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The effects of videotape feedback on learning basic wrestling skills

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THE EFFECTS OF VIDEOTAPE FEEDBACK
ON LEARNING BASIC WRESTLING
SKILLS

by

Richard L. Abbatiello

An Abstract

of a project submitted in partial fulfillment
of the requirements for the degree of
Master of Science in the School
of Health, Physical Education
and Recreation at
Ithaca College

September 1978

Project Advisor: Dr. V. Mancini

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ABSTRACT

The purpose of this study was to compare the effects in learning basic wrestling skills by eighth grade boys who received instant replay observation and those who received no instant replay. The subjects (N=34) were randomly selected from the Algonquin Middle School in Averill Park, New York.

The experimental and control groups received the same instruction; the experimental group received both visual and verbal feedback, and the control group received only verbal feedback. The skills taught were double-leg takedown, stand-up escape, roll, re-roll, switch, and reswitch. The instructional period was three weeks, five days per week, 40 minutes per day. At the conclusion of the instructional period a three-man panel rated the subjects on their performance of the skills.

The data were subjected to two tests, first the judges' scores for the subjects were tested for reliability using Kendall's Coefficient of Concordance. It was found that the judges rated the subjects on the same criteria in all cases except one, that being the stand-up escape. The second test was the Mann-Whitney U Test of significance to determine any difference between the groups. The major null hypothesis that there will be no significant difference was accepted.

It was concluded that the use of the videotape replay in addition to verbal feedback will not significantly enhance the learning of basic wrestling skills of eighth grade boys in the Algonquin Middle School, and secondly, that the use of the videotape replay will at least be equal to traditional method of teaching wrestling skills.

**THE EFFECTS OF VIDEOTAPE FEEDBACK
ON LEARNING BASIC WRESTLING
SKILLS**

**A Research Project Presented to the Faculty
of the School of Health, Physical
Education and Recreation
Ithaca College**

**In Partial Fulfillment of the
Requirements for the Degree
Master of Science**

**by
Richard L. Abbatiello
September 1978**

Ithaca College
School of Health, Physical Education and Recreation
Ithaca, New York

CERTIFICATE OF APPROVAL

MASTER OF SCIENCE RESEARCH PROJECT

This is to certify that the Research Project of

Richard L. Abbatiello

submitted in partial fulfillment of the requirements for the degree of Master of Science in the School of Health, Physical Education, and Recreation at Ithaca College has been approved.

Research Project
Advisor:

Candidate:

Chairman, Graduate
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Date:

June 16, 1978

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Chapter 1

INTRODUCTION

It has been acknowledged that television is one of the most important communication systems employed by man. Many Americans seem to rely on television as one of their main sources of information (6). With this concept in mind, it seems that the use of the videotape recorder should be extremely helpful to the physical education teacher in teaching skills.

There has been and continues to be much controversy over just how much value videotape replay serves in the teaching and learning of skills in physical education (1). Videotape recordings can be played back immediately for the benefit of both teacher and student. The immediate playback can be performed at regular speed, slow motion, and with stop action. The tape can be replayed many times so that it is possible for the instructor and the student to see the entire motion repeated and perhaps find the one factor that makes learning a skill a totally rewarding educational experience. The immediate reinforcement or feedback can help the student view his own performance after he has completed the activity and can learn from viewing his mistakes or successes. This type of reinforcement is particularly valuable in learning motor skills.

Bugelski (5:259) asked this basic question: "Can students be taught more effectively with some new tool than without it?" Cross, Foy, and Cypher (7) cited as an aid to learning audiovisual instruction is not a separate course in the school curriculum nor an isolated operation in a training program, rather a way of learning which permeates all the school curriculum.

In teaching wrestling skills, it is important that each student do a certain movement at a certain time. The fact that wrestling is a partner activity makes it important that each wrestler knows what the other wrestler is attempting to do at the beginning level.

The problem then is to determine the best way for the beginning wrestler to become proficient at the basic wrestling skills so that he will be able to have success when executing these skills in match situations. This study will attempt to determine the effects the videotape recorder will aid students in learning basic wrestling skills.

Scope of Problem

The primary purpose of this investigation was to determine the effectiveness of teaching beginning wrestling skills with and without an instant replay videotape recorder. The subjects for this study were 34 eighth grade boys from the Algonquin Middle School in Averill Park, New York. The 34 subjects were randomly divided by using a table of random numbers into two groups of 17 each. Group I was designated as the experimental group and received videotape feedback, and Group II was designated as the control group and received the same instructional program but no videotape feedback.

Statement of Problem

The purpose of this study was to compare the effects in learning basic wrestling skills by eighth grade boys who received instant replay observation and those who received no instant replay.

Hypothesis

There will be no significant difference in the performance of basic wrestling skills by eighth grade boys who received instant replay observation and those who received no instant replay.

Assumptions of Study

For the purpose of this study, the following assumptions have been made:

1. The investigator assumed that five 40-minute periods of instruction per week, over a three week period, were a sufficient length of time to teach basic wrestling

skills to eighth grade boys.

2. All subjects tested were at approximately the same skill level in wrestling since none had any specialized or formal wrestling instruction.

3. All subjects performed these basic wrestling skills to the best of their abilities.

Definition of Terms

The following terms were operationally defined for this study:

1. Videotape Recorder. (VTR) A VTR is an instrument that records on videotape, television pictures that can be stored, replayed or erased (1).
2. Instant Replay. The immediate replay of a VTR sequence used for the analysis of performance (1).
3. Feedback. The immediate observation of the student performing skills for the analysis of performance (2).
4. Reinforcement. Verbal and visual strengthening of the action of the student's performance (2).
5. Referee's Position. The position of the wrestlers at the beginning of the second and third period in a wrestling match in which the "bottom" man has his hands and his knees on the mat, his head up, and his back straight. The "top" man positions himself next to the bottom man by kneeling with one knee down, his head in the middle of his opponent's back, one arm around his opponent's waist with his hand on the navel and the other hand placed on the back of the elbow.
6. Up Position. The position in wrestling in which both wrestlers are standing on their feet.
7. Advantage Position. The top wrestler in the referee's position starts wrestling and has the opportunity to more easily maintain control of that opponent (3).
8. Takedown. A wrestling maneuver performed on the feet where one wrestler takes the other wrestler down to the mat.

9. Double Leg Tackle. A takedown maneuver in which a wrestler secures both of his opponent's legs and takes him to the mat.

10. Escape. A wrestling maneuver in which a bottom wrestler comes out from under his opponent to a position on his feet facing his opponent.

11. Stand-up. An escape move in which a wrestler on the bottom stands, turns, and faces his opponent causing him to lose his advantage.

12. Reversal. A wrestler on the bottom comes from under his opponent to a position of advantage.

13. Roll. A move in which the wrestler on the bottom attempts to reverse his opponent by rolling him over and gaining control of him.

14. Switch. A reversal move in which a wrestler on the bottom reaches over his opponent's arm and under his leg and pulls himself to a position of advantage.

15. Counter. A second move performed by a wrestler which enables him to stop his opponent from completing his initial move.

16. Re-roll. The counter move to stop a roll.

17. Re-switch. A counter move to stop an opponent from switching and gaining control.

18. Beginning Wrestler. A student in the sport of wrestling who has had no formal wrestling instruction.

Delimitations of Study

The following were the delimitations of the study:

1. The subjects for this study were represented by eighth grade boys from the Algonquin Middle School, Averill Park, New York.
2. All subjects for this investigation had no formal wrestling instruction prior to this study.
3. This study was limited to basic wrestling skills.

4. The experimental and control group received the exact same instruction with the exception of the VTR instant replay.
5. The instruction took place for 40 minutes, five times a week, over a period of three weeks.

Limitations of Study

The following were the limitations of the study:

1. The basic wrestling skills taught were not tested under any match competition.
2. The decreased amount of practice time for the experimental group could effect the test results.

Chapter 2

REVIEW OF RELATED LITERATURE

Historical Background

Educational television had its inception in the American education system in 1953. At that time, it was felt that it was the missing link in a long complicated learning chain. Since 1953, the use of television has shown remarkable capacity to reach, to interest, to teach, and to enlighten. By 1959, there were 45 educational television stations that were active. Today the number exceeds 90. This growth is representative of the potential that television holds in education (16).

Instructional television is usually thought of in terms of a fully equipped studio, a television teacher and students in many scattered classrooms, or a gigantic lecture hall viewing the telecast (4). In the early stages, the cost factor of instructional television drove away many educators. The usefulness and creative possibilities of a lower cost "single room" television has emerged to create exciting and practical audio-visual techniques with elements attractive to both administrators and teachers.

Since the refinement of the videotape has made it more affordable for school districts to purchase, its use is very practical (1). Offering features such as an instant replay at regular speed, slow motion, and stop action, as well as the fact that the tape can be replayed, make the videotape a very useful teaching aid. Complicated demonstrations can be made and played back as part of regular presentations (6). Courses which combine lecture and laboratory will often employ taped lectures which can be played by the students in the lab immediately prior to the lab activity. The videotape playback potential has many applications in subjects where self-evaluation by students is desired (6).

Evaluating Television

To determine if a product being used is of value, it must be evaluated. Many techniques can be used to evaluate instructional television. Some of these measures are check lists, pupil attitude scales, lab exercises, written tests, oral exams, group projects, and standardized tests (6). In many instances a comparison of the scores on the written tests achieved by pupils who have received certain instruction via the videotape and those who have received certain instruction without the videotape is the major technique for evaluating televised instruction. Practically all of these comparisons as mentioned previously, show no statistically significant differences between the televised and non-televised instruction (18). Diamond (8) felt that the evaluation of instructional television should be based on behavioral outcomes.

Alternative Teaching Styles

The use of teaching aids such as movies and the videotape machine has aided many teachers and students of physical education. Over the years teachers have varied their styles in an effort to become more effective. Varying styles of teaching is also useful in motivating students. A brief examination of alternative teaching styles employed by physical educators might give some insight into why teachers select certain styles. The styles to be examined are the lecture method, the demonstration method, the drill method, and the trial and error method. Singer and Dick (17) in examining alternative teaching styles stated that there are some that relate better to physical education and the development of physical skills.

The lecture method is usually thought of as a more formal method. It is a method designed to provide the student with as much information as possible about a certain topic. Its relationship to physical education is in the form of history of a sport, rules of the game, and strategy (17).

In teaching physical education, the style that is predominantly used is the demonstration method. The demonstration can be from the instructor or from a skilled individual in the class or by experts on film or in person at a clinic situation.

Another style is the drill method. It is used to elevate performance levels through habitual responses. In teaching wrestling skills, a combination of the demonstration and the drill is most effective (3).

A fourth teaching style is the trial and error method. This method is not one that can be used in all situations. A non-swimmer is not put into the pool and told, "try to swim." Singer and Dick (17) stated that this approach might hamper the student's social, emotional, and physical development. If used correctly, trial and error learning challenges the student for the correct responses and eliminates undesirable ones from his behavior.

Feedback

Feedback, as defined earlier, is the immediate observation of the student performing skills for the analysis of performance. The videotape recorder provides this observation and therefore should enhance learning.

Wrenn (42) made some observations and conclusions about the literature and how videotape feedback influenced school children in their ability to perform a motor task. Some of Wrenn's (42:46) conclusions were as follow:

1. Feedback or knowledge of results appears to be the important variable controlling skill performance and learning.
2. Feedback can be transmitted to an individual through internal and external means. Internal feedback includes information received through the senses of proprioception, whereas external feedback is received through the sense of smell, sight, touch, taste, and sound.
3. The exact function of feedback is unknown. It is felt to be important in the learning process. Positive type feedback can reinforce a skill and make learning that skill more meaningful. Upon looking at the research completed, literature shows that no significant improvement is made when feedback is present and deterioration occurs when feedback is withdrawn.
4. Time delay between performance and feedback is a controversial topic. Most

studies indicated that when the time interval is made short, performance and learning are further enhanced.

5. Studies that have utilized feedback through a means of a videotape recorder and monitor have not been replicated to substantiate the results.

6. Studies in the area of physical education that have utilized videotape feedback to determine its influence in changing skill levels are few in number and the studies that are available presented contradictory conclusions.

Beebie (18) studied the comparison of four methods of feedback in the form of knowledge of feedback. They were verbal, videotape, verbal and videotape, and verbal with analysis feedback. Beebie found no significant difference at the .05 level of confidence. In another study which deals with feedback, DeBacy (21) examined the effect of viewing videotapes of a sport skill performed by self and others on self assessment. She stated that the importance of feedback in performance and in learning is universally agreed upon and it is obvious that the videotape replay has the potential of providing information. However, the existence or availability of feedback is no guarantee that an individual, even if he perceives it, does so with great accuracy.

Robb (29) investigated feedback and skill learning. She concluded that feedback is one of the strongest and most important variables controlling performance and learning.

Videotape and Motor Learning

Robb (30), in reviewing studies completed by Berlin in 1959, studied the effects of different teaching styles during the early learning of motor skills. Robb found that following a general orientation to the task, the learning of the selected motor skill by the beginners was greatly fostered by uninterrupted practice. Demonstrations by skilled performers, visual aids, and verbal directions in combination with uninterrupted practice were also effective methods. Visual aids and verbal directions in combination with uninterrupted practice were also effective methods. Visual aids and verbal directions by themselves ranked low in value as aids to learning.

Lloyd (37), on the effect of selected stages of learning utilizing audio and visual

feedback on gross motor skills, concluded that slow motion pictures of the beginning learners did not contribute to the learning of a gross motor skill. Secondly, the viewing of slow motion in the middle stage of instruction appeared to hasten learning.

Penman (27), in his study of teaching beginning tumbling with and without a videotape recorder concluded that the correlations between the scores were not significant at the .05 level of confidence. Penman further concluded that the videotape seemed most valuable with remedial students, that is, students who are having trouble "getting" a certain skill. In another study by Penman, Bartz, and Davis, (28) on the use of the videotape replay and the acquisition of beginning trampoline skills, he concluded that the study of the group means was clearly not significant at the .05 level of confidence.

In studies by Glasson (23), Cohen (32), Sullivan (40), White (41), all using videotape replay system, the results all showed no differences between the groups.

Video Feedback and Wrestling Instruction

In reviewing related literature on the use of the videotape recorder and its relationship to learning wrestling skills, this investigator found it to be somewhat limited in quantity. Boring's (3) bibliography listed 269 articles on the subject of wrestling, but only 17 related to the actual development of wrestling skills.

Parker's (38) annotated bibliography of selected wrestling publications included only six entries on wrestling instructional films, but this was completed in 1958 only five years after educational television's birth. Douglas (33) compared the value and limitations of loop film method in the teaching of wrestling skills. He observed that there was no significant difference in the type of instruction used but noted that while the loop film method offered excellent style, it offered no verbal feedback or ability to correct mistakes in learning. Douglas concluded that a combination of the two methods is probably the best way in which to learn wrestling skills. Wyness (43) reported that he found no significant advantages in using motion pictures to teach wrestling.

Summary

Upon reviewing the related literature, there seems to be a consensus by researchers that using the videotape as a learning aid will not make a difference in the rate of learning or skill acquisition (17). Most concluded that there seemed to be a higher motivation in groups using the videotape than in groups not using the videotape, but there was not a difference in how they perform newly learned motor skills. While there appears to be no conclusive evidence to demonstrate that the videotape is that influential as a teaching device for faster or more concise skill acquisition, it is still regarded as a value to physical education instructors and coaches as a means for improved performance. Since motivation cannot be measured, the investigator concludes that most research, while limited, indicates that there is no difference between groups getting videotape and groups not receiving videotape.

Singer and Dick (17:217) stated that in order to show differences statistically:

1. Large samples must be used.
2. Groups must be reasonably similar at the start of the experiment.
3. There should be a minimum of variability of evaluation of scores.
4. Evaluation techniques must be valid and sensitive.
5. There must be no teacher bias.
6. Confounding instructional and individual variables must be controlled. The failure of researchers who have investigated the value of the videotape replay system may help to explain why they have found media ineffective and also why one researcher might obtain data favoring one instructional method and another researcher's data favoring the other.

Chapter 3

METHODS AND PROCEDURES

This chapter has been divided into six areas: (1) selection of subjects, (2) testing instruments, (3) teaching method, (4) method of data collection, (5) scoring of data, and (6) treatment of data.

Selection of Subjects

The subjects for this study were eighth grade boys at the Algonquin Middle School in Averill Park, New York. The selection of the subjects was done by obtaining a class list of all eighth grade boys from the Guidance Department at the Middle School. This list numbered 138 boys. Using a table of random numbers, 40 subjects were selected with 34 participating in the study. The 34 subjects were randomly divided into two groups of 17. By the flip of the coin, Group I was designated as the experimental group and Group II the control group. Since the school has no modified wrestling program, none of the subjects had any formal wrestling instruction.

Testing Instrument

A rating scale was devised by the investigator so that a three-judge panel could rate the subjects on their performance of the basic wrestling skills taught. This scale is listed in Appendix C. The skills taught were (1) double leg takedown, (2) stand-up escape, (3) roll, (4) re-roll, (5) switch, and (6) re-switch. The selection of these skills was based on the investigator's practical experience and a wrestling textbook (12).

Macias (12) stated that the double leg takedown is probably the most used and

most effective takedown employed by beginning wrestlers. He stated that the stand-up is used extensively as a means of escape. The roll is a simple reversal and should be included in the repertoire of maneuvers. The switch is a most effective reversal maneuver. Although it is a basic reversal move, it is used at all levels of competition. The re-roll and the re-switch were taught but not tested. Fundamentals in most cases are taught as single, basic moves, but after they have been mastered can be combined with other moves into sequences.

The rating scale was organized so that it would measure a step by step progression of the skills taught. The judges were able to see these progressions and give a score to each subject. The results of the rating sheets are discussed in Chapter 4.

Teaching Method

The basic wrestling skills unit selected by the investigator consisted of the following: (1) double leg takedown, (2) stand-up escape, (3) roll, (4) re-roll, (5) switch, (6) re-switch. The re-roll and the re-switch were not scored. The count method of instruction was used for this experiment. The lesson plans can be found in Appendix A. The lessons were identical for both groups: the only difference was the experimental group was videotaped and viewed for approximately 20 minutes during each class. The instructor pointed out to the subjects correct and incorrect attempts at the skills as they were observed on the videotape. All the lesson plans were developed by the investigator for this study.

Method of Data Collection

The post-test only design was used for this study. The post-test only design was chosen by this investigator because it would be difficult to evaluate beginning wrestlers on a pre-test since none of the subjects had any formal wrestling instruction, and the subjects were randomly selected and pure randomization minimizes the need for a pre-test.

The instructional period for each group was three weeks, five times per week, for 40 minutes per class. Each group received the same instruction, with the difference being

that the experimental group was videotaped and the feedback was both verbal and visual. The control group received only verbal feedback. At the end of the three week period, the subjects were rated on their performance of the wrestling skills taught. They were rated by a three judge panel.

Scoring of Data

Each judge was given the criteria for judging prior to the testing sessions (Appendix B). The judges did not confer with each other on the scores. The subjects were rated by the judges on their performance of the basic wrestling skills. The score ranges were from one to three with half point intervals.

Treatment of Data

The scores from the judges' ratings were subjected to Kendall's Coefficient of Concordance to determine the reliability of the scores. The subject's scores were subjected to the Mann-Whitney U test of significance. The investigator selected the .05 level of significance as the point at which the null hypothesis would be tested.

Summary

From a list of all eighth grade boys at the Algonquin Middle School in Averill Park, New York, 34 subjects were randomly selected. Group I, (N=17), the experimental group, was taught four basic wrestling skills for three weeks, five days per week, 40 minutes per lesson. The lessons were videotaped and played back for student observation and instructor comments. Group II, (N=17), was the control group. They were taught the exact same lessons as Group I but were not videotaped. Strictly verbal reinforcement from the instructor was encountered. The post-test only design was used to evaluate performance at the end of the instructional period. The rating was done by a three judge panel. Kendall's Coefficient of Concordance was used to measure the judges' reliability of the scoring, and

the Mann-Whitney U test was used to determine any difference between the groups.

Chapter 4

ANALYSIS OF DATA

The results of the statistical analysis of the data acquired from this study are presented in this chapter. The tests used to analyze the data were the Kendall Coefficient of Concordance and the Mann-Whitney U test of significance.

Results of Kendall's Coefficient of Concordance

At the termination of this study, the data were subjected to Kendall's Coefficient of Concordance to determine the reliability of the three man judging panel. The Kendall Coefficient of Concordance (W) is a non-parametric measure of the relation among three or more (K) sets of rankings of at least three (N) individuals. A test is made of the null hypothesis that the K sets of rankings are independent. The subjects were ranked by the score of the three judges. The data were subjected to the TOH 55 program at the Ithaca College Computer Center. The level of significance was set at the .05 level by the investigator. The statistic W close to zero suggested that the K independent criteria are used in the rankings, whereas a value of close to one suggested that the rankings are not independent, that is, the judging was done using the same criteria. Table 1 shows that the results of Kendall's test satisfied the criteria for the judges' ranking subjects alike in three of the four tested situations. The stand-up escape did not meet the criteria and showed that the judging was independent in this situation. No specific reason can be determined at this time for the difference. The double leg takedown, the roll, and the switch all were found to be judged on the same criteria.

TABLE 1

Results of Kendall's Coefficient
of Concordance On the Judges
Rating Reliability

SKILL RATED	KENDALL'S W	χ^2	DF	p
DOUBLE LEG	.574	56.83	33	.999*
ESCAPE	.409	40.53	33	.827
ROLL	.537	53.12	33	.985*
SWITCH	.671	66.50	33	.999*

*SIGNIFICANT AT THE .05 LEVEL

Results of the Mann-Whitney U Test

The data obtained between the two groups were subjected to the Mann-Whitney U test to determine any significant difference between the groups. The data were subjected to the TOH 50 program at the Ithaca College Computer Center. The Mann-Whitney U test is a nonparametric method for testing the null hypothesis that two independent samples come from identical continuous populations. The input data were ranked with the tied observations assigned the mean of the rank position which they share. Results that have a p of one or greater than one reject the null hypothesis and a result of p less than one accept the null hypothesis. The results of the test showed for all skills taught to both the experimental and the control group there was no difference between them (see table 2). In all cases the probability that the groups were significantly different was less than 1, therefore, accepting the null hypothesis.

Summary

At the conclusion of this study, the scores from the post-test were subjected to Kendall's Coefficient of Concordance and the Mann-Whitney U test. Kendall's test was a test to determine if the judges' ratings were alike. The results showed the ratings were significant in the double leg takedown, the roll, and the switch. The escape showed a .409 W and demonstrated the judges did not rate on the same criteria. It was not established what the difference in the judging for the escape was. The results of the second test, the Mann-Whitney U test, was that there was no difference between the groups. Therefore, the null hypothesis was accepted.

TABLE 2

Results of Mann-Whitney
U Test

SKILL	U	DF	P
DOUBLE LEG	157.5	33	.65*
ESCAPE	183.0	33	.17
ROLL	148.0	33	.90*
SWITCH	145.0	33	.90*

*SIGNIFICANT AT THE .05 LEVEL

Chapter 5

DISCUSSION OF RESULTS

As stated in the previous chapter, the results obtained from the basic wrestling skills for both the experimental and the control groups were not significantly different. Therefore, the null hypothesis was accepted.

In reviewing this study, the investigator has selected four areas for further examination. They are (1) the length of the study, (2) the amount of time spent practicing the skills, (3) the type of feedback, and (4) the skill level of the subjects who critically analyze themselves on videotape.

As stated earlier in chapter three, each group received the exact same instruction, three weeks, five days per week for 40 minutes. This time allotment conforms with the average length of physical education class time for eighth grade boys in the Averill Park School District.

In reviewing the literature, the investigator found that in a study that did show significant improvement, a ten week period was used (18). This was considerably longer than the time of instruction for this study. To contrast this point, however, studies (24,31) which were longer in length than this study showed no improvement with the videotape.

The second area of examination to be considered is the amount of time spent viewing the videotape as opposed to the amount of time spent practicing the wrestling skills. This study showed 600 minutes were designated for the instructional time for both groups. The control group spent the entire time on the mat for instruction and practice of the skills. The experimental group spent approximately 50 percent of the instructional and practice time viewing themselves. Calculated into only 300 minutes of actual practice time, this

seems to be a large difference between the two groups. The study showed no difference between the two groups, so it appears that the same amount of learning was accomplished in a shorter period of actual practice time. This was not tested in this study, but might be given consideration in future studies on the aspect of videotape feedback and the learning of motor skills.

The third aspect for discussion in this chapter relates to the type of feedback used. As a result of the analysis of the data, there was no statistical difference between the two groups. The subjects in the experimental group were not familiar with the use of the videotape replay system and, therefore, may not have used it to its full potential. Since the control group showed the same gains on the post-test, the extra practice time and the verbal feedback was at least equal to that of the visual-verbal feedback encountered by the experimental group for this study. Stated another way, the time spent viewing was of value in terms of learning new skills even though the practice time was less.

The last aspect for discussion is that of the skill level of the subjects who viewed themselves on the videotape. This study dealt with only eighth grade boys, randomly selected, who had had no formal wrestling instruction. This investigator, as a high school varsity wrestling coach, has utilized the instant replay for a number of years. At the varsity level, the wrestlers view themselves much more critically upon evaluation of their performance. The eighth grade boys did not seem to be as critical of their performance, possibly due to the age level and the amount of experience that they possessed.

Summary

In a manner of discussing the results, this investigator chose to reexamine four areas. The four areas were (1) length of the study, (2) amount of time spent viewing as opposed to the amount of time spent practicing the skills, (3) the type of feedback used, and (4) the skill level of the subjects who viewed themselves on videotape.

This investigator found the length of the study was comparable with the

scheduled physical education units of the district. While studies (24,31) of equal length and longer length have been completed, they show no significant difference between the groups.

The amount of time spent viewing versus the time spent practicing appears to be an important factor and could have implications for future studies. The practice time or total time on the mat was about 50 percent more for the control group than that of the experimental group. The time spent viewing appears to be equal to the practice time of the control group in terms of the end result.

The third aspect examined was that of the type of feedback, visual and verbal as opposed to strictly verbal. It is possible that the experimental group's inability to view themselves critically could influence their performance. Lastly, the skill level of the subjects who viewed themselves is important. Beginners who had success in performing these skills do not know when they have successfully completed the skills. A more advanced wrestler, who has higher skill level, might be able to observe himself more critically and, therefore, gain more from the visual-verbal feedback situation.

Chapter 6

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this investigation was to determine the effectiveness of teaching beginning wrestling skills with and without an instant replay videotape recorder. The study was completed during the spring of 1977. The subjects (N=34) were divided into two groups of 17. Group I, the experimental, and Group II, the control, were randomly selected from a master list of all eighth grade boys. Each group received identical instruction of basic wrestling skills. The skills were double leg takedown, stand-up escape, roll, re-roll, switch, and re-switch. The re-roll and the re-switch were taught but not rated. The length of the study was three weeks, five classes per day for 40 minutes per class. The experimental group differed in that they observed themselves on the videotape recorder while the control group received only verbal feedback.

The post-test only design was used for this study because the subjects were randomly selected. The subjects were rated by a three man panel, based on their performance of the four basic wrestling skills taught. The scores recorded by the judges on the performance of the skills tested were subjected to the Mann-Whitney U test of significance. The Mann-Whitney U test is a nonparametric method for testing the null hypothesis that two independent samples come from identical continuous populations. The results of the Mann-Whitney U test showed that the subjects performed the same on all skills tested. Therefore, it was concluded that there was no difference between the groups. The null hypothesis was accepted. It was concluded that for this investigation there was no difference between the experimental and the control group. The videotape recorder did not enhance the learning of wrestling skills by the subjects for this study.

Kendall's Coefficient of Concordance tested for the reliability of the three-man judging panel. The results of the Kendall test stated that the judges rated consistently in all situations except the escape, that is, the judges rated using the same criteria to determine the score.

Conclusions

After completing the research, the investigator has drawn the following conclusions:

1. The use of the videotape replay in addition to verbal feedback will not significantly enhance the learning of basic wrestling skills of eighth grade boys of the Algonquin Middle School in Averill Park, New York.

2. The use of the videotape replay will at least be equal to the traditional method of teaching basic wrestling skills.

Recommendations for Further Studies

Following completion of this study, the investigator suggests the following recommendations for further studies:

1. In future studies, the amount of practice time should be equal for both groups, still utilizing the videotape replay system.

2. In future studies, an attempt should be made to determine the skill level of subjects who view themselves.

3. In future studies, subjects should be given instruction on how to use and view their skill performance critically.

4. In a future study, replicate this study using another skill unit.

APPENDICES

APPENDIX A. LESSON PLANS FOR
BASIC WRESTLING
SKILLS

LESSON PLAN NO. 1

Safety procedures No horseplay, running, or chewing gum on the mat.

Stretching warm-up Flexibility important to injury prevention.

Terminology Dummy, partner, skill, drill, stance, takedown, double leg takedown.

Introduce new material Stance, shoulder over hip over heel,
(all students do)
Double leg takedown

1. step between partner's legs
2. penetrate, chest up, head to the outside
3. knee walk, drive thru
4. pivot, turn 180, drop the knee that is up
5. cover opponent.

Discuss the videotape with the experimental group, play back stance, evaluate own stance by the student.

Evaluation Any questions about the lesson or the videotape.

LESSON PLAN NO. 2

Warm-up Stretching (3 minutes)

Review Stance, double leg without a partner, walk thru

Do 10 without a partner,
count method with a partner

1. step between partner's legs,
2. penetrate, chest up, head to the outside,
3. knee walk, drive thru, tilt
4. pivot, turn 180 degrees, drop the knee that is up,
5. cover opponent.

New Material None

Play back the videotape and have students evaluate

Evaluation Questions about the lesson or wrestling in general.

LESSON PLAN NO. 3

Warm-up Stretching for flexibility.

Review Double leg takedown with a partner, do five dummy.

New Material Explain token resistance, do double leg takedowns with partner offering token resistance.

Videotape Playback of double leg with token resistance, having all students view their own and others noting successful and non-successful attempts at the takedown.

Evaluation Ask if the videotape is a help.
Any other questions.

LESSON PLAN NO. 4 and NO. 5

Warm-up Stretching for flexibility.

New Material Introduce escape, stand up–outside.

Referee's position, bottom man has his hands and knees on the mat, his head up and his back straight. (instructor demonstrates)

Top man positions himself next to bottom man by kneeling on one knee, one arm around his opponent's waist with his hand on the navel and the other hand placed on the back of the elbow. (instructor demonstrates)

ESCAPE (count method)

1. pop, straighten elbows and back
2. post outside foot on the mat
3. bring hands in on opponent's hands, (hand control)
4. push left hand into "hip pocket"
5. turn out–in direction of arm that is around the waist
6. face opponent

Practice without a partner (10)

Practice with a partner (10)

Videotape the entire lesson, have all students view and discuss the escape.
Go back on mat and try to correct any mistakes.

Evaluation Have students explain and demonstrate the parts of the escape.

LESSON PLAN NO. 6

Warm-up Stretching

Review Double leg with partner
Review escape (count through)
Look at individuals on videotape and evaluate
own performance

Evaluation Ask if anyone is having problems.

LESSON PLAN NO. 7

Warm-up Stretching

Review: Double leg, escape live.

Look at double leg and escape on the videotape.

New Material Introduce roll, (count method)

1. Wrist control, move inside knee over to block opponent's knee.
2. Move outside knee up to where left hand was on the mat, (place "x" on the mat under hand).
3. Roll thru on shoulder, be sure head stays low.
4. Turn hip down to mat.
5. Cover toward head of opponent (No Re-roll).

Watch videotape of count method, do with count method from television.

Evaluation: Determine if the subjects understand the skills being taught.

LESSON PLAN NO. 8

Warm-up Stretching

(2 minutes)

Review Escape, 10 each.

Look at tape, evaluate student's performance.

Roll, 10 each.

Look at videotape, evaluate subject's performance.

Double leg takedown, 10 each.

Look at videotape, evaluate subject's performance.

LESSON PLAN NO. 9

Warm-up Stretching

(2 minutes)

Review Roll

New Material Re-roll, (Instructor demonstrates)

1. After bottom man completes roll,
2. Top man uses momentum to roll bottom man through.
3. Top man stays in a position of control.
4. Re-roll is a counter to the roll.

Evaluation After practice, subjects look at videotape and attempt to correct any mistakes.

LESSON PLAN NO. 10

Warm-up Stretching

(2 minutes)

Review Double leg
Stand up escape
Roll, re-roll

Work on any skills that you are having problems with, look at videotape, go back to mat and attempt to correct.

LESSON PLAN NO. 11

Warm-up Stretching (2 minutes)

New Material Introduce switch, (Instructor demonstrates)
(Count method)

1. Referee
2. Place left arm across front to where right hand was on the mat.
3. Sit and turn 180.
4. Reach right arm over opponent's right arm and under opponent's right leg.
(over and under)
5. Pull to rear control for reversal.

Videotape lesson, show demonstration of switch.

Evaluation Discuss switch, and any other moves covered in the unit so far.

LESSON PLAN NO. 12

Warm-up Stretching

(2 minutes)

Review Switch 10 each

New Material Re-switch is a top man counter:

1. Bottom man does a switch.
2. Top man sits through behind bottom man.
3. Bottom man reaches over and under.
4. Top man then pulls himself up into original position of control.

Look at videotape of re-switch and do to count method from television.

Evaluation Any questions or problems with any of the material.

LESSON PLAN NO. 13

Warm-up Stretching

(2 minutes)

Review Re-roll

Re-switch

Be sure that the roll and the switch are done correctly when working on counters.

Look at videotape, evaluate the skills, practice any mistakes, and have people who are doing moves correctly demonstrate for the rest of the group.

LESSON PLAN NO. 14

Review all skills, use videotape for self evaluation and instructor comments.

Ask if there are any questions, explain the test procedures and the role of the judges.

Demonstrate how the test will be conducted.

LESSON PLAN NO. 15

Skill test to evaluate performance.

**Discuss test, any questions,
Thank all subjects for being in the study.**

**APPENDIX B.
INSTRUCTIONS TO JUDGES**

Using the following criteria, judge the skills based on the following steps:

DOUBLE LEG TAKEDOWN:

1. Step penetration between the legs.
2. Knee walk, keeping a forward drive, not letting the foot slide back.
3. Pivot, drop one knee, lift the down knee.
4. Cover the man, hips up.

STAND UP--ESCAPE:

1. Pop, elbows bent at start, straighten up, back straight, body comes up, not out.
2. Hand control, push down left hand.
3. Turn away from the man, face opponent.

ROLL: (DO NOT SCORE RE-ROLL)

1. Knee block with left knee.
2. Bring hand up to wrist.
3. Bring outside knee up to where left hand was on the mat.
4. Roll on shoulder.

SWITCH: (DO NOT SCORE RE-SWITCH)

1. Check the near arm.
2. Sit out 180 degrees.
3. Place arm over shoulder and under leg.
4. Attempt to pull to the rear.

SCORING:

Score all moves: 3, 2.5, 2, 1.5, 1.

NOTE:

If subject does all parts, but lacks smoothness, do not take off on his score.

APPENDIX C.
JUDGES RATING SHEET

NAME: _____

GROUP: _____

SKILL:

SCORE: CIRCLE ONE

DOUBLE LEG TAKEDOWN

3, 2.5, 2, 1.5, 1

ESCAPE

3, 2.5, 2, 1.5, 1

ROLL

3, 2.5, 2, 1.5, 1

SWITCH

3, 2.5, 2, 1.5, 1

JUDGE NO. _____

TOTAL _____

APPENDIX D.
RAW DATA COLLECTED

GROUP I (VIDEOTAPE)

SUBJECTS	Double Leg			Escape			Roll			Switch		
	J ₁ *	J ₂ *	J ₃ *	J ₁ *	J ₂ *	J ₃ *	J ₁ *	J ₂ *	J ₃ *	J ₁ *	J ₂ *	J ₃ *
1.	2	2.5	2	2.5	2.5	2.5	3	3	2.5	2	2	2
2.	2.5	2.5	2.5	2.5	1.5	2	3	2	1.5	2.5	2.5	2.5
3.	2	2.5	2	2.5	2.5	2.5	2.5	3	3	3	3	3
4.	3	2	2	1.5	1.5	1.5	1	1.5	1.5	2	2	2
5.	2	2	2.5	2	2	3	3	2.5	2.5	3	2.5	3
6.	2.5	2.5	2.5	2	3	2	3	3	3	2	1.5	1.5
7.	2	1.5	2	2	2	2	2.5	2.5	2.5	3	3	3
8.	2	2	2.5	2.5	2.5	3	3	3	3	2.5	3	3
9.	2.5	2	3	2.5	2.5	2	3	2.5	2.5	3	2.5	3
10.	2.5	2	2	2	2.5	3	2	2.5	2.5	2.5	1.5	2
11.	3	2.5	3	2.5	2.5	2.5	3	3	3	2.5	3	2.5
12.	2	2	2.5	2.5	2.5	2	2.5	3	2.5	3	3	3
13.	1.5	1	1.5	2	1.5	1.5	2.5	2.5	2	1.5	1	1.5
14.	3	3	2.5	2.5	3	2.5	3	3	3	2.5	3	3
15.	2	3	2	2	2	3	3	2.5	3	2.5	3	3
16.	2	1.5	2	2.5	1.5	2	1.5	1.5	2	1.5	2	2
17.	2.5	3	3	2	2	2	3	3	3	2.5	2.5	3
MEAN	2.29	2.25	2.32	2.23	2.25	2.29	2.51	2.41	2.52	2.41	2.41	2.52

*J₁, J₂, J₃=Judges

GROUP II (CONTROL)

SUBJECTS	Double Leg			Escape			Roll			Switch		
	J ₁ *	J ₂ *	J ₃ *	J ₁ *	J ₂ *	J ₃ *	J ₁ *	J ₂ *	J ₃ *	J ₁ *	J ₂ *	J ₃ *
1.	2.5	2.5	2.5	2.5	3	2.5	3	2.5	3	2.5	2.5	2.5
2.	2	2.5	2	2.5	2	2	3	3	3	2.5	2.5	2.5
3.	2.5	2.5	2.5	2	2.5	2	2.5	2.5	2.5	2.5	3	2.5
4.	3	3	3	2.5	3	2.5	3	3	3	3	3	3
5.	3	2.5	3	3	3	2.5	3	3	3	3	3	2.5
6.	2	2	2.5	2	3	2	2	3	3	2.5	2.5	2.5
7.	2.5	3	2.5	3	3	2.5	3	2.5	3	2	2	2.5
8.	2.5	2	2.5	2.5	2	2.5	2.5	1.5	2.5	3	3	3
9.	2.5	2.5	2.5	2	2	2.5	3	1.5	2.5	2.5	2	3
10.	1.5	2	2	2	2.5	2.5	2.5	3	3	3	2.5	2.5
11.	2	2.5	2.5	2.5	3	2.5	3	3	3	3	3	3
12.	2.5	2.5	2.5	2	2	3	3	3	3	1.5	2	1.5
13.	2	2.5	2	2	3	2.5	2.5	2.5	2.5	2.5	3	2.5
14.	3	2.5	2.5	2	2	2.5	2.5	2	2	3	2.5	3
15.	2	1.5	1.5	2	2	2.5	2	2.5	2.5	2.5	2	2
16.	2.5	2	2	2	2.5	2.5	3	2.5	3	2.5	3	2
17.	1	1	1.5	2.5	2	2.5	3	2.5	2.5	2	2.5	2
MEAN	2.29	2.29	2.32	2.29	2.50	2.44	2.74	2.55	2.75	2.55	2.52	2.46

*J₁, J₂, J₃=Judges

BIBLIOGRAPHY

Books

1. Biles, F. R. Television: Production and Utilization in Physical Education. Washington D. C.: American Association for Health, Physical Education, and Recreation, 1971.
2. Bilodeau, E. A., ed. Principles of Skill Acquisition. New York: Academic Press, 1969.
3. Boring, W. J. Science and Skills of Wrestling. Saint Louis: C. V. Mosby, 1975.
4. Brown, J. W., R. B. Lewis, and F. F. Harclerod. Audio-Visual Instruction: Materials and Methods. 2d ed. New York: McGraw-Hill, 1964.
5. Bugelski, B. R. The Psychology of Learning. New York: Holt, Rinehart, and Winston, 1963.
6. Costello, L. F. Teach With Television. New York: Hastings House, 1965.
7. Cross, A. J., R. Foy, and I. F. Cypher. Audiovisual Education. New York: Crowell Company, 1961.
8. Diamond, R. M. A Guide to Instructional Television. New York: McGraw-Hill, 1964.
9. Gordon, G. N. The Video Cassette in American Education. New York: Educational Technical Publications, 1972.
10. Humphrey, G. Child Learning Through Elementary School Physical Education. Dubuque: W. C. Brown Company, 1965.
11. Kingsley, H. L. The Nature and Conditions of Learning. New York: Prentice-Hall, 1951.
12. Macias, R. Learning How--Wrestling. Mankato: Creative Educational Society, 1965.
13. Maertz, R. C. Wrestling Teaching Guide. New York: A. S. Barnes, 1973.
14. Rasch, P. J., and W. Kroll. What Research Tells the Coach About Wrestling. Washington, D. C.: American Association for Health, Physical Education and Recreation, 1964.
15. Safrit, M. J. Evaluation in Physical Education. Englewood Cliffs: Prentice-Hall, 1973.
16. Schramm, W., ed. The Impact of Educational Television. Urbana: University of Illinois Press, 1960.
17. Singer, R., and W. Dick. Teaching Physical Education: A Systems Approach. Boston: Houghton Mifflin Company, 1974.

Periodicals

18. Beebie, J. "A Comparison of Four Methods of Feedback in the Form of Knowledge of

- Performance on the Learning of Gymnastic Skills," Perceptual and Motor Skills, 29:386-391, 1969.
19. Brown, H. S., and L. C. Messersmith. "An Experiment in Teaching Tumbling With and Without Motion Pictures," Research Quarterly, 19:304-307, 1948.
 20. Costello, J. A., and C. Molina. "Videotape for Training Intercollegiate Officials," Journal of Physical Education and Recreation, 46:737-738, 1975.
 21. DeBacy, D. "Effect of Viewing Videotapes of a Sport Skill Performed by Self and Others on Self Assessment," Research Quarterly, 41:27-31, 1970.
 22. Edmond, R. V. "Preparing a Television Program on Wrestling," Journal of Health, Physical Education and Recreation, 25:55, 1954.
 23. Gasson, I. "Relative Effectiveness of Teaching Beginning Badminton With and Without an Instant Replay Videotape Recorder," Perceptual and Motor Skills, 29:499-502, 1969.
 24. Gross, E. K., D. C. Griesel, and A. Stull. "Relationship Between Two Motor Educability Tests, A Strength Test, and Wrestling Ability after Eight Weeks of Instruction," Research Quarterly, 27:395, 1956.
 25. Gross, L. S. "Utilizing ITV for Performance Classes," Audiovisual Instruction, 14:32-34, 1969.
 26. Neufeld, M. M. and R. W. Neufeld. "Use of Videotape Feedback in Swimming Instruction With Emotionally Disturbed Children," Perceptual and Motor Skills, 35:992, 1972.
 27. Penman, K. A. "Relative Effectiveness of Teaching Beginning Tumbling With and Without an Instant Replay Videotape Recorder," Perceptual and Motor Skills, 28:45-46, 1969.
 28. _____, D. Bartz and R. Davis. "Relative Effectiveness of an Instant Replay Videotape Recorder in Teaching Trampoline," Research Quarterly, 39:1060-1062, 1968.
 29. Robb, M. "Feedback," Quest, 5:38-39, 1966.
 30. _____. "Feedback and Skill Learning," Research Quarterly, 39:175-184, 1968.

Unpublished Sources

31. Chakas, C. J. "The Effects of Videotape Feedback on Learning Motor Skills in Volleyball." Master's project, Ithaca College, 1976.
32. Cohen, B. J. "Video and Verbal Feedback in Learning Motor Skills." Master's thesis, Temple University, 1968. (Abstract.)
33. Douglas, J. C. "Value and Limitations of Loop Films in the Teaching of Wrestling

- Maneuvers at the University of Massachusetts." Master's thesis, Springfield College, 1963. (Microfiche.)
34. Enslow, D. C. "An Analysis of Basic Wrestling Instructional Techniques Recommended by Selected Coaches." Master's thesis, University of Iowa, 1966. (Abstract.)
 35. Kararec, P. L. "The Effects of Programmed Instruction in Wrestling." Doctoral dissertation, University of Utah, 1972. (Abstract.)
 36. Kenney, H. E. "The Relative Effectiveness of Formal and Informal Methods of Wrestling Instruction in Wrestling." Master's thesis, University of Illinois, 1932. (Abstract.)
 37. Lloyd, J. R. "The Effect of Audio and Visual Feedback on the Learning of a Gross Motor Skill When Imposed at Selected Stages of Learning." Doctoral dissertation, Springfield College, 1969. (Abstract.)
 38. Parker, D. "An Annotated Bibliography of Selected Wrestling Publications, 1900-1956." Master's thesis, Springfield College, 1958. (Microfilm.)
 39. Plese, E. "A Comparison of the Videotape Replay With a Traditional Approach in the Teaching of Selected Gymnastic Skills." Doctoral dissertation, Ohio State University, 1967. (Abstract.)
 40. Sullivan, V. L. "Effectiveness of Using the Videotape Recorder in Improving Vaulting Skills." Master's thesis, University of Washington, 1972. (Abstract.)
 41. White, M. L. "The Use of Videotape Replay to Provide Knowledge of Improvement in Learning the Fencing Lunge." Doctoral dissertation, University of Oregon, 1973. (Abstract.)
 42. Wrenn, J. P. "Videotape Feedback as it Influences Elementary School Children in Their Ability to Perform a Motor Task." Doctoral dissertation, University of Oregon, 1973. (Microfiche.)
 43. Wyness, G. B. "A Study of the Effectiveness of Motion Pictures as an aid in Teaching a Gross Motor Skill." Doctoral dissertation, University of Oregon, 1963. (Abstract.)