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Comparison of two modes of instruction for the learning/teaching of the women's handspring vault

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CERTIFICATE OF APPROVAL

MASTER OF SCIENCE THESIS

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COMPARISON OF TWO MODES OF INSTRUCTION FOR THE LEARNING/TEACHING OF THE WOMEN'S HANDSPRING VAULT

by

Patricia A. Gause

An Abstract

of a thesis submitted in partial fulfillment of the requirements for the degree of Master of Science in the School of Communications at Ithaca College

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ABSTRACT

Television coverage of the Olympics has elevated gymnastics from a second class sport to a major world sport. This elevation of the sport has created a preoccupation of speeding up the learning/teaching process. The speed-up process creates problems in the learning/teaching process. Trial and error instruction becomes impractical because it is time consuming. In many instances the coach may not have the competence necessary to instruct the gymnast in a new skill and not all gymnasts have progressed in skill development to achieve the more difficult moves.

A survey of related literature gave historical information on the growth of gymnastics along with the development and attitudes relating to teaching methods. To achieve a comparison of two modes of mediated instruction for the learning/teaching of the women's handspring vault, a film and a programmed instruction manual were developed. The methodology incorporated in the two modes of instruction covered the complete sequential order necessary to execute and complete the handspring vault. Both learning/teaching packages were designed to blend into an ongoing program and be used at the convenience of the coach and gymnast.

Forty-two girls and seven coaches participated in the study. Twenty-one girls and four coaches used the filmed instruction and twenty-one girls and three coaches used the programmed instruction manual.

The investigation concerned knowing whether at the end of four practice sessions there was a statistically significant difference between the use of film and the programmed instruction manual in learning the women's handspring vault.

Answers to questions of attitude and effectiveness, by the coach

and gymnast, toward the two forms of mediated instruction were determined through an analysis of the pre-test and post-test questionnaires.

Upon completion of the statistical analysis it was found that there was no statistically significant difference between the film and the programmed instruction manual method of instruction. When comparing the findings, without any statistical information being considered, there was a difference in the number of girls using the film and the programmed instruction manual who were able to achieve the handspring vault. Thus, it would be of interest to find a larger sample group and do further study.

Further study is indicated in areas of body structure, age of the gymnast, placement methods of gymnasts in groups to alleviate possible misplacement at skill levels, attitudes of gymnasts toward their own level of development, and attitudes of coaches and gymnasts towards new methods of instruction could prove interesting and important to the learning cycle of students and coaches using psycho-motor learning.

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A Thesis Presented to the Faculty
of the School of Communications
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In Partial Fulfillment of the
Requirements for the Degree
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Chapter 1

STATEMENT OF THE PROBLEM

Introduction

The number of private gymnastic clubs, high school and college gymnastic teams have grown at a rapid pace in the past eight years. The growth of women's gymnastics has presented a situation where coaching has outpaced the instructional institution's ability to offer adequate training. Many times, coaches are faced with training situations in advanced gymnastic skills that are beyond their knowledge.

Coaching information at the very basic level of gymnastic instruction is available. The coaches who are adventurous enough to push on to more difficult instructional methods learn with the girls through a trial and error system.

To overcome problems inherent in the trial and error system, there is a need for development of a mediated mode of instruction for the learning/teaching of women's gymnastics.

Purpose of the Study

The purpose of the study was to compare two mediated programs that teach the handspring vault to women gymnasts.

These mediated programs were designed to bring the gymnast and coach into a joint learning/teaching venture. The ultimate goal was teaching the specific skills of a handspring vault to the coach and the woman gymnast.

Questions to be Answered

The study proposed to answer the following questions:

1. Was a programmed instruction manual successful in the learning/teaching of a handspring vault?

2. Was the use of a film as a mediated form of instruction successful in the learning/teaching of a handspring vault?

3. When the coach and gymnast learn together, was there a better understanding of the technique of the vault?

4. Did this mediated learning/teaching package dealing with the handspring vault satisfy the gymnast and coach?

5. Was the gymnast able to perform the handspring vault at the end of a four session practice schedule?

Procedures of the Study

To accomplish the objectives of the study, the following procedures were necessary:

1. The examination of literature pertinent to a handspring vault and the historical development of gymnastics.

2. Selection and nature of the population participating in the study.

3. Development of the statistical procedure.

4. The preparation of the questionnaire to accompany the learning/teaching package.

5. The development and creation of a training film dealing with the women's handspring vault.

6. The development and creation of a programmed instructional manual dealing with the women's handspring vault.

7. The formation of a committee to review the film.

8. The formation of a committee to review the programmed instructional manual.

9. The distribution of the learning/teaching packages for group testing and answering of questionnaires was done.

10. Treatment and analysis of the data collected from the questionnaires and testing was done.

Definition of Terms

Certain terms used in this study, which are standard vocabulary used by the United States Gymnastics Federation in their publications, are as follows:

1. Handspring Vault -- The body is inverted during the flight over the horse which is placed sideways to the running lane. This vault carries a 8.8 point value for optional competition and 10.0 point value for compulsory competition, as stated in the U.S.G.F. Code of Points. Figure 1 is a pictorial representation of a handspring vault.

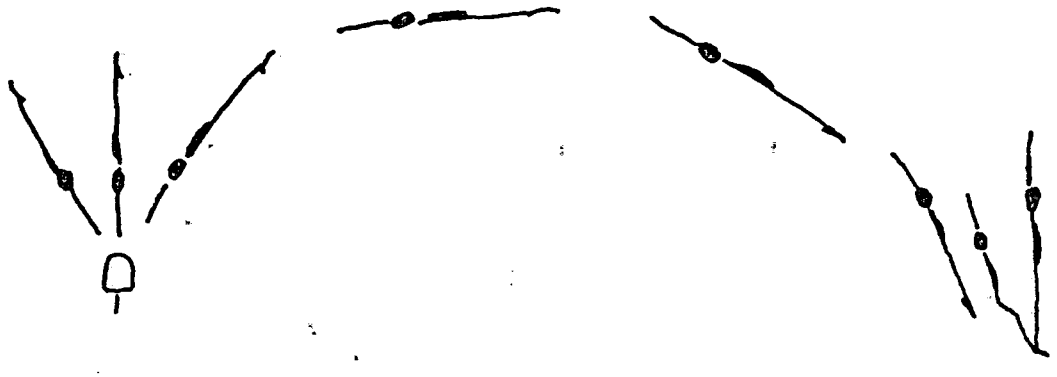

Figure 1

Handspring Vault

2. Layout Vault -- The body, during its flight, does not invert as it passes over the horse which is placed sideways to the running lane. The body stretches to a 30^{o} - 40^{o} angle upon contact with the horse. On contact with the horse, the hips pike to make possible a horizontal completion of the vault. This vault carries a possible 7.0 point value in optional competition and a 10.0 point value in compulsory competition, as stated in the U.S.G.F. Code of Points. Figure 2 is a pictorial representation of a layout vault.

Figure 2

Layout Vault

3. Medium -- For the purpose of this study, a physical means of communication which includes print and audiovisual form; super 8mm film, cassettes and their accompanying technology.
4. Piking -- The bending of the body at the hips.
5. Point Value -- In gymnastics, a gymnast can score anywhere from 0 to 10 points for a single gymnastic routine. The score is ascertained by judges using a prescribed set of rules.
6. Reuther Board -- An item of gymnastic equipment which acts as a

repelling agent or lift assistant to aid the gymnast's flight over the horse.

7. Side Horse -- An item of gymnastic equipment which is 43" (110cm) or may elect 47" (120cm) high for children's division of competition and 47" (120cm) high for Junior, Senior and Elite division of competition. (Measurements from Age Group Program Bulletin by U.S.G.F. 1975-1976).

8. Spotting -- Aid given to the gymnast to achieve a skill and prevent injury.

9. Teaching -- The formal and informal techniques used to change the behavior of a learner to attain the stated goal and objectives.

10. U.S.G.F. -- United States Gymnastics Federation. The governing body which oversees gymnastics in the United States.

11. White Line -- This is found near the front edge of the Reuther board and is located directly over the highest point of the Reuther board from the floor.

Assumptions

To proceed with this study, the following basic assumptions were made:

1. Under the present method of trial and error learning, it takes a longer period of time to achieve the women's handspring vault.

2. With the aid of a mediated form of instruction, the learning/teaching time is reduced.

3. Knowledge of the end result of a gymnastic move is overcome with the use of mediated instruction.

4. A mediated form of instruction employing progressive sequential fundamentals is helpful in the learning/teaching of the women's handspring vault.

5. An assumption is made that the gymnast has mastered a layout vault and is ready to proceed to the handspring vault.

Limitations of the Study

This study is concerned with the learning/teaching of the women's handspring vault and the medium used to accomplish this end. Therefore, the following limitations were considered:

1. Methods become obsolete so fast that this study does not examine teaching methods that are over four years old. This four year limit coincides with the United States Gymnastics Federation's revisions which occur every four years.

2. Because of a time factor and knowledge of the groups chosen, the study is limited to one geographical location.

3. The film portion of the project was done in super 8mm film because of the availability of super 8mm projection equipment for the people using the learning/teaching package.

4. The film will deal with just the women's handspring vault.

5. The programmed instruction manual will deal with just the women's handspring vault.

6. For this study, age does not play a part in the learning of a handspring vault. The important thing is the ability level of the gymnast.

Organization of the Study

Chapter 1 presents the introduction of the study, the statement

of the problem and the procedures taken to complete the study.

Chapter 2 deals with the survey of related literature from a historical perspective and present methodology.

Chapter 3 presents the procedures used for the development of the film and programmed instruction manual used before the testing and after, the description of the groups used for testing and describes the procedures that were followed during the study.

Chapter 4 presents the treatment and analysis of the data collected from the testing questionnaires. The data is presented in comparison and tabulated form.

Chapter 5 represents the summary, findings and conclusions.

Chapter 2

SURVEY OF RELATED LITERATURE

Introduction

From the ancient Greek Olympic Games in 776 B.C. to the present day modern Olympics, many changes have taken place. Sports have been added and dropped from the Olympic program. What is done every fourth year at the Olympic Games sets the stage and establishes the goals for all sports and their training procedures for the next four years.

Historical Perspective

All things have a beginning and gymnastics finds its origin in the ancient Greek Olympics which started in 776 B.C. with Coroebus the winner of the only event, the 200 yard dash.[1] The Greek Olympics, in the original form, were a religious and sporting event for men to display the physical power of the amateur Greek athletes. The athlete was cared for and financed by his family and interested groups of people.

In the early ancient Olympic Games, women were not allowed to participate in or even watch the games. The mother of Pisidorus, a young winning runner, had helped her son train for the Games and in order to view and support him, had disguised herself and entered the Olympic area. This act by a woman was punishable by death, but when the officials found out, they were so impressed by Pisidorus' mother's stand that a break with tradition took place. From this point, women were allowed to

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[1] John Kieran and Arthur Daley, The Story of the Olympic Games (Philadelphia: Lippencott, 1973), p. 13.

view the games and to participate.[2]

For lack of funds, dying interest, and the collapse of the Roman Empire, the ancient Olympics were discontinued in 393 A.D.[3]

The advent of the modern Olympic Games took place in 1896 at Athens, Greece. Gymnastics was introduced as an Olympic sport in 1896 at the revival of the Olympic Games but was limited to men's competition. Olympic competition for women started in 1928 and was a team sport without individual events. International gymnastic events had women competing in individual events; vaulting, balance beam, floor exercise, and uneven parallel bars, as early as 1936. These individual events were first seen in the Olympic Games program in 1952.[4]

The individual events of 1952's competition were static with much stopping and posing of dance and tumbling moves. The first signs of a break from static moves took place in the Olympic Games of 1956 and the World competitions of 1958.[5] New and interesting moves were seen.

Nakajima said:

> In 1956, at the time of the Melbourne Olympics, the new vaulting board was introduced to competitive gymnastics. As of this time, the handspring rotary type vaults began to be performed by more and more gymnasts.[6]

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[2]Kieran, p. 16.

[3]Justin Beecham, Olga (New York: Paddington Press, 1974), p. 88.

[4]Beecham, p. 39.

[5]Mark Davis, "Gymnast-Past and Present," Gymnast, January 1976, p. 61.

[6]Mitsuhiro Nakajima, "Vaulting: The Technical Development and Present Condition of the Hetch Vault," Gymnast, April 1974, p. 38.

From the introduction of individual events into gymnast competition the Russians have dominated World and Olympic competition. International competition at the start of 1976 indicates this position will be challenged.[7]

California's Kathy Rigby's silver medal in the 1970 World Championships held in Ljublijana, Yugoslavia was a first for American gymnasts.[8] Television was quick to pick up the sport of gymnastics. While Kathy Rigby prepared for the 1972 Olympic Games, television also prepared. With the public awakening, via television and press publicity of Kathy Rigby and her accomplishments, the sport of gymnastics was catapulted from the ranks of a secondary sport to the fastest growing women's sport in the United States.[9]

What Kathy Rigby started was propelled to success by a Russian, Olga Korbut. With television looking on, Olga won the hearts and admiration of the world with her performance in the 1972 Olympic Games.

As the Russians push for greater expertise in gymnastics, so do the other nations in their training procedures. This push finds gymnasts learning and incorporating more difficult gymnastic moves into routines.[10]

The modern Olympics is the culmination of all that the gymnast strives for. It is the stage to show the world what is and has been

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[7]"World's Best Women," Gymnast, January 1976, p. 24.

[8]Vannie Edwards, "World Games Report," Gymnast, January-February 1971, p. 8.

[9]Joseph M. Winski, "More and More Girls Flip Over Gymnastics: Boys Could Care Less," Wall Street Journal, July 6, 1973, p. 1, col. 4.

[10]Beecham, p. 91.

accomplished in the sport of gymnastics. The backing, financial and spiritual, is directed toward this end result which is to bring together the world's best gymnasts every four years.[11]

Gymnastics as a group experience was developed by Ludwig Jahn of Berlin, Germany in 1811. He developed a free exercise and apparatus work that was practiced on a turnplate.[12] His pupils were instructed through a carefully developed progressive program. Ludwig's methods of discipline and skills were adopted and expanded upon by other European countries.[13]

The question of how America discovered gymnastics is answered by Brown who states:

> Although some Americans developed gymnastic systems of their own in the nineteenth century, on the whole, gymnastics were brought to the United States by European imigrants from Germany, Switzerland, the Scandinavian and Slavic countries, by foreign specialists, or by Americans who had studied abroad
> .....
> It is of historical significance that high school gymnastics for girls and women also started in the 1920's.[14]

Through the efforts of many people, gymnastics was preserved for future generations.

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[11] Beecham, p. 83.

[12] Patricia A. Gause, A Parent's Hip Pocket Guide to Gymnastics (Owego, New York: by Author, 3 Kingsgate Lane, 1973), p. introduction.

[13] Margaret C. Brown and Betty K. Sommer, Movement Education: It's Evolution and a Modern Approach (Reading: Addison-Wesley, 1969), pp. 21-22.

[14] Brown and Sommer, pp. 27-28.

Preparatorial Training

What the Russians do influences the whole gymnastic community. Only through innovation can original and stimulating advancements in gymnastic skills take place. With these advancements come problems with instructing the gymnast. The acquisition of new skills is a primary concern to coach and gymnast. Risk moves is a password for any aspiring gymnast wishing to advance to the higher levels of competition. Only through a strong basic program of sequential learning can high level risk moves be incorporated into a gymnast's routine.[15]

Even with the acceleration of skill acquirement, age does not play an important factor. In discussing this point, Singer stated:

> A picture of Olympic champions raises serious questions as to whether we can indicate a given age for optimal athletic performance justifiably.....
> .....
> It is evident, then, that through ability and hard training, man can demonstrate superior skills at earlier and later ages than ever before.....
> ...Even within a given activity, a wide range of age levels may be represented by successful performers.[16]

Practice is not the only road to learning a gymnastic skill. The gymnast must be motivated to perform and perfect the necessary skills. Singer tells us that, "Practice is beneficial when it is purposeful." To be purposeful, the gymnast sets goals which are achieved when a bond is established between the coach and gymnast. Outside factors are necessary to assist the coach and gymnast because one person does not have all the necessary information to achieve a gymnast's goals.

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[15]Robert N. Singer, Motor Learning and Human Performance: An Application to Physical Education Skills (New York: Macmillan, 1968), pp. 206-220.

[16]Singer, Motor Learning, pp. 146-148.

Innovation is helped by understanding situations through the use of outside stimuli. This stimulus can offer cues and aids to both the gymnast and coach.

The uses of stimuli is pointed out by Singer when he stated:

> Aids such as motion pictures, slides, videotapes, illustrations, etc. can help to "model" the performance for the learner. In other words, demonstrations of ideal behavioral sequences show the athlete what is expected of him. They provide him with a model. He then attempts to match the ideal with his own execution. Instructional aids such as mentioned above are valuable in that they readily provide a continuous model for the learner to emulate.[17]

Trial and error learning can be beneficial to learners, but leads to problems in the unlearning process. Incorrect habits, once established, are very hard to break. Singer says, "The more specific you can be about what you want the student to be able to do, the greater your chances of success in getting him to do it."[18] To date, research has not really defined for the coach or gymnast whether it is better to watch the experts perform various moves or to observe the gymnast that is being trained.[19]

Coaches Views

Much research has been undertaken concerning motor skills. Many times, this research is done by people who are not coaches. The researcher, in many cases, has the problem of not being able to state the

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[17]Robert N. Singer and Walter Dick, Teaching Physical Education (Boston: Houghton Mifflin, 1974), p. 59.

[18]Robert N. Singer, Myths and Truths in Sports Psychology (New York: Harper & Row, 1975), p. 58.

[19]Robert N. Singer, Coaching, Athletics, and Psychology (New York: McGraw-Hill, 1972), p. 284.

findings in coaching terminology. This problem stems from the fact that very few researchers are coaches. Coaches are too busy with everyday problems of teaching to take time off to analyze and record their findings for others.

Clinics and meets are the only real time that the coaches have to exchange views and techniques. By the time these clinics and meets are scheduled, it is often to late to avoid the trial and error learning.

> How much do we really know about the human body's responses to the tremendous forces gymnastics today requires? When progress of the sport was slower, we had time to experiment using trial and error methods. In the fast paced rate-race for gymnastic supremacy today, time spent in trial and error solution could put one many light years behind the competition. We should weed out dead-end approaches and search for more complete understanding of the workings of the human body. We should analyze each skill to its smallest component in order to discover where energy is wasted in unnecessary movements for which the body later has to compensate, therefore, losing in efficiency.[20]

There is a need for a person between the researcher and coach to develop practical cues and aids, that are constantly being updated, to inform the coaches of what is happening in research. Cues and aids need not be part of valuable practice time, but can be used as a supplement for the coach or gymnast.[21]

The most exacting performance from a gymnast is during the vault. Lacking the basic fundamentals of any one vault or an error in body understanding can destroy the effect of the entire vault. There is simply no margin for error.

> Vaulting is one of the least understood of the girl's events. Since the entire event consists of only one move (vaulting from a Reuther board over a horse), and since, for

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[20]Kitty Kjeldsen, "Research: Why Research in Gymnastics?" Gymnast, January 1974, pp. 25-26.

[21]Singer, Myths and Truths, p. 57.

> the maximum execution of the vault, everything has to be just about perfect (nothing can be covered up or pulled through), the understanding of mechanical principals involved is very important. Once they are understood and mastered, the learning of any vault will become much easier.[22]

Vaulting can be a prime example of what is needed in the way of cues and aids for the coach and gymnast. Time spent in trial and error learning is time wasted.

> The prime years of an athlete are short, but the road to good gymnastics is long and often difficult. Our gymnasts deserve all the help modern research can give them in their pursuit of excellence.[23]

Through the use of a mediated instruction, the gymnast can become aware of the function of the body to perform the skills necessary to achieve satisfaction during a gymnastic routine; vaulting, balance beam, uneven parallel bars, and floor exercise. The impression of viewing skills done correctly can save time and have answers at hand for varification of questions relating to a given skill.

> To compliment the routine and skills performed, the gymnast must have "form". He must realize that once good form becomes a habit, it will remain with him and contribute to his success. The gymnast must realize that gymnastics is an art of body expression and that good form promotes beauty in the skills performed. Therefore, for success to occur, the gymnast must be committed to exceptional form at all times when learning skills and performing routines.[24]

The rapid expansion of gymnastics has also created problems at the coaching level where acceleration of skill acquisition for advanced

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[22]Kitty Kjeldsen, Women's Gymnastics (Boston: Allyn and Bacon, 1969), p. 51.

[23]Kjeldsen, "Research," p. 26.

[24]John W. Hinds, Jr., "Commitment and the Gymnast," Gymnast, October 1974, p. 41.

competition has outpaced many coaches ability to handle the situation. Coaches are striving to overcome these deficiencies. They are willing to find a need for media that will aid them and their young athletes to achieve the desired goals.

> The coach is really a master teacher who helps the performer to attain her greatest potential. To be most effective as a teacher, she must be familiar with the learning process and must apply those particular principals essential to the acquisition of motor skills. The use of demonstrations and motion pictures assist in conveying to the player a clear concept of the skill to be mastered.[25]

Summary

The modern Olympic Games sets the pattern for excellence in sports for the amature athlete. What is accomplished every four years at the Olympic Games establishes what goals will be set for the next four years of training.

A slow process of learning skills was accelerated to a fast paced race with time when television made available the off year competitions of international gymnastics. The gymnasts from around the world are constantly being viewed and risk skills are increasing in number.

With the push to incorporate more risk skills the use of outside stimuli; motion pictures, television, slides, illustrations, programmed instruction, etc., offer cues and aids to both coach and gymnast. The cues and aids act as the middleman between the innovator and the coach to assist the gymnast acquire risk and sequential gymnastic moves without sacrificing valuable practice time.

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[25]Carl E. Klafs and M. Joan Lyon, The Female Athlete Conditioning, Competition, and Culture, (Saint Louis,: Mosby, 1973), pp. 93-95.

The coach and gymnasts are willing to find and use aids that will overcome trial and error learning, save practice time and keep information at current levels.

Chapter 3

PROCEDURES

Introduction

To achieve a comparison of two modes of instruction a film and a programmed instruction manual were developed dealing with just one aspect of gymnastics; the women's handspring vault. Both methods of instruction, film with accompanying cassette and the programmed instruction manual, were developed to involve the gymnast and instructor in a joint learning/teaching venture.

The purpose of the development of the film and programmed instruction manual was to learn/teach, to recognize the methodology necessary for the learning/teaching of the handspring vault, and to instill confidence in the vaulter to a level that a solo handspring vault could be performed at the end of a four day training period. The people using these methods of learning/teaching were gymnasts, coaches, or spotters who had proficiency in the knowledge of methodology of the layout vault.

Methodology

Both presentation formats covered the run, step to the Reuther board, repulsion from the Reuther board, preflight, repulsion from the horse, afterflight, landing and spotting procedures for the women's handspring vault. During the development of the learning/teaching packages, film and programmed instruction manual, test situations were established. The programmed instruction manual was reviewed by a group of individuals for clarity of sequence, information contained, and correctness of moves (See Appendix A). Review of the film was also given

by a group of individuals to address areas of confusion, clarification, correctness of moves and suggestions for improvement of presentation (See Appendix B). After review of the programmed instruction manual and the film with accompanying cassette, the subject experts verified that there was no significant difference between the quality or subject matter of the two modes of instruction.

The learning/teaching packages were designed to blend with an on-going program and to be used at the convenience of the coach before, during, or after a practice session by an individual or group. During the first session, using the assigned method of instruction, the groups were asked to use the entire learning/teaching package. Follow-ups could be by individuals or a group review plan using the method of instruction assigned.

The gymnasts were divided into two groups, twenty-one girls per group. Group I received the film with accompanying cassette and Group II receives the programmed instructional manual. Each group's packet contained an instructional guide (See Appendix C), directions for use of the programmed instruction manual or the film (See Appendix D), questionnaires containing a pre-test and post-test section for the gymnasts and coaches (See Appendix E) and the film with accompanying cassette or the programmed instruction manual (See Appendix F).

The test groups had ages ranging from 8 years to 19 years with an average age of 13.2 years for the group using the filmed instruction and 14.1 years for the group using the programmed instruction manual. Both groups were evenly matched for length of time in the sport. Those using the film had been in the sport for an average of 3.3 years and 3.5 years for those using the programmed instruction manual.

In both test groups, age and body build was not a factor. The only stipulation to the testing was the gymnast, who in the opinion of her coach, must have performed a layout vault and be ready to advance to the handspring vault.

Chapter 4

TREATMENT AND ANALYSIS OF THE DATA

Introduction

A comparison of two methods of mediated instruction of the women's handspring vault, designed to blend with an ongoing gymnastics program, was one consideration of the analysis of the data. The comparison explored which method, film or a programmed instruction manual best prepared the gymnast to perform the handspring vault at the end of four sessions of practice and instruction.

The answers to the questions of attitude and effectiveness, by the coach and gymnast, toward the two forms of mediated instruction were determined through an analysis of the pre-test and post-test questionnaires.

Situation

Forty-two gymnasts who had achieved a satisfactory layout vault, by judgment of their coaches, were asked to test two modes of instruction for the learning/teaching of the women's handspring vault. The investigation concerns knowing whether at the end of four practice sessions there was a statistically significant difference between the use of film and the programmed instruction manual in learning the women's handspring vault.

1. Null hypothesis: H_0 - There is no statistically significant difference between the filmed instruction and the programmed instructional manual.

2. Alternate hypothesis: H_1 - There is a statistically significant

difference between the filmed instruction and the programmed instruction manual.

3. Statistical test: Since the two groups (film and programmed instructional manual) are independent, and the data are in terms of frequencies in discrete categories, the chi square test, here and henceforth is identified as x^2, of independence is the observations as well as the expected frequencies.

Table 1

Model of 2x2 Table Showing Successful and Unsuccessful Attempts of the Women's Handspring Vault

	Film	P.I. Manual	Total
Successful	n_{11}	n_{12}	$n_{1.}$
Unsuccessful	n_{21}	n_{22}	$n_{2.}$
Total	$n_{.1}$	$n_{.2}$	n

n_{ij} = the number of observations in each category. Since the two groups (film and programmed instruction manual) are independent, and the data are in terms of frequencies in discrete categories, the x^2 of independence is the appropriate statistical test.

Note: For the x^2 test to be used $n_{ij} \geq 5, i = 1,2$ and $j = 1,2$

4. Significance level: $\alpha = .20$, $n = 42$

Comparison of successful and unsuccessful attempts, by the gymnasts, using the two mediated forms of instruction (film and the programmed instruction manual) was arranged in the following 2x2 table.

Table 2

Girls Actual Successful and Unsuccessful Attempts of the Women's Handspring Vault

	Film	P.I. Manual	Total
Successful	4	8	12
Unsuccessful	17	13	30
Total	21	21	42

5. Sampling distribution: The sampling distribution is the chi square distribution with df = (r-1)(k-1), in which r = number of rows and k = number of columns. In our case r = 2, k = 2; therefore df = 1.

x^2 is calculated from the formula

$$x^2 = \Sigma \frac{(n_{ij} - e_{ij})^2}{n_{ij}}$$

The expected cell frequency e_{ij} is calculated

$$e_{ij} = \frac{n_i \cdot n_j}{n}$$

$$\therefore e_{11} = \frac{12 \cdot 21}{42} = 6 \qquad e_{12} = \frac{12 \cdot 21}{42} = 6$$

$$e_{21} = \frac{30 \cdot 21}{42} = 15 \qquad e_{22} = \frac{21 \cdot 30}{42} = 15$$

Table 3

Girls Actual and Expected Successful and Unsuccessful Attempts of the Women's Handspring Vault

	Film	P.I. Manual	Total
Successful	4(6)	8(6)	12
Unsuccessful	17(15)	13(15)	30
Total	21	21	42

In the one-degree of freedom situation, a correction for continuity is required to obtain a closer approximation for the obtained x^2 values to the theoretical distribution. This difficulty is overcome by applying the Yates Correction Formula. This formula consists in decreasing by 1/2 those values in our Table 1 which exceed expectations and increasing by 1/2 those values which are less than the expected value.[26]

Table 4

Yates Correction as Applied to the Girls Actual Successful and Unsuccessful Attempts of the Women's Handspring Vault

	Film	P.I. Manual	Total
Successful	4 1/2(6)	7 1/2(6)	12
Unsuccessful	16 1/2(15)	13 1/2(15)	30
Total	21	21	42

[26] M. J. Moroney, Facts From Figures (Baltimore: Penguin Books, 1951), p. 254.

Using the Yates Correction, the formula for calculating x^2 becomes:[27]

$$x^2 = \sum_{l=1}^{2} \sum_{j=1}^{2} \frac{(|n_{ij} - e_{ij}| - 0.5)^2}{e_{ij}}$$

Thus:

$$x^2 = \frac{(|4-6| - .5)^2}{6} = \frac{1.5^2}{6} = .375$$

$$\frac{(|8-6| - .5)^2}{6} = \frac{1.5^2}{6} = .375$$

$$\frac{(|17-15| - .5)^2}{15} = \frac{1.5^2}{15} = .150$$

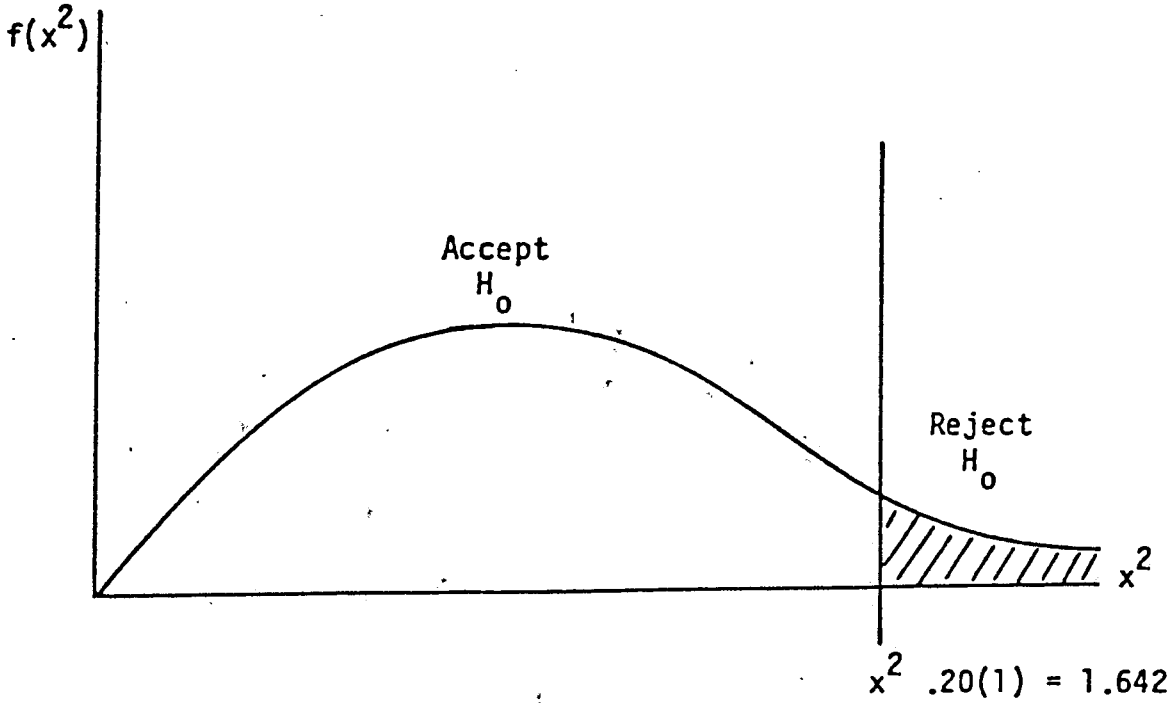
$$\frac{(|13-15| - .5)^2}{15} = \frac{1.5^2}{15} = .150$$

$$x^2 = 1.05$$

---

[27] Richard P. Runyon and Audrey Haber, Fundamentals of Behavioral Statistics (Reading: Addison-Wesley, 1971), p. 251.

6. Critical region: Table B (Appendix III) Runyon-Haber, Fundamentals of Behavioral Statistics, shows that df = 1, α = .20, the critical region consists of all values of $x^2 \geq 1.642$.



7. Interpretation: As this "observed" (computed) value of $x^2 = 1.05$ using the Yates Correction

$$x^2 = \sum_{i=1}^{2} \sum_{j=1}^{2} \frac{(|n_{ij}-e_{ij}| - 0.5)^2}{e_{ij}}$$

then $x^2 = 1.642$ in Table B (Appendix III) Runyon-Haber, Fundamentals of Behavioral Statistics, for df = 1, the Null Hypothesis is accepted. There is no statistically significant difference between the film and programmed instruction manual methods of learning/teaching.

Table 2 does indicate, by comparison alone, that the filmed instruction prepared just four girls out of twenty-one and the programmed instruction manual prepared eight girls out of twenty-one. This would tend to indicate that a larger sample might produce a more conclusive result.

Coaches

Seven coaches worked with the gymnasts during the testing of the two modes of mediated instruction. Three coaches worked with the programmed instruction manual and four worked with the gymnasts using the filmed instruction. Each coach was given a questionnaire to be completed at the end of the four sessions of learning/teaching the women's handspring vault (See Appendix E).

Figure 3 is a pictorial representation of the number of coaches to girls that were successful and unsuccessful. The set of columns on the left show the coaches in relationship to the girls using filmed instruction and the set of columns on the right show the coaches in relationship to the girls using the programmed instruction manual.

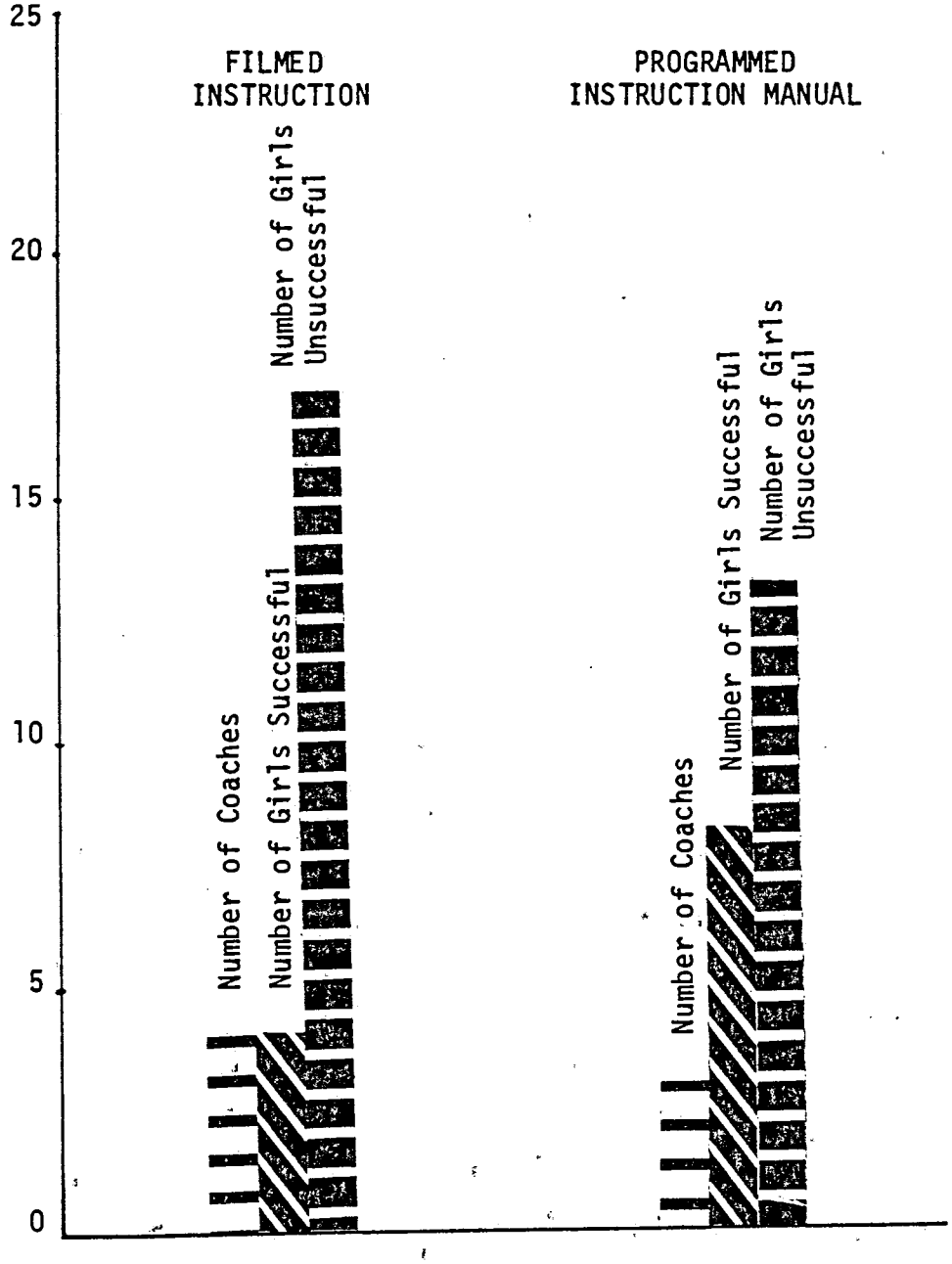


Figure 3

The Relationship of Coaches to Gymnasts Using
Two Forms of Mediated Instruction

Table 5 depicts a comparison of answers found on the seven coaches' questionnaires requiring a yes and no answer. Four coaches used the filmed instruction and three coaches used the programmed instruction manual. All of the coaches in both groups indicated that they were familiar with the methodology of the women's handspring vault. Three in each group had spotted the handspring vault. Only one coach had never spotted the vault before. Both groups had three coaches who indicated that the mediated instruction informed them about the methodology. One coach using the filmed instruction and two using the programmed instruction manual noted that the mediated instruction taught the gymnast the vault in a shorter time. When asked if they liked the learning/teaching package, two using the film and two using the programmed manual answered yes. The question asking if more of this type of learning/teaching package was of interest, three using the film and two using the programmed instruction manual said yes.

Examination of Table 6 gives a more complete view of the four coaches using the film and the three coaches using the programmed instruction manual, their background, and experiences with the two modes of instruction.

Table 5

Coaches Questionnaire Requiring
Yes and No Answers

	Film		P.I. Manual	
	Yes	No	Yes	No
1. Are you familiar with the methodology of the women's handspring vault?	4	-	3	-
2. Have you ever spotted the women's handspring vault?	3	1	3	-
3. Did the mediated instruction contained in the learning/ teaching package help to inform you of the methodology of the handspring vault?	3	1	3	-
4. Did the mediated instruction help you to teach the gymnasts the vault in a shorter than normal time?	1	3	2	1
5. Do you like learning/teaching as it was presented in this mediated package?	2	2	2	1
6. Would you be interested in more of this type of learning/ teaching methodology instruction?	3	1	2	1

Table 6

Coaches Questionnaire

	Film	P.I. Manual
1. Number of years coaching gymnastics?	Average 1.5	Average 5
2. What is the nature of the group you coach?	4 private clubs 2 other (YMCA, youth groups, etc)	1 college 2 private clubs
3. What was the estimated teaching time of the handspring vault before the use of a mediated instruction?	2.5 hours	4.6 hours
4. What was the estimated teaching time of the handspring vault after the use of a mediated instruction?	3.6 hours	3 hours
5. How many girls participated in this learning/teaching program?	21	21
6. How many girls performed the handspring vault unassisted at the end of four sessions?	4	8

The coaches were asked to rate the effectiveness of the learning/teaching experience on a scale from excellent to poor. Those using the film rated the experience in the good to fair range with one good and three fair. Coaches using the programmed instruction manual rated the experience in the excellent to fair range with one excellent, one very good and one fair.

Coaches having worked the longest in gymnastics and coaches just starting out with the handspring vault level of instruction showed the most enthusiasm and receptiveness to the learning/teaching methods as presented in the two modes of instruction (See Appendix G). Those having taught the handspring vault for one to two years approaches these methods with the most hesitation (See Appendix H).

Girls

There were forty-two girls participating in the comparison of two modes for the learning/teaching of the women's handspring vault. Twenty-one girls using the film method of instruction with an average age of 13.2 years and twenty-one girls using the programmed instruction manual with an average age of 14.1 years were given a pre-test and post-test questionnaire (See Appendix E).

The pre-test questionnaire gives background information about the gymnasts using the two modes of instruction. Findings of the pre-test questionnaire are represented in Table 7.

Responses to the post-test questionnaire is shown in Table 8. This table exhibits forty-two girl's attitudinal response to the two modes of instruction, twenty-one girls using the film and twenty-one girls using the programmed instruction manual.

Table 7

Pre-Test Questionnaire for Gymnasts

	Film	P.I. Manual
1. Number of years in the sport?	Average 3.3	Average 3.5
2. What type of group do you practice gymnastics?	College 0 High School 8 Private Club 9 Other (YMCA, youth group, etc.) 12	College 3 High School 5 Private Club 16 Other (YMCA, youth group, etc.) 1
3. At this point in your gymnastic career have you mastered a satisfactory layout vault?	9 Yes 12 No	12 Yes 9 No
4. Have you ever seen the handspring vault performed?	20 Yes 1 No	21 Yes
5. If the answer to 4 is yes, where did you see the handspring vault performed?	your gym 18 in a movie 9 on television 15 other (exhibitions, competition, etc.) 7	your gym 21 in a movie 13 on television 20 other (exhibitions, competitions, etc.) 5
6. Have you ever performed a handspring vault?	17 Yes 4 No	19 Yes 2 No
7. If the answer is yes, have you performed the handspring vault unassisted?	2 Yes 15 No	10 Yes 9 No

Table 8

Post-Test Questionnaire for Gymnasts

	Film	P.I. Manual
1. Did the mediated instruction contained in the learning/ teaching package help to inform you of the methodology necessary to achieve a handspring vault?	20 Yes 1 No	20 Yes 1 No
2. Did you find it helpful, as a gymnast, to learn the methods of a handspring vault as it was presented in the medium?	15 Yes 5 No	19 Yes 2 No
3. Did you perform the handspring vault unassisted at the end of the four practice sessions?	4 Yes 17 No	8 Yes 13 No
4. If the answer to 3 is yes, what was your estimated learning time of the handspring vault?	4.25 hours	3.1 hours

The girls were asked to rate the mediated instruction used with other methods of instruction used in gymnastics on a scale of excellent to fair. Three girls using the film stated very good and four girls using the programmed instruction manual replied very good. Ten girls using the film and twelve girls using the programmed instruction manual rated the mediated instruction good. A fair rating was received from eight girls using the film and just one girl using the programmed instruction manual.

Chapter 5

SUMMARY AND CONCLUSION

Summary

Gymnastics was introduced to the Olympic Games in 1896, but was only for men. In the 1928 Olympic Games, the women started to compete. Only with the more recent modern Olympics and the television coverage afforded gymnastics, has the sport been elevated from a second class sport to a major world sport. With this elevation has come the preoccupation of speeding up the learning/teaching process. With the speed-up process, time spent on the learning/teaching of each individual skill, both at the coaching level and gymnast's level, is hindered. Not all coaches have the competence necessary to instruct the gymnast in the learning of advanced moves and not all gymnasts have progressed in their skill development to achieve the more difficult moves.

To eliminate the trial and error method inherent in the learning/teaching of gymnastic skills without a formal background of instructional methods, two forms of mediated instruction were developed to teach the women's handspring vault. The handspring vault was chosen because of the placement, first, in the sequential order of the more difficult inverted vaults.

The study involved a comparison of two modes of instruction, film and a programmed instruction manual. The coach and gymnast participated together in the learning/teaching of the handspring vault. The joint learning/teaching was designed to instill confidence in the coach, to teach the advanced skills to the vaulter, and to achieve a handspring vault unassisted.

Development of the film and programmed instruction manual packages was on the premise that correct instruction, with coach and gymnast joining together in a learning/teaching venture, would account for fewer misunderstandings and lost time through incorrect instruction.

Both modes of instruction were developed to be used in an ongoing gymnastic program at the convenience of the coach and gymnast. The only condition as to the use of the film or programmed instruction manual was that the gymnast, in the opinion of her coach, must have performed a layout vault and be ready to advance to the handspring vault.

Conclusion

The studied statistical findings reflect that there was no statistically significant difference between the film and programmed instruction manual method of instruction. When using no statistics and just comparison of the data collected, there was a difference in numbers of girls able to perform the vault at the end of the specified time. This would tend to indicate that a broader study using larger sample groups would be of interest. It might also be of interest to study group size in relationship to length of learning time when using outside stimuli as a method of instruction.

Correlation of the information on length of time the coaches had taught gymnastics indicated that those having the most experience and those just starting in the sport were most receptive to the two modes of instruction. Although this study was not concerned with attitudinal problems to any great extent, further study in this area might be of interest to the psycho-motor learning process when using outside stimuli.

Although body structure was not a consideration of this study,

investigation of its relationship to skill development could be of interest in psycho-motor learning. Further studies are indicated, based on this studie's average age of learning the handspring vault to establish the age at which a gymnast is best suited to learn and achieve the handspring vault.

Although attitude of the gymnast or the coach was not the prime measurement for this study, there was indications that further study would be of interest in the areas of attitudes of gymnasts toward their own level of development, attitudes of coaches and gymnasts toward new methods of instruction which could prove important to the learning/ teaching cycle.

Studies involving comparisons of newer technologies of outside stimuli in the learning/teaching process could prove of great value to the development of psycho-motor learning.

APPENDIX A

Review of Programmed Instruction Manual

The review process of the programmed instruction manual was an ongoing activity. Clarity of sequence, information contained and correctness of moves was necessary to achieve an error-free learning/teaching situation.

Those whose knowledge and patience is greatly appreciated are:

1. Dr. Palmer Dyer, Professor and Chairman of Educational Communications, Ithaca College -- Graduate advisor and prodder to higher achievements.
2. Dr. R. R. Nicoson, Professor and Chairman, Graduate Studies Educational Communications, Ithaca College -- who always thinks the impossible is possible and is usually right.
3. Dr. Arthur W. Schweider, Assistant Professor Educational Communications, Ithaca College -- helped to make the manual read well and be workable.
4. Patty Gause, advanced gymnast with the T.C. Stars Gymnastic Team, without whose interest the writer's interest in gymnastics would never have been sparked.
5. Donald C. Gause, Professor at SUNY-Binghamton, School of Advanced Technology who was always willing to read the manual and ponder; thus making the writer re-evaluate constantly.
6. Diane Kostyshyn was a member of Vestal, New York High School Gymnastics Team when she agreed to act as the guinea pig and help with the actual use of the programmed instruction manual. Diane's letter written to describe her feelings about the programmed instruction manual method of instruction is as follows:

> Thank you for allowing me to try your new program on "The Learning/Teaching of the Women's Handspring Vault." It enabled me to review all of the necessary aspects in performing the vault.

Although I knew much of the information, it was a good review for me. In addition, I feel this information would be particularly useful to those who have never done the vault or are beginning the process of learning it, since to me it is essential to know all the fine points of a move before performing it. This past year I participated on the Vestal High School Gymnastics Team. I wanted to perfect the handspring vault for competition. Your program helped me correct mistakes and enabled me to perform the vault in State competition. Thank you.

APPENDIX B

Review of Film

Grateful acknowledgement goes to a group of people who helped develop the film and accompanying cassette recording. Their efforts during the review portion of the project helped to overcome confusion in the script, clarification of terms and format, correctness of moves and suggestions for general improvement of the presentation.

1. R.A. Smith -- Graduate student in M.S. Education Communications who helped with the script and traveled to Syracuse with the writer to film the Fawnettes Gymnastics Team girls in action.
2. Dr. R. R. Nicoson -- Professor, Ithaca College, who allowed the writer to use the filmed portion of the thesis as one class project.
3. Dr. Palmer Dyer -- Professor, Ithaca College, who allowed the taping of the cassette recording to take place in his office and suggested various ways to make the tape acceptable to the listener.
4. Doug Weisman -- a student in the Educational Communications Program at Ithaca College, who was the voice on the accompanying cassette recording. Doug was really great to work with and kept from tearing his hair out during the recording process.
5. Margaret Palinosky, Owego, New York -- a long time friend of the writer and a rated judge for the United States Gymnastics Federation. Margaret also has taught gymnastics for the past eight years.
6. Dr. Art Schweider -- Assistant Professor, Ithaca College, offered helpful suggestions for the development of the script.
7. The Fawnettes Gymnastic Team and Director/Coach Phil Devoli who acted as the models for the filmed portion of the project. The method of teaching the vault was developed by Phil Devoli.

APPENDIX C

Instructional Guide

INSTRUCTIONAL GUIDE - WOMEN'S HANDSPRING VAULT

a programmed instruction

Purpose

1. To learn/teach the women's handspring vault.

2. To recognize the methodology necessary for learning/teaching the handspring vault.

3. To instill confidence in the vaulter so a solo handspring vault will be performed at the end of a four session training period (secondary purpose).

Audience

Any gymnast, coach, or spotter who has proficiency in the knowledge of methodology of the layout vault.

Related Topic

Learning/teaching methodology of women's gymnastic skills. Content: Learning/teaching methodology of women's handspring vault. The medium will cover the run, step to the Reuther board, repulsion from the Reuther board, preflight, repulsion from horse, afterflight, landing, and spotting procedures for the women's handspring vault.

Questions for Group Discussion Before Using the Media

1. Have you ever seen the handspring vault performed?

2. Where have you seen the handspring vault performed?

3. At this point in your gymnastic career, have you mastered a satisfactory layout vault?

4. Have you ever tried a handspring vault?

INSTRUCTIONAL GUIDE - WOMEN'S HANDSPRING VAULT

a super 8mm film with cassette taped narration

Purpose

1. To learn/teach the women's handspring vault.

2. To recognize the methodology necessary for learning/teaching the handspring vault.

3. To instill confidence in the vaulter so a solo handspring vault will be performed at the end of a four session training period (secondary purpose).

Audience

Any gymnast, coach, or spotter who has proficiency in the knowledge of methodology of the layout vault.

Related Topic

Learning/teaching methodology of women's gymnastic skills. Content: Learning/teaching methodology of women's handspring vault. The medium will cover the run, step to the Reuther board, repulsion from the Reuther board, preflight, repulsion from horse, afterflight, landing, and spotting procedures for the women's handspring vault.

Questions for Group Discussion Before Using the Media

1. Have you ever seen the handspring vault performed?

2. Where have you seen the handspring vault performed?

3. At this point in your gymnastic career, have you mastered a satisfactory layout vault?

4. Have you ever tried a handspring vault?

Participation During Use of the Medium

The medium may be used at the convenience of the coach before, during or after a practice session by an individual or group. For the first session using the medium plan to use the entire learning/teaching package. Follow-up use can be an individual or group review plan. The learning/teaching package is designed to blend with an ongoing program.

Follow-Up Questions and Activities

1. At the end of four practice days the gymnast will perform a handspring vault without assistance.

2. Did the medium used in the learning/teaching package help to inform you of the methodology necessary to achieve a handspring vault?

3. Did you find it helpful, as a gymnast, to learn the methods of a handspring vault as it was presented in the medium used?

4. Did you find it helpful, as a coach, to learn/teach the methods of a handspring vault as it was presented in the medium used?

5. Did the gymnast perform the handspring vault unassisted at the end of four practice sessions?

Correlation with References and Other Instructional Materials

Millman, Dan. "The Basics Behind the Basics," Gymnast, August-September 1974, pp. 42-43.

Nakajima, Mitsuhiro. "Vaulting: The Technical Development and Present Condition of the Hecht Vault,", Gymnast, April 1974, pp. 38-39.

Hinds, John W., Jr. "Commitment and the Gymnast,", Gymnast, October 1974, p. 41.

APPENDIX D

Directions for Use of Programmed Instruction Manual and Film

DIRECTIONS FOR USE OF THE PROGRAMMED INSTRUCTION

To use the programmed instruction, please distribute a book to each girl who will be participating. It is NOT necessary to write the answers in the book because more than one person will be using the booklet.

The coach may wish to discuss the process of the learning/teaching project with the gymnasts. Then each girl will be given a questionnaire and is asked to fill it out to the best of her ability and hand it back to the person in charge. This questionnaire will be redistributed for post-program inquiry at the end of four practice days. Please make sure that each girl puts her name on this questionnaire. These questionnaires are to be retained by the coach.

The first day working with this learning/teaching program, the gymnasts and coach are asked to read the programmed instruction all the way through. From this point on the programmed instructional book may be used any way that is most convenient to the coach and gymnasts.

At the end of four practice days, all books and questionnaires are to be collected and retained by the coach.

Thank you and have fun!

DIRECTIONS FOR USE OF THE FILM

To use the film learning/teaching package, please have your film threaded in the projector and ready to start at the title HANDSPRING VAULT.

The coach may wish to discuss the process of the learning/teaching project with the gymnasts. Then each girl will be given a questionnaire and is asked to fill it out to the best of her ability and hand it back to the person in charge. This questionnaire will be redistributed for post-program inquiry at the end of four practice days. Please make sure that each girl puts her name on this questionnaire. These questionnaires are to be retained by the coach.

After the questionnaires have been filled out, the audio cassette player should be started at the beginning and all who are participating in the learning/teaching program should listen. From this point on, just follow the directions given on the audio cassette.

Thank you and have fun!

APPENDIX E

Pre-test and Post-test
Gymnast and Coaches Questionnaires

QUESTIONNAIRE FOR THE COACH

Please fill out the following questionnaire and return it with the gymnast's questionnaires at the end of the four day practice session

Name: _____

1. Number of years coaching gymnastics? _____

2. What is the nature of the group you coach? (place an X on the appropriate line)
   a. College _____
   b. High School _____
   c. Private club _____
   d. Other _____

3. Are you familiar with the methodology of the women's handspring vault? yes _____ no _____

4. Have you ever spotted the women's handspring vault?
   yes _____ no _____

5. Did the mediated instruction contained in the learning/teaching package help to inform you of the methodology of the handspring vault? yes _____ no _____

6. Did the mediated instruction help you to teach the gymnasts the vault in a shorter than normal time?
   yes _____ no _____

7. What was the estimated teaching time of the handspring vault before the use of a mediated instruction?

   _____
   (estimated time in hours)

8. What was the estimated teaching time of the handspring vault after using the mediated instruction?

_____
(estimated time in hours)

9. How many girls participated in this learning/teaching program?

_____
(number)

10. How many girls performed the handspring vault unassisted at the end of four practice sessions? _____
(number)

11. Do you like learning/teaching as it was presented in this mediated package? yes _____ no _____

12. Would you be interested in more of this type of learning/teaching methodology instruction? yes _____ no _____

13. How would you rate the effectiveness of this learning/teaching experience? (place an X on the appropriate line)

Excellent _____

Very Good _____

Good _____

Fair _____

Poor _____

Comments:

QUESTIONNAIRE FOR EACH GYMNAST

Please fill out the following questionnaire to the best of your ability

Name: _____

Age: _____

1. Number of years in the sport? _____

2. What type of group do you practice gymnastics? (place an X on the appropriate line)

   a. College _____

   b. High School _____

   c. Private club _____

   d. Other _____

3. At this point in your gymnastic career, have you mastered a satisfactory layout vault? yes _____ no _____

4. Have you ever seen the handspring vault performed?

   yes _____ no _____

5. If the answer to number 4 is yes, where did you see the handspring vault performed? (place an X on the appropriate line)

   a. Your gymnasium _____

   b. In a movie _____

   c. On television _____

   d. Other _____

6. Have you ever performed a handspring vault?

   yes _____ no _____

7. If the answer is yes, have you performed the handspring vault unassisted? yes _____ no _____

QUESTIONS TO BE ANSWERED AT THE FINISH OF THE
4 DAY LEARNING/TEACHING SESSION

You have now finished the 4 day learning/teaching session. Would you please help by answering the following questions

1. Did the mediated instruction contained in the learning/teaching package help to inform you of the methodology necessary to achieve a handspring vault? yes _____ no _____
2. Did you find it helpful, as a gymnast, to learn the methods of a handspring vault as it was presented in the medium used?
   yes _____ no _____
3. Did you perform the handspring vault unassisted at the end of the four practice sessions? yes _____ no _____
4. If your answer to number 3 is yes, what was your estimated learning time of the handspring vault? _____
   (estimate time in hours)
5. How would you rate this mediated instruction with other methods of instruction used in gymnastics?
   Excellent _____
   Very Good _____
   Good _____
   Fair _____
   Poor _____

Comments:

APPENDIX F

Information on Location of Film and Programmed Instruction Manual

Anyone wishing to view the filmed method of instruction and its accompanying cassette tape or review the programmed instruction manual may do so by writing the Chairman of the School of Communications, Graduate Studies and Educational Communications, Ithaca College, Ithaca, New York 14850.

APPENDIX G

Favorable Comments for the Two Methods of Instruction

Coaches' Comments

1. As I said before, I had not done any spotting of the handspring vault. I really enjoyed this experience. I feel I learned a great deal.

2. The use of the "Stiff Body" exercise before every vault seemed to help the girls.

Girls' Comments

1. With this method I believe an inexperienced vaulter could learn a handspring in 4 sessions. However, I think they would have to be longer than 45 minute sessions.

2. The method was good. I had more of an idea of exactly what I should be doing at each stage of the vault. The readings helped to back up what the coach said when working with me.

3. I feel much more confident of myself now. I feel that I've improved my vault in many ways and would like to continue working.

4. The booklet is good as an instructional medium and as a refresher. The coaches' comments along with the booklet provides a sound groundwork for learning and improving the handspring vault.

5. It helped me remember what positions I should be in while doing the vault. Also, the program gave me a good mental picture of what I should be doing during the vault.

APPENDIX H

Unfavorable Comments of the Two Methods of Instruction

Coaches' Comments

1. This type of teaching does not leave the coach open to any disagreement. There are phases that I do not agree with and it is hard to disagree with a closed presentation without making someone look wrong.

2. I expected more a progressive type of program. The film wasn't very informative. I don't think the mediated instruction changed the way I would have taught the vault.

3. I do not believe that this technique can be used in all situations - especially in an established program whose methods conflict with some of the theories included in the teaching package. I did not like this method - it conflicted too much with my style of teaching and also its 4 day "teaching period" scared many students.

APPENDIX I

Gymnastics Groups that Aided in the Testing for Statistical Data

1. The American Gymnastic Camp, Little Meadows, Pennsylvania under the direction of Dr. Frederic M. Pierce.

2. The Ithaca College Gymnastic Team, Ithaca, New York under the coaching of Harriett Carnes.

3. The Owego Scamps, Owego, New York under the co-directorship of Nancy and John Numetko.

APPENDIX J

Correspondence

3 Kingsgate Lane
Owego, NY 13827
January 9, 1976

XXXXX_____
XXXXX_____
XXXXX_____

Dear _____ :

In the process of fulfilling the thesis requirements of my graduate program at Ithaca College, I have developed a learning package dealing with the learning/teaching of the women's handspring vault. Knowing that you are engaged in the instruction of gymnastics, I am in hopes that you and your girls would be able to assist me with the testing of this learning/teaching package.

The project is done with both the needs of the gymnast and coach in mind, realizing that the coach may or may not have the skill necessary to teach the handspring vault. The gymnast starts this project knowing just the fundamentals of a layout vault. At the end of four practice sessions, the gymnast should be at the point of performing the handspring vault without assistance.

The procedure will take four practice sessions and will involve a pre-test questionnaire, four practice sessions with fully explained guidelines and a post-test. Each group participating will be given a learning package and instructions to guide the four session activities. The package will be structured to blend with your present program and can be used as often as desired. These learning packages will be distributed to the groups at the end of February.

In order to have a good analysis of the data, it will be necessary to stipulate that five or more girls participate in each group.

If you and your girls are unable to participate in this project, would you suggest a group that might be able to assist me. Your help in this matter is greatly appreciated. Through this effort it is hoped that the sport of gymnastics can be extended to more coaches and gymnasts on a learning/teaching basis.

Sincerely,

Patricia A. Gause

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BIBLIOGRAPHY

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