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THE DEVELOPMENT AND EFFECT OF A MULTIMEDIA PRESENTATION UPON KNOWLEDGES ABOUT A UNIVERSITY GENERAL PHYSICAL EDUCATION PROGRAM

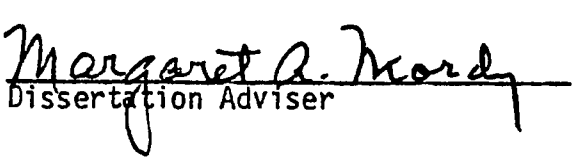
by

Claudia Jean Ferguson

A Dissertation Submitted to
the Faculty of the Graduate School at
The University of North Carolina at Greensboro
in Partial Fulfillment
of the Requirements for the Degree
Doctor of Education

Greensboro
1978

Approved by



Dissertation Adviser

APPROVAL PAGE

This dissertation has been approved by the following committee of the Faculty of the Graduate School at the University of North Carolina at Greensboro.

Dissertation Adviser ____________________

Committee Members ____________________

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March 17, 1978

Date of Acceptance by Committee

FERGUSON, CLAUDIA JEAN. The Development and Effect Of A Multimedia Presentation Upon Knowledges About A University General Physical Education Program. (1978)
Directed by: Dr. Margaret A. Mordy. Pp. 113

This investigation sought to develop a physical education multimedia presentation designed to inform students about the UNC-G General Physical Education Program, and to determine the effect of the presentation on the program knowledges of incoming freshmen students. The preliminary preparation included the following steps: (a) informal interviews with the UNC-G physical education faculty, (b) the development of a knowledge test, and (c) the development of a physical education multimedia presentation.

Twelve members of the UNC-G physical education faculty were interviewed during the spring semester, 1977. The results of the interviews were utilized in determining the content of the knowledge test and the multimedia presentation. A criterion-referenced mastery test consisting of 34 true/false items was constructed to measure student knowledges about the UNC-G General Physical Education Program. Content validity was established based upon the judgment of three selected test judges. The physical education multimedia presentation consisted of: (a) a slide/tape series, (b) a set of five activity booklets, and (c) an activity brochure.

Data were collected over a four day period using the Solomon Four-Group Design. The subjects for this study were 240 incoming freshmen students who were enrolled in the UNC-G General Physical Education Program during the fall semester, 1977. The 240 subjects were randomly assigned to one of the four experimental groups.

The effectiveness of the multimedia presentation was determined by: (a) multivariate analysis of variance and the two resultant univariate analyses of variance utilizing the Posttest Knowledge Test Scores and the Posttest Don't Know Scores, (b) utility indices, (c) crosstabulation of treatment and criterion score, and (d) frequency distributions with regard to treatment groups.

Findings revealed that there was a significant difference, .0001 level, in the knowledges about the UNC-G General Physical Education Program between incoming freshmen who did and did not view the multimedia presentation. Subjects who viewed the multimedia presentation scored higher on the knowledge posttest and checked significantly less "don't know" answers than subjects who did not view the presentation. The utility index revealed that over 40% of the total variability was accounted for by the Media condition. Further, the crosstabulation results showed that obtaining the criterion score of 29 was dependent upon viewing the multimedia presentation.

PLEASE NOTE:

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that will not reproduce well
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in the best possible way.

UNIVERSITY MICROFILMS.

ACKNOWLEDGMENTS

Sincere appreciation is extended to all who have assisted in the completion of this dissertation. A special thanks to Dean Margaret Mordy for her wisdom, patience and direction; to Dr. Hugh Hagaman and Dr. Alex McNeill for their continued support and constant encouragement in the development of the multimedia presentation; to Dr. Gail Hennis for her advice with the development of the objective knowledge test and statistical portion of this investigation; and finally to Dr. Elizabeth Umstead for her understanding, patience, and helpful suggestions.

My gratitude also goes to Dr. Rosemary McGee for her helpful suggestions and assistance in the construction of the knowledge test and to Patricia Beitel for her invaluable assistance with the statistical procedures, computer programming, and test administration.

Finally, a special expression of thanks is extended to Chris Kent for her artistic help with the development of the brochure and activity booklets and to Roy Holman and Janice Progen for the use of activity photographs of snow skiing, hiking, and backpacking/camping.

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CHAPTER I

INTRODUCTION

Traditionally, physical education has been required of all students at most American colleges and universities (Barr, 1933; Shaw & Rogers, 1946; Ogilvie, 1954; Oxendine, 1961, 1969, & 1972; Cogan, 1969). When physical education was required, physical educators did not have to be concerned with attracting students and maintaining enrollment in the general physical education program. Physical educators already had a "captive" audience.

Within the last decade, there has been a significant move from required physical education to elective or voluntary programs (Cogan, 1969; Chase, 1972; Thomas, 1973; Hodges, 1974; Oxendine, 1978). Research studies have reported an initial decline in student enrollment in physical education when a change from a required to an elective program occurred (Oxendine, 1969 & 1972). With the "threat" of lower student enrollment, physical educators feared the loss of faculty positions, facilities, budgetary support, and in some cases total programs.

A solution to the initial enrollment decline appeared to be that of informing students about the general physical education program and the potential which the program had for contributing to their education (NASPE, 1975). Rosenstein (1975) suggests that adults are able to make more intelligent decisions regarding a subject when they are better informed. Thus, publicity becomes essential in letting them know what is available (Bruckner, 1973).

Recently, the Physical Education Division of the School of Health, Physical Education, and Recreation at the University of North Carolina at Greensboro accepted a committee proposal to drop the current one year physical education requirement. If the proposal is accepted by the University, the General Physical Education Program will become totally elective. This investigation represented an initial attempt to develop a physical education multimedia presentation designed to inform students about the UNC-G General Physical Education Program, and to determine the effect of the presentation on the program knowledges of incoming freshmen students. The results of the study have implications (a) for understanding what other student groups know about the General Physical Education Program, (b) for planning further publicity programs, and (c) for further media research projects dealing with publicizing physical education programs.

Statement of the Problem

This investigation sought to: (a) develop an objective test to measure student knowledges about the UNC-G General Physical Education Program, (b) develop a physical education multimedia presentation designed to inform incoming freshmen about the program, and (c) determine the effect of the multimedia presentation on the program knowledges of incoming freshmen students.

Questions which this study specifically sought to answer were divided into two parts. The first part of the study included the following questions which were concerned with the development of the knowledge test and the multimedia presentation:

1. What aspects of the UNC-G General Physical Education Program do the physical education faculty believe incoming freshmen students should know?

2. Does the objective knowledge test have content validity?

3. Does the objective knowledge test include the same aspects as the multimedia presentation?

The second part of the study included the following questions concerned with the effect of the multimedia presentation upon the program knowledges of incoming freshmen students:

4. Is there a difference in the knowledges about the UNC-G General Physical Education Program between incoming freshmen who have and have not viewed the multimedia presentation?

5. Is there a difference in the number of questions answered "don't know" by incoming freshmen who have and have not viewed the multimedia presentation?

6. Is there pretesting effect?

7. Is there an interaction of the media and testing conditions?

Definition of Terms

The terms specifically related to the study have been defined as follows.

Activity Booklet--specific information about each activity offered in the UNC-G General Physical Education Program arranged in a notebook format.

Activity Brochure--a folded fact sheet including general information about the UNC-G physical education activity offerings and university regulations.

Criterion Score--a score of 29 on the objective knowledge test.

Don't Know Score--the total number of questions answered "don't know" on the objective knowledge test.

Incoming Freshmen--students who have had no previous college experience; students entering college for the first time.

Knowledge Score--the total number of questions answered correctly on the objective knowledge test which represented what incoming freshmen know about the UNC-G General Physical Education Program.

Physical Education Multimedia Presentation--a presentation consisting of a slide/tape series, five activity booklets, and an activity brochure designed to inform freshmen about the UNC-G General Physical Education Program.

Slide/tape Series--slides of physical education activities combined with an audiotape narration giving an overview of the UNC-G General Physical Education Program.

UNC-G General Physical Education Program--the physical education program designed to meet the needs and interests of the general college students at the University of North Carolina at Greensboro.

Assumptions Underlying the Research

The following assumptions have been accepted in regard to this study:

1. Incoming freshmen know little about the UNC-G General Physical Education Program.

2. Incoming freshmen students who are enrolled in the UNC-G General

Physical Education Program are representative of the total freshman student body.

3. One day between the initial administration of the knowledge test and the multimedia presentation does not allow for contamination of posttest information.

Scope of the Study

Data were collected between the dates of August 25 and August 30, 1977 at the University of North Carolina at Greensboro. The study utilized 240 incoming freshmen enrolled in the UNC-G General Physical Education Program during the fall semester, 1977.

There were two independent variables, each with two levels. The primary independent variable was the physical education multimedia presentation with levels consisting of viewing or not viewing the presentation. The second independent variable was the testing condition with the levels delineated as pre/posttest and posttest only. The dependent variables were the posttest knowledge score and the posttest don't know score on the objective knowledge test.

CHAPTER II

REVIEW OF LITERATURE

The purpose of this study was to develop a physical education multimedia presentation designed to inform freshmen about the UNC-G General Physical Education Program, and to determine the effectiveness of the presentation upon students' knowledges. Consequently, a literature review concerning the use and effectiveness of instructional media to teach adults was conducted. The following review was limited to: (a) studies which utilized slides, booklets, brochures, and/or a multimedia format, (b) studies in which media effectiveness was assessed by scores on an objective achievement test, and (c) studies which were published during the period from 1967 to the present. Criterion-referenced mastery test construction was also considered an important area to review.

Use and Effectiveness of Instructional Media

Reports of research studies constituted only a small portion of the vast body of literature on the use of instructional media to teach adults which was published during the period covered by this review. Most of this non-experimental literature consisted of surveys and reports of informal evaluations which did not attempt to assess the instructional effectiveness of audiovisual media. Much of the data offered were in the form of questionnaire responses, cost figures,

services provided, and extent of use (Campeau, 1974). Such studies were omitted from this review.

Wells et al. (1973) conducted a study to discover how effectively three visual media helped to convey concepts involving the dimensions of time, space, and motion. The three visual media were sequential still photographs, slides, and motion pictures.

Subjects were randomly assigned to one of six groups, and the groups were randomly assigned to one of the three presentation modes in either a "timed" or "non-timed" format. All three presentation modes were developed from the motion picture footage to insure that all subjects would view materials containing identical information.

Tests consisting of 15 objective questions and attitude scales were administered immediately upon the students' completion of the experimental study materials. All information included in the questions was covered in the visual materials. The data from the tests were analyzed in a 3 x 2 factorial analysis of variance. The main effects included presentation (motion pictures, slides, and sequential still photographs) and study format (timed and non-timed).

The results of this study showed that motion pictures were significantly more effective with $p < .05$ for presenting concepts involving time and motion. The data from concepts involving space were not significant; however, a visual inspection of the means suggested that sequential still photographs ($M = 9.72$) and slides ($M = 9.88$) were more effective than motion pictures ($M = 8.88$).

Jackson & Scott (1975) developed a media information campaign aimed at increasing levels of information about vocational and technical

education held by persons in the service area of Central Florida Community College. A telephone survey was conducted to determine the number of persons in various income/racial groups at each informational level, in regard to vocational and technical education programs and the patterns of media use within the income/racial groups.

The results of the telephone survey indicated that the media use patterns within the income/racial groups were newspapers, radio, television, and movies. These media patterns were used to design and implement an information dissemination campaign. The information campaign consisted of: (a) a 55 second color television commercial, (b) a 35-millimeter film which was shown in local movie theaters, (c) newspaper articles which included photographs, and (d) an audiotape which was played seven times per day on the radio.

A follow-up telephone survey revealed a significant positive change in the number of persons at the various information levels for low income white and black groups. Fewer persons were at the "no information" level and more persons were in the higher information level at the conclusion of the information campaign. The authors suggested that the vocational and technical education information levels of various income/racial groups can be significantly raised through appropriate use of media.

Olevnik (1976) reported an effective library program which was developed to inform college students about the materials and services of the university library. The program consisted of: (a) a self-guided tape recorded library tour, (b) a slide-sound presentation describing selected library facilities and materials, and (c) a brief

workbook exercise requiring the use of biographical dictionaries, encyclopedias, and other reference sources.

At the beginning of the program, students were tested to determine the level of their library knowledge and skills. A similar test was given several weeks after the program's conclusion to evaluate students' progress or lack of it.

Test scores indicated that students had gained in experience and knowledge relating to library services and materials. Through the program, the library has been able to provide systematic instruction and orientation to much larger numbers of students than had been possible in the past.

Edwards et al. (1968) compared the performance of college students learning business machine skills in an audiovisual-tutorial laboratory with the performance of a control group taught in the traditional manner. The control group was taught by the same teacher who prepared the materials for the experimental group, and both groups took identical final examinations at the end of the term.

The experimental group subjects attended the laboratory at any time convenient to them and received their instruction through programmed materials presented by loop sound film and slides with tapes. These media were housed in individual carrels.

The results of the final performance test showed that the experimental group learned significantly more than the control group. When the scores of those students who had no previous exposure to business machines were analyzed separately, a difference of even greater magnitude was noted.

A study was designed by Forrer (1974) to experimentally assess the effect of two systems of information dissemination on the parents of freshmen. The two systems included a one-day on-campus orientation program and a series of six newsletters. Independent variables for this study were further identified as: (a) attendance/nonattendance at the one-day program, (b) receiving/not-receiving parent newsletters, and (c) sex.

It was necessary to develop an outline of information for distribution. "General areas were first identified, and then specific facts within those areas were developed to provide a common base of information which would be disseminated to parents by means of the one-day program and the six newsletters" (Forrer, 1974, p. 395).

Following the treatments, three criterion measures were sent to all subjects. These instruments included: (a) the College and University Environment Scales, (b) the University of Maryland Information Questionnaire, and (c) the University of Maryland Attitude Scale.

The results of the study indicated that the sex variable seemed to be of little significance concerning the three criteria measured. Mothers and fathers did not differ in factual knowledge, attitude toward, or perception of the University.

In addition, the one-day program did not appear to transmit factual knowledge to the parents as effectively as the newsletter because parents who received the six newsletters scored significantly higher on the University of Maryland Information Questionnaire. These results indicated that for the transmission of information, the system

of written communication via newsletter appeared to be most useful in increasing factual knowledge. The one-day program provided parents with stronger (higher) perceptions of the University as measured by the College and University Environment Scales. Neither communication system appeared to create different attitudes toward the University.

O'Neill et al. (1977) described a slide/tape presentation which was developed to sensitize college freshmen students to the value of career planning and to help students identify the resources on campus. The slide/tape presentation was shown during the freshmen orientation period. Students responded to an evaluation form immediately after the slide/tape presentation. The evaluation indicated that 90% of the students felt that the presentation was helpful.

Criterion-referenced Mastery Test Construction

Purposes of Achievement Measures

Glaser & Cox (1968) suggested two principal purposes for utilizing achievement tests in evaluating instructional systems. First, performance can be assessed to provide information about the characteristics of an individual's present behavior, and second, achievement can be assessed to provide information about the conditions or instructional treatments which produce that behavior. Achievement tests used in the first way, emphasize discrimination among individuals. Used in the second way, achievement tests emphasize discrimination among treatments (Glaser & Cox, 1968).

Achievement tests used to provide information about individual differences are constructed so as to maximize the variability of the

distribution of scores that are obtained. On the other hand, achievement tests used to provide information about differences in treatments are constructed to maximize the discriminations made between groups treated differently and to minimize the differences between the individuals in any one group (Glaser & Cox, 1968).

Types of and Differences Between Achievement Tests

> A norm-referenced measure is used to identify an individual's performance in relation to the performance of others on the same measure. A criterion-referenced test is used to identify an individual's status with respect to an established standard of performance (Popham & Husek, 1969, pp. 17-18).

Simply, the meaningfulness of the individual score on a norm-referenced measure emerges from the comparison with some normative group. Most standardized tests of achievement or intellectual ability can be classified as norm-referenced measures. On the other hand, the individual score on a criterion-referenced measure is compared with an established criterion, rather than other individuals (Popham & Husek, 1969).

Because norm-referenced measures are devised to facilitate comparisons among individuals, their primary purpose is to make decisions about individuals (Popham & Husek, 1969; Ebel, 1972). Criterion-referenced measures are devised to make decisions about both individuals and treatments. A criterion-referenced measure can be used to decide if an individual has mastered a criterion skill considered prerequisite to commencing a training program. In addition, a criterion-referenced measure can be administered to learners after they have completed an instructional sequence to determine the effectiveness of the sequence (Popham & Husek, 1969). A norm-referenced measure can also be used to make decisions regarding the merits of instructional

programs; however, norm-referenced measures were really designed to "spread people out" and are best suited to that purpose (Popham & Husek, 1969).

> Generally, a norm-referenced measure is employed where a degree of selectivity is required by the situation. On the other hand, in situations where one is only interested in whether an individual possesses a particular competence, and there are no constraints regarding how many individuals can possess that skill, criterion-referenced measures are suitable (Popham & Husek, 1969, p. 22).

The primary difference between norm-referenced and criterion-referenced measures is the issue of variability. The meaningfulness of a norm-referenced score is dependent on the relative position of the score in comparison with other scores; thus, the more variability in the scores the better (Popham & Husek, 1969). With criterion-referenced measures, variability is irrelevant and is not a necessary condition for a good criterion-referenced test (Popham & Husek, 1969; Hambleton & Gorth, 1971).

The classical procedures for establishing reliability for criterion-referenced tests are inappropriate because they are dependent on score variability. Presently, what should replace them is unclear. (Popham & Husek, 1969; Hambleton & Gorth, 1971; Gronlund, 1973). Likewise, many of the procedures for assessing the validity of norm-referenced tests are based on correlations and thus on variability. Criterion-referenced tests are validated primarily in terms of the instructional goals. Therefore, content validity approaches are more suited to criterion-references tests (Popham & Husek, 1969; Cox, 1971).

CHAPTER III

PROCEDURES

The purpose of this study was to develop a physical education multimedia presentation designed to inform incoming freshmen about the UNC-G General Physical Education Program and to determine the effectiveness of the presentation upon students' knowledges. The procedures for this study involved three steps: (a) the preliminary preparation, (b) the collection of data, and (c) the treatment of the data.

Preliminary Preparation

The preliminary preparation included the following steps: (a) informal interviews with the UNC-G physical education faculty, (b) the development of a knowledge test, and (c) the development of a physical education multimedia presentation.

Interviews

Twelve members of the UNC-G physical education faculty were interviewed during the spring semester, 1977. During the interview, each faculty member was asked the following questions: (a) How would you describe the UNC-G General Physical Education Program to an incoming freshman? (b) What features or aspects of the UNC-G General Physical Education Program would you emphasize most in a publicity campaign? (c) What would you want incoming freshmen to know and/or

learn about the program? (d) Why do you believe these aspects should be emphasized? and (e) Of which features or aspects of the UNC-G General Physical Education Program do you believe students are least aware? At the conclusion of the interview, each faculty member was given a list of 18 features of the UNC-G General Physical Education Program and asked to use a five point scale to estimate the importance of each feature for incoming freshmen to know (see Appendix A, p. 53). Faculty interview information was compiled and is presented in Table 1, page 26. The results were used in determining the content of the knowledge test and the multimedia presentation to insure that both included the same aspects.

Development of the Knowledge Test

A criterion-referenced mastery test consisting of 34 true/false items was constructed to measure student knowledges about the UNC-G General Physical Education Program (see Appendix B, p. 61). Gronlund (1973) suggested the following steps be followed in planning the test: (a) delimiting the area to be tested, (b) stating the objectives and defining them in specific terms, (c) making a content outline, (d) preparing a table of specifications, (e) writing the test items, and (f) providing for test interpretation (see Appendix B, p. 55).

Content validity was established based upon the judgment of three selected UNC-G physical education faculty members. The judges were asked to: (a) take the knowledge test, (b) complete a table of specifications, (c) make suggestions concerning clarity of statements, and (d) make a judgment on content validity. Statistical measures of

validity and reliability require variability in the test scores. Since score variability need not occur in the scores of criterion-referenced mastery tests, such statistical measures are inappropriate. "Attempts are being made to develop new statistics for estimating the validity and reliability of criterion-referenced mastery tests, a satisfactory solution has not yet been achieved" (Gronlund, 1973, p. 49).

Development of the Physical Education Multimedia Presentation

The physical education multimedia presentation consisted of: (a) a slide/tape series, (b) a set of five activity booklets, and (c) an activity brochure. The development of the multimedia presentation was based upon information gained from the informal interviews with the UNC-G physical education faculty.

Slide/tape Series. The slide/tape series, as shown in Appendix C, pages 64-70, included 132 color slides of students participating in activities which were currently offered or had been offered in the last two years in the UNC-G General Physical Education Program. A tape recorded narrative describing opportunities, policies, and regulations of the general physical education program completed the series. The narrative used in the presentation is presented in Appendix C, pages 71-76. Slides were arranged in two Kodak Ektagraphic Slide Projectors model number B-2. A Kodak Carousel Dissolve Control Unit model number 2 was used with the two projectors to fade the image from one projector as the second projector came on. Inaudible cues were added to the tape using a Wallensak 3M Cassette System model number 2551 to permit the slides to advance automatically. The purpose

of the slide/tape series was to give students an overview of the UNC-G General Physical Education Program.

Activity Booklet. The purpose of the activity booklet was to give students specific information about activities offered in the program. Each activity booklet included black and white photographs of students participating in physical education activities and a typed sheet listing: (a) prerequisites for each class, (b) equipment needed for each class, (c) special fees charged for each course, and (d) a content outline for each activity course. All booklets included an introductory sheet listing general information regarding academic and program regulations and opportunities in the recreation, intramural, and intercollegiate programs available for UNC-G students. There was an activity booklet for each of the following areas: (a) aquatic activities, (b) dance activities, (c) dual activities, (d) individual activities, and (e) outing and team activities.

Ten Insta-Magic Photo Albums from the Joshua Meier Division/W. R. Grace and Company were used for the activity booklets. All photographs, information sheets, and activity names were dry mounted on black poster board and arranged in each photo album according to the above activity areas. A minimum of two and a maximum of four album pages were used to display each activity depending upon the amount of content and the number of skill levels offered in the activity. The dimensions of the photographs, information sheets, and activity names were standardized for each booklet. See Appendix C, pages 78-97 for the layout design used in each activity booklet.

The activity photographs were taken using a Nikon 35 mm single lens reflex camera model number F27317653 with a 55mm lens number 239438. A Nikon motor drive attachment for the Nikon F2 system was used for some of the photographs. A Honeywell High Performance Auto 770 flash attachment was used for all indoor color slides. Kodak Tri-X (ASA 400) black and white film and Kodak Daylight High Speed Ektachrome (ASA 160) film were used for the activity photographs.

Twenty-one activity classes, representing all activity offerings in the general physical education program were selected to be photographed. Instructors were asked for their permission to allow pictures to be taken during their physical education classes. A minimum of two visits were made to each activity class, using at least one roll (36 exposures) of film during each visit.

The black and white photographs were processed by the investigator and proofs were shown to all students who were photographed. Each student was asked to sign a consent form giving permission for his/her pictures to be used in the multimedia presentation (see Appendix D, p. 100). The color film was professionally processed and was not available for viewing by the students. Therefore, students were informed that if they gave their permission for the black and white photographs, they were also giving consent for the use of the color slides.

Activity Brochure. The activity brochure, presented in Appendix C, p. 98, contained general information about the UNC-G General Physical Education Program. Included in the brochure was (a) a list of choices

within the program, (b) a list of activity courses, and (c) a list of benefits gained through physical education.

The brochure was printed by the McKee Printing Company, Greensboro, North Carolina. The conceptualization of the brochure, the written information, and the layout design were developed by the investigator. The art work was produced by a fellow physical education doctoral student to comply with the concepts developed by the investigator. The double fold brochure was printed on 11" x 17" white 80 pound mat paper, using black and red ink.

Collection of Data

The collection of data included the following steps: (a) selection of subjects, (b) design for data collection, (c) administration of the pretest, (d) administration of the multimedia presentation, and (e) administration of the posttest.

Selection of Subjects

The subjects for this study were 240 incoming freshmen students who were enrolled in the UNC-G General Physical Education Program during the fall semester, 1977. The following steps were used in the selection of the subjects.

1. All sections of the general physical education program were listed on a schedule sheet under the time and days they were offered.

2. Classes which met off campus and/or met only once or twice a week were eliminated from the activity list. Twelve classes were eliminated leaving 62 activity class sections from which to draw the sample.

3. Activity classes were selected based upon the percentage of sections offered during the fall semester, 1977, within each of the following areas: aquatics, dance, individual, dual, outing and team activities. A total of 24 classes, two classes each hour of each day, were selected (see Appendix E, p. 102).

4. Permission to use the selected activity classes was obtained from each instructor.

Design for Data Collection

Data were collected over a four day period using the Solomon Four-Group Design (Campbell & Stanley, 1973, p. 24) as follows:

Group 1	R	O_1	X	O_2
Group 2	R	O_3		O_4
Group 3	R		X	O_5
Group 4	R			O_6

O = test
R = random assignment to groups
X = treatment administration

Figure 1. Experimental Design

Prior to the first day of data collection, all the necessary materials were assembled. Information sheets were color coded and arranged using the following order: Group 1 = pink, Group 2 = blue, Group 3 = yellow, and Group 4 = green. The purpose of having the information sheets color coded was to randomly assign subjects to one of the four experimental groups (see Appendix E, p. 104). Yellow

answer sheets were attached to the knowledge test which would be used for the pretest. Blue answer sheets were used for the posttest.

Since two classes were scheduled each hour, it was necessary to have another person serve as a test administrator. The research assistant in the School of Health, Physical Education and Recreation at UNC-G served as the second test administrator.

Administration of the Pretest

The first day that classes met during the 1977 fall semester, each administrator attended one of the selected activity classes. The administrator asked each subject to complete the information sheet (see Appendix E, p. 104). Subjects who completed a yellow or green information sheet were dismissed. Subjects who completed a pink or blue information sheet were asked to complete a survey, the knowledge test, about the UNC-G General Physical Education Program.

After the administration of the pretest, the information sheets were sorted by color into the four experimental groups. The pretest answer sheets were attached to the appropriate information sheets. Before the second meeting of the participating classes, each instructor was given a list of subjects who were to be taken to view the multimedia presentation. The remaining students were to be taken to a designated area to be given the posttest.

Administration of the Multimedia Presentation

The second day that the classes met, Groups 1 and 3 were shown the multimedia presentation. The seven minute automatic slide/tape

series was shown first, followed by the activity booklets and the activity brochure.

Two sets of activity booklets were used to allow subjects to be organized in groups of three for reading through the booklets. Four minutes were allotted for the first booklet and three minutes for each subsequent booklet. Subjects were allowed to talk to each other as they read through the booklets.

Activity brochures were available for each subject. Subjects were given three minutes to read through the activity brochure.

The viewing room consisted of 32 chairs arranged in eight rows of four chairs each, with the first row of chairs being 15 feet from the screen and the last row of chairs approximately 40 feet from the screen. The chairs were separated by an aisle down the middle of the room. The projection cart, holding the two Kodak Ektagraphic Slide Projectors, the Kodak Carousel Dissolve Control Unit, and the Wollensak 3M Cassette System was located in the middle aisle 17½ feet from the screen.

Upon completion of the multimedia presentation each subject was asked to complete a survey, the knowledge test, about the UNC-G General Physical Education Program (see Appendix E, p. 106).

Administration of the Posttest

Simultaneously while Groups 1 and 3 were viewing the multimedia presentation, Groups 2 and 4 were being given the posttest. Instructors took Groups 2 and 4 to a designated area where they were met by the second test administrator. At this time the subjects were asked to

respond to a survey, the knowledge test, about the UNC-G General Physical Education Program (see Appendix E, p. 107).

After responding to the survey, all four groups of subjects were given a debriefing sheet explaining the nature of the study in which they had participated (see Appendix E, p. 108). Finally, each subject was given the choice of signing a consent form to allow their scores to be used in the study.

Scoring of the Knowledge Test

The knowledge score was determined by counting the total number of correct responses on the posttest knowledge test. The don't know score was obtained by counting the total number of questions answered "don't know" on the posttest knowledge test. The incorrect responses were not included in either score.

Treatment of Data

The data were analyzed by a multivariate analysis of variance with two dependent variables using a two way factorial design with fixed effects (Winer, 1971). Wilks's Criterion was used to evaluate the multivariate analysis of variance (Harris, 1975). The Statistical Analysis System, SAS, (Barr et al., 1976) computer program procedure ANOVA was utilized to determine multivariate and univariate between group differences using the posttest knowledge scores and the posttest don't know scores. The utility indices were applied to all significant effects to determine the strength of effect. The percentage of total variability accounted for by the effect was obtained by multiplying

the utility index by 100 (Dodd & Schultz, 1973; Gaebelien & Soderquist, 1974).

A two way crosstabulation of treatment and criterion score was performed using the SAS (Barr et al., 1976) procedure FREQ. The treatment condition was divided into two categories of subjects who did and did not view the multimedia presentation. The criterion condition was divided into two categories of subjects who did and did not reach the criterion score of 29 on the knowledge test. The chi square statistic with Yates' correction was applied to the cross-tabulation to determine if the conditions were independent.

Frequency distributions utilizing the posttest knowledge responses were derived using the SAS (Barr et al., 1976) procedure FREQ. This procedure provided information concerning the strengths and/or weaknesses of both the knowledge test and the multimedia presentation.

CHAPTER IV

DATA ANALYSIS

This study involved the development of both a knowledge test and a multimedia presentation. Questions concerning the development of the instruments for the study were treated by examining the responses from faculty interviews and from knowledge test judges. Data obtained from 240 incoming freshmen concerning the effect of the multimedia presentation were treated statistically by the following methods: (a) a two way multivariate analysis of variance, (b) the two way univariate analyses of variance, and (c) a two way crosstabulation. Further, a frequency distribution utilizing responses to the posttest knowledge scores with regard to treatment groups was constructed.

Development of Instruments

The aspects or information which 12 UNC-G physical education faculty members believed incoming freshmen should know concerning the General Physical Education Program are summarized in Table 1, p. 26. Examination of Table 1 revealed that the faculty members placed major emphasis upon that information which dealt with general and specific facts regarding the UNC-G General Physical Education Program rather than that which dealt with academic and/or university regulations (see Appendix B, p. 55). These results were utilized in determining the content of the knowledge test and the multimedia presentation. The knowledge test consisted of 34 true/false questions. Twenty-one

Table 1

Results of the Faculty Interviews

Aspect	Order of Emphasis
I. Academic and/or University Regulations	
Credit for Graduation	7
One Year Requirement	9
Grade Options	11
Cumulative Grade Point Ratio	12
Proficiency Testing	13
Elective Credit	14
Audit Possibilities	16
II. General Facts Regarding the Program	
Variety of Course Offerings	1
Specific Activity Offerings	2
Philosophy and Objectives	3
Skill Levels	4
Faculty Advising	17
III. Specific Facts Regarding the Program	
Outside of Class Opportunities	5
Scheduling Flexibility	6
Fees for Classes and Recreation	8
Equipment Needed for Classes	10
Coeducational Classes	15
Uniform Requirements	18

of the questions dealt with general and specific facts regarding the UNC-G General Physical Education Program. The remaining 13 questions were concerned with academic and/or university regulations. Likewise, the multimedia presentation emphasized primarily general and specific information about the program.

The three selected UNC-G physical education faculty members who served as test judges were asked to: (a) take the knowledge test, (b) complete a table of specifications, (c) make suggestions concerning clarity of statements, and (d) make a judgment on content validity. These results were utilized in completing the objective knowledge test and the table of specifications (see Appendix B, pp. 60-62). All three judges agreed that the objective knowledge test had content validity.

Effect of the Multimedia Presentation

Multivariate Analysis of Variance

A multivariate analysis of variance with two dependent variables using a balanced two way factorial design with fixed effects was performed (Winer, 1971). The computer program procedure ANOVA of SAS (Barr et al., 1976) was used to determine multivariate between group differences using the dependent variables, Posttest Knowledge Score and Posttest Don't Know Score. There were two independent variables, each with two levels. The primary independent variable was the multimedia presentation with levels consisting of viewing or not viewing the presentation. The second independent variable was the testing condition with the levels delineated as pre/posttest and posttest only.

The multivariate analysis of variance (Barr et al., 1976) on the Media condition, as shown in Table 2, p. 29, produced Lambda = .5268 using Wilks's Criterion technique (Harris, 1975). The calculated $F_{2,235}$ = 105.531 was greater than 4.71 = $F_{2,200}$ critical value when p = .01 which resulted in a significant multivariate difference in media groups.

Further, the Testing condition revealed a significant multivariate effect, Lambda = .9646, using Wilks's Criterion technique (Harris, 1975). The calculated $F_{2,235}$ = 4.312 was greater than 3.04 = $F_{2,200}$ critical value when p = .05.

The results of the two way multivariate analysis of variance indicated the appropriateness to interpret the univariate ANOVA's for both dependent variables, the Posttest Knowledge Score and the Posttest Don't Know Score. The multivariate analysis of variance of the interaction between media and testing using Wilks's Criterion technique (Harris, 1975) produced Lambda = .0065. The calculated $F_{2,235}$ = .4127 was not significant at $p \leq .05$. Therefore, analysis of univariate ANOVA's was inappropriate.

Univariate Analysis of Variance on Posttest Knowledge Scores

The between group differences utilizing the Posttest Knowledge Test Scores are shown in Table 3, p. 31. An F value of 210.14, significant at the .0001 level, was obtained for the Media condition. The utility index indicated that 46.08% of the total variability was accounted for by the Media condition.

Table 2

Multivariate Analysis of Variance

SV	Lambda	*Rao's F	df
Media	.5268	105.531	2,235
Testing	.9646	4.312	2,235
Media x Testing	.9965	.4127	2,235

*Rao's F Approximation = $\frac{(1-\Lambda^{1/a})/ug}{\Lambda^{1/a}/h}$

Key:

u = number of dependent variables

g = number of levels of effect

s = when $u^2 + g^2 = 1$

h = $(n - (\frac{u - g + 1}{2})\ s) - (\frac{ug - 2}{2})$

*Harris, R. J. (1975, p. 111)

Comparisons between groups, as shown in Table 4, p. 31 and Figure 2, p. 32, revealed that the Media group, which yielded a mean of 29.092 and a standard deviation of 3.046, performed significantly better on the posttest knowledge test than the No Media group with a mean of 21.433 and a standard deviation of 4.093. The minimum value obtained on the knowledge posttest by the Media group was 18 while the minimum value obtained by the No Media group was 10. The maximum value obtained on the knowledge posttest by the Media group was 34 while the maximum value obtained by the No Media group was 29.

There was a significant difference in the knowledge about the UNC-G General Physical Education Program between incoming freshmen who had and had not viewed the multimedia presentation. Subjects who viewed the presentation scored higher on the knowledge posttest than subjects who did not view the presentation.

An F value of 7.91, which was significant at the .005 level, was obtained for the Testing condition. The utility index indicated that only 1.52% of the total variability was accounted for by the Testing condition.

The Pretest group, which yielded a mean of 25.408 and a standard deviation of 4.664, performed significantly better on the knowledge posttest than the Posttest Only group with a mean of 24.117 and a standard deviation of 5.078. The minimum value obtained by the Pretest group was 34 while the maximum value obtained by the Posttest Only group was 33.

Table 3

Source of Variance for the

Posttest Knowledge Scores

SV	df	SS	MS	F	P	W^2
Media	1	2660.004	2660.004	210.14	.0001	.4608
Testing	1	100.104	100.104	7.91	.0053	.0152
Media x Testing	1	10.004	10.004	0.79		
Error	236	2987.350	2987.350			

Table 4

Descriptive Statistics for the

Posttest Knowledge Scores

Group	N	Mean	SD	Min.	Max.
Media	120	29.092	3.046	18.000	34.000
No Media	120	21.433	4.093	10.000	29.000
Pretest	120	25.408	4.664	12.000	34.000
No Pretest	120	24.117	5.078	10.000	33.000
Media/Pretest	60	28.533	3.000	20.000	34.000
Media/No Pretest	60	27.650	3.052	18.000	33.000
No Media/Pretest	60	22.283	3.876	12.000	29.000
No Media/No Pretest	60	20.583	4.159	10.000	29.000

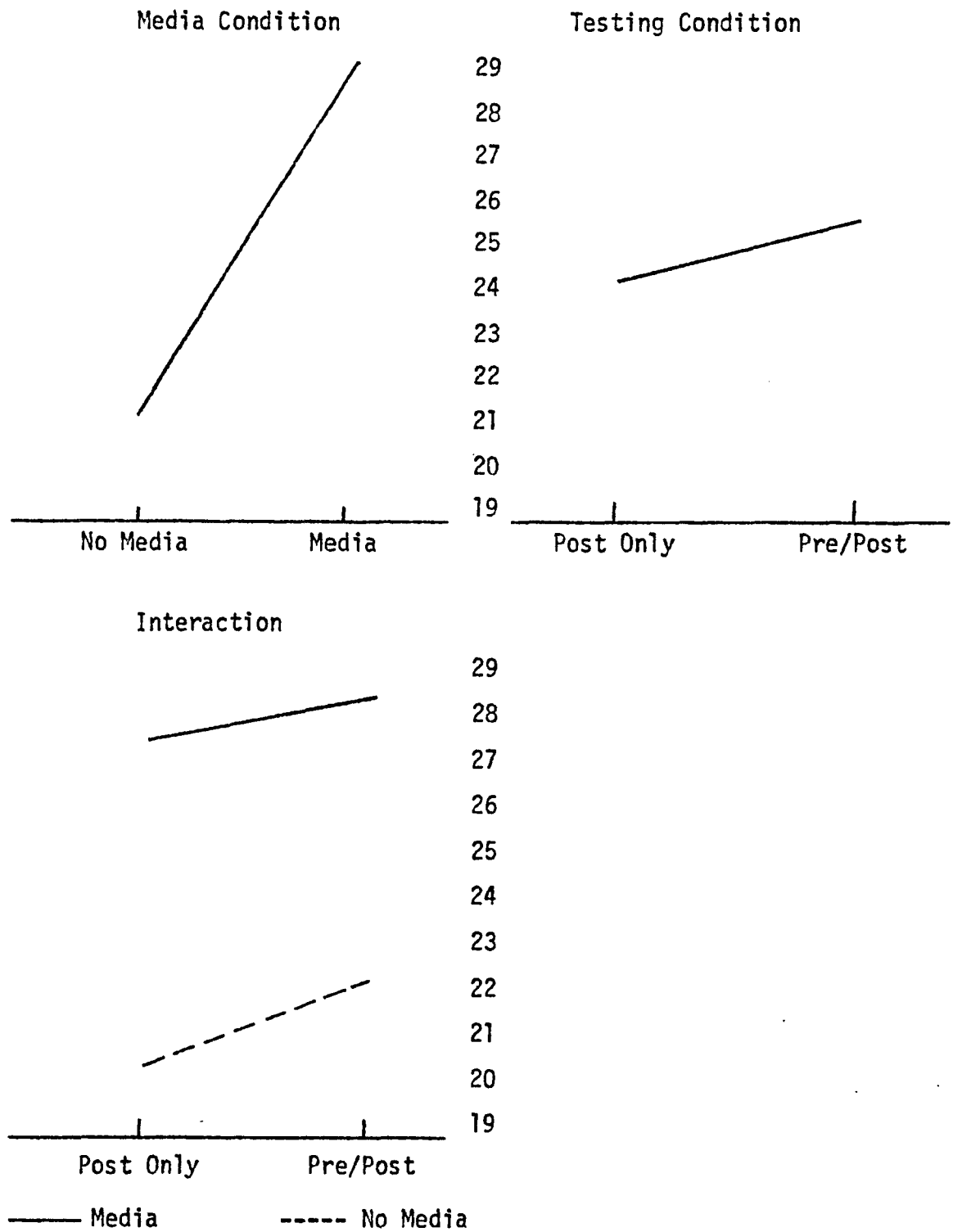

Figure 2

Posttest Knowledge Score Means

There was a slight pretesting effect. The Pretest group performed significantly better on the knowledge posttest than did the Posttest Only group.

There was no significant interaction effect between the Media by Testing condition as indicated in Table 3, p. 31 and Figure 2, p. 32. As a result of the nonsignificant interaction in the multivariate analysis of variance, it was inappropriate to discuss each univariate interaction separately.

Univariate Analysis of Variance on Posttest Don't Know Scores

The between group differences utilizing the Posttest Don't Know Scores are shown in Table 5, p. 34. An F value of 175.43, significant at the .0001 level, was obtained by the Media condition. The utility index indicated that 41.61% of the total variability was accounted for by the Media condition. Comparisons between groups, as shown in Table 6, p. 34 and Figure 3, p. 35, revealed that the Media group, which yielded a mean of 3.292 and a standard deviation of 2.871, checked significantly less "don't know" answers than did the No Media group. The minimum values obtained by both the Media and No Media group were zero; however, the maximum value obtained by the Media group was 14 while the No Media group obtained a maximum value of 23.

There was a significant difference in the number of questions answered "don't know" between incoming freshmen who did and did not view the multimedia presentation. Subjects who viewed the multimedia presentation checked less "don't know" answers than the No Media group.

Table 5

Source of Variance for the

Posttest Don't Know Scores

SV	df	SS	MS	F	P	W^2
Media	1	2381.400	2381.400	175.43	.0001	.4161
Testing	1	112.067	112.067	8.26	.0044	.0173
Media x Testing	1	6.017	6.017	0.44	.5062	
Error	236	3203.700	3203.700			

Table 6

Descriptive Statistics for the

Posttest Don't Know Scores

Group	N	Mean	SD	Min.	Max.
Media	120	3.292	2.871	0.000	14.000
No Media	120	9.592	4.435	0.000	23.000
Pretest	120	5.758	4.561	0.000	19.000
No Pretest	120	7.125	5.116	0.000	23.000
Media/Pretest	60	2.767	2.626	0.000	10.000
Media/No Pretest	60	3.817	3.028	0.000	14.000
No Media/Pretest	60	8.750	4.107	0.000	19.000
No Media/No Pretest	60	10.433	4.633	0.000	23.000

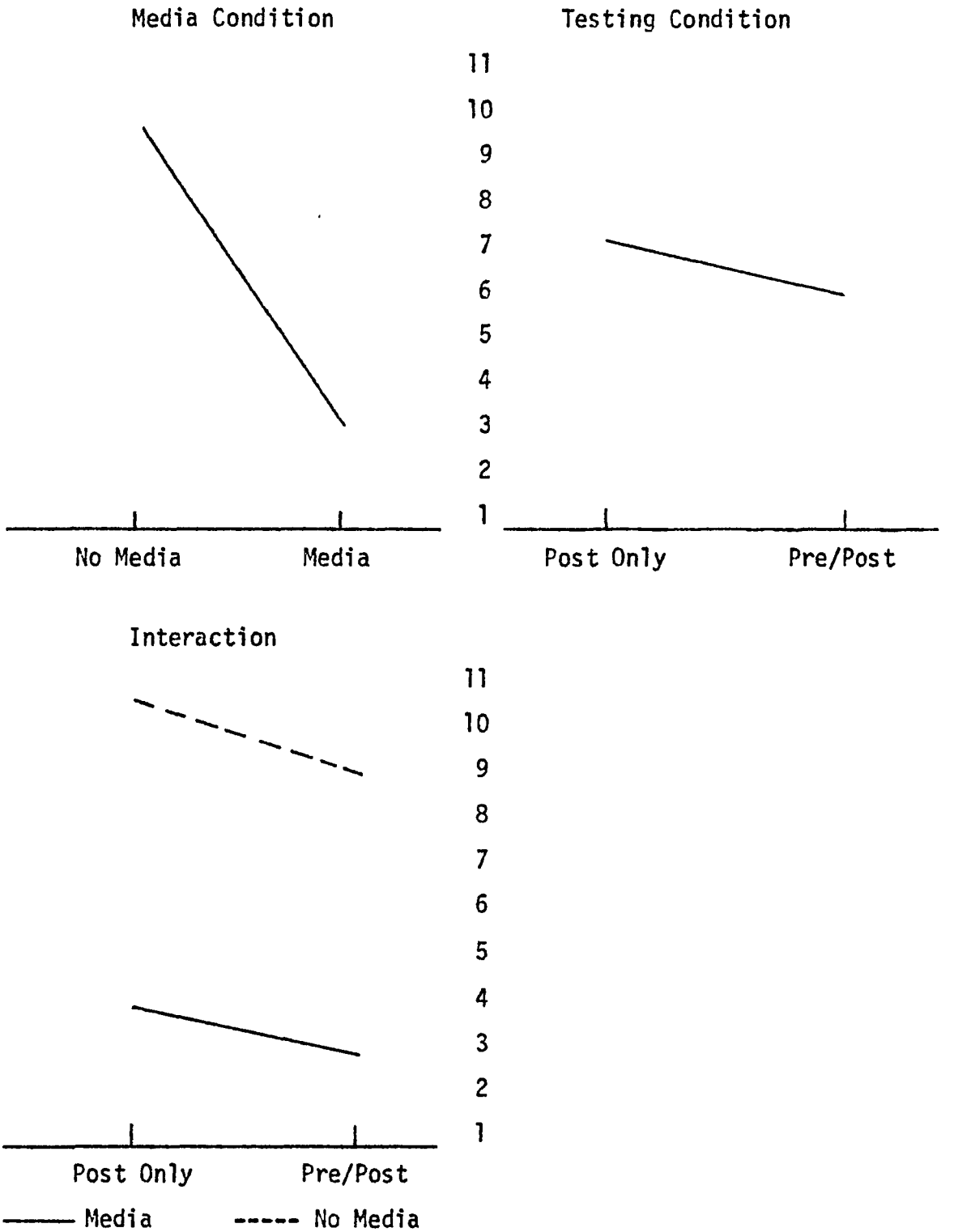

Figure 3

Posttest Don't Know Means

An F value of 8.26, which was significant at the .05 level, was obtained for the Testing condition. The utility index indicated that only 1.73% of the total variability was accounted for by the Testing condition. The Pretest group, which yielded a mean of 5.758 and a standard deviation of 4.561, checked significantly less "don't know" answers than the Posttest Only group. The minimum values obtained by both the Pretest and the Posttest Only groups were zero; however, the maximum value obtained by the Pretest group was 19 while the Posttest Only group obtained a maximum value of 23.

There was a slight pretesting effect. The Pretest group checked significantly less "don't know" answers than the Posttest Only group.

There was no significant interaction effect between the Media by Testing condition as indicated in Table 5, p. 34 and Figure 3, p. 35. As a result of the nonsignificant interaction in the multivariate analysis of variance, it was inappropriate to discuss each univariate interaction separately.

Crosstabulation of Treatment and Criterion Score

The findings of the two way crosstabulation of treatment and criterion score are summarized in Table 7, p. 37. Examination of the crosstabulation revealed that of the subjects who failed to reach the criterion score, 66.67% did not view the multimedia presentation, while 33.33% did view the presentation.

The chi square of 74.921 with one degree of freedom was significant at the .0001 level which showed that the conditions of treatment and criterion score were dependent. The results of the crosstabulation

Table 7

Criterion Score by Media

	Media	No Media	Total
below 29	59	118	177
	24.58	49.17	73.75
	33.33	66.67	
	49.17	98.33	
29 or above	61	2	63
	25.42	0.83	26.25
	96.83	3.17	
	50.83	1.67	
Total	120	120	240
	50.00	50.00	100.00

Key for Cell Order:

line 1 = frequency

line 2 = percent

line 3 = row percent

line 4 = column percent

indicated that obtaining the criterion score depended upon viewing the multimedia presentation.

Frequency Distribution

Frequency distributions utilizing posttest knowledge responses were calculated according to treatment groups (see Appendix F, p. 110). Ninety percent of the subjects who viewed the multimedia presentation answered 20 of the 34 true/false statements correctly, while 90% of the subjects who did not view the presentation answered only six statements correctly. Further examination of the frequency distributions revealed that a greater percentage of subjects who comprised the Media groups correctly answered 32 of the 34 statements on the knowledge test than subjects who comprised the No Media groups. These distributions provided additional information concerning the effect of the multimedia presentation and specific strengths and/or weaknesses of the knowledge test and the presentation.

CHAPTER V

DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

Discussion

Campeau (1974) found the following common methodological weaknesses of recent media research in post-school education: (a) failure to use random assignment methods, (b) use of very brief exposures to treatments, (c) use of some off-the-shelf medium that was not tailored to instructional objectives, (d) heavy reliance on subjective and affective measures of media effectiveness, and (e) use of tests with no evidence of reliability or validity. The present investigation was a carefully designed experimental study and avoided the weaknesses suggested by Campeau.

The 240 subjects were randomly assigned to one of the four experimental groups using the Solomon Four-Group Design. The sample consisted of incoming freshmen students who were enrolled in the UNC-G General Physical Education Program. The subjects knew little or nothing about the program.

The Media groups viewed the multimedia presentation for approximately 30 minutes. This was a brief exposure to the treatment. However, publicizing the general physical education program was the intended purpose of the multimedia presentation. Therefore, the intended use of the media indicated that the presentation be brief and as similar as possible in format to its ultimate utilization.

The entire multimedia presentation was tailored specifically towards instructional objectives determined from the results of faculty interviews. The slide/tape series emphasized the following content areas: (a) variety of course offerings, (b) flexible scheduling, (c) skill levels, (d) philosophy and objectives of the program, and (e) individual choice of activities. Specific information about each activity course offered in the program was emphasized in the activity booklets. Likewise, the activity brochure focused upon choices within the program, activity course offerings, and benefits gained through physical education.

A criterion-referenced mastery test was specifically constructed to measure both student knowledges about the UNC-G General Physical Education Program and the effectiveness of the multimedia presentation. Three selected test judges agreed that the knowledge test had content validity. Classical procedures for establishing validity and reliability were inappropriate for criterion-referenced tests because they are dependent upon score variability, a condition which is irrelevant for a good criterion-referenced test (Popham & Husek, 1969; Hambleton & Gorth, 1971; Gronlund, 1973).

In addition, the effectiveness of the multimedia presentation was determined by: (a) multivariate analysis of variance and the two resultant univariate analyses of variance utilizing the Posttest Knowledge Test Scores and the Posttest Don't Know Scores, (b) utility indices, (c) crosstabulation of treatment and criterion score, and (d) frequency distributions with regard to treatment groups.

There was a significant difference, .0001 level, in the knowledges about the UNC-G General Physical Education Program between incoming freshmen who did and did not view the multimedia presentation. Subjects who viewed the multimedia presentation scored higher on the knowledge posttest and checked significantly less "don't know" answers than subjects who did not view the presentation. The utility index revealed that over 40% of the total variability was accounted for by the Media condition. Further, the crosstabulation results showed that obtaining the criterion score of 29 was dependent upon viewing the multimedia presentation.

Frequency distributions utilizing the posttest knowledge responses revealed that 90% of the subjects who viewed the multimedia presentation answered 20 of the 34 true/false statements correctly, while 90% of the subjects who did not view the presentation answered only six statements correctly. The six statements answered correctly by the No Media group revealed that at least four of the statements dealt with information which students could have learned through registering for their physical education activity classes.

In addition, four statements were answered incorrectly by more than 50% of the subjects regardless of whether they did or did not view the multimedia presentation. The statements measured different instructional objectives. It could be assumed then that there was information which was misleading or confusing to the subjects.

The Pretest group performed significantly better on the knowledge posttest and checked less "don't know" answers than did the Posttest Only group indicating that there was a slight pretesting effect. The

utility index indicated that less than 2% of the total variability was accounted for by the Testing condition.

There was no significant interaction effect found between the Media by Testing condition. As a result of the nonsignificant interaction in the multivariate analysis of variance, it was inappropriate to discuss each univariate interaction separately.

Oxendine (1969 & 1978) reported that several institutions which he surveyed indicated that the immediate decline in student enrollment was dramatic when changing from a required to an elective physical education program. Attracting students and maintaining enrollment in the general physical education program is a problem which could occur with the change from a required to an elective program.

The multimedia presentation was effective and did inform students about the general physical education program. As Rosenstein (1975) and NASPE (1975) suggested, students who are better informed are able to make more intelligent decisions regarding their physical education experiences and the potential contribution the program can make towards their total education. Razor & Arnold (1973) stated that extensive utilization of publicity designed to increase student awareness and sensitivity to the general physical education program will enhance the potential for student enrollment. It is reasonable to expect then that the transition from a required to an elective program can be made easier through the utilization of the multimedia presentation.

If the decline in enrollment in the general physical education program can be minimized, physical educators need not fear the loss of faculty positions, facilities, and/or budgetary support. On the other

hand, the general physical education program has the potential of having enrollment figures increased up to and even beyond what they had been with the requirement (Oxendine, 1969 & 1978). If such an enrollment increase occurred, the need for program expansion would be necessary. Increasing the number of qualified faculty to teach in the program, utilizing auxiliary facilities, offering new and innovative courses, and scheduling courses in flexible patterns are factors which would need to be considered in order to meet the needs of a diverse student population.

A general physical education program cannot be evaluated solely on the basis of the number of students registered (Razor & Arnold, 1973). A quality program is a necessity. The utilization of the multimedia presentation can inform and increase student awareness about the general physical education program, generate student interest, and increase participation.

Conclusions

The following conclusions seemed justified within the limitations of this study:

1. There was a significant difference, .0001 level, in the knowledges about the UNC-G General Physical Education Program between incoming freshmen who have and have not viewed the multimedia presentation. Subjects who viewed the presentation scored higher on the posttest knowledge test than subjects who did not view the presentation.

2. There was a significant difference, .0001 level, in the number of questions answered "don't know" between subjects who did and did not view the multimedia presentation. Subjects who viewed the multimedia presentation checked less "don't know" answers than the No Media group.

3. There was a slight pretesting effect. The Pretest group performed significantly better on the knowledge posttest and checked significantly less "don't know" answers than the Posttest Only group.

4. There was no significant interaction effect found between the Media by Testing condition.

Recommendations

The present investigation led to the following recommendations for future research:

1. Investigate which of the three media utilized in this study is most effective in informing students about the general physical education program.

2. Investigate the most effective time period for publicizing the general physical education program.

3. Investigate what effect the viewing of the multimedia presentation might have on enrollment in the general physical education program.

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APPENDIX A

FACULTY INTERVIEW

FACULTY INTERVIEW

Of the following features or aspects of the UNC-G General Physical Education Program, please estimate the importance for incoming freshmen to know:

5 = extremely important
4 = very important
3 = important
2 = somewhat important
1 = not important

_____ 1. variety of course offerings

_____ 2. specific activity offerings

_____ 3. scheduling flexibility

_____ 4. credit for graduation

_____ 5. grade doesn't count g.p.a.

_____ 6. audit possibilities

_____ 7. skill levels offered in most activities

_____ 8. few fees charged for classes

_____ 9. few courses where student supplies own equipment

_____10. coeducational classes

_____11. proficiency testing

_____12. no uniform requirement

_____13. outside of class opportunities--intramurals, recreation, intercollegiates

_____14. no elective credit

_____15. grade options--grade, P/NP, audit

_____16. requirement of one year

_____17. objectives, aims, purposes of program

_____18. faculty advising

_____19. others, please specify

APPENDIX B

MATERIALS RELATED TO THE DEVELOPMENT OF THE OBJECTIVE KNOWLEDGE TEST

STEPS IN THE DEVELOPMENT OF THE CRITERION-REFERENCED KNOWLEDGE TEST

Delimit the Area to be Tested

Knowledges about the UNC-G General Physical Education Program.

Objectives for Knowledge About the UNC-G General Physical Education Program

1. Knows Academic and/or University Regulations

   After exposure to the physical education multimedia presentation, the student shall be able to identify true statements concerning the following areas:

   1.1 Physical education requirement
   1.2 Credit for physical education
   1.3 Grading for physical education

2. Knows General Facts Regarding the UNC-G General Physical Education Program

   After exposure to the physical education multimedia presentation, the student shall be able to identify true statements concerning the following areas:

   2.1 Philosophy and objectives of the program
   2.2 Activity offerings
   2.3 Skill levels available
   2.4 Individual choice
   2.5 Leadership

3. Knows specific facts regarding the UNC-G General Physical Education Program

   After exposure to the physical education multimedia presentation, the student shall be able to identify true statements concerning the following areas:

   3.1 Scheduling of physical education
   3.2 Coeducational classes
   3.3 Special fees for classes
   3.4 Special fees for recreation
   3.5 Equipment for classes
   3.6 Uniform for classes
   3.7 Out-of-class opportunities

Content Outline for a Unit on the UNC-G General Physical Education Program

I. Academic and/or University Regulations
   A. Physical education requirement
      1. one year
      2. two semesters
      3. two activity courses
      4. can be completed anytime within the four years
      5. exemptions from the requirement
         a. two semesters
            1. students who are 25 years of age or older
            2. veterans
         b. one or two semesters
            1. medical restrictions
            2. proficiency testing
   B. Credit for physical education
      1. for graduation
      2. one hour, equivalent to 3 times per week
      3. no elective credit
      4. more than one physical education course each semester for credit
      5. audit
   C. Grading for physical education
      1. no quality points
      2. not included in the cummulative grade point ratio
      3. grade options
         a. pass/not pass
         b. letter grade
         c. audit possibilities--no grade just credit

II. General Facts Regarding the UNC-G General Physical Education Program
   A. Activity offerings
      1. Variety of offerings
         a. aquatics
         b. dance
         c. dual
         d. individual
         e. outing
         f. team
      2. Specific offerings
         a. archery
         b. backpacking/camping
         c. badminton
         d. ballet
         e. basketball/softball
         f. boating/canoeing/sailing
         g. bowling
         h. conditioning

i. fencing
j. folk dance
k. golf
l. gymnastics
m. hiking
n. life saving
o. modern dance
p. racquetball
q. recreational sports
r. self defense
s. snow skiing
t. soccer/basketball
u. social dance
v. swimming
w. tennis
x. volleyball
y. water safety instructor

B. Skill levels offered in physical education
   1. nonswimmers
   2. beginning
   3. low intermediate
   4. intermediate
   5. high intermediate
   6. advanced
   7. may repeat activity at a different skill level

C. Philosophy and objectives of the UNC-G General Physical Education Program
   1. Acquisition of knowledge and skills which develop and maintain physical well-being.
   2. Acquisition of knowledge and skills which prepare for lifetime activity programs.
   3. Students' understanding of themselves in relation to the environment through movement experiences.
   4. Appreciation of movement and its potential as a means of self-expression as an art form.
   5. Understanding of human functioning through movement.
   6. Experiencing the enjoyment of activity.

D. Individual choice
   1. student responsibility to select within the requirement
   2. choose according to needs and interests

E. Leadership
   1. well qualified
   2. interested in teaching all levels
   3. advising students upon request

III. Specific Facts Regarding the UNC-G General Physical Education Program

A. Scheduling of physical education classes
   1. MWF
   2. TTh

3. weekends
4. weeklong

B. Coeducational courses
C. Special fees for some classes
   1. backpacking/camping
   2. boating/canoeing/sailing
   3. hiking
   4. racquetball
   5. snow skiing
D. No special fees for recreation
E. Equipment for physical education classes
   1. most equipment is furnished by the School of HPER
   2. students must supply equipment for some classes
      a. tennis--racket and one can of balls
      b. golf--golf balls
      c. swimming--towel, suit, and cap
      d. backpacking/camping equipment
F. Uniform for physical education classes
   1. no required uniform
   2. appropriate clothing is recommended at the beginning of each semester and is determined by the nature of the class
G. Out-of-class opportunities
   1. intramurals for men and women
      a. flag football
      b. tennis
      c. bowling
      d. volleyball
      e. basketball
      f. table tennis
      g. golf
      h. softball
   2. club activities
      a. gymnastics
      b. badminton
      c. officiating
      d. archery
      e. aquatics
   3. open recreation
   4. Physical education facilities are available for student use during evening and weekend hours
   5. intercollegiate athletics for men
      a. basketball
      b. golf
      c. soccer
      d. tennis
      e. swimming (coed)
   6. intercollegiate athletics for women
      a. basketball
      b. field hockey

c. golf
d. softball
e. swimming (coed)
f. tennis
g. volleyball

Table of Specifications

Content Areas / Instructional Objectives	I	II	III	Total
A. Physical Education Requirement	7,12,12, 14,15,20			6
B. Credit for Physical Education	16,19,21, 22,23			5
C. Grading for Physical Education	17,18			2
D. Philosophy & Objectives of the Program		1,2,3, 4		4
E. Activity Offerings		6,8		2
F. Skill Levels Available		9,10, 11		3
G. Individual Choice		5		1
H. Leadership		31		1
I. Scheduling of Physical Education			28,29, 30	3
J. Coeducational Classes			26	1
K. Special Fees for Classes			33	1
L. Special Fees for Recreation			34	1
M. Equipment for Classes			27	1
N. Uniform for Classes			25	1
O. Out-of-class Opportunities			24,32	2
Total	13	11	10	34

Write and Assemble the Test Items

See pages 61-62

Provide for Test Interpretation

Criterion Score = 85% = 29 correct

GENERAL PHYSICAL EDUCATION PROGRAM
KNOWLEDGE TEST

1. The main focus of the General Physical Education Program is upon learning those activities which can be pursued during leisure time.

2. Participation in physical education activity classes provides a means of developing and maintaining general fitness for living.

3. Individual activities, such as golf and archery, limit the opportunity for social interaction.

4. Students learn to compete as well as to cooperate with others in striving for the achievement of common goals through participation in team activities.

5. Each student has free selection of activity courses within the physical education requirement.

6. Students select physical education courses from aquatics, dance, dual, individual, outing, and team activities.

7. Students are required to take a broad range of activities.

8. Over twenty different physical education activity courses are offered each semester.

9. Intermediate classes are offered in Hiking.

10. Beginning classes are designed for students who have had little or no previous instruction.

11. Students are required to enroll in a beginning skill level class before taking an intermediate or advanced class.

12. A swimming course is required for graduation.

13. Students are required to take one dance activity to complete their physical education requirement.

14. Physical education is included in the core of liberal education requirements common to all degree programs.

15. Physical education is required for two years.

16. Students can audit physical education activity classes.

17. Physical education grades are included when determining quality point ratios.

18. Physical education activity classes can be taken on pass/not pass basis.

19. Students can receive credit for repeating an activity course on the same level.

20. The physical education requirement is to be completed during the student's first two years.

21. Physical education may be taken for elective credit once the requirement has been met.

22. Students enrolled in two physical education activity classes during one semester receive credit for each course.

23. Physical education activity classes carry two semester hours credit per course.

24. The physical education facilities are open evenings and weekends for recreation.

25. There is a required physical education uniform.

26. Physical education activity classes are open to both sexes.

27. Equipment for all dual activity classes, such as badminton and tennis, is furnished by the students.

28. Most activity classes are scheduled on either MWF or TTh.

29. Backpacking/camping classes include weekend trips.

30. Physical education activity courses are scheduled to meet an equivalent of two clock hours per week.

31. The faculty who instruct in the General Physical Education Program have background in the activities they are teaching.

32. The physical education facilities may be used for recreation when they are not scheduled for instruction or intercollegiate athletics.

33. Students enrolled in badminton are charged a special fee for equipment rental.

34. A special fee is charged for recreational use of the UNC-G golf course.

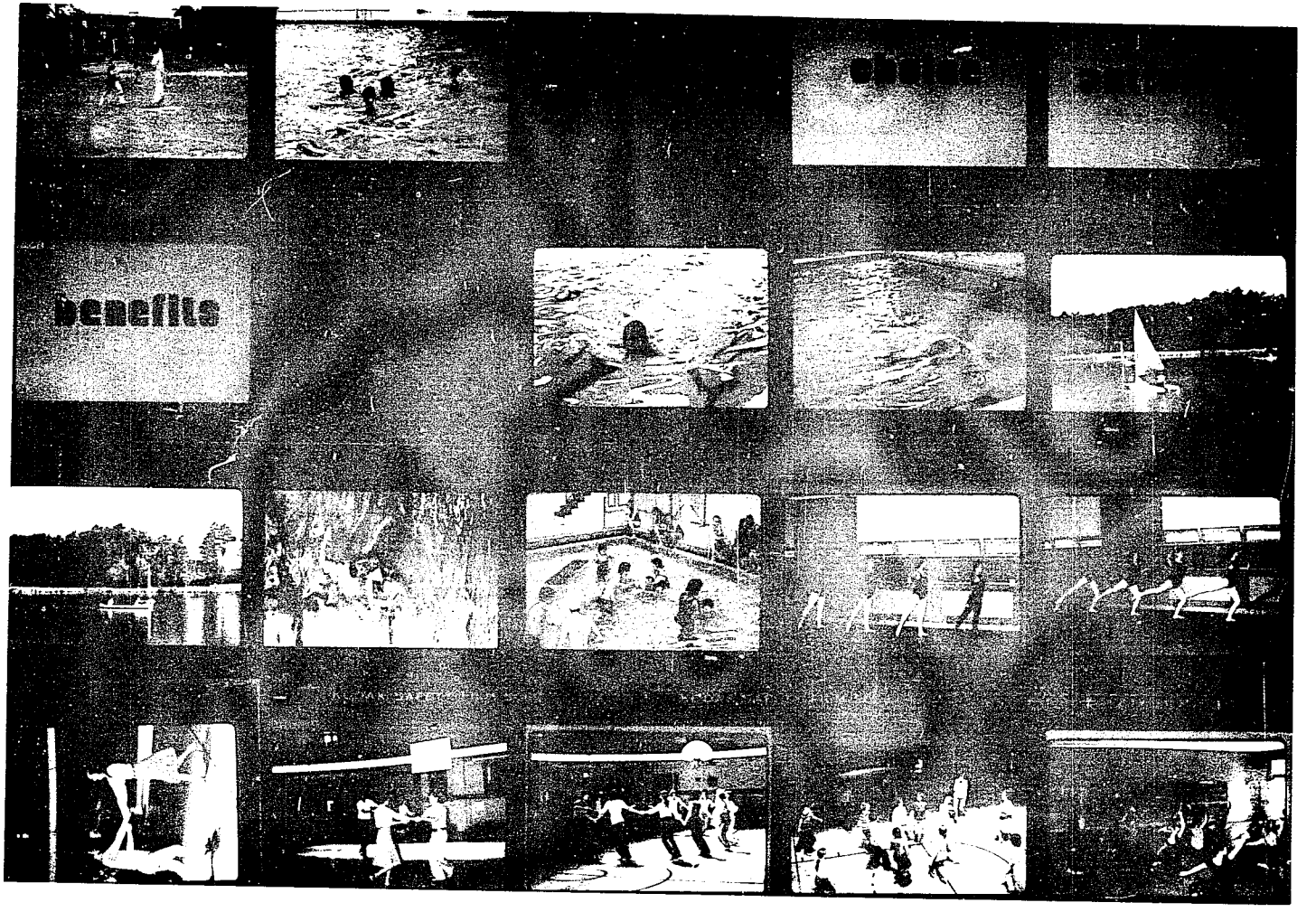
APPENDIX C

MULTIMEDIA PRESENTATION

SLIDES AND NARRATION
ACTIVITY BOOKLETS
ACTIVITY BROCHURE

Activity Slides

Activity Slides



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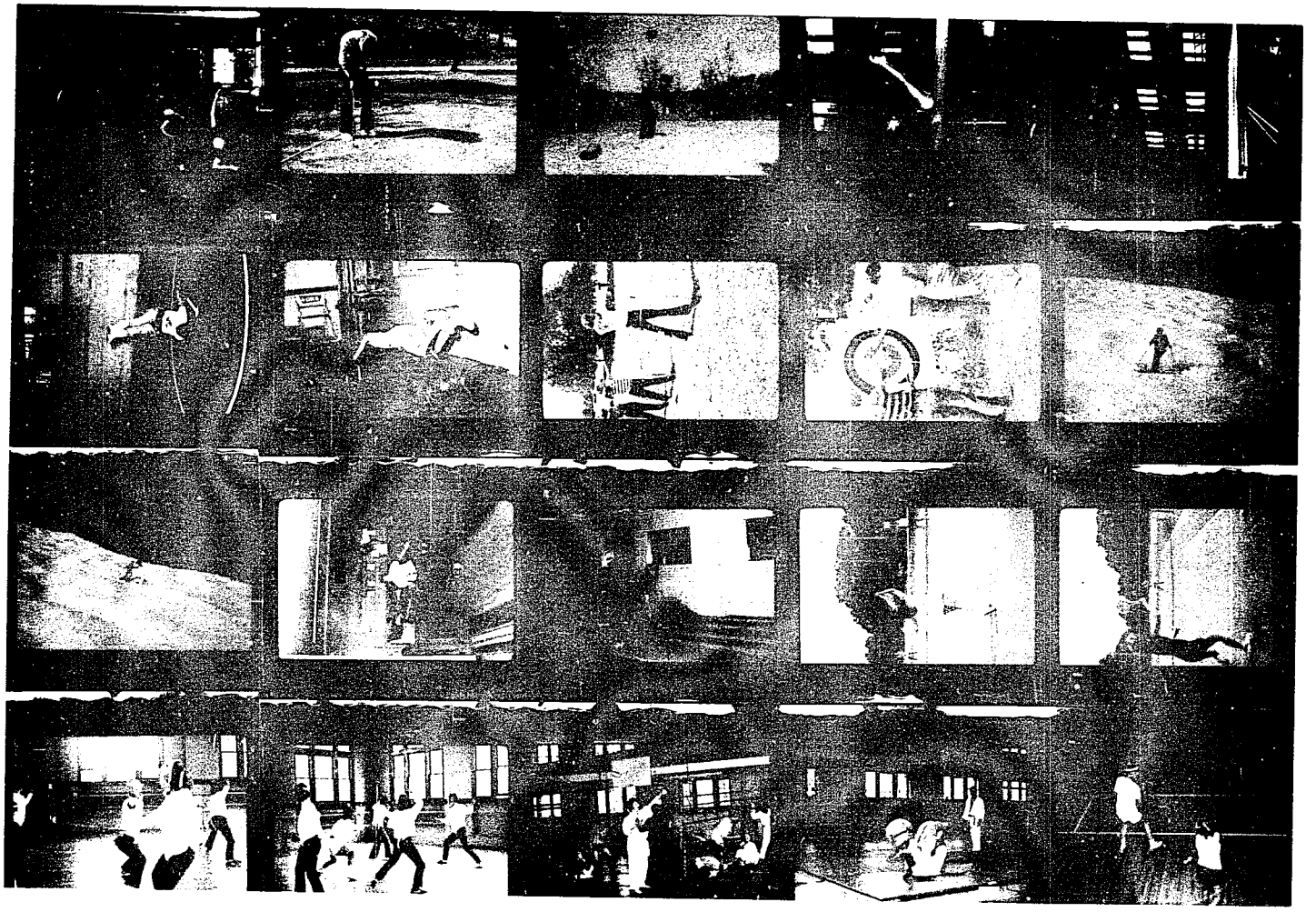

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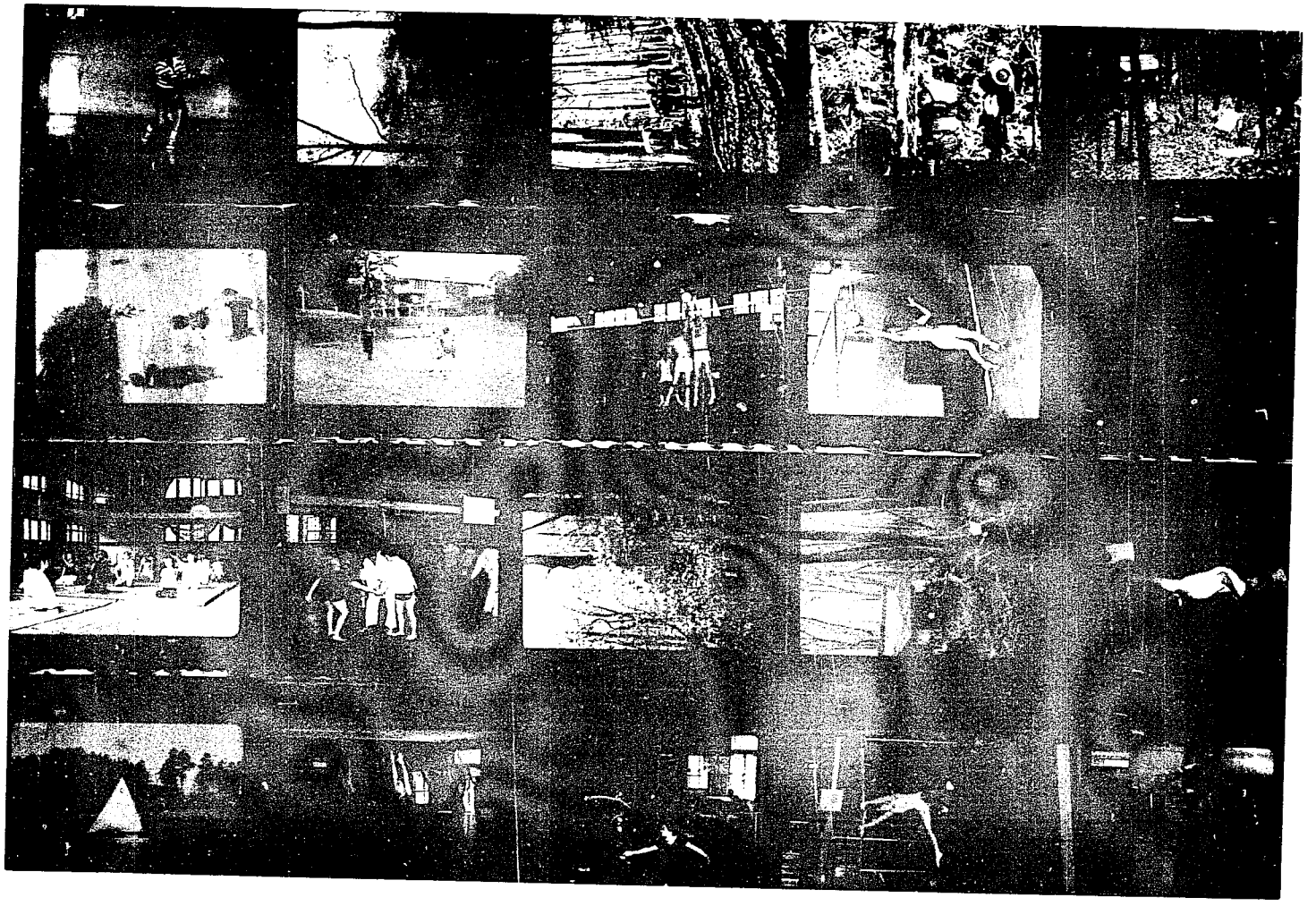

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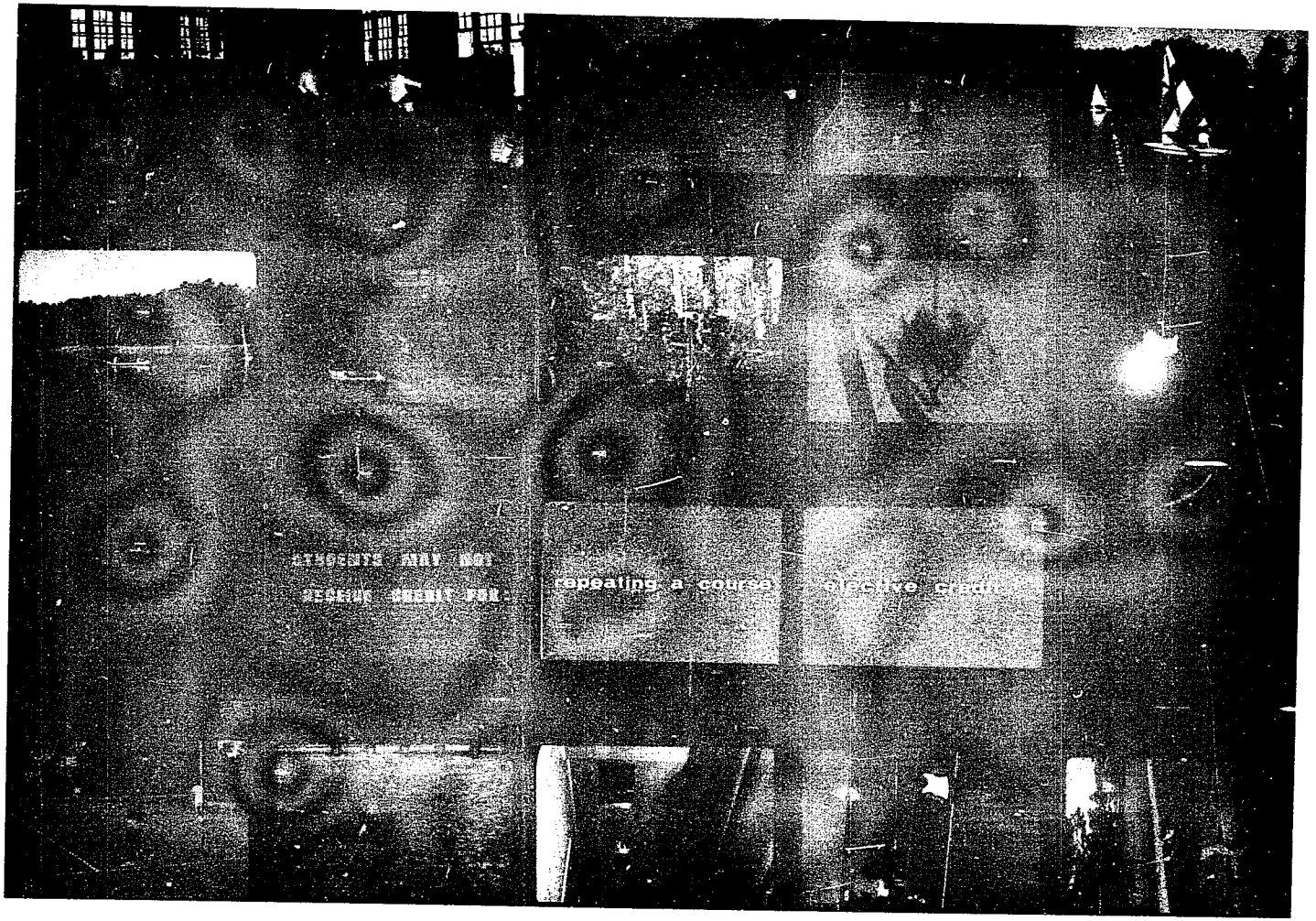

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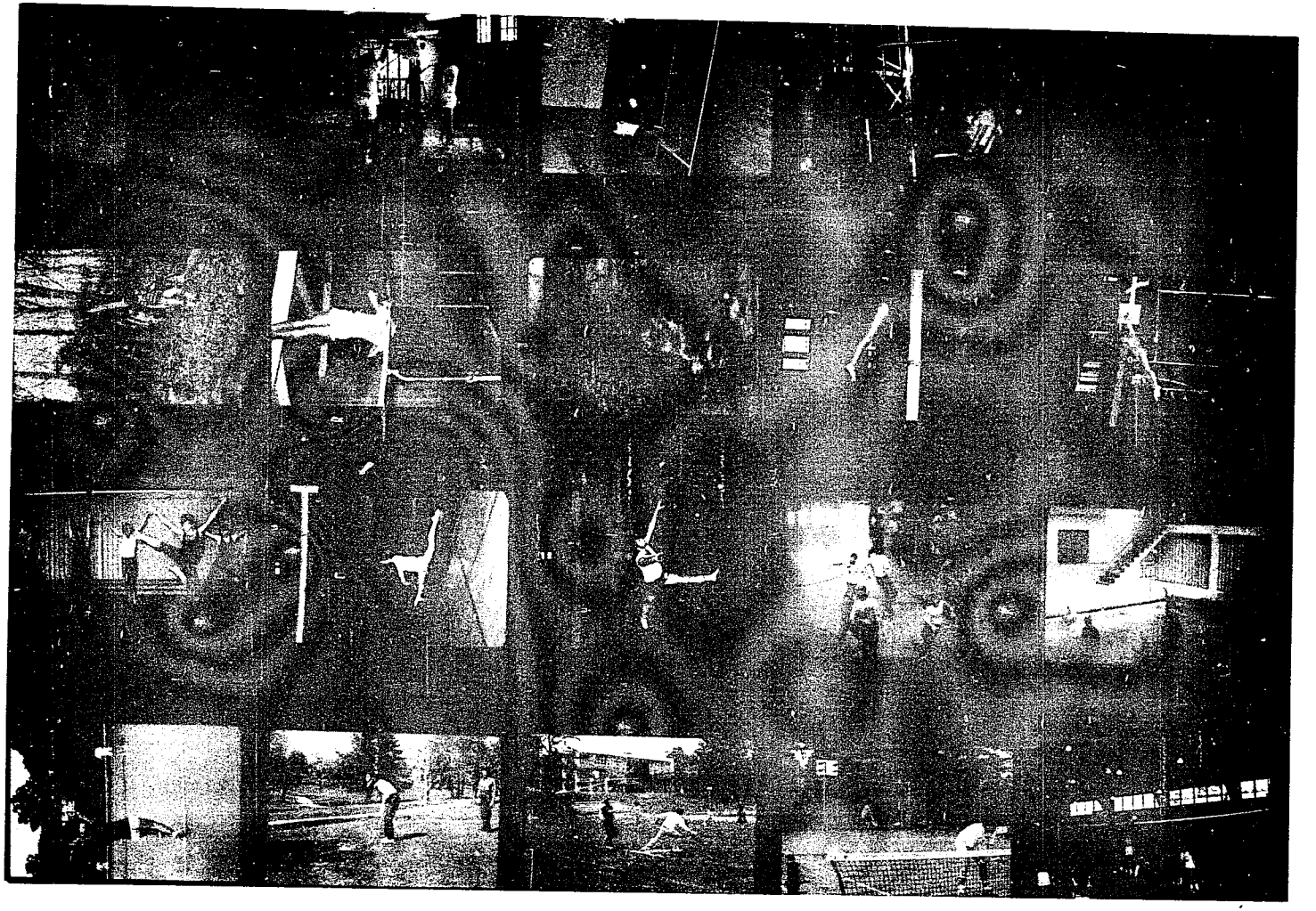

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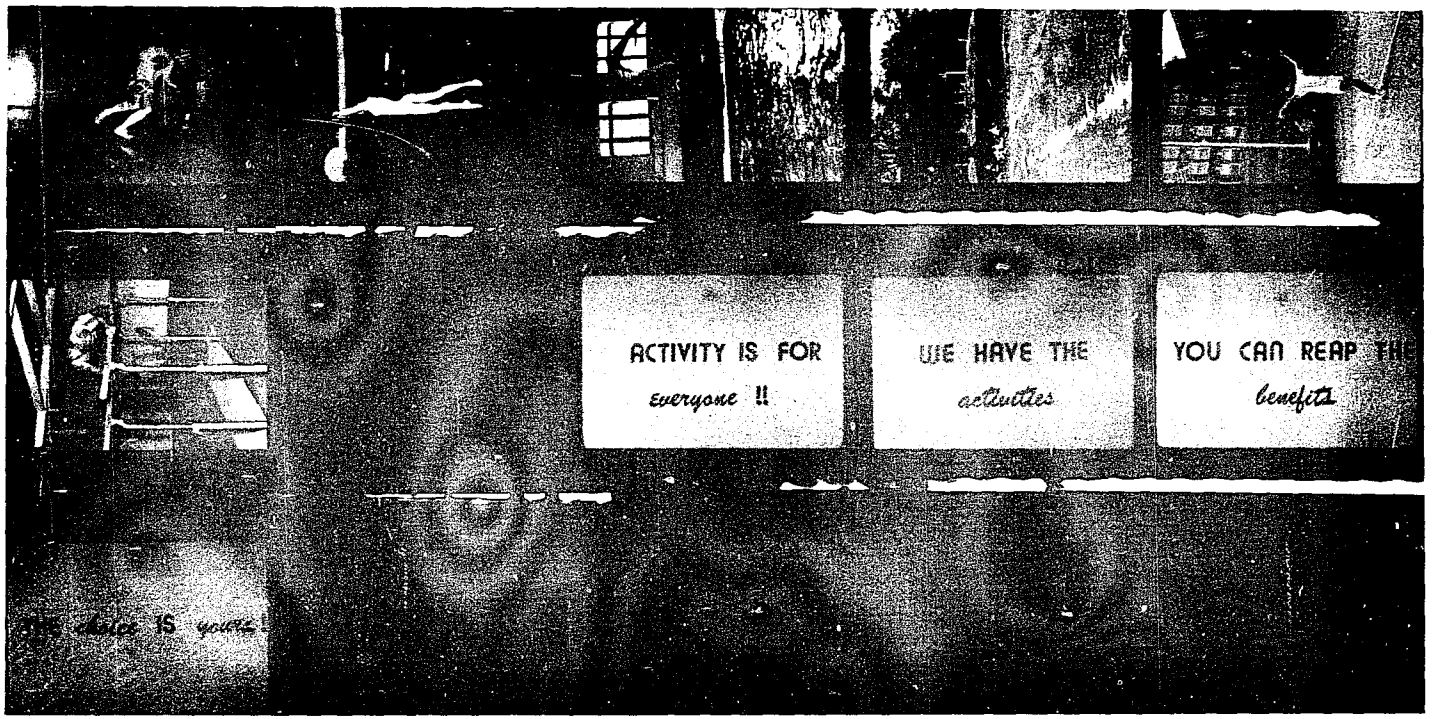


Slide Narration

Slide Number	Narration
1 (Black Slide)	None
2	Activity is for everyone!
3-6	The young
7-13	and the young at heart!
14-20	None
21-22	What better time to become an active person than right now!
23	Physical education offers you
24	choice
25	activity
26	and benefits.
27 (Black Slide)	Physical education is included in the liberal education requirements which are common to all degree programs. Within the one year physical education requirement, you have the opportunity to choose activities. What activities are you interested in learning? What new skills do you want to try? What activities do you want to improve? Here at UNC-G, we have the personnel trained to help you meet your goals.

Slide Narration

Slide Number	Narration
28	Do you like the water?
29	for swimming,
30-31	boating/canoeing/sailing,
32	life saving,
33	or WSI.
34	Do you like to dance?
35	ballet,
36-37	social dance,
38-39	folk dance,
40-41	and modern dance.
42	What about an activity you can do by yourself?
43	like golf,
44-45	gymnastics,
46-47	conditioning,
48-49	archery,
50-51	snow skiing,
52-53	and bowling.
54	Or an activity to do with someone else?
55	like tennis,
56-57	fencing,
58-59	self defense,
60-61	racquetball.

Slide Narration

Slide Number	Narration
62	How about the great outdoors?
63	for hiking,
64-65	backpacking/camping.
66	Or a team activity?
67	like softball,
68-69	or volleyball.
70 (Black Slide)	The possibilities are limitless!
71-73	A variety of skill levels are offered for you to experience the challenge of something new.
74-76	Beginning classes are designed for students who have had little or no previous instruction.
77-79	Intermediate and advanced skill classes are designed to enhance skill development and individual progress--and to encourage indepth study in one specific area.
80-82	The nature of the activity which you select determines the appropriate clothing and equipment needed for the class. Generally, instructors encourage students to wear loose fitting clothing

Slide Narration

Slide Number	Narration
	to provide for freedom of movement.
83-84	The School of Health, Physical Education, and Recreation provides equipment for most activity classes with the exception of tennis and backpacking/camping.
85-90	Most activity classes are scheduled either Monday, Wednesday, Friday or Tuesday, Thursday. However, if your class schedule is already tight, you might want to consider courses which offer flexible scheduling which include several one day trips, week-end trips, and a full week trip.
91 (Black Slide)	Students may enroll in more than one physical education course per semester and receive credit for each course. All physical education activity courses meet the equivalent of three hours per week and carry one semester hour credit.
92	Students may not receive credit for:
93	repeating a physical education course for which they have already received.

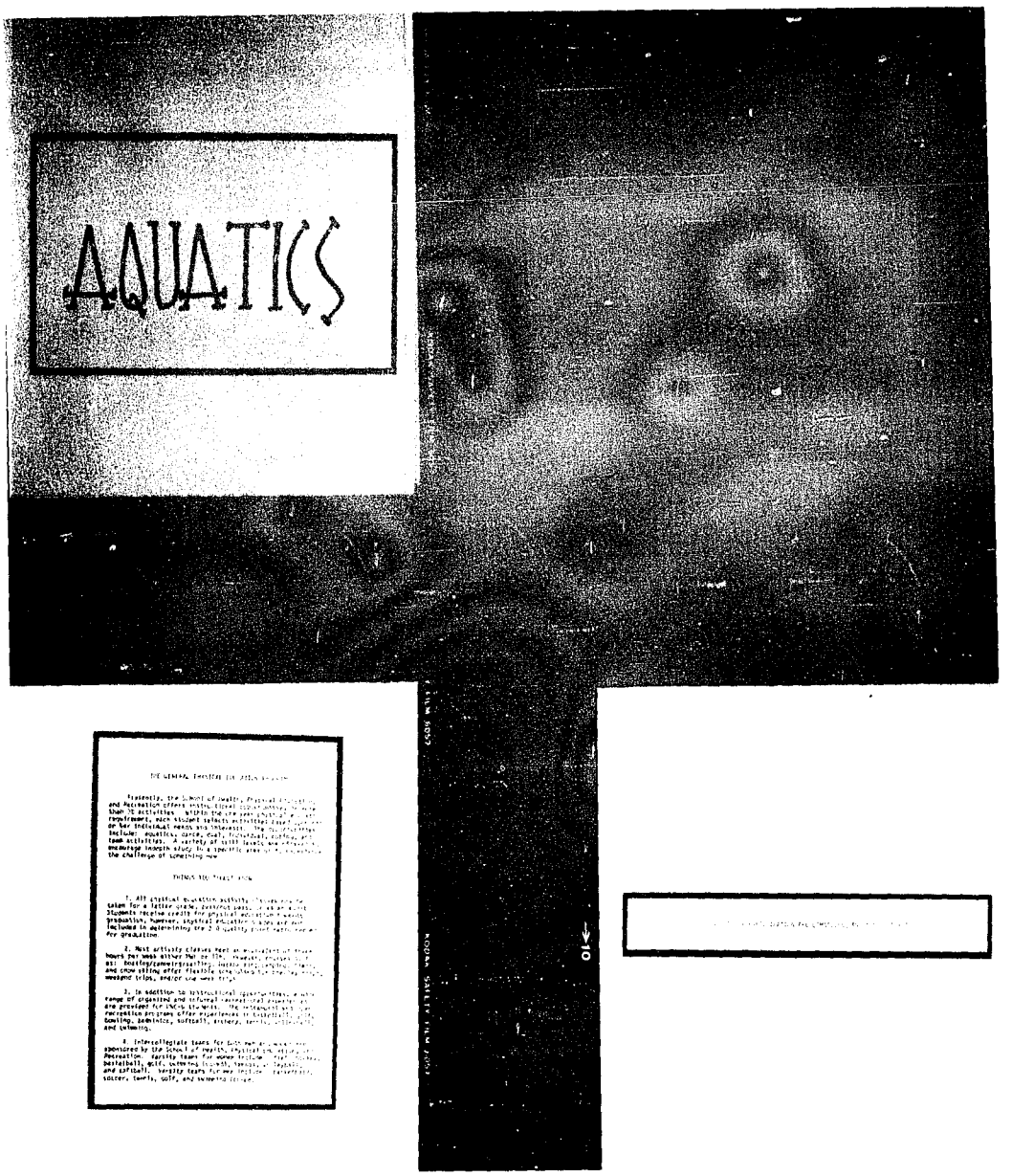
Slide Narration

Slide Number	Narration
	credit, and
94	for physical education beyond the one year requirement.
95 (Black Slide)	Since the physical education requirement may be completed anytime before graduation, you should be able to select activities you most want to learn.
	Through physical education you have the opportunity:
96-100	to learn a lifetime activity for your leisure time,
101-104	to develop and maintain fitness for living,
105-109	to increase the awareness of your physical self,
110-113	to enhance your aesthetic appreciations through expressive and creative activities,
114-117	to meet new people,
118-121	to learn to compete as well as to cooperate with others in striving for the achievement of common goals,

Slide Narration

Slide Number	Narration
122-126	to experience the joy of moving.
127 (Black Slide)	Satisfying and successful experiences in physical education should help develop in you the desire to participate regularly in activity throughout your lifetime. The physical education facilities are open without charge for recreational use during evenings and weekends and when they are not scheduled for classes or intercollegiate athletic use. Only through enjoyable and persistent participation can the optimum benefits of physical activity be derived.
128	Remember! Activity <u>is</u> for everyone!
129	We have the activities!
130	You can reap the benefits!
131	And the choice is yours!
132 (Black Slide)	None

Activity Booklets



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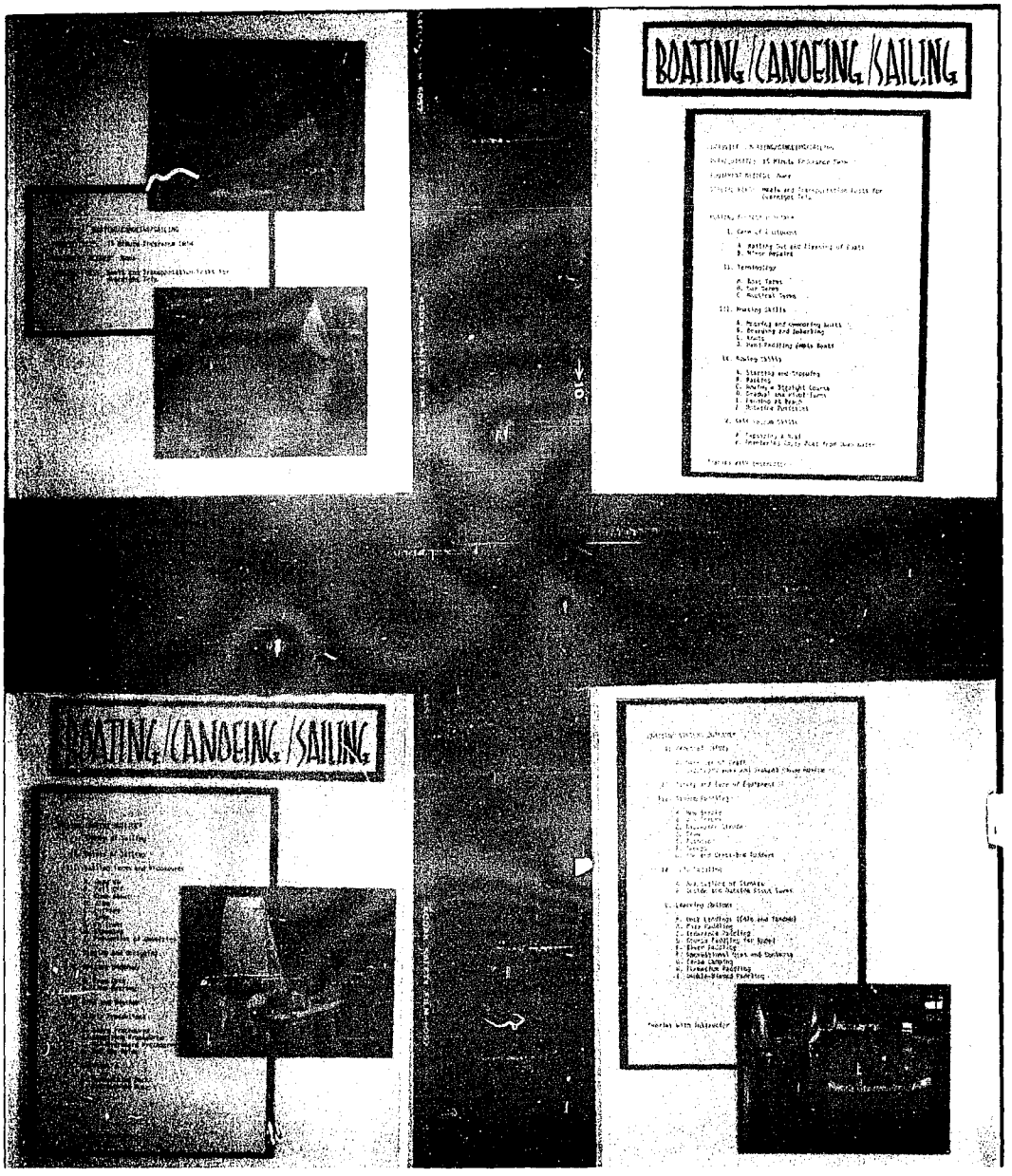

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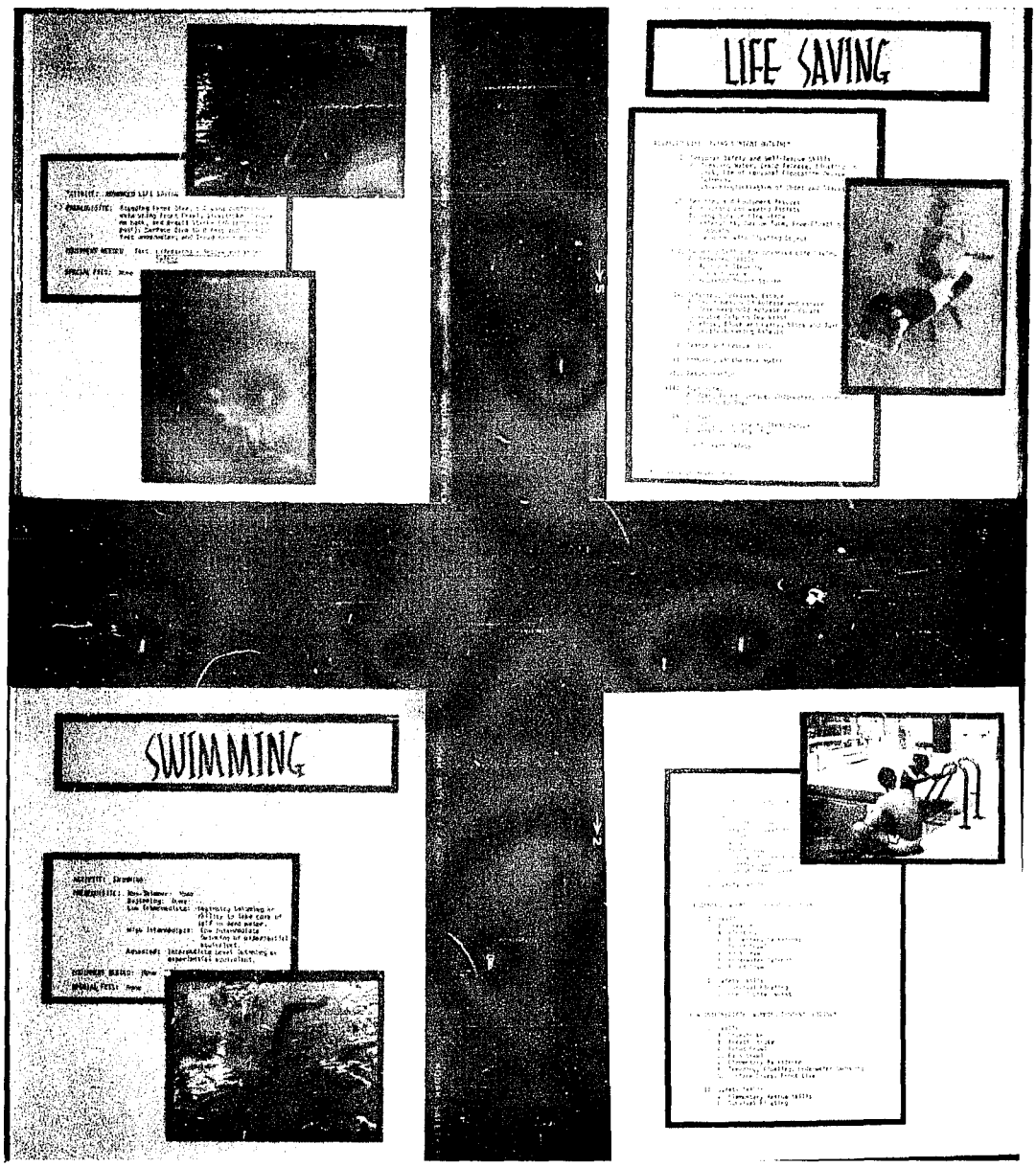

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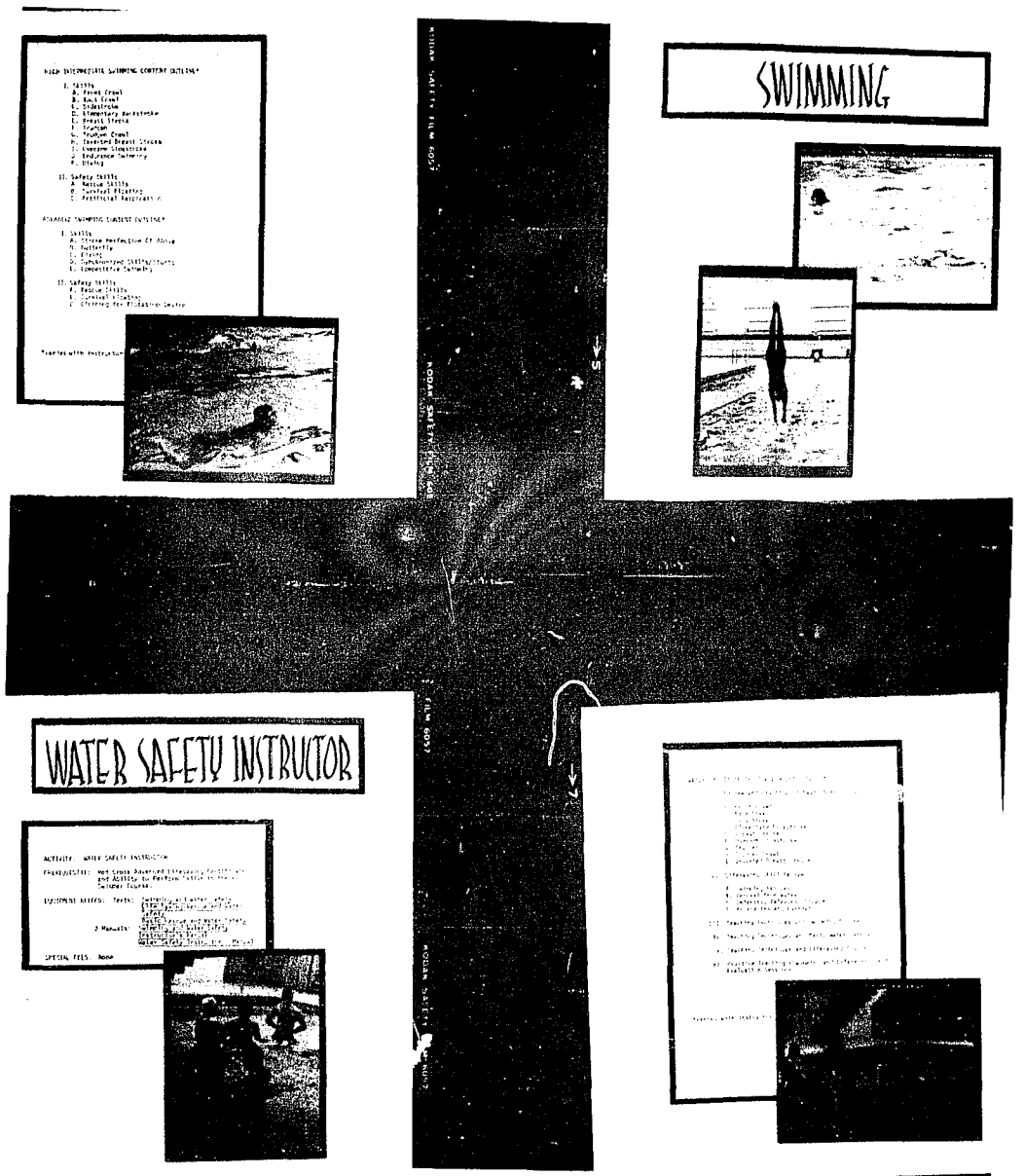

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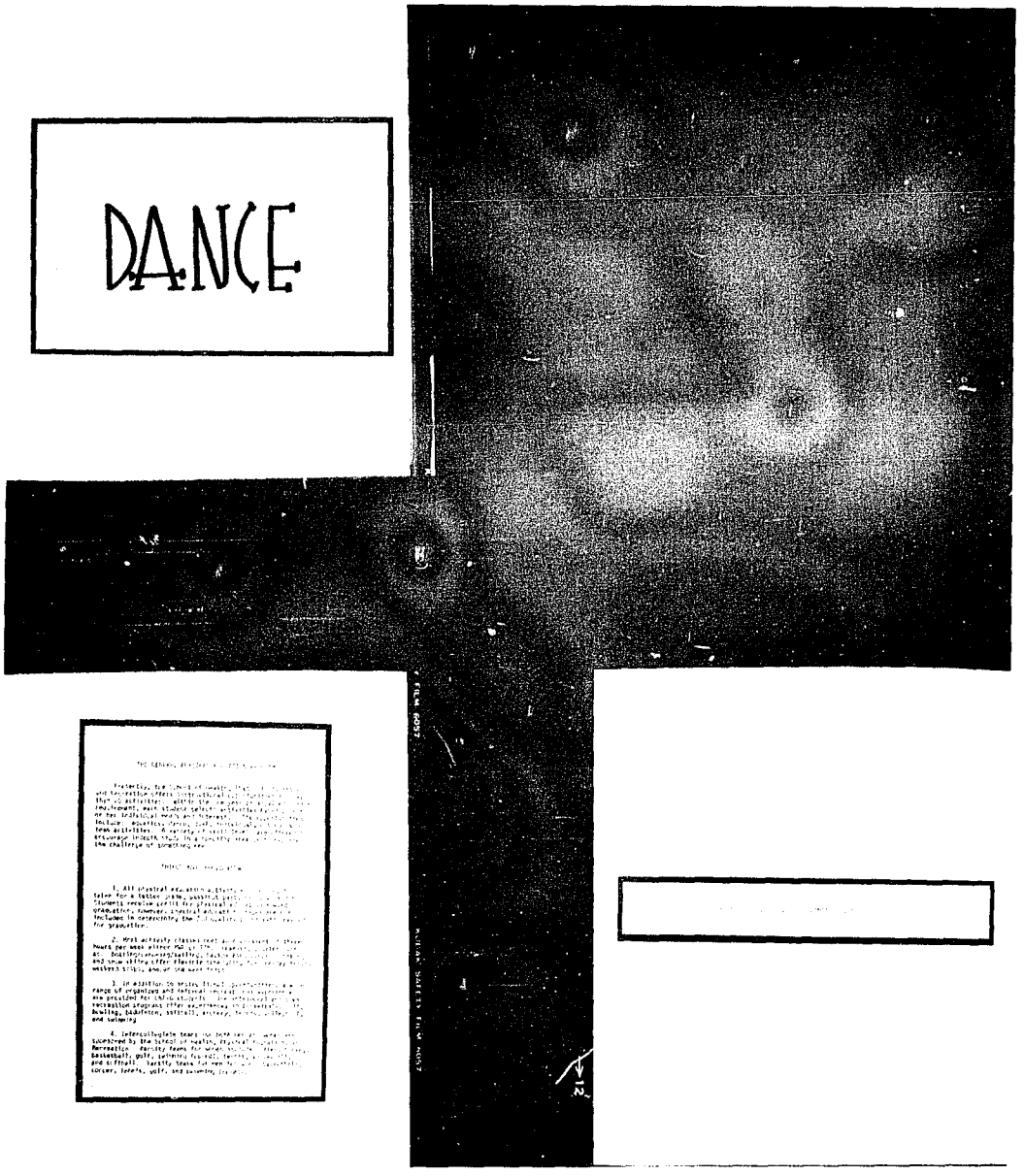

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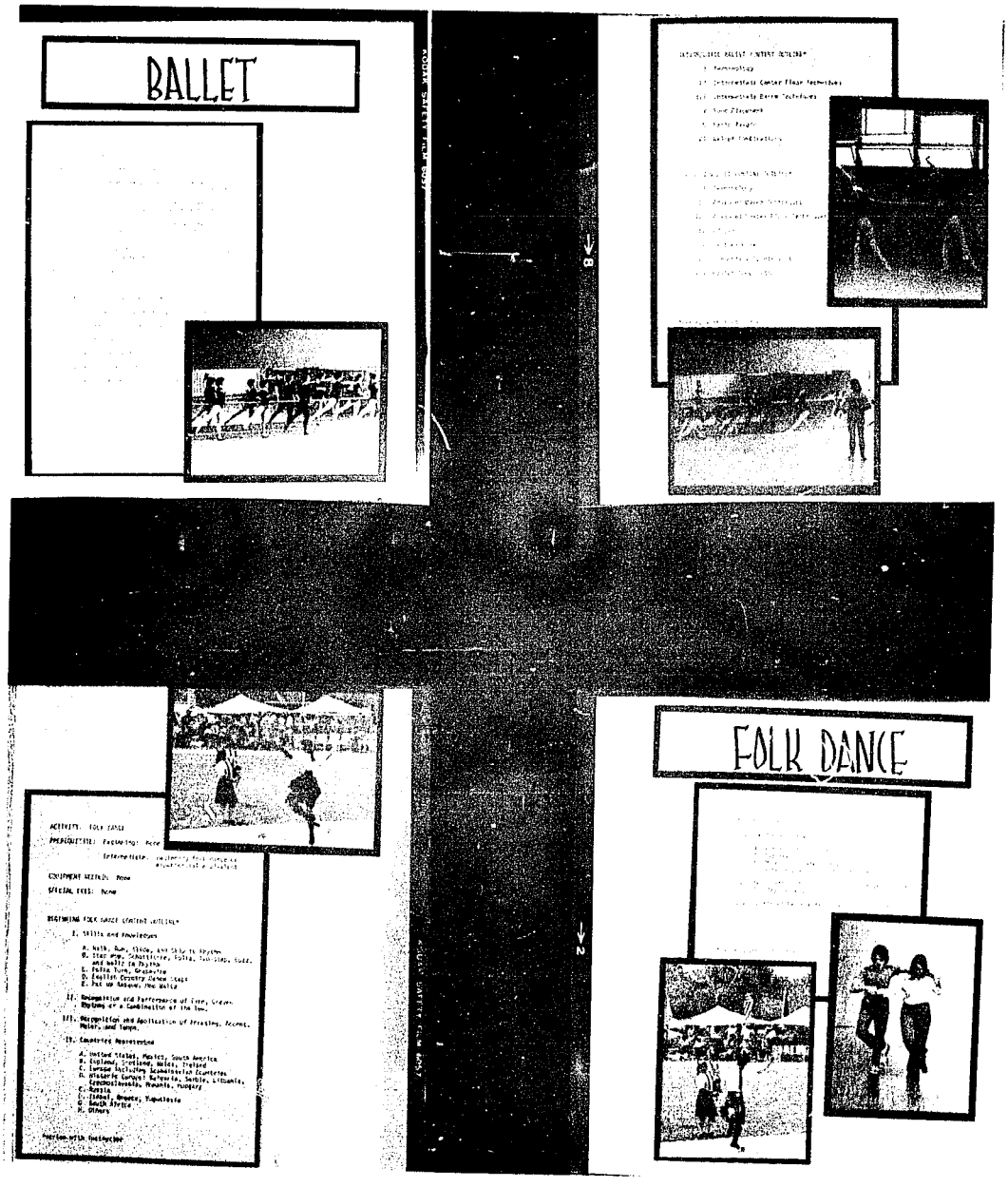

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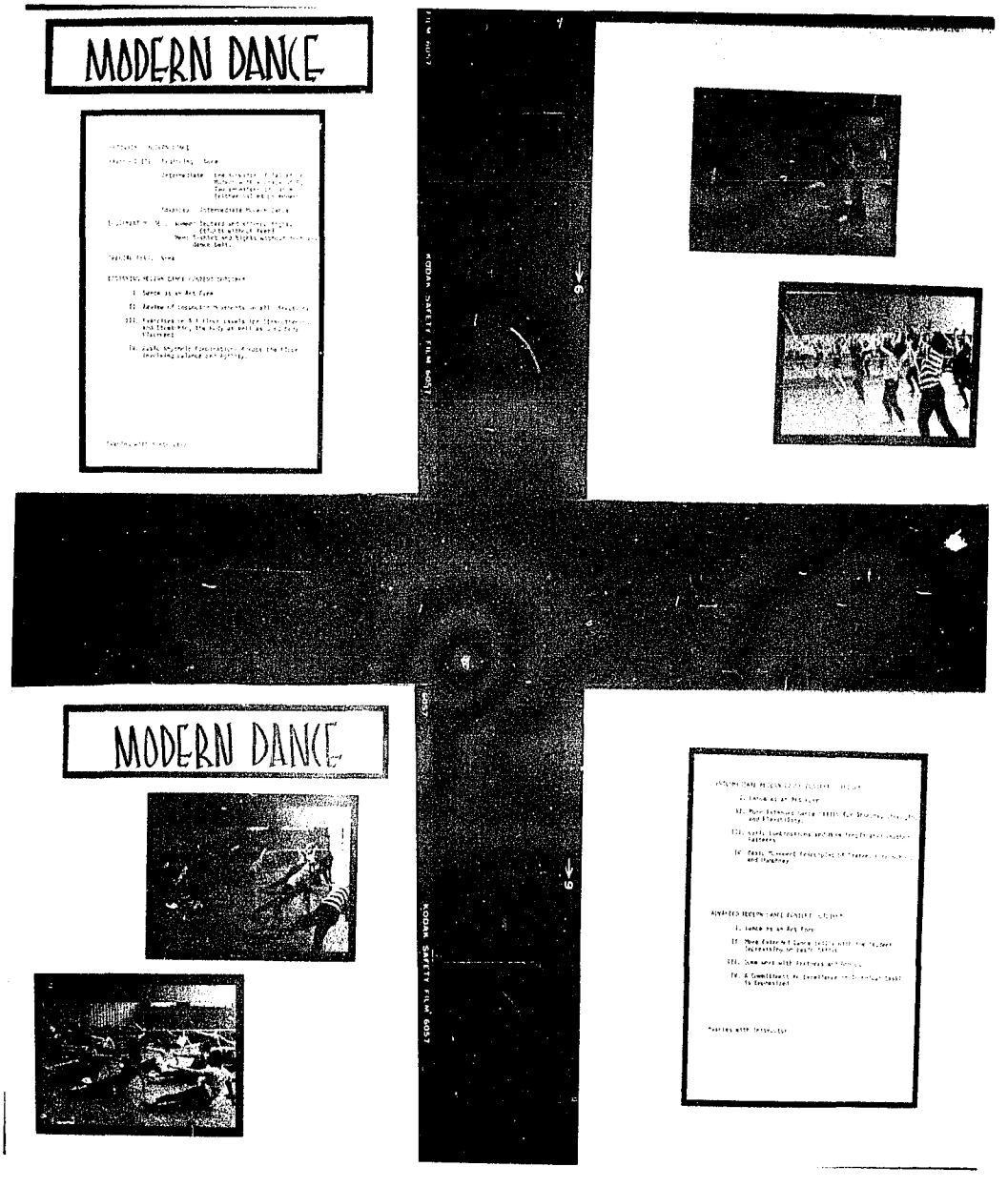

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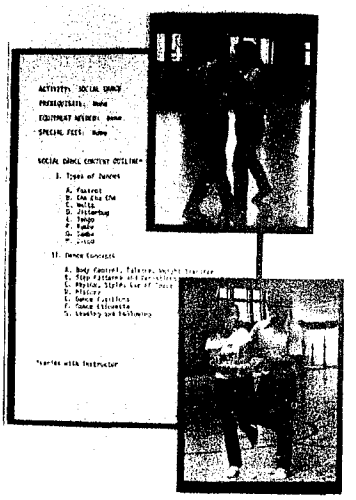

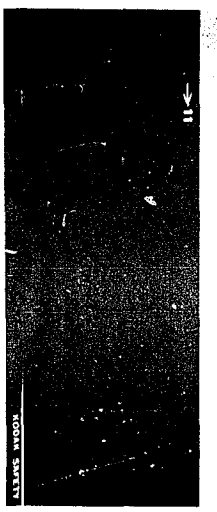

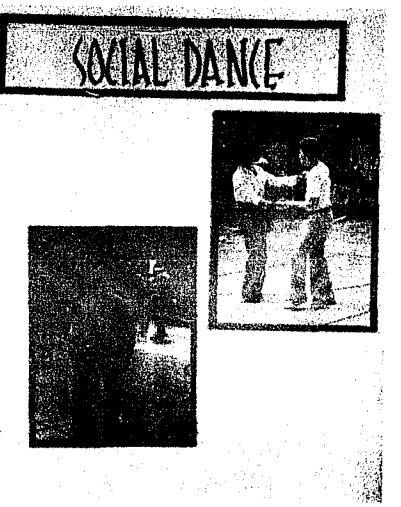

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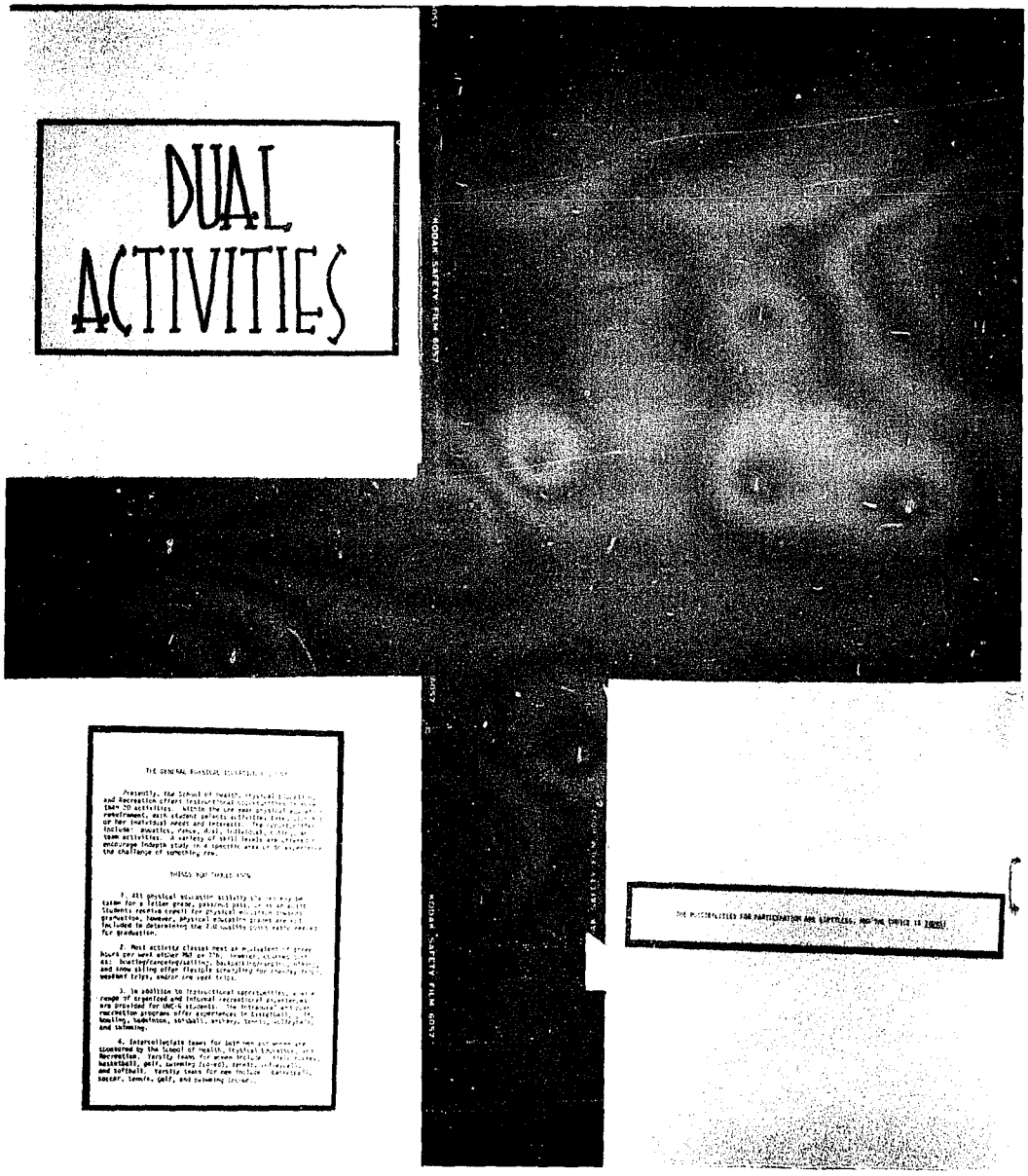

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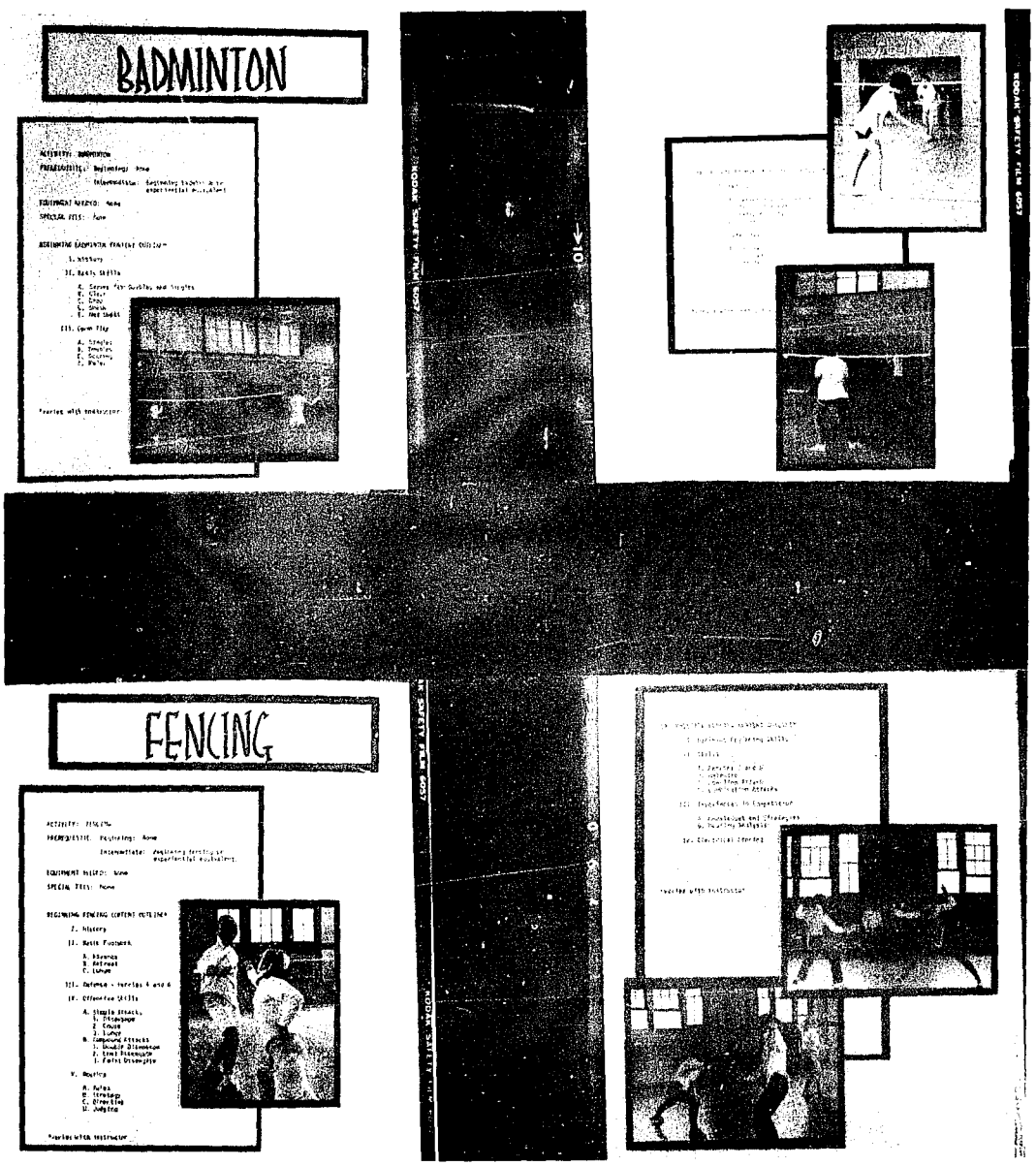

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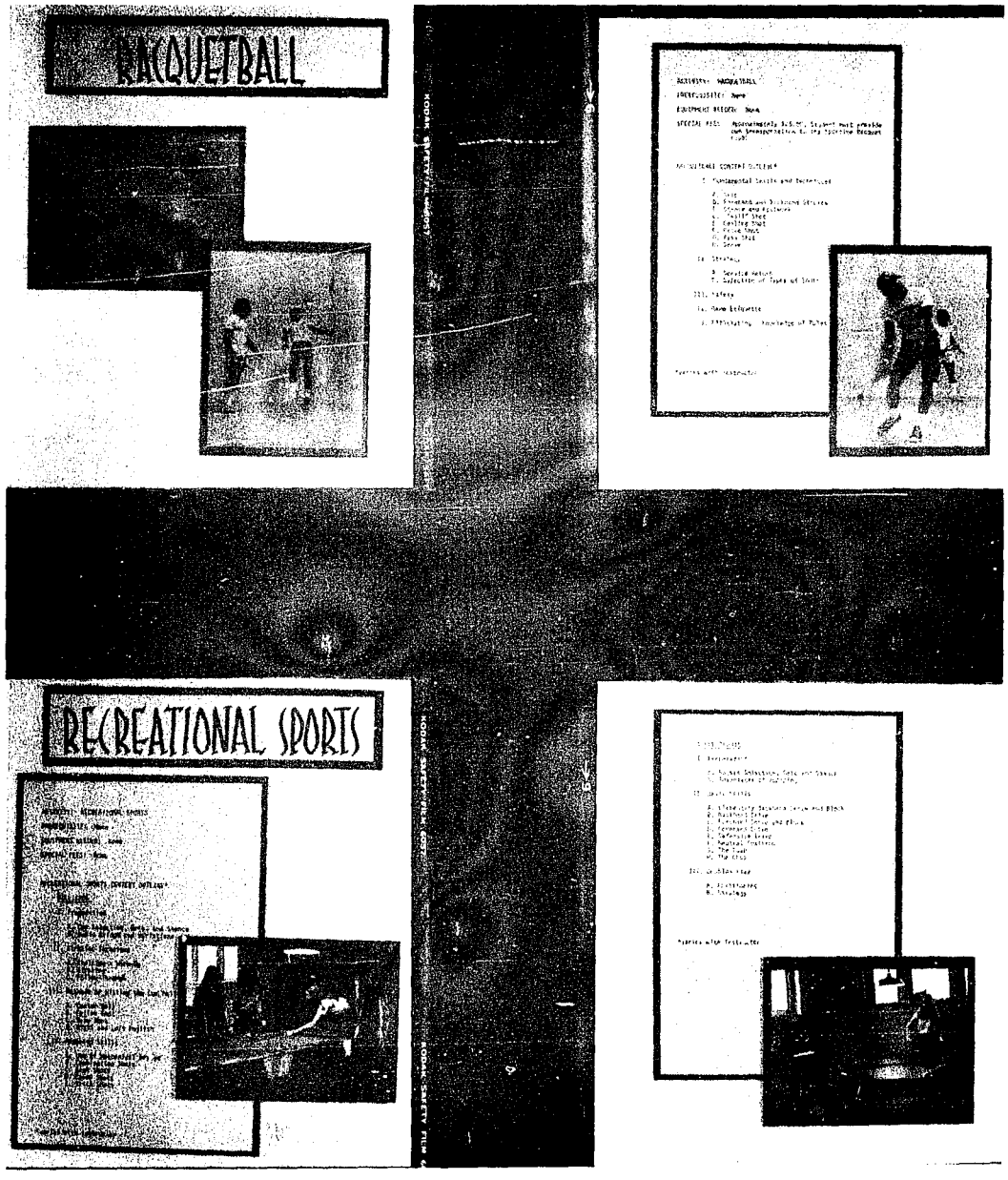

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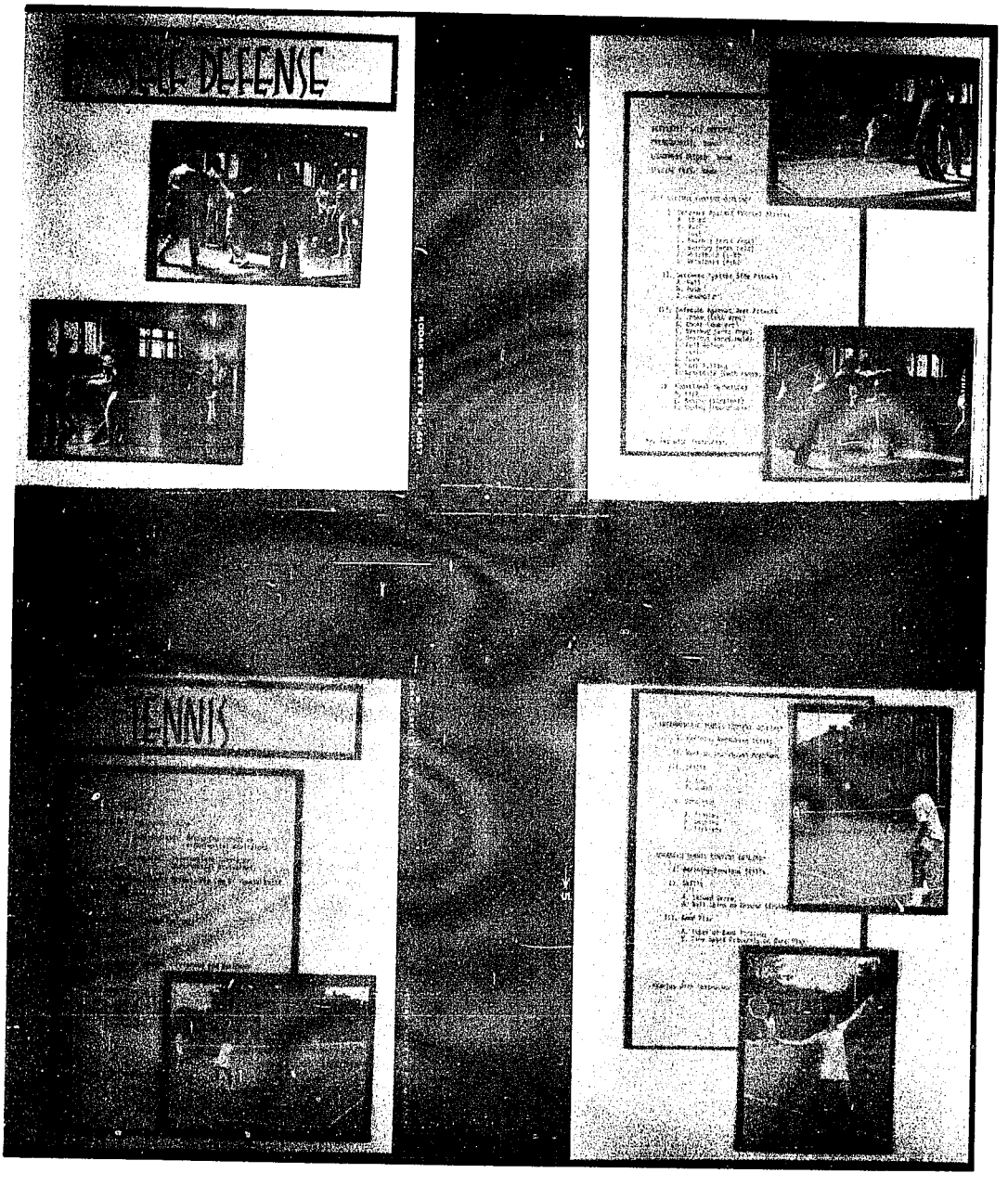

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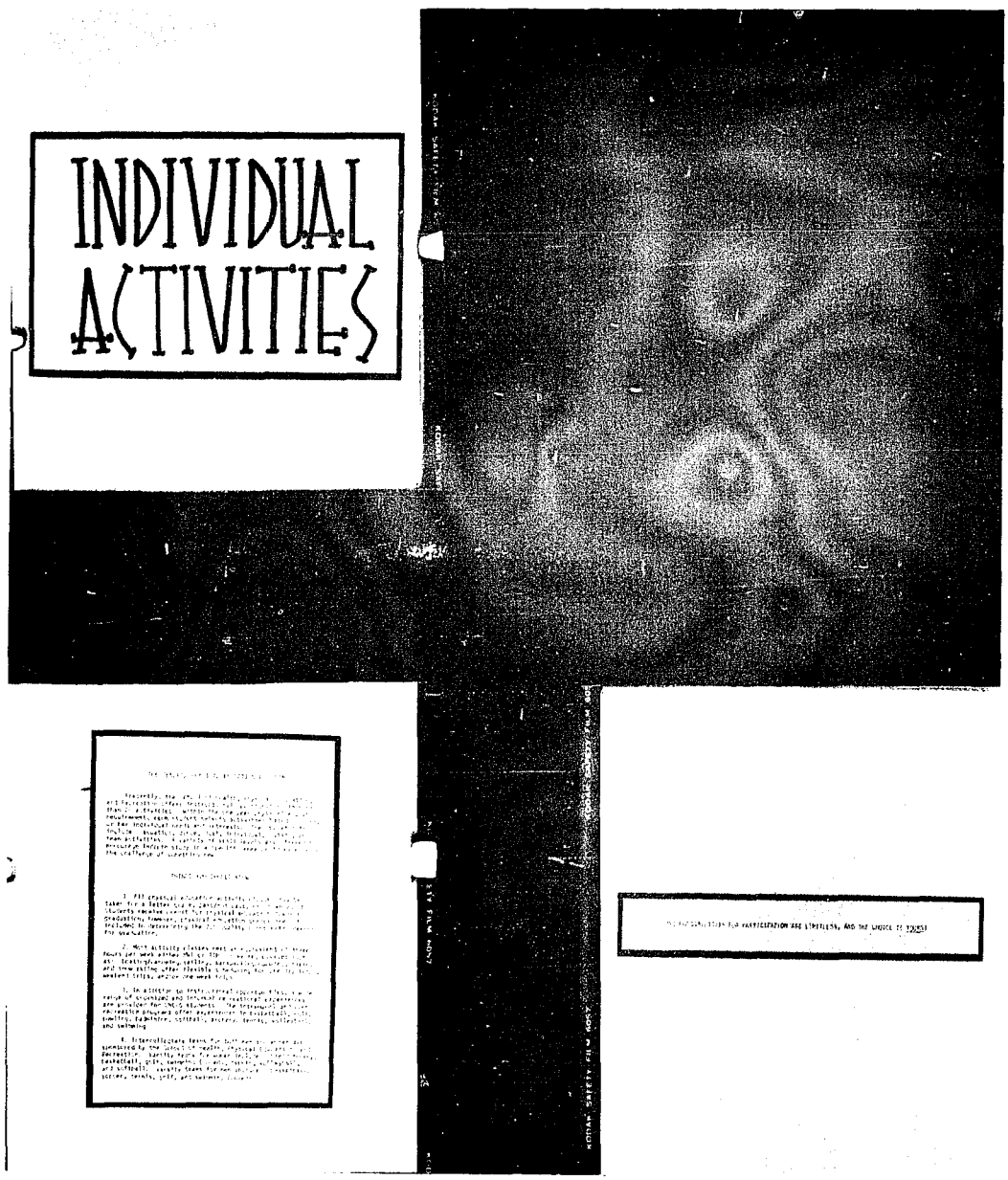

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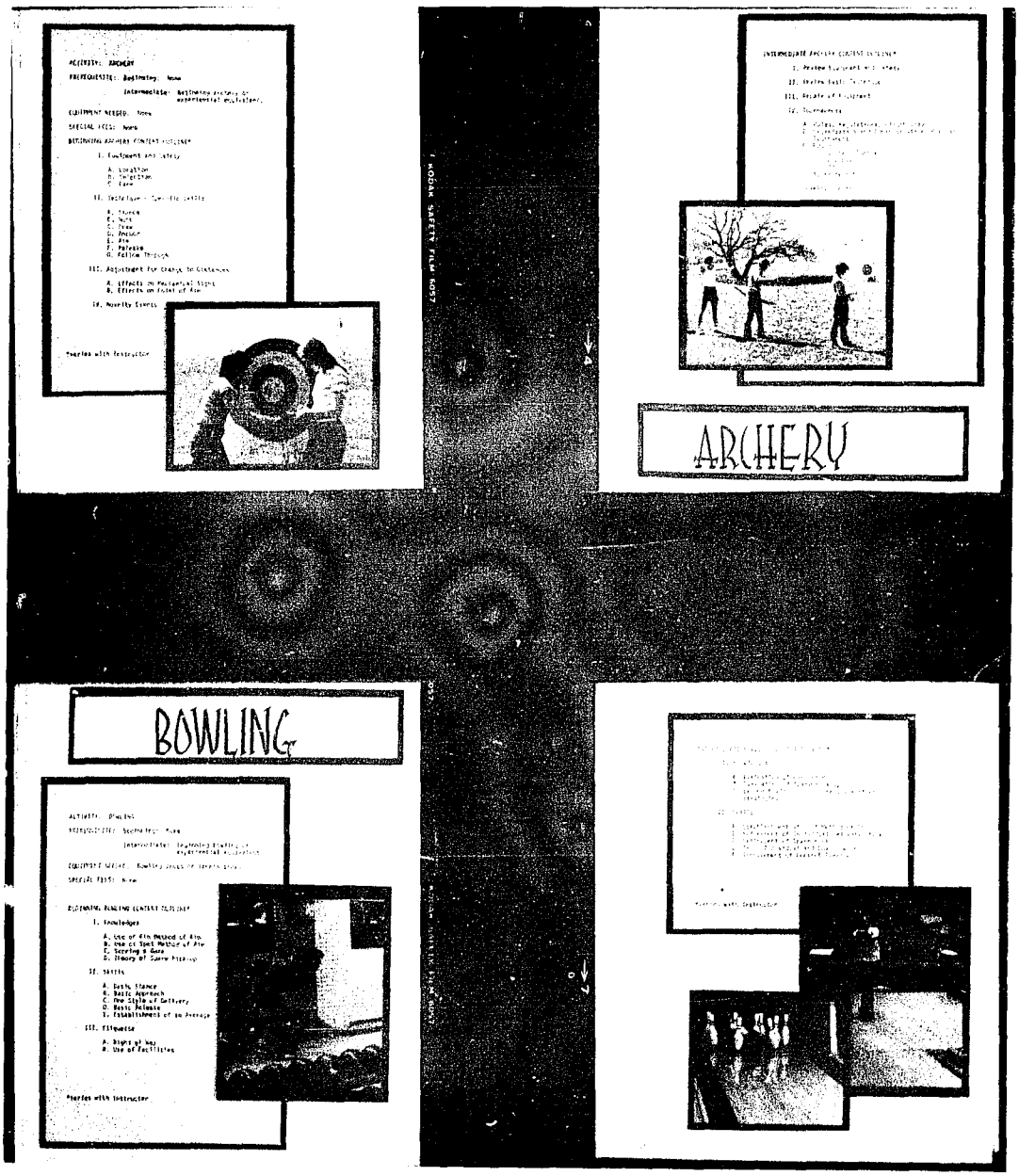

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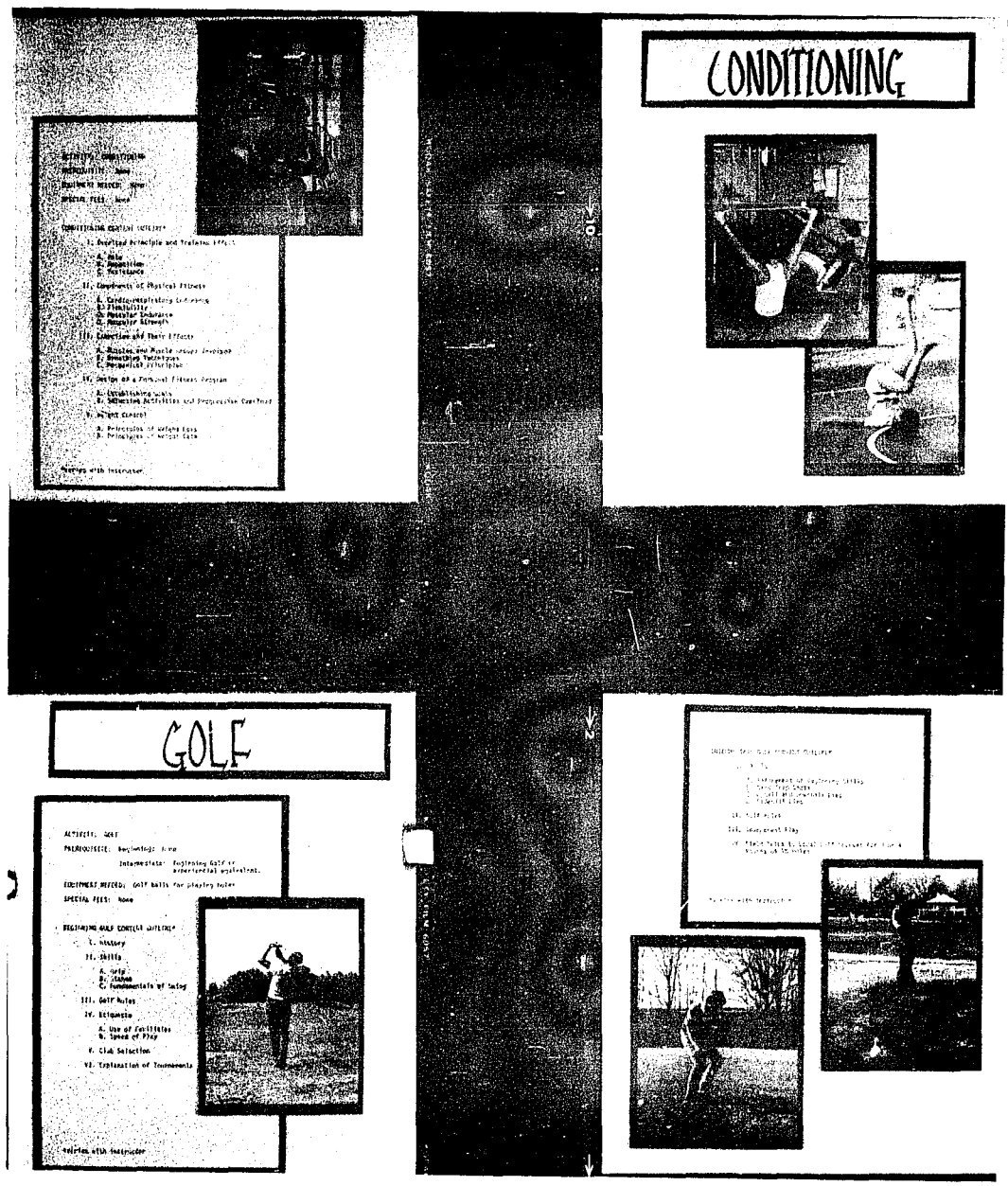

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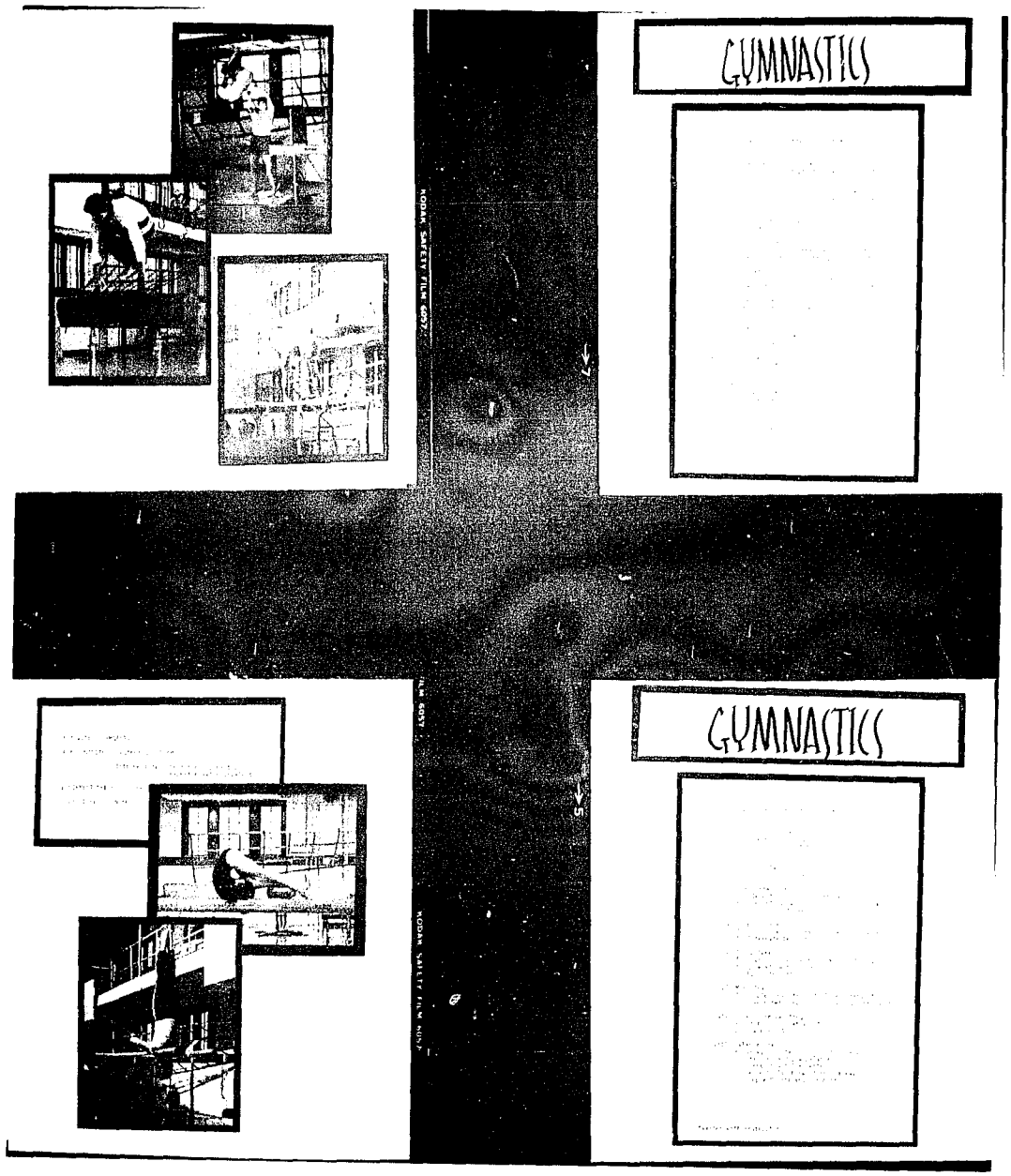
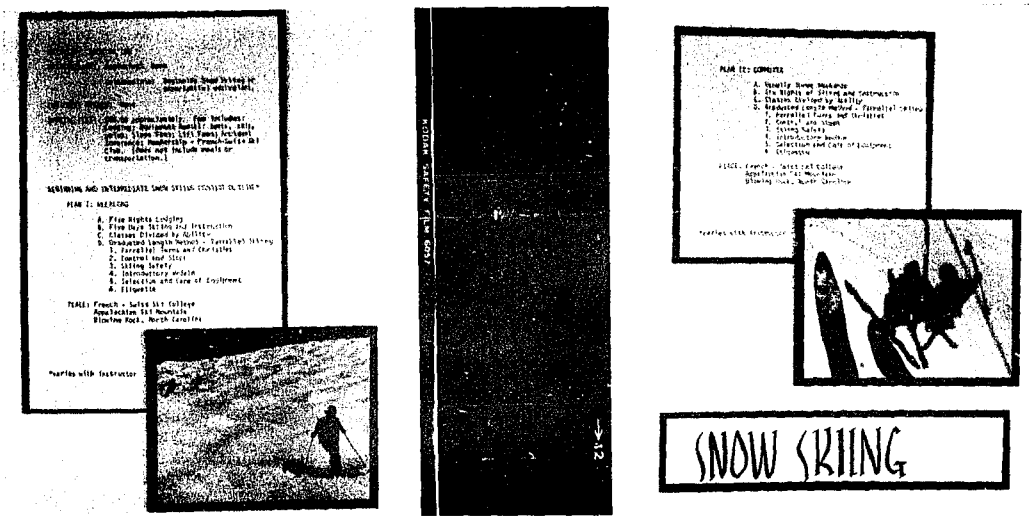
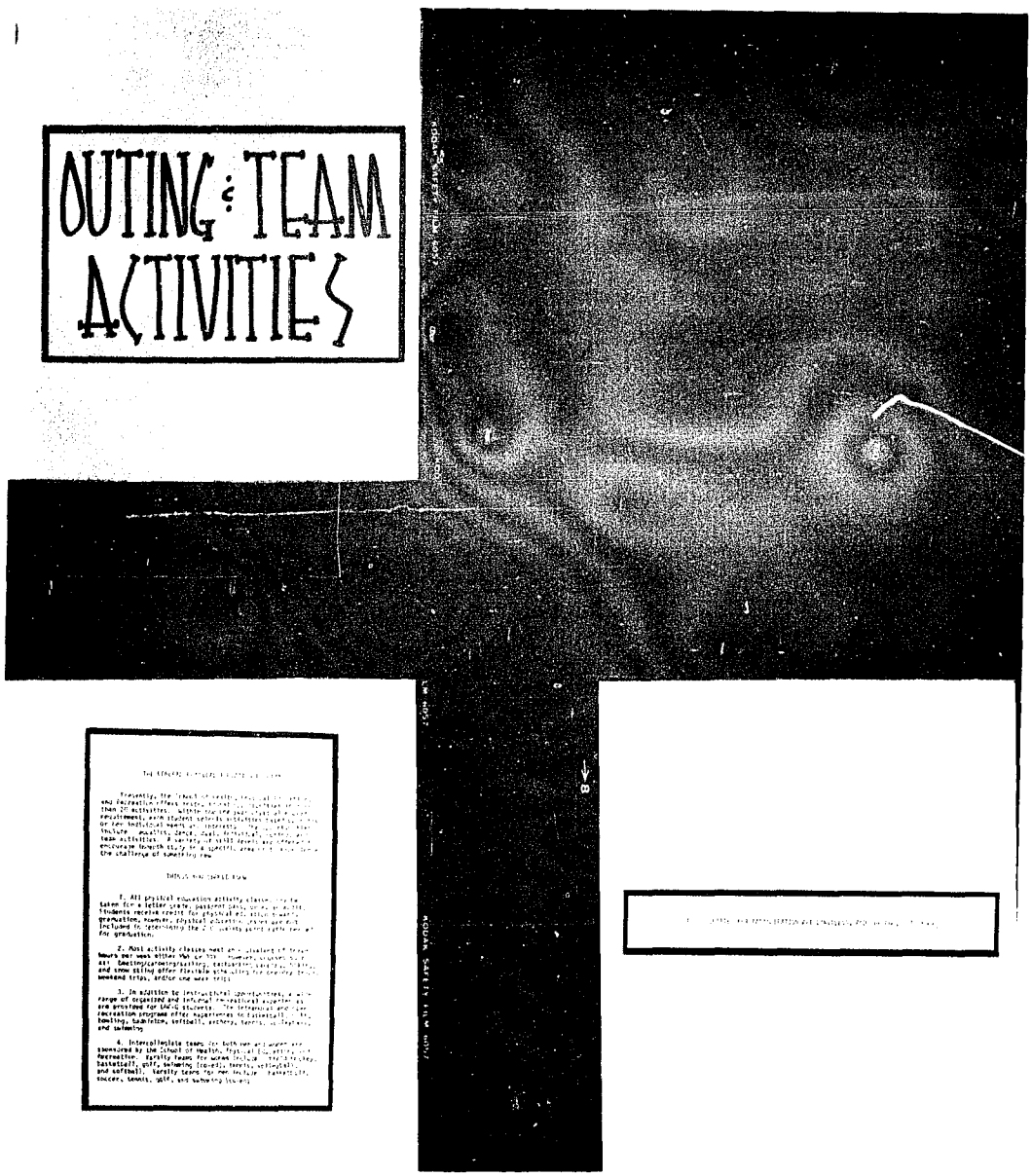


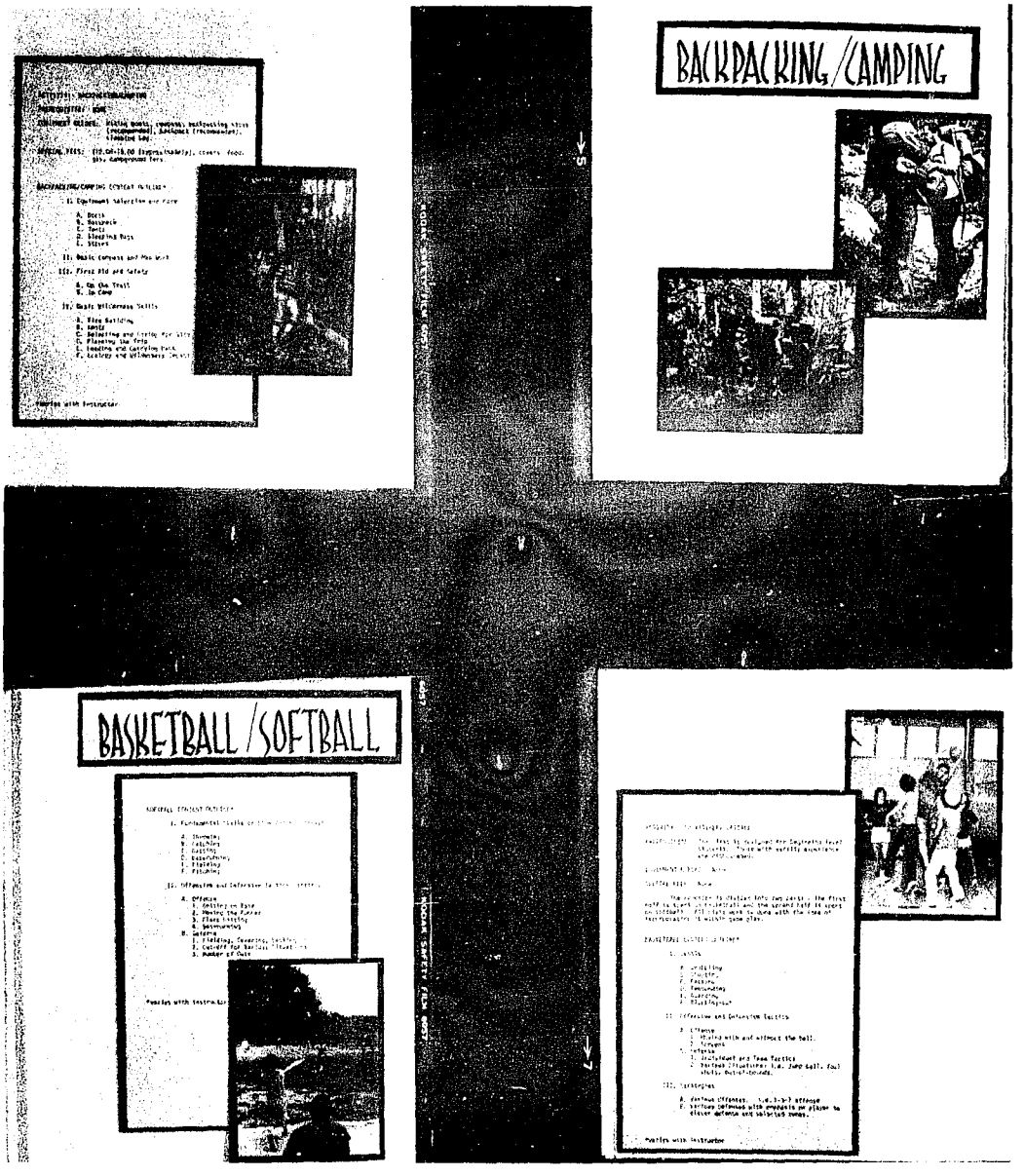
Activity Booklets



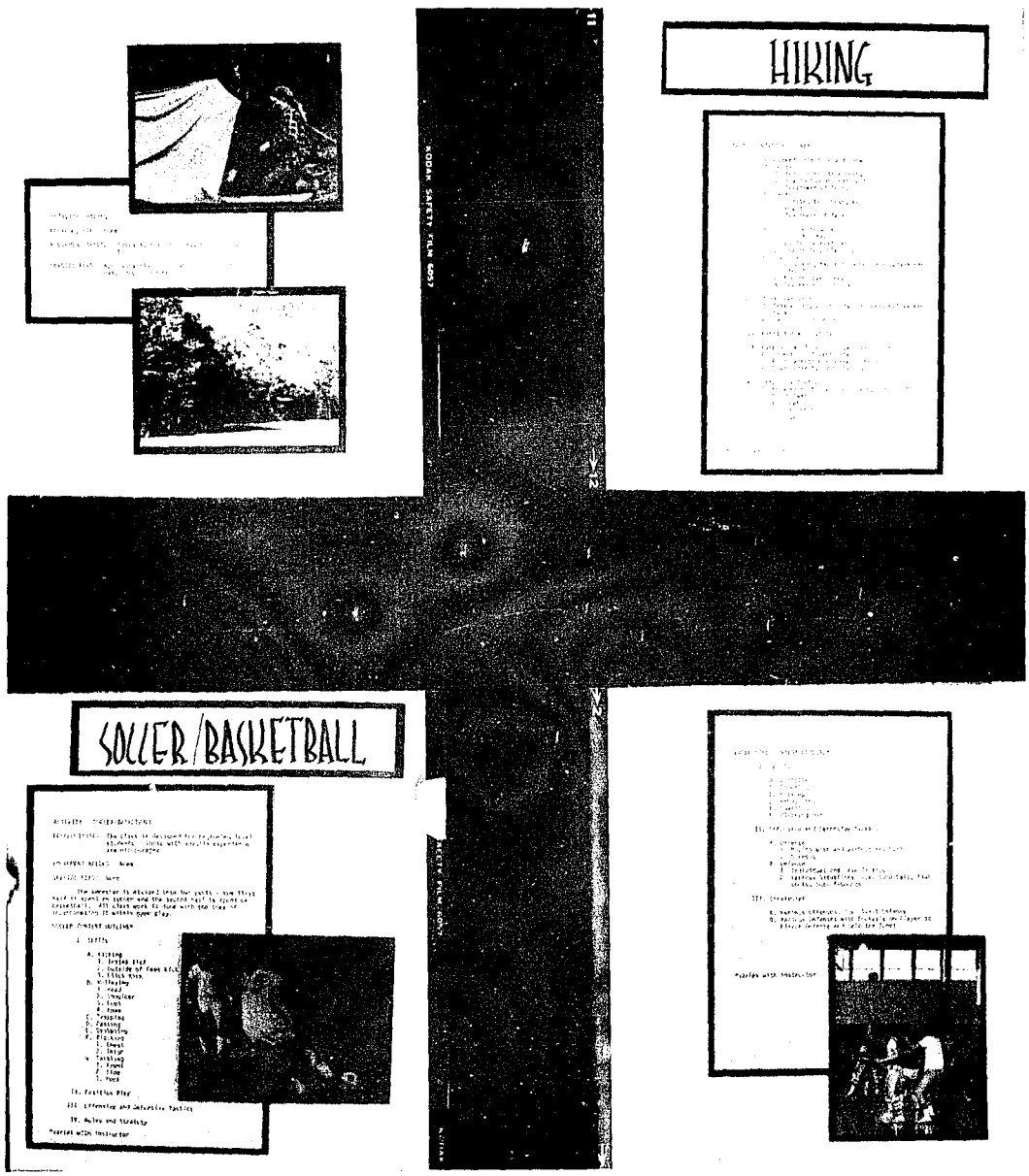
Activity Booklets



Activity Booklets

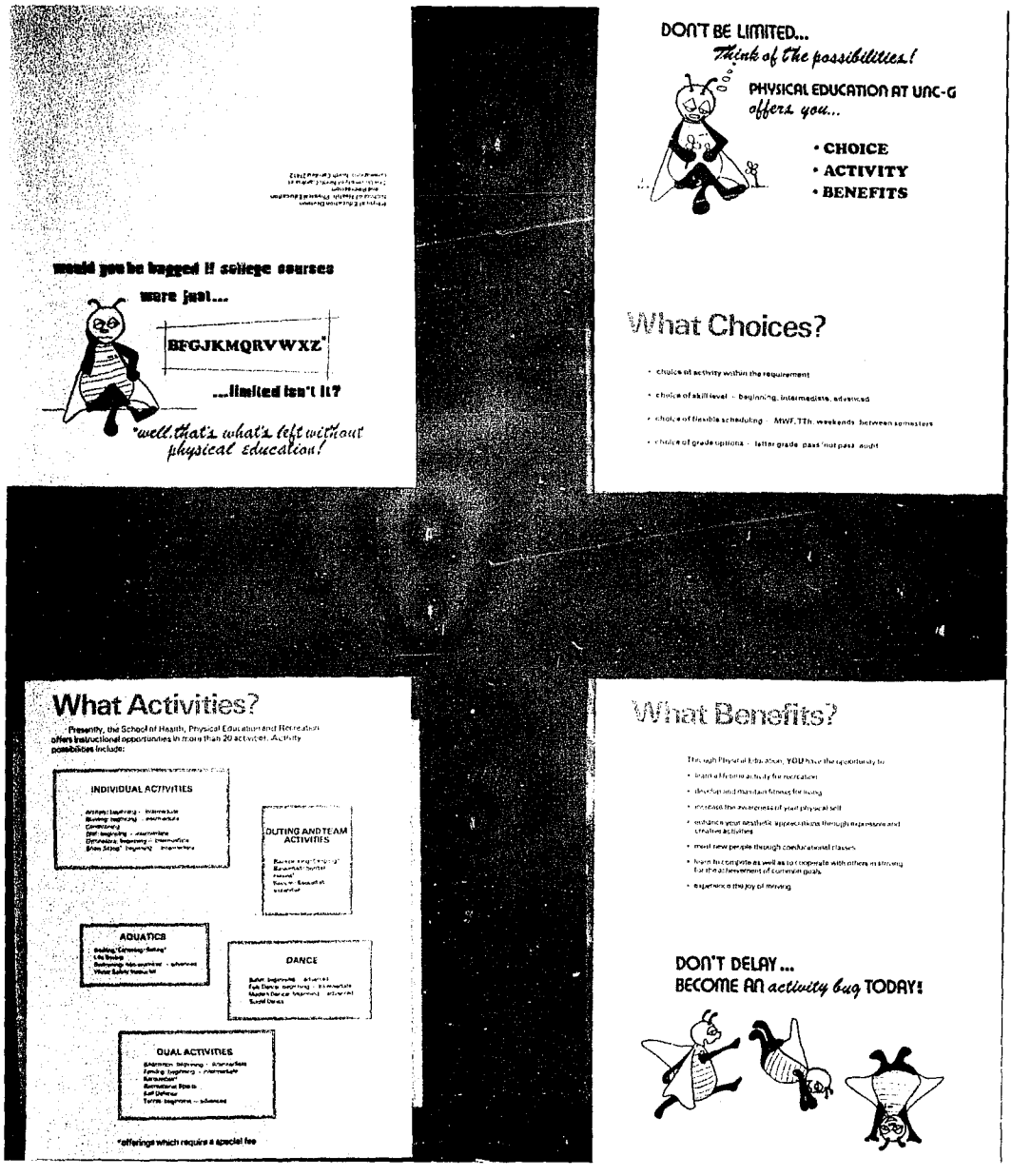


Activity Booklets



Activity Booklets

Activity Brochure



would you be bugged if college courses were just...

BFGJKMQRVWXZ*

...limited isn't it?

*well, that's what's left without physical education!

DON'T BE LIMITED...
Think of the possibilities!

PHYSICAL EDUCATION AT UNC-G *offers you...*

- CHOICE
- ACTIVITY
- BENEFITS

What Choices?

- choice of activity within the requirement
- choice of skill level - beginning, intermediate, advanced
- choice of flexible scheduling - MWF, TTh, weekends, between semesters
- choice of grade options - letter grade, pass/not pass, audit

What Activities?

Presently, the School of Health, Physical Education and Recreation offers instructional opportunities in more than 20 activities. Activity possibilities include:

INDIVIDUAL ACTIVITIES

DUTING AND TEAM ACTIVITIES

AQUATICS

DANCE

DUAL ACTIVITIES

*offerings which require a special fee

What Benefits?

Through Physical Education, YOU have the opportunity to:

- learn a lifetime activity for recreation
- develop and maintain fitness for living
- increase the awareness of your physical self
- enhance your self-worth appreciations through expressive and creative activities
- meet new people through coeducational classes
- learn to compete as well as to cooperate with others in striving for the achievement of common goals
- experience the joy of moving

DON'T DELAY...
BECOME AN *activity bug* TODAY!

APPENDIX D

PHOTOGRAPH CONSENT FORM

CONSENT FORM

I understand that the purpose of this study is to develop a multimedia presentation designed to inform students about the UNC-G General Physical Education Program. I wish to give my consent for my picture(s) to be used in the presentation.

Name_____

Local Address_____

_____

Permanent Address_____

_____

APPENDIX E

MATERIALS RELATED TO THE COLLECTION OF DATA

SCHEDULE OF PHYSICAL EDUCATION

ACTIVITY CLASSES

Percentage of Course Offerings

Area	# of sections offered	%	# selected classes
Aquatic Activities	9	14.5%	3
Dance Activities	11	17.7%	4
Dual Activities	16	25.8%	6-7
Individual Activities	23	37.0%	9
Outing and Team Activities	3	5.0%	1
Total	62	100%	24

CLASSES SELECTED FOR SAMPLE

Monday, Wednesday, Friday Classes

Time	Activities
8:00	Beginning Bowling and Beginning Badminton
9:00	Beginning Ballet and Beginning Tennis
10:00	Beginning Fencing and Beginning Bowling
11:00	Conditioning and Beginning Golf
12:00	Soccer/Basketball and Social Dance
1:00	Beginning Swimming and Beginning Golf

Tuesday, Thursday Classes

Time	Activities
8:00	Beginning Badminton and Beginning Modern Dance
9:30	Beginning Tennis and Beginning Archery
11:00	Conditioning and Recreational Sports
12:30	Beginning Gymnastics and Intermediate Modern Dance
2:00	Self Defense and Intermediate Swimming
3:30	Intermediate Gymnastics and Life Saving

INFORMATION SHEET

Name:_____

Activity Enrolled In:_____ Time:_____ Days:_____

Sex:

_____1. Female

_____2. Male

Classification: Check One

_____1. incoming freshman (no previous college experience; entering college for the first time)

_____2. freshman (previous college work)

_____3. sophomore

_____4. junior

_____5. senior

_____6. graduate

INSTRUCTIONS FOR THE ADMINISTRATION

OF THE PRETEST

We are interested in finding out what the makeup of our General Physical Education classes are. We would like for each of you to complete an information sheet.

(administrator passes out information sheets)

You will notice under classification, two types of freshmen are listed. One is an incoming freshman--those entering college for the first time and one is a freshman--those who have had some college work and who are still classified as freshmen. Please check the appropriate space.

(students complete the information sheet)

Those of you who have either a pink or blue information sheet--would you stay a moment longer? Those of you who have either a green or yellow sheet--would you hand them to me as you leave? Thank you.

(after green and yellow groups have left)

I have asked you to stay a little longer to ask you to complete a survey about the General Physical Education Program. We would like to know what you know about the UNC-G program at this time. This survey in no way affects your physical education grade.

(administrator reads directions for the survey)

After you have completed the survey, please paper clip the survey, your answer sheet, and your information sheet together. Thank you.

INSTRUCTIONS FOR THE ADMINISTRATION

OF THE MULTIMEDIA PRESENTATION

My name is Claudia Ferguson and I am a doctoral student here at UNC-G. Part of my dissertation was to develop a multimedia presentation designed to inform students about the UNC-G General Physical Education Program in which you are presently enrolled. During the next half hour, I will be showing you some slides and asking you to read carefully through some other materials. We will begin with the slides.

(slide/tape series is shown)

Would you move so that you are in groups of three? At this time, I would like you to read through some activity booklets. You will be given a certain amount of time to look through all the booklets, so please do not exchange booklets until I tell you to change.

(subjects read through the activity booklets)

The last item I would like you to read is an activity brochure.

(subjects read the activity brochure)

At this time, I would like for you to complete a short survey about the UNC-G General Physical Education Program.

(administrator reads directions for survey)

When you finish, will you place the survey and answer sheet on the table and pick up one of these white sheets which you can be reading while you wait for a final announcement.

(subjects complete the survey)

(administrator discusses the debriefing sheet)

INSTRUCTIONS FOR THE ADMINISTRATION

OF THE POSTTEST

We are meeting here today in order to ask you to complete a survey about the General Physical Education Program. We would like to know what you know about the UNC-G program. Some of you have completed the survey before; however, we would like for you to respond to the survey again. This survey in no way affects your physical education grade.

Is there anyone who is adding one of these two physical education classes today? Would you fill out an information sheet for me? Thank you.

(administrator reads directions for the survey)

When you finish, place your surveys and your answer sheet on the table. Please pick up one of the white sheets which you can be reading while you wait for a final announcement.

(subjects respond to the survey)

(administrator discusses the debriefing sheet)

DEBRIEFING

The purpose of this study is to determine the effectiveness of media in informing students about the UNC-G General Physical Education Program. Your classes were selected and divided so that some of you responded to a survey last week, some of you saw the media presentation this week, and everyone responded to the survey this week.

Because I needed to know if there was a difference between groups, it was necessary for me to have your teachers deceive you by saying that you would have your regular class today. It was necessary that you not know the purpose of the study until you had completed all aspects of the testing.

Because other groups are in the midst of this process, I need your full cooperation in NOT sharing any of the experiences which you have had today until Wednesday of this week.

Please read the following consent form. If you are willing to have your score(s) used in this study, please sign at the bottom of the page.

Thank you very much for your time and cooperation.

CONSENT FORM

I have been informed about the dissertation study designed to inform students about the UNC-G General Physical Education Program. I understand that:

1. the scores will be used only in this dissertation,
2. the scores will not affect my physical education grade, and
3. the names were used only to match the information and answer sheets and will be removed.

Signed:_____

Comments:

APPENDIX F

FREQUENCY DISTRIBUTIONS

FREQUENCY DISTRIBUTIONS

# and Correct Response		Media Pre/Post	Media Post Only	%	No Media Pre/Post	No Media Post Only	%
1 True	T	44	47	76%	31	27	48%
	F	13	9		21	25	
	DK	3	4		8	8	
2 True	T	60	58	98%	60	60	100%
	F		1				
	DK		1				
3 False	T	11	13		3	1	
	F	46	44	75%	53	51	89%
	DK	3	3		4	8	
4 True	T	59	58	98%	60	59	98%
	F	1	1			1	
	DK		1				
5 True	T	58	59	98%	57	52	91%
	F	2	1		1	2	
	DK				2	6	
6 True	T	60	58	98%	53	48	84%
	F		1		7	2	
	DK		1			10	
7 False	T	2	2		1	4	
	F	56	58	95%	52	48	83%
	DK	2			7	8	
8 True	T	56	40	80%	33	36	58%
	F				1	2	
	DK	4	20		26	22	

# and Correct Response		Media Pre/Post	Media Post Only	%	No Media Pre/Post	No Media Post Only	%
9 False	T	22	12		6	6	
	F	15	15	25%	1	4	.04%
	DK	23	33		53	50	
10 True	T	60	60	100%	60	60	100%
	F						
	DK						
11 False	T	6	9		9	9	
	F	51	49	83%	47	36	69%
	DK	3	2		4	15	
12 False	T		1				
	F	58	55	94%	49	44	78%
	DK	2	4		11	16	
13 False	T	1	1			1	
	F	56	58	95%	52	49	84%
	DK	3	1		8	10	
14 True	T	51	53	87%	50	42	77%
	F	3				1	
	DK	6	7		10	17	
15 False	T	1			7	4	
	F	57	56	94%	39	34	61%
	DK	2	4		14	22	
16 True	T	44	42	72%	24	20	37%
	F	5	4		3	4	
	DK	11	14		33	36	
17 False	T	11	11		22	21	
	F	36	34	58%	18	19	31%
	DK	13	15		20	20	

# and Correct Response		Media Pre/Post	Media Post Only	%	No Media Pre/Post	No Media Post Only	%
18 True	T	47	45	77%	16	12	23%
	F	3	7		9	5	
	DK	10	8		35	43	
19 False	T		1		4	2	
	F	59	59	98%	27	35	52%
	DK	1			29	23	
20 False	T	3			11	12	
	F	54	55	91%	28	25	44%
	DK	3	5		21	23	
21 False	T	32	34		45	39	
	F	24	15	33%	2	1	.03%
	DK	4	11		13	20	
22 True	T	56	46	85%	40	33	61%
	F	2	4		2	4	
	DK	2	10		18	23	
23 False	T		1		1	4	
	F	59	56	96%	55	49	87%
	DK	1	3		4	7	
24 True	T	58	54	93%	40	36	63%
	F	1	1		4		
	DK	1	5		16	24	
25 False	T	3	3		5	5	
	F	52	56	90%	47	45	77%
	DK	5	1		8	10	
26 True	T	60	59	99%	60	59	99%
	F		1				
	DK					1	

# and Correct Response		Media Pre/Post	Media Post Only	%	No Media Pre/Post	No Media Post Only	%
27 False	T	19	22		8	16	
	F	32	27	49%	22	12	28%
	DK	9	11		30	32	
28 True	T	58	60	98%	56	55	93%
	F	2			1	1	
	DK				3	4	
29 True	T	60	60	100%	32	37	58%
	F					1	
	DK				28	22	
30 False	T	5	1		9	8	
	F	53	55	90%	40	34	62%
	DK	2	4		11	18	
31 True	T	56	53	91%	47	48	79%
	F				1		
	DK	4	7		12	12	
32 True	T	56	57	94%	46	40	72%
	F	2			3	2	
	DK	2	3		11	18	
33 False	T	7	3		4		
	F	29	34	53%	12	6	15%
	DK	24	23		44	54	
34 False	T	7	10		6	2	
	F	29	23	43%	19	13	84%
	DK	24	27		35	45	