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AN AUDIO-VISUAL INTRODUCTION TO GIRLS' GYMNASTICS JUDGING

by

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ABSTRACT

This project has been developed to meet a need, as perceived by the researcher and the Department of Physical Education at Montana State University, for a basic introductory course in the judging of girls' gymnastics. Commercial programs available are very few in number and typically are not basic enough to provide sufficient information for the person who has not had extensive contact with girls' gymnastics, but would like to become a judge of this sport.

The program provides an introduction to the basic elements of girls' gymnastics and to basic points of judging. Super-eight millimeter color films show elements of compulsory and optional routines, as well as complete optional routines, for all competitive events. Audio tapes accompany these films to identify elements shown. A written script identifies errors observed in the film, as well as other possible errors, in the categories of Execution, Amplitude, and Composition.

This program is to be used as an introduction to elements and points of judging in girls' gymnastics, and as a basis for analysis and discussion of performance of gymnastics skills for judging. The program is to be used for these purposes in the Montana State University course in girls' gymnastics judging beginning in September of 1975.

CHAPTER I

INTRODUCTION

Competitive girls' gymnastics, along with other competitive sports for girls, is a relatively recent development of the American scene. Within the past twenty years, competition has become formalized, and competitive teams have been formed within public and private schools and by numerous other individuals and organizations. National organizations, such as the United States Gymnastics Federation (USGF), the National Federation of High School Associations, and the National Association for Girls' and Women's Sports (NAGWS) of the National Alliance of Health, Physical Education, and Recreation, formerly the Division for Girls' and Women's Sports (DGWS) of the National Association of Health, Physical Education, and Recreation, have also been formed to specify both rules of competition and standards of judging for these competitions.

As competition itself has increased, so has the need for qualified judges at the local, state, and national levels. A variety of training programs has come into being, some developed by individuals, and others by organizations. One such training program for judges is that developed by the DGWS (now NAGWS) in 1971, a revised edition of which will be available in May or June of 1975. The concern of the researcher is to supplement this particular training program in order

to make it more useful in training a greater number of girls' gymnastics judges in the Bozeman area.

Statement of the Problem

The problem of this study was to develop an audio-visual introductory program for participants in the NAGWS program for training judges of girls' gymnastics.

Application and Contribution to Educational Product

The NAGWS program The Training of Judges for Girls' Gymnastics (1971 edition) is intended for use in a relatively short training course. Either two full days or six shorter sessions (one for general rules, one for each event, and one for compulsories) are recommended. This design indicates the assumption is made that trainees have previous knowledge of the basic elements of competitive girls' gymnastics events and can recognize major errors in the execution of these elements. Training, then, is directed at a more critical evaluation of these elements and the assigning of actual score values. This assumption of previous knowledge in effect excludes from participation those who may not have this necessary background experience.

The intention of the researcher was to expand the number of potential trainees in girls' gymnastics judging by developing an audio-visual program designed to provide, through demonstration and explanation,

experience in viewing elements basic to all competitive events and errors in the execution of these elements. In this way, no interested potential judge need be denied entry to, or unable to participate in, training due to a lack of prerequisite basic knowledge.

The proposed program could increase the number of members of the general Bozeman and University communities who could be trained as girls' gymnastics judges to help meet the increasing need for qualified judges in local competitions.

The following three questions relate to development of the proposed program:

1. With which elements and types of errors in each competitive event need NAGWS judging trainees be familiar?
2. How much time will be necessary for participants in the introductory program to become familiar with these basic elements and types of errors?
3. How should the audio-visual presentation be organized?

General Procedure

The audio-visual program developed includes films and an audio tape. Development was carried out using the concerns presented in the above questions as guidelines.

The film portion of the program shows examples of elements of both compulsory and optional routines. Entire optional routines are also included. The separate elements have been used as a basis for

discussion and analysis of amplitude and execution by program participants. Additionally, the participants will be able to become familiar with those elements which appear in the compulsory routines, and with basic elements which may appear in many optional routines. The full-length routines have been used as a basis for discussion of judging the composition of routines.

The audio tape portion of the program identifies separate elements as well as naming difficulties in optional routines.

Specific errors in execution and in composition have been noted in a supplementary written script.

Delimitations

There are two major delimitations present in the proposed study.

First, the introductory program developed was designed to prepare participants specifically for entry into the NAGWS judges training program.

Second, the program was designed for use in the Montana State University course for the training of girls' gymnastics judges. The program will, therefore, necessarily have to conform to a large extent to needs perceived by the course instructor.

Definition of Terms

The NAGWS program The Training of Judges for Girls' Gymnastics will be referred to throughout this paper as "the training program".

Participants in the training program have been referred to as "trainees". The program that has been developed by the researcher has been referred to as "the introductory program", or "the proposed program".

"Competitive events" in girls' gymnastics included the following: balance beam, uneven parallel bars, floor exercise, and sidehorse vaulting.

"Elements" of competitive events refers to both the skills involved in those events, and the characteristic components of each event.

"Local competition" refers, for the purposes of this paper, to competition in and around Bozeman in the high schools and at Montana State University.

A "qualified judge" is one who meets established requirements to judge in a particular competition. In the Bozeman area, this generally refers to a judge who has had some training or experience in judging and/or who has passed the local judges rating examination.

Summary

The proposed project was concerned with the development of an audio-visual instructional program. The purpose of this program was to provide background experience in the recognition of basic elements and types of errors in girls' gymnastics for those who wish to become judges of girls' gymnastics. The program has been designed for use in

the Montana State University course in girls' gymnastics judging and will serve as an introduction to the NAGWS program The Training of Judges for Girls' Gymnastics.

CHAPTER II

REVIEW OF LITERATURE

The research reviewed for this project has been classified under the general headings of: 1) National Association for Girls' and Women's Sports (NAGWS) Film/Workbook Method of Teaching Girls' Gymnastics Judging, and 2) Development of Effective Instructional Programs. The second heading, above, has been considered under the subheadings: 1) Guidelines for Evaluation of Instructional Programs in General, and 2) Evaluation and Revision During Production of Audio-Visual Programs.

NAGWS Film/Workbook Method

The DGWS program The Training of Judges for Girls Gymnastics was developed in 1971 by the DGWS (a division of the American Association for Health, Physical Education and Recreation) Principles and Techniques Officiating Committee. This program was intended for use in the training of judges who will officiate at girls' gymnastics meets where DGWS rules are used. Basic program components are: 1) a 16 mm black and white sound film of sample routines in all competitive areas, and 2) an accompanying workbook. The workbook includes rules governing all areas of competitive girls gymnastics, characteristics of all competitive events, summaries of all penalties and point-value deductions, informal notes from International Gymnastics Federation (FIG)

judging clinics in Rome, Montreal and Mexico, practice judging sheets for the trainee, and completed sample judging sheets with comments by FIG judges. Once the material in the workbook has been studied, trainees view the filmed routines, which they judge, and then compare their score sheets with those completed by the FIG judges.

Development of Effective Instructional Programs

A. Guidelines for Evaluation of Instructional Programs in General

Two definitions of evaluation seem particularly applicable to instructional programs. The first, used by Payne (1971, p. 4) defines evaluation as "the systematic use of data gathered through formal means to make value judgements." The second, by Levine (1971, p. 1), states that "evaluation, in its most general meaning, is a process of measurement designed to estimate worth." Any evaluation should provide information about past and present operations and their effectiveness which will assist in making decisions about how to proceed in the future. More specifically, when evaluation concerns any particular program, the "object would be to find out what techniques work best under what conditions with a view of spreading the use of the best techniques under the appropriate conditions" (Levine, 1971, p. 6).

Evaluation of an instructional program should be designed specifically for the program it is intended to assess (O'Conner, 1973).

Therefore, it must be based upon objectives that have been established for that program (Hess, 1972), and will have direct implications for instructional change in that program (O'Connor, 1973).

Differing viewpoints exist as to what the focus of evaluation of a program should be. Stake, in his 1972 paper, states that evaluation cannot focus upon both the product (a judgement of effectiveness), and the process (a view of special features) of an instructional program at the same time. As he feels that the primary duty of evaluation should be to offer a comprehensive portrayal of the program, Stake chooses the latter focus as being preferable to a "concentrated examination of the pursuit of a few objectives" (1972, p. 7).

Hess, in his paper presented at the same 1972 convention, advocates the evaluation primarily of a program's product. The process (special features, method) of a program should be examined in light of its contributions to the attainment of the program objectives. Rather than haphazardly applying evaluation techniques, what is needed is the "synthesis of some of these ideas into a coherent system for the evaluation of curriculum products" (p. 1) both during their development and after their completion. The evaluation done continuously during the development of an instructional program is referred to as "formative evaluation" (p. 4). This phase of evaluation "needs to be formal and rigorous, but need not in all instances be equivalent to experimental research" (p. 4). Five general steps in this process can be

identified, and include: 1) "initiation stage" (p. 6) which is a statement of objectives indicating generally what the project intends to do, how it is to be done, and for whom it is to be done, 2) "hot house" (p. 6) which is the initial tryout of a prototype product on a very limited sample, 3) "pilot test" (p. 6) which is a systematic, small-scale trial of the revised product, 4) "field test" (p. 6) which is the use and study of the product in its final form in a broader spectrum of sites, and 5) "public diffusion" (p. 6) which refers to the commercial publishing of the product in quantity, making it available to interested consumers. The curriculum product may spend considerable time in one particular phase of the above model, or very little time in another, but the sequence remains. Number of revisions and trials necessary determine the time schedule in the development of an instructional program.

During this developmental process, care must continually be taken to see that the objectives are being met. Whatever measuring instruments are to be used should also be developed during this time, also with the objectives in view, to establish the content validity of these instruments when they are later used.

Once an instructional program has been developed, evaluation generally relies heavily on such techniques as testing of student performance. According to both Hess (1972), and O'Connor (1973), one important form of evaluation that should not be overlooked is student

questionnaires. Besides observers assessing results of a particular program, opinions of students who have participated in the program need to be taken into account. Three major types of questions that should be included in such a questionnaire pertain to: 1) appropriateness and realization of the course objectives, 2) methods used to attain and evaluate the accomplishment of each objective, and 3) situations that were especially helpful or detrimental to student learning (O'Connor, 1973). The major advantage to this type of questionnaire, again according to O'Connor, is the rich supply of information it supplies, for aid in diagnosis of course problems, and necessary revisions or other measures to be taken to overcome these problems.

B. Evaluation and Revision During Production of Audio-Visual Programs

One contributing factor for the ineffectiveness of mediated instructional messages is communication failure in the development process. The communicative effectiveness of messages carried by a given medium can be improved when content and presentation strategies are systematically analyzed and specified, the production of the messages adheres to the design, and the results of evaluation are impinged upon the development process (Anderson, 1973, p. 7).

The above premises lead to the conclusion that evaluation should be an ongoing process during the development of an instructional program. This evaluation must be based upon desired student performance that will result from viewing the program (Wade, 1971). Or, as stated by Anderson in his 1973 paper: "The goal of motion visual

instructional messages should be to effect some change in behavior on the part of the learner" (p. 7).

Both Wade and Anderson advocate the development of instructional programs through a series of evaluatory steps. Wade first identified seven necessary characteristics of a visual instructional program. To him,

a program: 1) is a logically sequenced arrangement of stimulus items, 2) has requirements for specific frequent student responses, 3) has the information broken down into small steps, 4) has an internal pace and construction which are arranged so as to minimize student error, 5) provides the student with immediate knowledge of the results of his responses, 6) brings about a gradual shaping of the student's terminal behavior, and 7) often permits the student to set his own pace for learning (1971, p. 13).

By designing a program with specific characteristics in mind and in an organized, systematic manner, problems of establishing validity of the finished product can hopefully be reduced or eliminated. The three major objectives of a systematic approach to program development are to: "1) create more effective instructional messages, 2) learn to use the various media forms more effectively as a communications tool, and 3) effect refinement of the development process" (Anderson, 1973, pp. 8-9). In reference to part two above, visual media have different characteristics from methods using direct student-teacher communication, especially in the area of feedback. Therefore, these differences must be realized and examined in order to make media methods more effective.

Several specific steps are identified by both Anderson and Wade in the actual development process of the program. Both series of steps follow the same general pattern, but Wade includes more and very specific steps while Anderson's steps are somewhat more general.

The first step is to define the target audience of the program (Wade, 1971). Next, the program developer must "specify with precision the instructional objectives of the program" (Wade, 1971, p. 13). These objectives, or goals, are the "statements of intent which are derived from the needs" (Anderson, 1973, p. 10), societal or instructional, which the program is intended to fulfill. Step three is to "prepare the criterion test" (Wade, 1971, p. 13). This indicates the criteria by which student performance will later be evaluated should be developed in light of program objectives during development of the program itself, and not after its completion. Step four is to "prepare a list of learner prerequisites" (Wade, 1971, p. 13). In this way, any student who participates in the program will not be prevented from attaining desired terminal behavior by a lack of adequate previous preparation. Step five is to "prepare the outline of program content" (Wade, 1971, p. 14). During this phase of development, it is necessary to select content that is appropriate and eliminate all that does not fall within the scope of the specified goals of the program (Anderson, 1973). Next, step six, it is necessary to "prepare a preliminary content sequence" (Wade, 1971, p. 14). Selected content should be

organized in an appropriate manner to lead members of the target audience toward the specified behavioral objectives. Step seven is then to "select the programming strategy to be followed" (Wade, 1971, p. 14). In selection of specific methods and later evaluation of the program, it is necessary to take into consideration the constraints on the program. These might include characteristics of the target population, budgetary considerations, production capabilities, and characteristics of the particular instructional system in which the program is to be used (Anderson, 1973).

In the steps which follow, which involve actual production of the program, attention should be given to assuring the "integrity, fidelity, validity, reliability" (Anderson, 1973, p. 5) of that program. Integrity deals with the completeness of the message. It is concerned with assuring that the program contains the important rules and concepts set out in the content outline and the strategies to be used to convert those rules and concepts into desired terminal student behavior. Fidelity refers to the "clarity, precision, detail, explicitness of the message" (Anderson, 1973, p. 5). Validity is concerned with whether or not the evaluation instrument used "does what it is intended to do" (Anderson, 1973, p. 5). Finally, reliability assesses whether or not the program is able to achieve the desired results when repeated with different members of the target audience (Anderson, 1973).

Step eight is to write a first draft of the program. Step nine

is the testing of this first draft using typical members of the target audience as subjects. Student errors at this point generally indicate errors in the program and point to a need for revision. Step ten is to prepare a second, or revised, draft. This draft should be re-evaluated informally and revised as necessary until students perform at the level and with the percentage of accuracy desired. Step eleven involves evaluation of a more formal statistical nature. The target audience should be stratified as appropriate and groups within each stratum randomly assigned as experimental or control groups. The media program will be shown to the experimental groups and withheld from control groups. Both groups will then be given the criterion test. The results of this test will be analyzed by an analysis of variance test to determine simultaneously the significance of viewer and non-viewer means differences among and between the stratified groups. If the results of this analysis are satisfactory, then step twelve, the preparation of the final form of the program, may be undertaken (Wade, 1971).

Summary

Development of an audio-visual program follows much the same guidelines as does development of any instructional program in general. Objectives must be set, then development carried out in such a manner that the completed program will meet these objectives. Systematic evaluation procedures should be carried out at intervals during the

program development. This will allow any unsatisfactory elements to be detected early and revised as necessary to insure that progress is made toward producing the desired end product.

CHAPTER III

PROCEDURES AND FINAL PROJECT FORMAT

Introduction

The audio-visual training program developed by the researcher consists of three component parts. Of major importance are the super-eight millimeter color films of gymnasts performing representative skills and routines for analysis and practice judging. The accompanying audio tapes identify elements by name. A written script which identifies errors seen in the films is to be used as a guide and basis of discussion for teacher and students in a gymnastics judging class.

In this chapter will be an explanation of how each of the component parts of the total program was developed. The physical arrangement of the program, as well as its possible uses, are also explained.

Films

Several local high school-age and college-age gymnasts were contacted and asked to donate their time to filming sessions for this project. In a series of five such sessions, films were made of: 1) selected optional routine elements for balance beam, uneven bars, and floor exercise, 2) entire optional routines for these three events, 3) compulsory routine elements which will appear in the new compulsory routines, to be used for the first time during the 1975-76 competitive

season, and 4) selected compulsory and optional vaults.

Optional routines were all filmed at the normal speed of eighteen frames per second. Portions of the filming of separate elements were done in either thirty-two or fifty-four frames per second slow motion. This was done in order to allow beginning students of gymnastics judging more time to see and recognize errors as they occur. Normal speed was used in filming the remaining elements and all the routines in order to then give students practice in recognizing errors when seen at a normal speed as they would appear in a competitive situation.

During editing, film segments were sorted and spliced to produce eight separate smaller reels of film rather than one large reel containing the entire film. Three reels contain film of optional routine elements, one each for balance beam, uneven bars, and floor exercise. Compulsory routine elements for each of the above three events occupy another three reels of film. A seventh reel contains film of both compulsory and optional vaulting. The eighth, somewhat larger, reel contains film of complete optional routines for balance beam, uneven bars, and floor exercise.

Audio Tapes

There were eight audio cassette tapes produced to accompany the eight reels of film. The tapes which accompany films of both compulsory and optional routine elements introduce these elements by name as

they appear, and indicate if the element is counted as a medium or a superior element in judging. Tapes accompanying films of entire routines indicate elements within the routine which count as points of difficulty as the routine progresses. The tape accompanying the uneven bars routines also notes stops and extra swings within the routines.

Written Script

The written script is also divided into eight segments to correspond with the eight segments of film and tape. This script indicates important points of judging for each element shown, as well as major errors that may appear in each specific element as filmed. These errors relate to the execution and amplitude categories of gymnastics judging. For each of the complete optional routines, the written script lists components which should be included and which will relate to the composition categories of judging. A listing of components which are present and absent in each routine is made, along with a suggested point-value score for each routine for that phase of judging.

Uses

This program is intended to provide beginning gymnastics judges with an introduction to the elements of girls' gymnastics and to basic components of girls' gymnastics judging.

The program appears in eight separate segments to provide for flexibility in use. An entire class may use one or more segments as a

group with the teacher leading a discussion based on points covered in the written script. Another possible approach would be to have up to eight individuals or small groups of students using different segments of the program at one time. A combination of these approaches would allow for discussion by the entire group with additional study of the materials being done by each student as necessary.

Availability of Project Materials

All project materials--films, tapes, and written script--are available through Dr. Ellen Kreighbaum, Department of Physical Education, Montana State University, Bozeman, Montana 59715.

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