate sensitivity. He further stated that

... the number of Evaluative scales should not be more than the number of potency and activity scales. Evaluative scales always are found to be more reliable than Potency or Activity scales and thus fewer, not more, are needed for a given level of precision (Heise, 1971, p. 239).

More than four evaluative scales were utilized in the present study. In part this was done to determine scales which are most highly evaluative when applied to sexual concepts. Based on the factor analysis of the scales, the following bipolar scales would be selected to comprise the evaluative factor in a revised SAI: good-bad; beautiful-ugly; nice-awful; and unpleasant-pleasant. On the rotated factor analysis, these scales loaded .74 to .85 on the evaluative factor with relatively negligible loadings on other factors.

A revised SAI which included a relatively large number of potency and activity scales should be investigated in somewhat the same manner as was done with the evaluative scales in the present study. To find four scales with high loadings on each of the potency

and activity dimensions might improve the ability of the SAI to measure the totality of an individual's attitudes toward sexual concepts and to predict his behavior. Limiting the number of scales to twelve, four scales for each of the major dimensions—evaluative, potency, and activity, could provide adequate information about each factor and yet allow subjects to rate a large number of sexual concepts in a relatively short time period.

Methodological Issues

The present study provided information concerning two methodological issues regarding evaluation of sex education courses. These were (1) the generalizability of research findings and (2) the impact of pretesting on sensitization to the treatment and posttest responses. In addition, the results substantiated the importance of utilizing control groups in the evaluation of sex education courses.

Generalizability of Research Findings

The pretest scores recorded for the various research groups on the SAI suggest that the attitudes of university students who register for a human sexuality course may be significantly different from students who do not seek admission to such a class. The results of this study revealed that the responses of the subjects in the Sociology group, which comprised students who did not seek admission to the course, were less favorable on twelve of the fourteen sexual concepts. On the two additional concepts, virginity for males and

virginity for females, the attitudes of the sociology group were significantly more favorable. Unfortunately, such a comparison is not available with respect to sex knowledge because the Sociology group was not pretested.

In general, it can be concluded that the students who sought admission to the course held more liberal attitudes than those who did not seek admission. However, this conclusion is related to the response patterns of the subjects who comprised the sociology group. These students may have been a select group and not representative of the wider university student population, particularly since they were not randomly selected. It is suggested that for a similar future study the researcher employ an additional control group which consists of a random sample of students from the university undergraduate population who have not sought admission to the course.

Sensitization to the Experimental Treatment

Another methodological issue is the impact of pretesting on subjects' posttest performance. Presumably, utilization of the same instruments for pretest and posttest measures can result in "practice effect" and/or sensitize subjects to the treatment and thereby influence posttest responses. The researcher's task is then one of not attributing changes in subjects' responses to the treatment when in reality they are due to some effects of pretesting. To test for pretest influence and pretest x treatment interaction a control group was employed in which some of the subjects enrolled in the course were given posttest measures only.

The results of the Sex Knowledge Inventory (SKI) suggested that the pretest may have influenced posttest responses. Perhaps on questionnaires in which there are definite right and wrong answers, students who take such questionnaires as a pretest are more sensitized to related information in lectures and in their readings which deal with the information presented in the questionnaires. One would think that this influence would be much less with attitudinal tests since there are usually no right or wrong answers, and, indeed, this appears to be the case in this study. Analysis of the SAI responses indicated that the pretest did not influence subjects' responses on the posttest or if it did, that the effect of the treatment was sufficient to overcome the effects of their having taken a pretest. This was particularly true for the fourteen sexual concepts of the SAI. It appeared, however, that the pretest may have influenced posttest responses on the behavior acceptability scales of the SAI. Just why this would happen is not clear; however, it may be that returning to more concrete considerations in the behavioral scales sensitized subjects to culturally appropriate responses.

The significant changes experienced by Control Group II on both the SKI and SAI may not have been due solely to the influence of the pretest, but also to actual changes in knowledge and attitudes. Since these students were interested in the human sexuality course at the beginning of the term, it is possible that they pursued information on their own and that there was actual change. The pretest may have prompted the students to read and to search for additional knowledge in the area of human sexuality. The effects of motivation, although

revealed in these results, is obviously an area needing future consideration.

Data collected for this study included information concerning lectures on human sexuality which members of Control Group II attended, persons in the human sexuality course with whom they conversed and the degree of their conversations, and the books and articles on human sexuality that they read during the term. Time limitations precluded analysis of this information as factors related to changes; however, they may be very informative and later analyses are planned.

It is difficult, therefore, to make a definitive statement in regard to changes in knowledge, attitudes, and behavior acceptability evidenced by members of Control Group II. It might have been easier to determine the total impact of the pretest if a Solomon four-group design had been employed. With this design, an additional control group is utilized: a group of students not enrolled in the class is given the posttest measures only (Kerlinger, 1973).

Overall, the design improvements utilized in this study have helped to answer some of the questions ignored by earlier studies. Obviously, further improvement in design can be achieved and should be attempted in view of the critical nature of the questions.

Impact of the University Sex Education Course

The following section is a discussion of the results of the impact of FL 200, Human Sexuality, at Oregon State University, on

students' sexual knowledge, attitudes, and acceptance of certain sexual behaviors for self and for others. Discussion will focus on the significant differences found between the Experimental and Control Groups, males and females, and university classes.

Knowledge About Sex

Overall, changes in knowledge about sex occurred in both the Experimental Group, which comprised students who completed the course and took both pretests and posttests, and in Control Group II, which consisted of students who were not enrolled in the course but had sought admission. In terms of absolute performance, the average score increases were five and one-half points and one point respectively.

The amount of change exhibited by the Experimental Group, while clearly significant, must be viewed cautiously. There were some indications that sensitization and/or practice effects from the pretest may have operated to elevate scores on the posttest. This deduction is based on the fact that the mean of the Experimental Group was significantly different from the mean of Control Group I, which consisted of students enrolled in the course who were given posttests only. While this differential response on the posttest could be due to differences between students who comprised the two groups, this is doubtful since the subjects were randomly selected from the same population.

The results suggest that for assessment of sexual knowledge, the possibility of change scores being elevated by pretesting should be given serious consideration. Subsequent research in this area should

take precautions to "adjust" claims for knowledge increases if pretests are employed. In addition, it would seem prudent for future research to attempt to delineate the extent of pretest influence at various age levels since it may vary considerably.

Analyses by sex revealed no significant differences between males and females on the pretest. During the course, both males and females improved significantly in their knowledge about sex, with neither sex showing greater improvement than the other.

Analyses by class standing revealed significant differences between the classes on the pretest. In general, the score on the SKI increased with higher class standing. The seniors, for example, scored an average of 3.4 points higher than the freshmen on the pretest. This is not surprising since it is expected that with increased education the knowledge of students would also increase, including their sexual knowledge. All classes showed significant gains in knowledge on the posttest; however, the change in any one class was not significantly different from the change which occurred in any other class.

Control Group II subjects also experienced significant gains in knowledge; however, when the data was analyzed by sex, the results revealed that the females, and not the males, contributed to this significant increase. It may be that the females were more sensitized by the pretest and/or were more motivated to seek knowledge on an independent basis than was true for the males. It is also possible that this significant finding was due to chance. There were no significant changes in knowledge by class in Control Group II.

Given the fact that many people have emotional problems at least partially attributable to sexual ignorance, increasing sexual knowledge may constitute a genuine contribution to mental health (Long, 1974). Unfortunately, there is no empirical evidence to support this as yet, but this is certainly one of the areas in which further research is needed.

Attitudes Toward Sexual Concepts

Changes in attitudes toward selected sexual concepts occurred in both the Experimental Group and Control Group II. At the time of pretesting there were no significant differences between these two groups, with the exception of one concept. This difference could have been due to chance since this was the only significant finding out of fourteen attitudinal measures. At the conclusion of the study, the Experimental Group exhibited significantly more favorable attitudes than Control Group II toward eleven of the fourteen concepts. There were no significant changes in the attitudes of the students in either group toward three concepts. These were premarital sex among couples with a casual acquaintance, virginity for females, and virginity for males.

Within the Experimental Group, sex of participant was not significantly related to change in attitudes. Both males and females became significantly more favorable in their attitudes toward sex. On the pretest, however, males were significantly more favorable than females toward four of the concepts. These were: Concept 2,

Premarital sex for a couple who have a casual acquaintance; Concept 3, Abortion for an unmarried pregnant woman; Concept 8, Premarital sex for a couple with an affectionate relationship; and Concept 10, Masturbation for an unmarried female. Females were significantly more favorable toward two concepts: Concept 6, Virginity for females, and Concept 11, Virginity for males. These differences remained at the time of the posttest. For concepts six and eleven, there were no significant changes in the attitudes of either males or females from the pretest to the posttest.

Perhaps the double standard and subsequent socialization experiences in our culture in regard to sexuality accounts in part for these differences between males and females, particularly in regard to the different views of premarital sex and virginity. Interestingly, the mean ratings for concepts 6 and 11 by males and females indicate that virginity for females is given a more favorable rating than virginity for males. However, this is not surprising in terms of the double standard. Concerning abortion for an unmarried woman, it may be that a male's attitudes are more favorable because the implications of an abortion generally have less impact on the male than on the female.

Some previous studies have indicated that the attitudes of males and females tend to converge following participation in a sex education course. The results of this study did not confirm such findings. Although both males and females became significantly more favorable toward sexual concepts, the difference of the change between males and females was not significant. Males continued to remain more favorable

than the females on the posttest. Since the SAI had seven degrees for rating one's attitudes, whereas the maximum in previous studies was five, it may be that the SAI provided greater sensitivity to the measurement of attitudes. This may partially account for the lack of convergence found in this study.

Analysis of variance revealed significant differences between classes on some of the attitudinal dimensions, but there were no consistent trends; therefore, generalizations are difficult. In general, however, the higher the academic class, the more favorable students' attitudes were toward sexual concepts. Perhaps with increased college education, students become more open and favorable in terms of their sexual attitudes.

All classes exhibited significant attitudinal changes; however, no class changed significantly more than any other class. A conclusion of this research is that sex education courses can result in increased favorable attitudes of university students toward sexual concepts, at least those which were investigated in the present study.

The findings further suggest that an individual's sexual attitudes are complex and multi-dimensional. As such, it is difficult to place a person's attitudes toward a variety of sexual concepts on a single point on a positive-negative, liberal-conservative or favorable-unfavorable continuum. A person's attitudes vary as a function of the sexual attitude under consideration.

Acceptability of Sexual Behavior for Self and for Others

In discussing the implications of the preceding results, a major concern that arises is whether or not the increase in favorable

attitudes resulted in increased participation in various sexual behaviors. Although this study did not provide information about actual behavior, the "acceptance of behavior" scales provided an indirect measure of the likelihood of individuals engaging in such behavior. This deduction was based on the theoretical perspective that attitudes are predispositions to respond (Osgood, et. al. 1971).

With the exception of one scale, the pretest responses revealed that there were no significant differences between the subjects in the Experimental Group and Control Group in regard to acceptance of certain sexual behaviors for self and for others. Since there was only one significant difference out of 25 t-tests, it was assumed that this difference was due to chance factors. A comparison of posttest responses also revealed no significant differences between the two groups, with the exception that the females in the Experimental Group became significantly more accepting of masturbation for themselves. This greater acceptance of masturbation for self could be a positive outcome of the course since masturbation is not unhealthy for the majority of people, yet confusion and guilt are often experienced over masturbatory practices (McCary, 1973). If it is true that attitudes are determinants of behavior, then indications from the present research are that participation in a university sex education course probably does not result in an increase in permissive sexual behavior among participants, a fear often expressed by the public. However, studies are certainly needed which focus directly on the impact of sex education on the behavior of course participants.

In regard to the acceptance of the sexual behaviors of others, both the Experimental Group and Control Group II became significantly more tolerant of the sexual behaviors of others, but the Experimental Group became significantly more accepting than Control Group II on seven of these scales. The change in Control Group II may have been due to pretest influence, but it is also probable that because of their initial interest in human sexuality, they naturally evolved more accepting attitudes than would a group of students who were not initially interested in learning more about human sexuality.

There were no significant differences in the change scores between males and females in their acceptance of sexual behavior for self and for others. However, males did show significant increases in the acceptance of the following behaviors for self: abortion for an unmarried woman; masturbation for males; and infant handling his/her genitals. Females became significantly more accepting of the following behaviors for self: premarital sex for engaged couples and masturbation for females. In addition, males tended to be more accepting than females of various sexual behaviors for self and for others on both the pretest and posttest. The one exception was virginity for males. Females rated this as more acceptable on both the pretest and posttest than did the males. However, the difference in their ratings was not significant. Males were significantly more accepting than females on the following sexual behaviors for self: premarital sex between casual acquaintances, abortion for a married pregnant woman, abortion for an unmarried woman, premarital sex for

couples with an affectionate relationship, and premarital sex for an engaged couple. They were significantly more accepting than females on the following sexual behaviors for others: premarital sex between casual acquaintances; abortion for an unmarried pregnant woman; masturbation for an unmarried male; and virginity for females. Again, these findings generally seem to be related to the double standard of sex for males and females inculcated in our society. Also, it may be assumed that males are more accepting of abortion because the impact of such is less on them than on women.

College class was not significantly related to change in the acceptance of sexual behaviors for self and for others. However, there were significant differences between the classes on the pretest. Such differences remained on the posttest. Although there were no consistent trends, in general, the higher the college class, the more accepting the students were toward various sexual behaviors for self and for others.

Conclusions

The findings of this research indicate that sex education courses can have a positive effect on the knowledge and attitudes of participants. The fear that such courses cause participants to become more permissive in their sexual behavior was not substantiated. Students did not view various sexual behaviors as any more acceptable to themselves at the conclusion of the course than at its beginning, with the exception of masturbation. However, students did become more tolerant of the sexual behavior of others. This study, therefore, suggests

that sex education programs at the university level should not be vetoed on the basis that they will have a negative influence in the sexual behavior of participants.

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APPENDICES

APPENDIX A

FL 200X
 HUMAN SEXUALITY
 Spring, 1972
 Home Economics Auditorium
 Monday evening 1900-2200

- April 3 Pretest (Vicki Schmall, Peter Vennewitz)
- Perspectives in Human Sexuality
 Dr. Rich Connelly and Leah Miller, Family Life,
 Oregon State University
- April 10 The Psychophysiologic Dynamics of Sex
 Joseph Trainer, M.D., U of O Medical School
- April 17 Sexuality Throughout the Life Cycle
- April 24 Relationship Development--Sex and Emotions
 Dr. Carl Ridley, Pennsylvania State University
- May 1 Lovemaking with Intimacy
 Dr. Milton Hildebrand, U of C at Davis
- May 8 Sexual Varieties; Inadequacies and Deviancies
 Ira Paulley, Psychiatrist, U of O Medical
 School
- May 15 Contraception and Abortion
 Jeanne Radow, R.N., Planned Parenthood, Portland
- May 22 Posttest (Vicki Schmall, Peter Vennewitz)
- May 29 NO CLASS - Memorial Day
- June 5 Sexuality and the Law
 Joseph Morray, Lawyer Corvallis
- Summary - Dr. Rich Connelly, Leah Miller

HUMAN SEXUALITY
FL 200X

COURSE INFORMATION
SPRING 1972

COORDINATOR: Leah Miller
OFFICE: HE 307
PHONE: 754-3172
OFFICE HOURS: By Appointment

OBJECTIVES

The course is designed to look at the physical, psychological, and sociological aspects of human sexuality and to help the individual integrate these viewpoints in an effort to better understand himself.

LEARNING EXPERIENCES

READING:

Each student should read the following books for the course. They will be available in the University Bookstore. Bibliographies for additional supplementary reading will be distributed during the term.

Brecher and Brecher, An Analysis of Human Sexual Response (\$1.25)

*Hettlinger, Sexual Maturity (\$.75)

*McCary, Human Sexuality (\$8.95)

*optional

*Rubin, Sexual Life After Sixty (\$.75)

LECTURES AND DISCUSSION

A number of professionals will speak in their areas of competence to provide variety and the most informative and accurate information. Time will be incorporated into their lectures for written and oral questions. The final hour of each week will be spent in small groups for discussion.

WRITTEN ASSIGNMENTS

Critique Cards

Each student is expected to submit an unsigned critical evaluation of the presentation and lecture at the end of the period. The critique is really for the benefit of the coordinator and lecturers to give them feedback and thereby help them improve the course. Critique cards should be completed at the conclusion of the question and answer period and handed in to your group leader. They should state

- the student's age, sex, class standing
- whether or not the session was valuable, interesting, informative and pertinent
- whether or not the lecturer was excellent, satisfactory or poor
- whether or not the topic and speaker should be repeated again
- your overall candid opinion of the worth of the entire evening.

Paper

Each student will choose one of two options for writing a paper.

I. Personal Reaction Journal

On a weekly basis respond to the happenings in the class by discussing the following items:

1. Relevance of the material presented and discussed.
2. Your opinions and values with regard to that material.
3. The reasons for your opinions and values - religious and/or parental teaching, personal experiences which have taught you about this area, etc.

Toward the end of the term review your weekly comments and summarize your own attitudes and ideas concerning Human Sexuality. Discuss briefly how those beliefs and ideas have been changed, enhanced, or strengthened by the content of the course. What benefits have you derived from the discussions. What did you consider to be the most important and valuable part of the course. Discuss the paper on a personal level rather than on a theoretical level. This option would include one typewritten page per week plus 3-5 pages of summary.

II. Research Paper

Choose a topic concerning Human Sexuality which is of interest to you. Get approval of the topic from your discussion leader. Papers should follow correct forms for research writing including footnotes and a bibliography. The bibliography should include a minimum of 10 references which are current (since 1962). Be specific in your topic rather than general (i.e., "The Pill vs. the IUD" as opposed to "Birth Control").

Papers should be typed and double spaced. If typing is impossible speak with your discussion leader before the paper is submitted to work out some alternative.

The length of the paper should be 10-12 pages. Option II should include no less than 8 pages of information plus bibliography and listing of notes.

The introductory page of both options should include: Name, age, class, major, marital status, name of discussion leader.

Papers are due and WILL NOT BE ACCEPTED AFTER the following dates:

Option I Wednesday, May 24 - should include class session on May 22

Option II Monday, May 22

Papers of the journal option will be read only by your discussion leader or Miss Miller.

No papers will be returned. Keep a copy!

ATTENDANCE: It is expected that students be present for all lecture and discussion sessions. Attendance will be taken.

EVALUATION: PASS - NO PASS

To receive a passing grade in the course a student must:

- 1) attend all class sessions: lecture and discussion
- 2) satisfactorily complete a paper on time
- 3) complete a critique card on each week's lecture session.

SEX KNOWLEDGE INVENTORY - Form X - Revised

Developed by Gelele McHugh

for

Family Life Publications, Inc., Durham, N. C.

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Continued on back cover

DIRECTIONS

This inventory is for confidential use by your teacher, doctor, minister, or other counselor. It is intended to help you understand better the constructive part sex may play in life. This is not an intelligence test. It is a measure of what you know about sex. Be sure to read carefully all directions. Answer *EVERY* question. If you do not know, *GUESS*. If you are guessing, or want more information about any question, draw a circle around your answer.

Place the answer sheet printed side up on a desk or table and put the test booklet over it. Line up the right edge of page 1 of the booklet with the left edge of Column 1 of the answer pad. Follow instructions at the top of each page.

In each of the questions on the following pages select the best answer on the answer sheet and make a cross in the square opposite the answer chosen. Be sure the number at the top of the page matches the number in the column of the answer sheet and be careful that the square marked has the same letter as the answer you have chosen.

You will find a word list in the last two pages of this booklet. Use it to help you understand any unfamiliar words in the questions.

Below are two examples of the way to answer the questions. The answer to Example 2 has been encircled to show how to indicate doubt or a wish for more information.

- | | | | |
|-------|---|---|---------------------------------------|
| Ex. 1 | Usually how long does a normally developing baby live inside its mother's body? | A The time depends upon the diet of the mother. | A <input type="checkbox"/> |
| | | B About twelve months. | B <input type="checkbox"/> |
| | | C About nine months. | C <input type="checkbox"/> |
| | | D About six months. | D <input type="checkbox"/> |
| | | E About three months. | E <input type="checkbox"/> |
| Ex. 2 | How may a couple know in advance of marriage whether they can have children? | A They can know nothing until after they are married. | A <input type="checkbox"/> |
| | | B If they are both strongly sexed they will be able to have children. | B <input type="checkbox"/> |
| | | C Several other children in the girl's family is a sure indicator. | C <input type="checkbox"/> |
| | | D It is not possible to tell with certainty. | D <input checked="" type="checkbox"/> |
| | | E Doctors can tell by physical examinations and laboratory tests. | E <input type="checkbox"/> |

This booklet will be used by others. Please do not make any marks on it. Put your answers only on the answer sheet. Now go ahead with the questions on the next page.

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Place Answer Pad under the test booklet and line up Page 1 with Column 1

1

- | | |
|---|--|
| 1. What is the relation between being sexually attracted to a man or woman and being in love with that person? | <p>A. Sex attraction is physical desire; love is an attitude.
 B. Sex attraction and being in love are the same thing.
 C. If there is no sex attraction, there can be no love.
 D. Sex attraction may mean that love also is present.
 E. If there is no love there will be no sex attraction.</p> |
| 2. Sex relations are: | <p>A. For physical pleasure.
 B. A way to relieve tension.
 C. A way to express love.
 D. A biological urge.
 E. All of the above.</p> |
| 3. Of the following, which one supplies the best evidence for predicting that a prospective husband or wife will be a good sex partner? | <p>A. The "sex appeal" of the man or woman.
 B. His or her interest in or conversation about sex.
 C. His or her physical demonstrations of affection.
 D. All of his or her behavior during courtship.
 E. His or her response to physical closeness.</p> |
| 4. Happily married couples have sex relations: | <p>A. Whenever they can; every day if possible.
 B. When the wife wants sex relations.
 C. When the husband wants sex relations.
 D. When both need sex relations.
 E. When sex relations are pleasing to both.</p> |
| 5. Happily married couples make each act of sex relations last: | <p>A. As long as possible.
 B. No longer than necessary.
 C. Until the woman is satisfied.
 D. Until the man is satisfied.
 E. As long as it is pleasing to both.</p> |
| 6. How do men and women differ in readiness for orgasm? | <p>A. They usually are ready at the same time.
 B. Women usually are ready sooner than men.
 C. Men often are ready sooner than women.
 D. Well matched couples usually are ready at the same time.
 E. Men always are ready sooner than women.</p> |
| 7. On the average, how do men and women differ in fundamental potential capacity for responsiveness to sexual stimulation? | <p>A. Men can respond faster, more intensely than women.
 B. Women can respond faster, more intensely than men.
 C. Men and women probably do not greatly differ in this capacity.
 D. Men can respond faster but not as intensely as women.
 E. Women can respond longer but not as fast as men.</p> |
| 8. What is the most probable answer to the question of whether men and women are alike in the capacity to have and to recognize a physical urge for sex relations? | <p>A. Apparent differences may be due to differences in learned attitudes.
 B. Apparent differences are real and are due to physical differences.
 C. Women are naturally less able to have sex hunger.
 D. A few women are equal to men in this capacity.
 E. There are no sex differences in this capacity.</p> |
| 9. How do men and women who are aroused and ready for orgasm differ in their needs for orgasm? | <p>A. Men have a more pressing physical need.
 B. Women have a more pressing physical need.
 C. Failure to secure orgasm causes more emotional distress in men.
 D. Failure to secure orgasm causes more emotional distress in women.
 E. Men and women do not greatly differ in their needs.</p> |
| 10. In some women sexual excitement causes a noticeable enlargement and firmness of the clitoris. Other women become sexually excited with no noticeable change in the clitoris. How do these women differ in strength of sex desire and capacity for orgasm? | <p>A. Absence of clitoral response indicates low desire and low capacity.
 B. Women with no clitoral response require direct clitoral stimulation.
 C. Noticeable clitoral response is unrelated to desire or capacity.
 D. An enlarged and firm clitoris indicates capacity for vaginal orgasm.
 E. An enlarged clitoris must be directly stimulated for orgasm to occur.</p> |

Now go on to the next page.

Be sure to line up Page 2 with Column 2 of the answer pad

2

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11. Many women are unable to achieve orgasm without manual stimulation of the clitoris through the rubbing or caressing of nearby areas. Some women easily achieve orgasm through penile stimulation of the vagina. How do these women differ in sex desire and in capacity for orgasm?
- A. A need for clitoral stimulation indicates less desire and capacity.
 B. Response to clitoral stimulation indicates more desire and capacity.
 C. A vaginal response indicates more desire and capacity.
 D. A vaginal response indicates less desire and capacity.
 E. Stimulation required for orgasm is unrelated to desire or capacity.
-
12. What determines whether a husband and wife will be active sex partners up to and beyond sixty years of age?
- A. Stronger than usual sex drives in both.
 B. A continuing need for sex relations by the husband.
 C. Better health than the average couple.
 D. Mutually satisfying sex relations through the preceding years.
 E. A moderate sex life with little or no masturbation by either one.
-
13. What is the main reason for sex play before intercourse?
- A. To make the woman's sex organs ready for intercourse.
 B. To reduce sexual excitement in the man.
 C. To make intercourse more satisfying for both.
 D. To help a woman satisfy sex needs a man does not have.
 E. To make the man's sex organs ready for intercourse.
-
14. What kind of sex play do marriage counselors commonly suggest as appropriate for sex relations?
- A. Sex play should be limited to kissing and hugging.
 B. Either may kiss or caress the other in any way pleasing to both.
 C. The man may kiss or caress the woman in any way pleasing to both.
 D. The woman should be very active in sex play.
 E. The couple should avoid oral-genital contacts and kissing.
-
15. When she is sexually excited a woman's clitoris may be noticeably enlarged and quite firm. What is likely to happen to the enlarged clitoris as the woman progresses in sex desire to readiness for intercourse?
- A. It will be longer and more exposed, for contact in intercourse.
 B. It will be larger, longer, and more firm.
 C. It will be smaller, shorter, and less firm.
 D. It will be withdrawn beneath protective folds of flesh.
 E. There will be no noticeable change in its size or location.
-
16. By what kind of behavior in relation to the clitoris will a husband be more likely to bring his wife to readiness for intercourse and for orgasm?
- A. By touching and rubbing it in all sex play.
 B. By avoiding it and adjacent areas at all times.
 C. By indirect stimulation thru rubbing and caressing adjacent areas.
 D. By stronger direct stimulation of it as sex desire increases.
 E. By direct stimulation of it until orgasm is achieved.
-
17. What parts of a woman's body are almost always found to be responding to sexual excitement by becoming noticeably larger or more firm?
- A. Vagina, cervix, and clitoris.
 B. Inner labia, clitoris, and vagina.
 C. Breasts, vagina, and inner labia.
 D. Inner labia, breasts and perineum.
 E. Perineum, clitoris and cervix.
-
18. Of the following, which is the best position for intercourse?
- A. A side position, which frees the hands for sex play.
 B. The man above with the woman facing him.
 C. The man above with the woman facing away from him.
 D. The woman above with the man facing her.
 E. Any position pleasing to both.
-
19. When they are aroused and ready for orgasm how many orgasms will a man or a woman need, and be able to have?
- A. Both will need only one and can have only one.
 B. Men may need more but can have only one.
 C. Women often need and can have more than one.
 D. Men often need and can have more than one.
 E. Women may need more but can have only one.
-
20. What is the important reason why a woman should do everything she can to help her husband understand her sex feelings and desires?
- A. So he can know her sex needs are different from his.
 B. So he will delay his orgasm until she is satisfied.
 C. So they will almost always achieve orgasm at the same time.
 D. So he will stimulate her adequately and give her satisfaction.
 E. So he will not feel guilty when she fails to achieve orgasm.
-

Now go on to the next page.

Be sure to line up Page 3 with Column 3 of the answer pad

3

21. What is likely to happen to the internal and or external female sex organs as a result of vigorous physical activities such as tennis, gymnastics, or horseback riding?
- A. Some internal injury will occur.
B. The vagina will be enlarged.
C. Nothing is likely to happen.
D. The hymen will be made thicker and stronger.
E. The hymen will be torn or destroyed.
22. Women who have a hymen:
- A. Have had no intercourse.
B. Often have pain when menstruating.
C. Do not masturbate.
D. Are unable to become pregnant.
E. None of the above is necessarily true.
23. How can one tell whether a woman has ever had intercourse?
- A. Sexually experienced men can tell by the way she walks.
B. One can tell by her social behavior and sex attitudes.
C. One can know by whether she has an unbroken hymen.
D. A physician can always tell by a physical examination.
E. There is no sure way.
24. How painful will intercourse be for a woman with a hymen?
- A. May be quite painful.
B. Will not be painful.
C. There will be no pain if the woman wants intercourse.
D. First intercourse always is painful.
E. There will be pain if the man's sex technique is poor.
25. What is the probable reason when muscles of a wife's vaginal entrance go into spasm, which may prevent intercourse altogether or cause her pain in intercourse?
- A. Insufficient or inadequate sex play before intercourse.
B. No sex desire or inability to enjoy sex relations.
C. A learned involuntary reaction to sex relations as painful, dangerous.
D. Normal expectation that sex relations are threatening or painful.
E. An intentional act from fear of pregnancy or of intercourse.
26. How often is unsatisfactory intercourse caused by a difference in size of the male and female sex organs?
- A. Almost always.
B. Very often.
C. Often.
D. At times.
E. Rarely.
27. How often is failure to find sexual satisfaction in marriage caused by a fundamental difference between the man and wife in capacity to want and to enjoy sex relations?
- A. Almost always.
B. Very often.
C. Often.
D. At times.
E. Rarely.
28. What is the usual aftereffect of orgasm on a man or woman?
- A. No noticeable effect.
B. A relaxed, satisfied feeling.
C. A tired feeling.
D. A feeling of weakness.
E. Nervous tension.
29. What is the most likely reason when a wife continues to find intercourse painful after medical examinations reveal no cause for this pain?
- A. She and her husband are not physically well mated.
B. Her husband's sex technique is inadequate or wrong for her.
C. She feels guilty about or afraid of intercourse.
D. She is having sex relations just to please her husband.
E. She is trying to avoid sex relations by pretending pain.
30. Of the reasons listed, which one most often accounts for a wife's failure to be active in sex play or to be responsive in intercourse?
- A. Her husband provides inadequate or insufficient sex play.
B. Her husband wants and expects her to be passive.
C. She has learned not to be responsive or fears pregnancy.
D. She is physically unable to experience strong sex desire.
E. She is sick or is too tired to enjoy sex relations.

Now go on to the next page.

Be sure to line up Page 4 with Column 4 of the answer pad

4

31. What is the probable cause when sex relations have become less frequent and a felt need for sexual closeness often is absent in the couple that had an enjoyable and satisfying sex life during the early part of their marriage?
32. What is the most likely cause when a husband develops symptoms of impotency in the form of inability to maintain erection, premature ejaculation, or failure to achieve orgasm?
33. Which of the suggestions listed here may be the best approach to the problem when a wife fails in her efforts to overcome a lack of responsiveness in sex relations?
34. Which one is the best indication of a successful sexual adjustment in marriage?
35. A couple has sex relations enjoyable to both during the first weeks of marriage. What does this mean?
36. Why do some newly married men reach orgasm much too soon to be effective sex partners?
37. What is best for a man who repeatedly reaches orgasm before he wants to, and too soon for his wife to enjoy intercourse?
38. How do homosexual experiences in childhood affect sexual adjustment and performance in adulthood?
39. Is it likely or unlikely that an adult preference for homosexual relations can be changed to a preference for heterosexual relations by getting married?
40. What is a "wet dream"?
- A. Sex has become less important than material and social success.
B. Their earlier sex behavior exceeded their real sex needs.
C. Other ways to enjoy each other have replaced sex.
D. Fatigue or marital conflicts are blocking sex desire.
E. Unrecognized sexual problems are preventing the enjoyment of sex.
- A. A failure to meet and marry the *right* woman.
B. Dissatisfaction with and disappointment in sex in marriage.
C. Poor sexual health and a need for medical care.
D. Non-sexual marital conflicts, worries, resentments or fatigue.
E. Unrecognized sexual conflicts, worries, and resentments.
- A. Become pregnant.
B. Seek professional help.
C. Take a more active part in sex play.
D. Improve her physical health.
E. Ask her husband to help her be more responsive.
- A. The amount of sex relations wanted by both husband and wife.
B. The degree of passion experienced by both throughout the sex act.
C. The wish to be together after sex needs are satisfied.
D. The frequency of reaching orgasm at the same time.
E. The couple's wish to learn new and better ways to enjoy sex.
- A. This indicates previous sexual experience.
B. This could be a good sign or may mean nothing.
C. This is a slightly favorable sign.
D. This proves they can get along together.
E. This proves they will be happily married.
- A. Excessive masturbation in adolescence and adulthood.
B. Homosexual experiences in childhood or early adolescence.
C. Lack of sex experience or a wrong conception of the female sex role.
D. Diseased or unhealthy sex organs or glands.
E. A lack of confidence or a lack of sexual self control.
- A. Permit no sex play during relations.
B. Reduce sex play before intercourse.
C. Think of other things during sex play and intercourse.
D. Seek professional help.
E. Have sex relations more often.
- A. Often cause the adult to prefer homosexual relations.
B. Cause low sex desire and disinterested heterosexual performances.
C. Often cause inability to have heterosexual relations.
D. May have no effect or may do some psychological damage.
E. Often cause frigidity and premature ejaculation.
- A. Very likely.
B. Likely.
C. Unlikely.
D. Very unlikely.
E. Depends on person he or she marries.
- A. An abnormal loss of semen during sleep.
B. A normal discharge of semen often while one is dreaming about sex.
C. An abnormal discharge of semen during a dream about sex.
D. A discharge of semen caused by sex thoughts before sleeping.
E. A periodic discharge of male sex fluids similar to menstruation.

Now go on to the next page.

Be sure to line up Page 5 with Column 5 of the answer pad

5

-
41. What is the usual reason for "wet dreams"?
- A. Abnormal or excessive sex desire.
 B. Lack of self control in sex feelings and desire.
 C. A need for sex outlet, or sex tension resulting from a sex dream.
 D. Sex tension caused by sex thoughts before sleeping.
 E. Strong desire for sex relations with someone who is not available.
-
42. How often do women have dreams that release sex tensions?
- A. Never.
 B. Almost never.
 C. Occasionally.
 D. Frequently.
 E. As often as men have "wet dreams."
-
43. What do physicians say about the effects of modern methods of birth control?
- A. That they reduce a woman's chances to have a wanted pregnancy.
 B. That their use endangers the health of women.
 C. That they may harm the male sex organs.
 D. That they very rarely harm the health or fertility of either sex.
 E. That they protect the health of couples who use them.
-
44. When they are used in the correct way, how effective are medically approved methods of birth control?
- A. Completely effective.
 B. Highly effective.
 C. Only moderately effective.
 D. A slightly better than no method.
 E. Completely ineffective.
-
45. What is the effect of birth control on pleasure in intercourse?
- A. Increased pleasure for the wife, reduced pleasure for the husband.
 B. Increased pleasure for both husband and wife.
 C. Reduced pleasure for both husband and wife.
 D. Increased or reduced pleasure, depending on attitudes.
 E. No effect on pleasure for either husband or wife.
-
46. When consistently and intelligently used as directed by a competent authority, which of the following is an effective method of birth control?
- A. A rubber sheath or condom.
 B. An oral contraceptive (pills).
 C. A vaginal diaphragm with contraceptive cream.
 D. An intrauterine device (I.U.D.)
 E. Any one of the above.
-
47. Which method of birth control requires no preparation just before sex relation by either husband or wife, but once in use provides continuous and highly effective control?
- A. A rubber sheath or condom.
 B. Oral contraception (pills)
 C. An intrauterine device (I.U.D.).
 D. A vaginal diaphragm.
 E. The "safe period."
-
48. Of those listed here which is an unreliable method of birth control?
- A. Withdrawal by the male before orgasm.
 B. Douching immediately after sex relations.
 C. The safe period.
 D. Sex relations without orgasm by the male.
 E. Any of the above.
-
49. If the population of the United States is to remain at its present level, no couple may have more than:
- A. One child.
 B. Two children.
 C. Three children.
 D. Four children.
 E. Five children.
-
50. What is the usual effect of surgical sterilization as a method of birth control on a man's or a woman's sex desire, or pleasure in sex relations?
- A. No change in desire or pleasure.
 B. Reduced desire in men but not in women.
 C. Reduced pleasure in men but not in women.
 D. Reduced pleasure in women but not in men.
 E. Reduced desire in women but not in men.
-

Now go on to the next page.

Be sure to line up Page 6 with Column 6 of the answer pad

51. What is the effect of circumcision on sex activities in adulthood?	A. No effect. B. Increased enjoyment. C. Decreased enjoyment. D. Increased ability to prolong sex relations. E. Reduced desire to masturbate.
52. What is menstruation?	A. Clearing the body of impure blood. B. Bringing the ovum (egg) down into the womb. C. Clearing the unfertilized ovum (egg) from the womb. D. Clearing the womb to prepare again for possible pregnancy. E. Nature's way of reducing sex desire in women.
53. Is a menstruating woman sick?	A. Yes. B. She is in poor emotional health. C. Her resistance to infection or disease is low. D. She naturally feels weak and unwell from loss of blood. E. Menstruation is not an illness.
54. Of the items listed here which one is the most important in considering the possibility of intercourse during menstruation?	A. The attitudes of the man and the woman. B. Whether a woman can enjoy sex at this time. C. Whether intercourse increases depression of menstruation. D. Whether it is physically possible to have intercourse at this time. E. Whether intercourse during menstruation is dangerous to health.
55. What is the most likely result of intercourse during menstruation?	A. Injury to the woman's sex organs. B. Infection of the male sex organs. C. A normal pregnancy. D. An abnormal pregnancy. E. Nothing of importance to physical health.
56. What changes usually occur in menstruation after marriage?	A. No changes occur unless the woman becomes pregnant. B. Menstruation is more regular and less difficult. C. Menstruation is less regular and more difficult. D. Menstrual pains and headaches disappear. E. Depression and moodiness are no longer present.
57. How often are there male sperm cells, which could cause pregnancy, in the fluid which flows from the male sex organ before orgasm?	A. This fluid always contains sperm cells. B. This fluid often contains sperm cells. C. This fluid contains sperm cells at times. D. This fluid never contains sperm cells. E. No one knows whether this fluid contains sperm cells.
58. How many times must a woman have intercourse for pregnancy to be possible?	A. Once. B. Several times. C. Many times. D. Once, if she is passionate. E. Several times, if she is not passionate.
59. What kind of intercourse is necessary for a woman to become pregnant?	A. She must reach orgasm before the man. B. The man and woman must reach orgasm at the same time. C. She must reach orgasm after the man. D. Pregnancy is possible whenever sperm cells enter the vagina. E. The man must reach orgasm for pregnancy to be possible.
60. At what time in her cycle of menstruation is a woman most likely to become pregnant?	A. About two weeks before menstruation begins. B. During the three days before menstruation begins. C. During menstruation. D. In the first day after menstruation ends. E. During the first week after menstruation ends.

Now go on to the next page.

Be sure to line up Page 7 with Column 7 of the answer pad

7

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61. How soon after birth of her baby is it possible for a woman to become pregnant again?
- A. Before menstruation begins again.
 B. Not until after she has menstruated.
 C. Not until she stops breast feeding her baby.
 D. Not until she feels sex desire.
 E. Not until she again is able to achieve orgasm.
-
62. How does being unresponsive in intercourse affect the possibility that a woman will become pregnant?
- A. Makes pregnancy impossible.
 B. Greatly reduces possibility of pregnancy.
 C. Has no effect.
 D. Increases possibility of pregnancy.
 E. Reduces possibility unless her husband is very passionate.
-
63. By using a pregnancy test how soon after pregnancy could have occurred can a doctor know that the woman is, or is not, pregnant?
- A. Ten to twelve days.
 B. Two to three weeks.
 C. Four to six weeks.
 D. Three months or more.
 E. Pregnancy tests are not reliable.
-
64. Without the use of a laboratory test for pregnancy how soon after pregnancy could have occurred can a physician be sure that a woman is pregnant?
- A. After the first month.
 B. After the second month.
 C. During the third month.
 D. When he can hear the baby's heart.
 E. When the woman can feel the baby move.
-
65. For how long after a woman becomes pregnant can she and her husband safely continue their usual pattern of sex relations?
- A. Intercourse should stop at once.
 B. They can continue for three months at their usual rate.
 C. They can continue for six months but less frequently than before.
 D. They can continue as long as the woman feels no discomfort.
 E. They should seek and follow the advice of their doctor.
-
66. What usually happens to the cervix and the vagina when a woman is having a baby?
- A. They relax and are stretched as the baby passes through.
 B. The vagina is held open by the doctor or midwife.
 C. These openings must be enlarged by surgery.
 D. These openings are torn by pressure of labor.
 E. Pregnancy causes them to grow larger in preparation for birth.
-
67. What change usually occurs in the vagina as the result of having a baby?
- A. It is much larger.
 B. It is slightly larger.
 C. There is no change in size.
 D. The woman can feel greater pleasure in intercourse.
 E. The woman can feel less pleasure in intercourse.
-
68. What does size of male or female sex organs indicate?
- A. Size indicates whether the man or woman will be a good sex partner.
 B. Large sex organs mean greater sex desire and capacity.
 C. Size indicates how much the man or woman has masturbated.
 D. Large sex organs mean much experience in intercourse.
 E. Size of sex organs indicates none of the above.
-
69. Where can a person with low sex desire get a cream or a lotion that will cause him or her to want or be able to have sex relations more often?
- A. Drug stores sell them.
 B. They exist but contain harmful drugs and are not for sale.
 C. A doctor can prescribe these creams or lotions.
 D. Some people know how to make them from herbs, oils, etc.
 E. There are no such creams or lotions.
-
70. What is indicated about her sex desire and responsiveness by the size of a woman's breasts?
- A. Women with large breasts are more responsive in sex relations.
 B. Women with small breasts are more responsive in sex relations.
 C. Women with large breasts want sex relations more often.
 D. Women with small breasts want sex relations more often.
 E. Breast size is not related to sex desire or responsiveness.
-

Now go on to the next page.

Be sure to line up Page 8 with Column 3 of the answer pad

8

71. What is the effect of eating certain foods such as oysters, raw eggs, olives, celery, etc., on sex desire and on capacity?	<p>A. Noticeable increase in desire in young adults. B. Noticeable increase in capacity in older adults. C. Noticeable increase in both desire and capacity for all ages. D. Noticeable increase in desire and capacity in young adults. E. Little or no increase in either desire or capacity at any age.</p>
72. What is the effect of masturbation on sex desire, on capacity to reach orgasm, and on ability to cause pregnancy or to become pregnant later in life?	<p>A. Has no physical effect on later desire, capacity, or ability. B. Has no psychological effect on later desire, capacity or ability. C. The effect depends on how much the man or woman has masturbated. D. Reduces later desire, capacity and ability in men. E. Increases later desire and capacity in women.</p>
73. How does masturbation affect intelligence and emotional control?	<p>A. Causes some loss in both. B. May cause a nervous breakdown. C. Slows the growth of intelligence. D. The effect depends on how much one masturbates. E. Has no effect on either one.</p>
74. What are the effects of masturbation on the human body?	<p>A. Less strength. B. Temporary reduction of sexual tension. C. Retarded growth. D. Enlarged sex organs. E. Reduced resistance to disease.</p>
75. To what extent can men and women with syphilis or gonorrhea have sex relations?	<p>A. They want and can have sex relations more often. B. They want and can have sex relations less often. C. They want and can have sex relations as usual. D. They want but can't have sex relations. E. They neither want nor can have sex relations.</p>
76. What has happened to the man or woman who had a chancre of syphilis or a discharge from gonorrhea and these disappeared without medical treatment?	<p>A. The disease is cured; there is no further cause for worry. B. The uncured disease can not harm him or her but may harm others. C. The uncured disease may later harm him or her but will not others. D. The uncured disease is dangerous to the person and to others. E. The cured disease means the person is safe from having it again.</p>
77. How curable are syphilis and gonorrhea?	<p>A. Almost every case of either disease can be cured. B. Some cases of both diseases can be cured. C. Syphilis can not be cured; gonorrhea is easily cured. D. Gonorrhea can not be cured; syphilis is easily cured. E. These diseases can be cured only if treated soon after infection.</p>
78. How do sex relations during or after menopause affect a woman's physical and emotional health?	<p>A. This causes some physical distress or illness. B. This causes a nervous condition. C. This causes both physical and emotional illness. D. The effect depends on the woman's age when menopause begins. E. There is no change from the effect before menopause begins.</p>
79. How soon after the beginning of menopause may a woman safely discontinue the practice of birth control?	<p>A. As soon as she has missed three menstrual periods. B. As soon as she has missed six menstrual periods in a row. C. When she has not menstruated for one year. D. When she has not menstruated for two years. E. When she has not menstruated for four years.</p>
80. What happens to a woman's sex desire and capacity for orgasm during and after menopause?	<p>A. She has less desire and a lowered capacity for orgasm. B. She has a large increase in sex desire and capacity for orgasm. C. Her desire and capacity for orgasm remain about the same. D. Her desire and capacity are unchanged but sex relations are painful. E. There can be no orgasm after menopause.</p>

Put the Test Booklet aside and fill in the blanks on the answer pad.

WORD LIST

Use this list to look up the meaning of unfamiliar words in the inventory.

- Cervix*—The neck of the womb, a part of which extends into the vagina.
- Chancere*—The hard painless sore of syphilis.
- Circumcision*—A shortening of the loose skin at the end of the male sex organ by surgery.
- Clitoris*—Small female sex organ located in the vulva above the vaginal entrance.
- Condom*—A covering to be worn over the male sex organ during intercourse.
- Diaphragm*—A birth control device worn internally by the female over the cervix.
- Douche*—Flushing the vagina with a liquid.
- Ejaculation*—Discharge of seminal fluid by the male at the height of sexual excitement.
- Erection*—The enlarged and firm condition of the male sex organ during sexual arousal.
- Fertilization*—The joining of the male and female reproductive cells. Conception.
- Frigidity*—Coldness, without sexual warmth, inability to become or to remain sexually aroused.
- Gonorrhoea*—A disease of the inside linings of the male and female sex organs.
- Heterosexual*—Sexual in relation to the opposite sex.
- Homosexual*—Sexual in relation to the same sex.
- Hymen*—A rim of soft tissue partially closing the entrance to the vagina. The "maidenhead".
- Intercourse*—The joining of male and female sex organs in sex relations.
- Intrauterine Device*—A birth control device inserted by a physician into the cervix or into the womb.
- Labia*—The inner and outer lips at the opening to the vagina.
- Masturbation*—Self stimulation of one's sex organs.
- Menopause*—That time when a woman is losing her ability to have children.
- Menstruation*—The shedding of a lining of blood cells by the womb.
- Oral-genital*—Mouth to sex organ.
- Orgasm*—The highest point of sexual excitement in either male or female. The climax.
- Ovum*—The reproductive cell (egg) of the female. (Plural, ova.)
- Pertineum*—Area between the anus and the sex organs.
- Pregnancy*—The condition of a woman from the time her baby begins to develop until it is born.
- Safe Period*—That time in the female menstrual cycle when there is usually no female reproductive cell ready for union with a male cell.
- Semen*—Fluid containing male reproductive cells which is discharged by the male at orgasm.
- Sperm*—The reproductive cells (seed) of the male.
- Sterilization*—A surgical operation which prevents a male from releasing sperm cells or a female from releasing ova.
- Syphilis*—A disease of the blood which often is transmitted from one person to another during sexual contact.
- Vagina*—The female organ for sex relations serving as a passageway for menstrual flow and for the birth of a baby.
- Vulva*—The outside, visible parts of the female sex organs.
- Withdrawal*—Removal of the male sex organ from within the vagina just before ejaculation.
- Womb*—The female organ in which the unborn baby is protected and nourished. The uterus.

APPENDIX C

HUMAN SEXUALITY ATTITUDE SURVEY

The purpose of this survey is to assess the effectiveness of the Human Sexuality course and to evaluate an instrument of measurement. We need to have you answer all questions as honestly as you can. Your answers will be kept strictly confidential and will be used for research purposes only.

The following survey is designed to measure your attitudes concerning a variety of topics related to human sexuality. The survey is divided into two sections:

Section I: Attitude Survey

Section II: Vital Statistics

Your assistance and honest replies to the questions will be greatly appreciated. THANK YOU for your cooperation!!!

INSTRUCTIONS

The purpose of this study is to measure the meanings of certain ideas to various people. On each page you will find a different idea to be judged and beneath it a series of descriptive scales. You are to rate the idea on each of these scales in order. Please make your judgments on the basis of what these ideas mean to you at the present time in your life and not how you think you might feel later.

Here is how you are to use these scales:

If you feel that the idea at the top of the page is very closely related to one end of the scale, you should place your checkmark as follows:

fair X : _____ : _____ : _____ : _____ : _____ : _____ unfair

or

fair _____ : _____ : _____ : _____ : _____ : _____ : X unfair

If you feel that the idea is quite closely related to one end or the other end of the scale (but not extremely), you should place the checkmark as follows:

strong _____ : X : _____ : _____ : _____ : _____ : _____ weak

or

strong _____ : _____ : _____ : _____ : _____ : X : _____ weak

If the idea seems only slightly related to one side as opposed to the other side (but is not really neutral), then you should check as follows:

active _____ : _____ : X : _____ : _____ : _____ : _____ passive

or

active _____ : _____ : _____ : _____ : X : _____ : _____ passive

If you consider the idea to be neutral, or both sides of the scale to be equally associated with the idea, then you should place your checkmark in the middle space.

- IMPORTANT:
1. Place your checkmarks in the middle of the spaces, not on the boundaries.
 _____ : _____ : _____ : X ^{THIS} : _____ : _____ X ^{NOT THIS}
 2. Be sure to check every scale for every idea--DO NOT OMIT ANY
 3. Never put more than one checkmark on a single scale.
 4. Mark each scale as you feel it is related to the idea at the top of the page.

Do not look back and forth through the items. Do not try to remember how you checked earlier items. MAKE EACH ITEM A SEPARATE AND INDEPENDENT JUDGMENT. Work fairly quickly. Do not worry or puzzle over individual items. It is your first impressions, the immediate "feelings" about the items that we want. On the other hand, please do not be careless because we want your true impressions.

A 65 YEAR OLD MARRIED FEMALE ENGAGES IN SEXUAL INTERCOURSE ON THE
AVERAGE OF ONCE EVERY TWELVE DAYS

good _____ : _____ : _____ : _____ : _____ : _____ : _____ bad

beautiful _____ : _____ : _____ : _____ : _____ : _____ : _____ ugly

dirty _____ : _____ : _____ : _____ : _____ : _____ : _____ clean

nice _____ : _____ : _____ : _____ : _____ : _____ : _____ awful

unpleasant _____ : _____ : _____ : _____ : _____ : _____ : _____ pleasant

valuable _____ : _____ : _____ : _____ : _____ : _____ : _____ worthless

profane _____ : _____ : _____ : _____ : _____ : _____ : _____ sacred

immoral _____ : _____ : _____ : _____ : _____ : _____ : _____ moral

socially acceptable _____ : _____ : _____ : _____ : _____ : _____ : _____ socially unacceptable

rare _____ : _____ : _____ : _____ : _____ : _____ : _____ common

desirable _____ : _____ : _____ : _____ : _____ : _____ : _____ undesirable

abnormal behavior _____ : _____ : _____ : _____ : _____ : _____ : _____ normal behavior

healthy _____ : _____ : _____ : _____ : _____ : _____ : _____ unhealthy

A 65 YEAR OLD MARRIED MALE ENGAGES IN SEXUAL INTERCOURSE ON
THE AVERAGE OF ONCE A WEEK

good _____ : _____ : _____ : _____ : _____ : _____ : _____ bad
 beautiful _____ : _____ : _____ : _____ : _____ : _____ : _____ ugly
 dirty _____ : _____ : _____ : _____ : _____ : _____ : _____ clean
 nice _____ : _____ : _____ : _____ : _____ : _____ : _____ awful
 unpleasant _____ : _____ : _____ : _____ : _____ : _____ : _____ pleasant
 valuable _____ : _____ : _____ : _____ : _____ : _____ : _____ worthless
 profane _____ : _____ : _____ : _____ : _____ : _____ : _____ sacred
 immoral _____ : _____ : _____ : _____ : _____ : _____ : _____ moral
 socially acceptable _____ : _____ : _____ : _____ : _____ : _____ : _____ socially unacceptable
 rare _____ : _____ : _____ : _____ : _____ : _____ : _____ common
 desirable _____ : _____ : _____ : _____ : _____ : _____ : _____ undesirable
 abnormal behavior _____ : _____ : _____ : _____ : _____ : _____ : _____ normal behavior
 healthy _____ : _____ : _____ : _____ : _____ : _____ : _____ unhealthy

VIRGINITY IN FEMALES (Unmarried females who have not
engaged in sexual intercourse)

good _____ : _____ : _____ : _____ : _____ : _____ : _____ bad

beautiful _____ : _____ : _____ : _____ : _____ : _____ : _____ ugly

dirty _____ : _____ : _____ : _____ : _____ : _____ : _____ clean

nice _____ : _____ : _____ : _____ : _____ : _____ : _____ awful

unpleasant _____ : _____ : _____ : _____ : _____ : _____ : _____ pleasant

valuable _____ : _____ : _____ : _____ : _____ : _____ : _____ worthless

profane _____ : _____ : _____ : _____ : _____ : _____ : _____ sacred

immoral _____ : _____ : _____ : _____ : _____ : _____ : _____ moral

socially acceptable _____ : _____ : _____ : _____ : _____ : _____ : _____ socially unacceptable

rare _____ : _____ : _____ : _____ : _____ : _____ : _____ common

important _____ : _____ : _____ : _____ : _____ : _____ : _____ unimportant

unacceptable for _____ : _____ : _____ : _____ : _____ : _____ : _____ acceptable
myself (answer only for myself
if you are a female)

unacceptable for _____ : _____ : _____ : _____ : _____ : _____ : _____ acceptable
myself (answer only for myself
if you are a male)

would accept _____ : _____ : _____ : _____ : _____ : _____ : _____ would not accept
for others for others

ABORTION FOR A MARRIED PREGNANT WOMAN IN THE UNITED STATES

good _____ : _____ : _____ : _____ : _____ : _____ : _____ bad
 beautiful _____ : _____ : _____ : _____ : _____ : _____ : _____ ugly
 dirty _____ : _____ : _____ : _____ : _____ : _____ : _____ clean
 nice _____ : _____ : _____ : _____ : _____ : _____ : _____ awful
 unpleasant _____ : _____ : _____ : _____ : _____ : _____ : _____ pleasant
 valuable _____ : _____ : _____ : _____ : _____ : _____ : _____ worthless
 profane _____ : _____ : _____ : _____ : _____ : _____ : _____ sacred
 immoral _____ : _____ : _____ : _____ : _____ : _____ : _____ moral
 socially acceptable _____ : _____ : _____ : _____ : _____ : _____ : _____ socially unacceptable
 rare _____ : _____ : _____ : _____ : _____ : _____ : _____ common
 unacceptable _____ : _____ : _____ : _____ : _____ : _____ : _____ acceptable for
 for myself _____ : _____ : _____ : _____ : _____ : _____ : _____ myself
 would accept _____ : _____ : _____ : _____ : _____ : _____ : _____ would not accept
 for others _____ : _____ : _____ : _____ : _____ : _____ : _____ for others
 tragedy _____ : _____ : _____ : _____ : _____ : _____ : _____ blessing

YOUNG INFANT PLAYING WITH HIS (OR HER) GENITALS

good _____ : _____ : _____ : _____ : _____ : _____ : _____ bad
 beautiful _____ : _____ : _____ : _____ : _____ : _____ : _____ ugly
 dirty _____ : _____ : _____ : _____ : _____ : _____ : _____ clean
 nice _____ : _____ : _____ : _____ : _____ : _____ : _____ awful
 unpleasant _____ : _____ : _____ : _____ : _____ : _____ : _____ pleasant
 valuable _____ : _____ : _____ : _____ : _____ : _____ : _____ worthless
 profane _____ : _____ : _____ : _____ : _____ : _____ : _____ sacred
 immoral _____ : _____ : _____ : _____ : _____ : _____ : _____ moral
 socially _____ : _____ : _____ : _____ : _____ : _____ : _____ socially
 acceptable _____ : _____ : _____ : _____ : _____ : _____ : _____ unacceptable
 rare _____ : _____ : _____ : _____ : _____ : _____ : _____ common
 unacceptable _____ : _____ : _____ : _____ : _____ : _____ : _____ acceptable to
 to myself _____ : _____ : _____ : _____ : _____ : _____ : _____ myself
 desirable _____ : _____ : _____ : _____ : _____ : _____ : _____ undesirable
 ignore _____ : _____ : _____ : _____ : _____ : _____ : _____ punish

VITAL STATISTICS

DIRECTIONS: Please complete the following information about yourself. Where appropriate, fill in the blanks. All information will be kept in strict confidence. The information is necessary in order for us to analyze the results of the attitude and knowledge inventory.

SEX: (check one) Male Female

AGE: (to the nearest year) _____ years

RACE: (check one): White Black Other (name) _____

MARITAL STATUS: (check one)

Single Married Widowed Divorced Separated

IF SINGLE, CHECK THE FOLLOWING:

Not Dating Dating Going Steady Pinned

Engaged Other (describe): _____

NUMBER OF CHILDREN YOU HAVE: _____

CLASS: (check one) Freshman Sophomore Junior Senior

MAJOR FIELD OF STUDY: _____

CHILDHOOD RELIGIOUS TRAINING (check one):

Catholic Protestant Jewish None Other: _____

IN WHAT RELIGIOUS CLASS WOULD YOU PLACE YOURSELF (check one):

Very devout Devout Moderately Devout Slightly devout
 Inactive

IN AN AVERAGE MONTH, HOW MANY TIMES DO YOU ATTEND CHURCH (check one):

Never Once Twice Three times More than 3 times

SIZE OF COMMUNITY WHICH YOU ARE FROM (check one):

1,000,000 or more _____
500,000-1,000,000 _____
250,000-500,000 _____
100,000-250,000 _____
50,000-100,000 _____
25,000-50,000 _____
10,000-25,000 _____
5,000-10,000 _____
2,500-5,000 _____
1,000-2,500 _____
Under 1,000 _____

EDUCATION FATHER COMPLETED (circle or check highest grade completed):

High School 1 2 3 4 College 1 2 3 4 ___Masters ___Doctorate

Other _____

FATHER'S OCCUPATION (please be specific): _____

APPROXIMATE FATHER'S INCOME: _____

MOTHER'S OCCUPATION (check one): Check two responses if you mother combines a career with homemaking.

___Homemaker ___Professional ___Business Executive ___Clerical/Sales

___Skilled Manual ___Unskilled ___Other (describe) _____

EDUCATION MOTHER COMPLETED (Circle or check the highest grade completed):

High School 1 2 3 4 College 1 2 3 4 ___Masters ___Doctorate

Other _____

ORDINAL POSITION:

Number of older brothers _____ Number of younger brothers _____

Number of older sisters _____ Number of younger sisters _____

PRESENT LIVING ARRANGEMENT (check one):

___ Parental home

___ Dormitory

___ Sorority or Fraternity

___ Communal (group living in which men and women engage in sexual relations with a variety of partners)

___ Collective (group of people who have chosen for economic reasons to live together)

___ Own home with spouse

___ Living with one member of the opposite sex

___ Living with one member of the same sex

___ Other (describe): _____

The following questions have to do with your own sexual experience. The answers to these questions will help us to assess the relationship of knowledge to attitudes. Please answer the questions honestly. This information is strictly confidential and will be used for research purposes only.

Circle the appropriate response:

With how many DIFFERENT INDIVIDUALS have you had the following experiences?

1. Dating: 0-3
4-6
7-10
11-15
16-20
21 and over
2. Going steady: 0
1
2-3
4-5
6-10
over 10
3. Non-orgasmic petting: 0
1
2-3
4-5
6-10
over 10
4. Petting until you reach orgasm: 0
1
2-3
4-5
6-10
over 10
5. Homosexual relations: 0
1
2-3
4-5
6-10
over 10
6. Sexual intercourse: 0
1
2-3
4-5
6-10
over 10

7. Sexual intercourse which you paid for or for which you were paid:

0
1
2-3
4-5
6-10
over 10

With whom have you experienced sexual intercourse and with how many DIFFERENT INDIVIDUALS in each category?

8. Casual Acquaintances: 0

1
2-3
4-5
6-10
over 10

9. Close friends: 0

1
2-3
4-5
6-10
over 10

10. Steady: 0

1
2-3
4-5
6-10
over 10

11. Fiance: 0

1
2-3
4-5
6-10
over 10

12. What is the total number of individuals with whom you have experienced sexual intercourse? Fill in the blank.

_____ individuals

How many DIFFERENT TIMES have you had the following sexual experiences?

13. Non-orgasmic petting: 0

1
2-3
4-5
6-10
over 10

14. Petting until you reached orgasm: 0
1
2-3
4-5
6-10
over 10
15. Homosexual relations: 0
1
2-3
4-5
6-10
over 10
16. At the present time, on the average how many times per week do you masturbate: 0
1
2-3
4-5
6-10
over 10
17. Intercourse without you reaching orgasm: 0
1
2-3
4-5
6-10
over 10
18. Intercourse until you reached orgasm: 0
1
2-3
4-5
6-10
over 10
19. Intercourse which you paid for, or for which you were paid: 0
1
2-3
4-5
6-10
over 10
20. Had an abortion, or was the male responsible for impregnating a woman who did have an abortion: 0
1
2-3
4-5
6-10
over 10

21. Intercourse without contraception: 0
1
2-3
4-5
6-10
over 10
22. Intercourse with contraception: 0
1
2-3
4-5
6-10
over 10
23. Intercourse using the condom (rubber): 0
1
2-3
4-5
6-10
over 10
24. Intercourse using a diaphragm: 0
1
2-3
4-5
6-10
over 10
25. Intercourse using foam or jelly: 0
1
2-3
4-5
6-10
over 10
26. Intercourse using an intrauterine device (IDU): 0
1
2-3
4-5
6-10
over 10
27. Intercourse using the pill: 0
1
2-3
4-5
6-10
over 10

28. Intercourse using rhythm method: 0
1
2-3
4-5
6-10
over 10
29. Intercourse using withdrawal for prevention against pregnancy:
0
1
2-3
4-5
6-10
over 10

APPENDIX D

Family Life Department
 Home Economics Building
 Oregon State University
 Corvallis, Oregon 97331
 March 28, 1972

Dear:

We are sorry that the class enrollment for the Human Sexuality course was limited and that you were unable to gain admittance. The course is funded on an experimental basis this year and its continuance next year depends on obtaining evaluation of its effectiveness. We are forming a group consisting of students who registered for the course but were not admitted and are asking if you would help us. Your assistance would be of tremendous value in such an evaluation.

The time required from you would be approximately one hour next week and one hour near the end of the quarter. The evaluation will consist of completing a questionnaire. You may take the questionnaire at any of the following times in Home Ec 336:

<u>Mon., April 3</u>	<u>Tues., April 4</u>	<u>Wed., April 5</u>	<u>Thurs., April 6</u>
9:00-10:30	8:30-10:00	9:00-10:30	8:30-10:00
10:30-12:00	1:00-2:30	10:30-12:00	1:00-2:30
1:00-2:30	2:30-4:00	1:00-2:30	
2:30-4:00		2:30-4:00	

I will call you later this week to find what time you can come.

Thank you for your assistance.

Sincerely,

Vicki Schmall, Graduate
 Family Life Department

J. Richard Connelly, Asst Professor
 Family Life Department

APPENDIX D

Family Life Department
Home Economics Building
Oregon State University
Corvallis, Oregon 97331
May 15, 1972

Dear:

We need your help again!

In order to assess the attitude and knowledge changes resulting from the Human Sexuality course, we are giving a "post" test to both the class and control group.

As part of the control group, your participation in the post test is essential in obtaining a valid basis for comparison.

Your assistance is vital to the continuation of the course next year because without an evaluation it may not be offered again.

Please come to the following rooms during any of the following times:

MONDAY, MAY 22 8:15-4:30 HOME ECONOMICS 215

TUESDAY, MAY 23 8:15-12:00 HOME ECONOMICS 236
1:30-5:00 HOME ECONOMICS 236

You will fill out a questionnaire similar to the pretest. It will require one hour of your time.

If the above times are not convenient, please call 752-0152 and other arrangements will be made.

Many thanks for your help!!!

Sincerely,

Vicki Schmall, Graduate
Family Life Department

Dr. J. Richard Connelly
Assistant Professor
Family Life Department

APPENDIX E

Results of the Test for Reliability of the Sexual
Attitude Inventory

Concept	N	Pretest		Posttest		Change		Correlation	t-value
		Mean	S.D.	Mean	S.D.	Mean	S.D.		
1	63	18.02	6.72	17.41	7.70	.60	6.17	.64	.78
2	65	35.04	11.89	36.05	11.41	-1.00	4.60	.92	-1.75
3	65	33.43	12.20	33.98	12.00	-.55	4.29	.94	-1.04
4	64	28.95	9.49	28.87	9.97	.08	5.00	.87	.13
5	64	18.55	8.12	19.08	8.56	-.53	7.19	.63	-.59
6	63	18.46	9.16	18.82	8.95	-.37	5.84	.79	-.50
7	65	35.58	12.31	35.02	12.06	.57	6.93	.84	.66
8	63	23.44	12.71	24.46	13.25	1.02	4.75	.93	-1.70
9	65	29.05	12.94	29.68	13.15	-.63	5.78	.91	-.88
10	63	29.68	10.03	29.73	11.63	-.05	6.90	.81	-.05
11	63	25.32	9.69	24.40	10.08	.92	5.07	.87	1.44
12	63	28.77	8.03	27.32	9.33	1.40	5.23	.83	2.12*
13	65	41.43	11.02	41.35	11.52	.08	6.00	.86	.10
14	63	40.87	10.81	41.00	11.69	-.13	5.26	.90	-.19

Behavior Acceptability Scales

1	65	5.26	2.14	5.48	2.17	-.22	1.50	.76	-1.16
2	63	3.53	1.97	3.33	1.95	.09	1.10	.84	.69
3	63	4.65	2.38	4.60	2.41	.05	1.30	.85	.29
4	66	3.00	2.27	2.88	2.18	.12	1.38	.81	.72
5	29	3.66	1.84	3.72	1.87	-.07	.65	.94	-.57
6	64	2.95	1.82	2.98	1.82	-.03	1.11	.81	-.22
7	37	2.24	1.86	2.30	2.11	-.05	1.33	.78	-.25
8	28	3.18	2.06	2.79	1.77	.39	1.26	.79	1.65
9	65	1.72	1.15	1.63	1.15	.09	.93	.67	.80
10	65	5.20	2.11	5.09	2.16	.11	1.16	.85	.75
11	66	3.53	2.15	3.23	2.12	.30	1.36	.80	1.81
12	65	3.31	2.41	3.27	2.47	.03	.88	.94	.28
13	65	2.17	1.66	2.02	1.55	.15	.97	.82	1.29
14	66	4.23	2.42	4.29	2.42	-.06	1.15	.89	-.43
15	66	2.62	1.98	2.52	1.91	.11	1.01	.87	.85
16	36	4.92	2.37	4.61	2.43	.31	1.72	.74	1.07
17	64	2.83	1.93	2.88	1.87	-.05	1.25	.78	-.30
18	28	4.39	2.10	4.21	2.18	.18	.86	.92	1.09
19	36	2.31	1.80	2.14	1.66	.17	.70	.92	1.43
20	64	1.97	1.33	1.73	1.17	.23	.83	.79	2.26*
21	64	3.25	1.90	2.98	1.65	.27	1.34	.73	1.59
22	64	6.67	.94	6.70	.95	-.03	.71	.72	-.35
23	66	4.64	2.26	4.65	2.30	-.02	1.17	.87	-.11
24	62	6.52	1.28	6.60	1.26	-.08	.66	.87	.96
25	65	4.57	2.33	4.45	2.42	.12	1.10	.90	.90

Significance level

*.05

APPENDIX F
Means and Standard Deviations by Sex for Each of the Research Groups on
the Pretest of the Sexual Attitude Inventory

Concept	Experimental				Control Group II				Sociology			
	Males		Females		Males		Females		Males		Females	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
1 Elderly female	19.28	7.67	16.18	6.67	16.91	6.87	17.32	8.28	18.57	7.02	17.89	7.04
2 Premarital sex, casual acquaint- tance	25.22	8.81	38.21	8.15	28.07	10.73	37.60	11.38	29.24	11.71	39.51	9.85
3 Abortion, unmarried	24.33	8.44	29.26	11.10	27.11	8.45	29.24	9.74	35.83	11.95	31.50	12.22
4 Masturbation, male	25.13	7.94	25.34	8.53	22.83	7.97	25.17	8.54	29.52	9.32	28.58	9.61
5 Elderly male	16.65	6.46	16.13	7.28	17.20	6.74	16.76	8.46	18.24	7.46	18.61	8.67
6 Virginity, female	25.60	8.97	21.11	8.27	24.65	9.17	19.62	9.81	19.92	10.09	17.50	8.28
7 Abortion, married	24.97	9.05	28.51	11.81	27.40	10.08	28.27	10.26	39.17	11.46	32.69	12.36
8 Premarital sex, engaged couple	13.46	4.80	17.44	9.35	17.39	9.49	19.12	9.51	22.45	12.81	24.58	12.45
9 Premarital sex, affectionate relationship	16.67	7.07	22.92	11.50	21.43	10.17	25.15	11.84	26.28	13.20	31.28	12.45
10 Masturbation, female	24.05	7.74	29.62	10.43	23.57	8.53	29.55	10.03	29.55	9.42	30.36	10.79
11 Virginity, male	31.33	7.82	27.11	8.92	29.96	8.38	27.73	9.93	29.29	8.70	22.14	9.36
12 Infant handling genitals	27.18	8.08	25.61	8.15	24.63	9.39	27.32	7.82	28.66	6.70	28.89	8.87
13 Male homosexual	38.73	10.81	38.00	9.30	37.52	11.61	32.55	9.55	41.66	11.49	41.00	10.74
14 Female homosexual	37.41	9.59	39.43	9.71	36.98	11.15	38.91	9.42	39.52	11.04	41.50	10.57

APPENDIX G

Responses of Males and Females in the Experimental Group on the
Pretest and Posttest of the Sexual Attitude Inventory

Concept	Pretest		Posttest		Change		
	Mean	S.D.	Mean	S.D.	Mean	S.D.	t-value
<u>Experimental Males (N = 40)</u>							
1 Elderly female	19.28	7.66	14.67	5.15	4.98	9.51	3.31**
2 Prem. sex, cas acq	25.23	8.81	22.45	8.11	2.78	6.54	2.69*
3 Abortion, unmarried	24.33	8.43	21.60	7.69	2.72	6.68	2.58*
4 Masturbation, male	25.13	7.94	20.18	7.73	4.95	5.02	6.24***
5 Elderly male	16.65	6.46	13.43	4.81	3.22	6.52	3.12**
6 Virginity, female	25.97	8.77	24.41	9.91	1.52	6.94	1.39
7 Abortion, married	25.33	9.20	20.85	7.32	4.48	6.72	4.22***
8 Prem. sex, engaged	14.15	6.43	13.68	6.34	0.48	2.79	1.09
9 Prem. sex, affec. relationship	17.15	7.62	16.03	7.29	1.13	4.75	1.50
10 Masturb., female	24.63	8.46	19.23	7.86	5.40	5.51	6.20***
11 Virginity, male	31.33	7.82	29.13	7.25	2.20	6.89	2.01
12 Infant handling genitals	27.18	8.08	22.65	7.96	4.53	6.87	4.17***
13 Male homosexual	38.73	10.81	32.23	11.91	6.50	8.52	4.83***
14 Female homosexual	37.08	9.70	30.68	10.61	6.40	7.89	5.13***
<u>Experimental Females (N = 62)</u>							
1 Elderly female	16.21	6.62	13.32	6.60	2.89	5.65	4.03***
2. Prem. sex, cas acq	38.21	8.15	34.24	9.58	3.97	7.35	4.25***
3 Abortion, unmarried	29.26	11.10	25.97	10.23	3.29	5.65	4.59***
4 Masturbation, male	25.34	8.53	19.32	7.24	6.02	6.88	6.89***
5 Elderly male	16.13	7.28	14.25	8.05	1.87	7.17	2.05*
6 Virginity, female	21.22	8.28	21.24	8.89	-.35	5.76	-.48
7 Abortion, married	28.56	11.72	25.21	10.15	3.35	6.88	3.83***
8 Prem. sex, engaged	17.43	9.28	16.45	8.78	0.98	7.05	1.09
9 Prem. sex, affec. relationship	22.95	11.41	21.45	10.41	1.50	7.66	1.54
10 Masturb., female	29.60	10.35	22.21	8.60	7.39	7.58	7.68***
11 Virginity, male	27.05	8.98	25.95	9.08	1.08	6.13	1.39
12 Infant handling genitals	25.39	9.26	22.26	7.92	3.48	7.10	3.89***
13 Male homosexual	38.00	9.30	31.52	10.96	6.37	9.93	5.05***
14 Female homosexual	39.43	9.71	31.67	11.07	7.63	10.68	5.63***

Significance level: *.05, **.01, ***.001

APPENDIX H
 Pretest Means and Standard Deviations on the Sexual Attitude Inventory by
 College Class

<u>Group</u>	<u>Class</u>	<u>Concept</u>									
		1 Elderly female		2 Premarital sex-casual acquaintance		3 Abortion, unmarried		4 Masturbation, male		5 Elderly male	
		Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Experimental											
	Freshman	18.35	7.66	32.45	11.33	27.75	9.67	24.40	7.07	16.15	7.31
	Sophomore	17.33	7.21	35.24	10.01	26.39	10.43	25.06	8.46	15.70	6.28
	Junior	17.18	7.63	34.00	11.90	29.64	12.37	27.27	9.95	17.45	9.16
	Senior	16.96	6.86	30.30	9.12	26.26	9.28	24.48	7.50	16.33	5.52
Control II											
	Freshman	17.97	10.13	39.84	9.84	31.29	10.01	28.10	8.78	18.29	9.63
	Sophomore	18.30	7.70	34.93	13.14	28.56	9.85	23.85	7.87	18.26	8.21
	Junior	14.36	5.02	33.40	13.10	26.20	7.60	21.24	7.47	14.12	5.61
	Senior	17.81	6.71	28.94	10.21	27.35	9.15	23.24	8.10	16.95	6.82
Sociology											
	Freshman	20.04	6.68	34.12	12.73	37.27	12.18	30.58	6.74	20.58	7.52
	Sophomore	16.00	6.54	38.84	10.40	29.94	13.59	29.56	13.34	15.05	6.78
	Junior	16.85	6.81	31.38	11.57	31.23	11.78	27.23	8.09	16.54	7.02
	Senior	19.17	9.93	31.50	9.50	32.50	8.22	23.33	7.20	20.00	8.49

6 Virginity, female		7 Abortion, married		8 Premarital sex, engaged		9 Premarital sex, affec. relation.		10 Masturbation female		11 Virginity, males	
Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
18.45	8.17	28.50	10.25	17.75	9.96	21.20	11.45	25.35	8.38	25.15	10.78
23.85	8.67	26.70	11.13	14.85	7.41	19.70	9.85	29.67	10.08	29.79	7.52
23.36	9.27	28.67	13.18	15.48	6.40	21.71	11.36	29.24	11.47	29.10	8.64
24.56	8.36	25.38	9.31	16.12	8.78	19.92	10.02	24.81	8.55	29.93	8.19
17.68	11.16	30.39	11.72	22.90	12.00	28.23	12.24	32.0	9.32	25.90	11.10
18.85	8.56	27.37	11.25	17.19	7.53	24.30	10.64	27.63	9.66	27.11	8.83
23.72	8.93	26.32	7.80	15.08	7.44	20.88	10.03	23.00	7.65	29.60	8.75
25.14	8.68	27.42	9.48	17.92	8.73	21.49	11.25	25.89	10.63	31.08	8.29
17.27	8.94	38.38	11.81	25.92	11.44	32.65	12.40	32.35	8.76	24.60	11.24
19.50	10.22	34.61	14.09	21.50	14.77	26.94	13.60	31.06	13.09	25.12	8.75
19.38	9.31	31.54	12.52	24.92	12.89	26.23	13.42	26.31	7.62	24.92	9.56
18.20	6.22	35.00	9.88	14.50	6.83	23.00	11.17	23.83	7.88	27.50	8.09

12 Infant handling genitals		13 Male homosexual		14 Female homosexual	
Mean	S.D.	Mean	S.D.	Mean.	S.D.
26.80	6.73	39.75	9.72	40.25	9.08
25.52	7.38	38.76	9.30	39.12	10.07
26.86	8.51	38.00	10.51	38.91	9.07
26.15	9.86	36.81	10.53	36.48	10.27
28.03	7.57	40.84	7.83	41.65	8.09
25.89	9.89	36.67	10.58	38.07	10.19
26.36	8.23	35.80	8.39	37.48	9.36
25.14	8.59	36.11	12.43	35.68	11.62
29.46	6.40	46.23	9.71	44.81	10.03
26.94	8.53	36.84	11.80	37.84	11.05
27.08	8.08	38.38	9.62	37.38	9.61
35.00	11.00	43.00	103.20	41.00	10.53

APPENDIX I

Response of Males and Females on the Pretest and Posttest of the Behavior Acceptability Scales for Self

Concept	Pretest		Posttest		Mean	Change	
	Mean	S.D.	Mean	S.D.		S.D.	t-value
<u>Males (N = 40)</u>							
1 Elderly female	2.90	2.01	2.50	1.92	0.04	1.41	1.79
2 Prem. sex, cas. acq.	2.40	1.75	2.03	1.62	0.48	1.47	2.07*
3 Abortion, unmarried	2.65	1.75	2.05	1.28	0.06	1.10	3.45**
4 Masturbation, male	-----	-----	-----	-----	-----	-----	-----
5 Elderly male	2.84	1.78	3.10	2.20	-0.33	1.93	1.08
6 Virginity, female	2.38	1.82	2.71	2.41	-0.25	2.08	0.76
7 Abortion, married	1.35	0.83	1.33	0.92	0.03	0.36	0.54
8 Prem. sex, engaged	1.68	1.29	1.70	1.36	-0.03	0.66	1.66
9 Prem. sex, affec. relationship	-----	-----	-----	-----	-----	-----	-----
10 Masturb., female	5.13	1.99	4.95	2.09	0.18	0.98	1.16
11 Virginity, male	-----	-----	-----	-----	-----	-----	-----
12 Infant handling genitals	2.59	1.63	2.08	1.30	0.50	1.15	2.75**
13 Male homosexual	6.75	0.74	6.55	1.18	0.20	0.94	1.35
14 Female homosexual	6.15	1.35	5.89	1.38	0.40	1.98	1.28
<u>Females (N = 62)</u>							
1 Elderly female	6.29	1.34	6.11	1.70	0.18	1.29	1.10
2 Prem. sex, cas. acu.	3.55	2.41	3.30	2.41	0.26	1.24	1.65
3 Abortion, unmarried	-----	-----	-----	-----	-----	-----	-----
4 Masturbation, male	3.21	2.32	3.29	2.27	-0.06	2.16	0.22
5 Elderly male	-----	-----	-----	-----	-----	-----	-----
6 Virginity, female	4.10	2.51	3.68	2.57	0.42	1.67	1.98
7 Abortion, married	2.66	2.22	2.56	2.27	0.97	1.24	6.16***
8 Prem sex, engaged	3.48	2.43	3.42	2.44	0.06	1.60	0.30
9 Prem. sex, affec. relationship	4.52	2.19	3.37	2.05	1.15	1.84	4.92***
10 Masturb., female	-----	-----	-----	-----	-----	-----	-----
11 Virginity, male	3.02	2.00	2.75	1.95	0.26	1.53	1.34
12 Infant handling genitals	2.68	1.79	2.20	1.51	0.52	1.74	2.35
13 Male homosexual	6.73	0.90	6.45	1.13	0.27	2.09	1.02
14 Female homosexual	6.79	0.90	6.64	1.09	0.15	1.42	0.83

Significance level: *.05, **.01, ***.001

APPENDIX J

Pretest Means and Standard Deviations on the Behavior Acceptability Scales for Self of the Sexual Attitude Inventory

<u>Group</u>	<u>Class</u>	<u>Scales</u>											
		1 Prem Sex cas acqu. Mean S.D.		2 Abortion unmarr. Mean S.D.		3 Mastur Male (only) Mean S.D.		4 Virginit Fem. (only) Mean S.D.		5 Vir-Fem. (Male only) Mean S.D.		6 Abortion married Mean S.D.	
Experimental	Freshman	5.05	2.35	3.00	2.13	3.00	2.24	2.85	1.99	3.43	1.81	3.95	2.37
	Sophomore	5.52	2.06	3.27	2.43	2.82	1.78	3.48	2.23	2.00	1.63	3.76	2.61
	Junior	5.00	2.51	3.32	2.40	3.13	2.30	4.07	2.84	2.29	1.25	3.05	2.42
	Senior	4.19	2.37	2.78	2.01	2.20	1.08	2.33	2.02	3.43	1.91	2.92	2.22
Control II	Freshman	6.13	1.69	3.83	2.40	3.50	2.38	2.56	2.01	1.40	0.89	3.87	2.38
	Sophomore	5.56	1.95	3.78	2.64	2.70	1.64	2.47	2.00	2.50	1.65	3.74	2.54
	Junior	4.92	2.47	2.92	2.36	1.63	0.92	3.94	2.36	2.50	2.14	3.44	2.36
	Senior	4.03	1.99	2.73	2.14	2.83	2.15	5.64	1.82	2.52	1.78	2.76	2.20
Sociology	Freshman	4.54	2.34	5.46	2.12	3.67	0.98	2.15	1.86	2.60	1.72	5.50	1.90
	Sophomore	5.63	1.98	3.39	2.57	4.00	2.73	2.36	1.69	3.50	2.20	5.28	2.32
	Junior	5.46	2.14	4.75	2.05	4.00	2.10	2.00	1.41	3.20	2.39	4.69	2.10
	Senior	6.16	1.17	4.50	2.51	2.00	1.42	2.25	2.50	5.50	2.12	4.17	2.56

<u>Scales</u>															
7 Prem Sex, engaged		8 Prem Sex, affec rel		9 Mast fem (fem only)		10 Vir Male (male only)		11 Vir Male (fem only)		12 Infant genitals		13 Male homosex		14 Female homosex	
Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
2.85	2.48	2.98	2.33	3.93	2.28	5.14	2.26	2.69	1.80	2.85	1.76	6.80	0.62	6.15	1.57
2.06	1.77	2.82	2.37	4.61	2.11	5.80	1.14	2.64	1.79	2.36	1.69	6.78	0.75	6.85	0.57
1.52	1.21	2.81	2.45	5.14	2.14	3.50	2.33	4.00	2.18	2.68	1.64	6.36	1.36	6.45	1.34
2.12	1.97	2.46	2.12	3.82	2.40	5.53	1.81	2.91	2.26	2.64	1.68	6.96	0.20	6.52	1.05
3.39	2.45	4.72	2.25	5.64	1.77	4.17	1.94	2.21	1.47	3.32	1.80	6.61	0.95	6.81	0.59
2.74	2.25	4.22	2.34	4.71	2.44	4.56	2.12	2.82	2.19	3.00	1.98	6.33	1.44	6.38	1.42
1.80	1.29	3.20	2.38	3.22	1.93	4.28	2.63	3.61	2.62	2.84	1.86	6.48	1.16	6.52	1.05
1.84	1.69	2.38	1.99	3.36	2.21	4.34	2.50	3.79	2.19	2.35	1.46	6.36	1.59	6.11	1.60
3.92	2.38	4.62	2.25	5.92	1.73	4.40	1.92	1.55	1.04	3.69	1.74	6.77	0.71	6.76	0.83
2.53	2.29	3.89	2.58	4.45	2.70	3.57	2.44	2.25	1.91	2.79	1.58	6.37	1.42	6.21	1.58
3.85	2.44	4.38	2.60	5.00	2.33	4.80	2.39	2.00	1.42	2.85	1.95	6.92	0.28	6.42	1.00
1.33	0.82	2.50	1.97	4.00	2.58	5.00	2.83	3.25	2.21	3.67	2.73	6.67	0.82	6.83	0.41

APPENDIX K

Responses of Males and Females in the Experimental Group on the Pretest and Posttest of the Sexual Attitude Inventory of the Behavior Acceptability for Others Scales

Behavior Acceptability Scales	Pretest		Posttest		Change		
	Mean	S.D.	Mean	S.D.	Mean	S.D.	t-value
<u>Males</u>							
1 Premarital sex, casual acquaintance	2.38	1.46	2.00	1.38	0.38	1.51	1.59
2 Abortion, unmarried	2.18	1.82	1.55	1.08	0.63	1.50	2.66*
3 Masturbation, male	2.03	1.31	1.80	1.22	0.23	1.48	0.98
4 Virginitv, female	2.10	1.27	1.67	1.40	0.43	1.50	1.81
5 Abortion, married	1.95	1.53	1.30	0.61	0.65	1.39	2.96**
6 Premarital sex, engaged couple	1.35	0.70	1.33	0.73	0.03	0.58	0.33
7 Premarital sex, affectionate relationship	1.78	1.29	1.38	0.74	0.40	0.90	2.81
8 Masturbation, female	2.50	1.53	1.55	0.78	0.95	1.30	4.62***
9 Virginitv, males	2.20	1.60	1.95	1.57	0.30	0.91	2.09*
10 Male homosexual	4.05	2.40	3.05	2.09	1.00	1.59	3.98***
11 Female homosexual	4.03	2.28	2.83	1.96	1.20	1.94	3.91***
<u>Females</u>							
1 Premarital sex, casual acquaintance	3.23	1.89	2.65	1.68	0.58	-1.56	2.93**
2 Abortion, unmarried	2.11	1.67	1.87	1.50	0.24	0.86	2.20*
3 Masturbation, male	2.15	1.32	1.40	0.66	0.74	1.11	5.25***
4 Virginitv, female	1.34	0.79	1.11	0.32	0.21	0.85	1.95
5 Abortion, married	2.71	2.15	1.87	1.44	0.84	1.56	4.24***
6 Premarital sex, engaged couple	1.55	1.21	1.26	0.67	0.29	0.87	2.62*
7 Premarital sex, affectionate relationship	1.81	1.33	1.73	1.29	0.08	1.00	0.63
8 Masturbation, female	2.73	1.91	1.87	1.31	0.85	1.43	4.68***
9 Virginitv, males	1.46	0.74	1.41	0.80	0.05	0.98	0.40
10 Male homosexual	4.13	2.19	2.64	1.90	1.47	2.05	5.65***
11 Female homosexual	4.26	2.20	2.72	2.03	1.52	2.22	5.39***

Significance level: *.05, **.01, ***.001

APPENDIX L

Pretest Means and Standard Deviations on the Behavior Acceptability Scales for Others of the Sexual Attitude Inventory

<u>Group</u>	<u>Class</u>	<u>Scales</u>									
		1 Premar Sex Cas Acqu		2 Mastur for male		3 Virginit, y, females		4 Abortion, married		5 Premar Sex, engaged	
		Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Experimental	Freshman	3.05	2.11	2.20	1.82	1.90	1.25	1.80	1.32	2.75	2.05
	Sophomore	2.91	1.93	1.91	1.44	2.12	1.47	1.55	1.03	2.55	1.99
	Junior	2.77	1.31	2.32	2.15	2.36	1.50	1.48	0.87	2.57	2.36
	Senior	2.85	1.75	2.22	1.65	2.00	0.96	1.77	1.07	1.85	1.49
Control II	Freshman	3.29	1.97	2.23	1.63	2.58	1.65	1.35	1.05	2.48	2.05
	Sophomore	3.19	1.96	1.85	1.29	1.85	1.29	1.52	0.94	2.15	1.61
	Junior	3.16	1.65	1.64	0.99	1.72	0.94	1.32	0.80	2.04	1.77
	Senior	2.49	1.69	1.84	1.42	1.86	1.06	1.86	1.36	1.81	1.22
Sociology	Freshman	3.69	1.85	3.58	2.32	3.44	1.39	1.96	1.22	4.19	1.90
	Sophomore	3.16	2.24	2.42	2.19	2.74	2.42	1.58	1.02	3.37	2.39
	Junior	3.08	1.68	2.77	2.39	2.85	1.72	1.46	0.66	2.31	1.84
	Senior	3.81	1.48	3.33	3.25	2.17	1.17	2.33	2.16	3.83	2.14

<u>Group</u>	<u>Class</u>	<u>Scales</u>											
		6 Premar sex		7 Mastur.,		8 Virginit		9 Infant,		10 Male,		11 Female	
		Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Experimental	Freshman	1.70	1.59	1.95	1.67	2.15	1.35	2.15	1.76	4.40	2.37	4.25	2.32
	Sophomore	1.39	0.66	1.73	1.13	2.91	1.93	1.45	0.79	3.97	2.28	3.94	2.30
	Junior	1.29	0.72	1.76	1.55	2.86	2.01	1.45	0.80	4.45	2.13	4.73	2.14
	Senior	1.50	1.17	1.73	1.08	2.42	1.68	2.08	1.32	3.73	2.31	3.92	2.17
Control II	Freshman	1.90	1.42	2.45	1.67	2.94	1.71	1.58	1.46	4.63	2.01	5.19	1.99
	Sophomore	1.37	0.79	1.85	1.49	2.52	1.97	1.30	0.61	4.33	2.39	4.15	2.57
	Junior	1.32	0.56	1.76	1.05	2.04	1.14	1.72	1.31	4.20	1.78	4.12	1.92
	Senior	1.59	1.24	2.05	1.62	2.38	1.67	1.84	1.32	3.11	2.41	3.16	2.19
Sociology	Freshman	2.62	1.55	3.35	1.87	3.50	1.82	2.15	1.12	5.61	1.79	5.42	1.72
	Sophomore	1.84	1.95	2.16	2.01	2.68	2.33	1.47	1.01	3.95	2.48	3.63	2.48
	Junior	2.08	1.66	1.92	1.71	2.54	1.66	2.00	1.53	4.31	2.25	4.46	2.37
	Senior	1.67	1.03	2.00	1.55	1.83	1.33	2.50	2.34	5.17	2.14	5.17	2.56