



A STUDY OF THE PART VERSUS THE WHOLE METHOD IN  
THE ACQUISITION OF THE GLIDE - KIP ON  
THE UNEVEN PARALLEL BARS

Thesis for the Degree of M. A.  
MICHIGAN STATE UNIVERSITY  
JANET M. HOLLACK

1969

THESIS



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By

Janet M. Hollack

AN ABSTRACT OF  
A THESIS

Submitted to  
Michigan State University  
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1969

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six weeks. At the termination of three weeks, each subject was rated on three trials of the kip by three judges. The same testing procedure was conducted at the end of the sixth week.

The scores of each subject were analyzed in order to determine whether any significant differences existed between the scores in the performance of the phases of the skill in relationship to the type of teaching method employed. The Mann-Whitney U test was used to determine any significant differences. A Spearman Rank Correlation Coefficient test was also used to determine any association or relationship in the consistency in the judging of the subjects.

The Mann Whitney U test on the subjects' scores indicated no significant difference existed between the part or whole group in the actual learning of the glide-kip. The U test also indicated that either teaching method seems to elicit some degree of learning for all subjects in the experiment. A high degree of consistency or correlation also existed between the judge's scoring throughout the testing procedures.

Much more information is needed in this area of determining the best teaching method in a particular learning situation. This study was designed and carried out to aid in clarifying points of significance in both the part and whole teaching methods. It was also conducted in

order to influence others to continue research in this area of gymnastics.

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## CHAPTER I

### INTRODUCTION

The efficiency of learning is of primary concern to those involved in the teaching process. The efficiency or degree of learning that actually occurs in the typical learning situation varies greatly. The type of material presented and the methods of presentation of this material have a direct affect on the total learning process. Each learning situation is unique and requires effort and planning on the part of the educator to insure that the material is dealt with efficiently. A continuum of knowledge, skill, and concepts in regard to learning is a necessary part of a sound learning situation. Further development of the learner is achieved through presentation of material in a simple and logical manner. Continual effort should be made by educators to enhance the learners ability to create, develop, and incorporate the most effective and efficient teaching methods in any given teaching situation.

The ability to identify a developed or undeveloped learning situation is a problem which confronts every teacher. However, a more pressing problem is the manner in which we strive to improve this learning environment.

Perhaps more time spent on adequate methods of presentation will aid in reducing the frequency of failure in the learning situation. It is our job to be effective in our teaching through the most efficient means available.

The design of this experiment compares the effectiveness of two teaching methods in relationship to the acquisition of a motor skill. The purpose is to compare the effectiveness of the whole teaching method and the part-whole method in the acquisition of the glide-kip on the uneven parallel bars.

#### Significance of Study

Researchers have conducted numerous studies pertaining to the effectiveness of teaching methods. In most instances, a definite distinction can be made between the effectiveness of various methods as they apply to a specific learning situation. It is not realistic to expect research to conclusively establish the superiority of one teaching method at the expense of all other methods. It seems more appropriate to suggest that the learning of a particular skill is influenced by such factors as age, I.Q., sex, and strength. The most effective method in the acquisition of the glide-kip has not clearly been established. Some investigators feel that this skill consists of three vital parts which favor the part teaching method (2, p. 136). On the other hand, other authorities state that the glide-

kip is a continuous stunt done through one complete movement. However, no convincing evidence has been presented to indicate the superiority of one method over another method in regard to this skill.

There is a need for research to aid in the establishment of a sound teaching method of the glide-kip. If this skill is designed in three specific parts, then perhaps one part can directly or indirectly be related to other movements similar to it in other aspects of gymnastics. As a result the mastery of these parts may be a carry-over to participation in other aspects of gymnastics and other related activities. Again, if this skill is done in a continuous manner and not in specific parts, the glide-kip could be related to other movements which are similar in execution. Regardless of the specific design of the skill, whether a part or whole movement, development of a basic teaching technique of this skill is important. Teaching aids and methods are vital in the learning situation. Establishment of a sound teaching technique for basic skills will enhance the teaching and learning situations.

### Scope

This experiment deals with a comparison of two teaching methods, the whole and the part-whole method, in regard to their effectiveness in acquisition of the glide-kip. The learning of the kip must take into

account such factors as age, I.Q., sex, and strength in the decision regarding the appropriateness of one method over another method. Experimentation in an actual teaching-learning situation is necessary to note whether any significant changes occur due to the factors and teaching methods employed. My study is designed to aid in establishing criteria for a sound teaching method in regard to the glide-kip. Developing the awareness of the affects of these factors in this learning situation will prove most interesting for not only this skill, but other skills similar to the kip.

## CHAPTER 2

### REVIEW OF LITERATURE

This chapter provides a review of literature related to the effect of the whole method of teaching versus the part-whole method. The purpose is to discuss the various viewpoints which prominent physical educators and psychologists relate to the effective teaching methods. Literature pertaining to the development of motor skills through the use of various teaching methods and the nature of the learning, in regard to the teaching procedures, will also be discussed.

Bucher stated that "learning is a change in behavior brought about by other results of given experience" (1, p. 249). The type of learning activity will determine the type of teaching method which will prove most effective in a situation. "Teaching" as discussed by Bucher "is providing the environment and experience conducive to bringing about this behavior or desired change" (1, p.249). A successful learning situation requires an appealing environment leading to desirable changes through an effective teaching method (1, p. 69). Psychologists for many years have been interested in the process of effective learning. The viewpoints of the stimulus-response and Gestalt theorists are presented. These

basic learning theories deal with concepts which are an influencing factor in the learning situation. Both concepts point out the relationship between establishing a solid connection between similar past and present situations. Both theories also relate the necessity for building a strong idea of the learning material which should be constantly repeated to elicit learning.

Regardless of what theory of learning is used in organizing teaching methods, effective learning can only occur when the proper stimulus under favorable conditions is presented to the learner. The teaching method must be geared to the individual (10, p. 153). Learning theorists are basically concerned with explanations of the learning process by synthesis of knowledge relating to learning. Without an understanding of the basic concepts of various learning theories, the instructor cannot make a valid judgement determining which method is most effective. Efficiency is a likely goal in teaching. Knowledge about how individuals learn can lead to this efficiency.

The cognitive theory of learning deals with the assumption that the learner organize his stimuli into a pattern or whole. The Gestalt theory of learning can appropriately be considered in the discussion of the whole versus the part-whole method of teaching (13, p. 29; 1, p. 256; 7, p. 38). The Gestalt theory also emphasized

the presentation of the whole situation or learning task. The concept of relating the whole situation of an activity to an idea or task should initially be developed. Meaning of the whole situation is then given to the parts. These parts are then further practiced to give added meaning to the entire situation. In cognitive learning, the learner may be presented with parts; however, the learner arranges these parts into a meaningful whole. In a learning situation, this type of organization of ideas is purposeful. Knapp states "that motor learning is unified and purposive and the parts must fit the whole." At times, the whole pattern may defy comprehension. Therefore, smaller unitary parts may be taken from the entirety and organized to solve the whole. However, the whole method is superior when "the whole or largest whole-part which a learner can comprehend and perform without undue tension" is presented to him in a learning situation (13, p. 118).

Through the Gestalt approach in learning, the individual perceives the nature of the situation rather than responding to a series of movements (22, p. 1). Through this method, the individual uses insight and mental thought in acquisition of the total picture. Through trial and error, the learner can mentally try out different ways of solving problems before arriving at a final solution. The individual is the focus in any teaching-learning situation and careful organization and presentation of the whole in motor learning should be

geared to the understanding of each learner (22, pp. 32-33).

The stimulus-response theory of learning deals with a particular stimulus which is presented and this in turn leads to a particular response. Many of the responses to these stimuli are due to connections of past and present situations. Once a particular stimulus has been given, the individual learns to give a certain response. Due to some mental thought on the part of the learner, a learning pattern relationship could now take place. The learner can establish a direct cause and effect relationship. Emphasis on the bond between stimulus-response is essential. This connection between the stimulus-response leads to a building of new bonds, and this leads to a continuation of learning. An example of the development of this bond in skill learning would be the acquisition of ball control. The learner initially begins to distinguish between various sizes and shapes of balls. He then learns to control the ball through maneuvers of throwing, catching, rolling, and bouncing. The learner may then use the skills of ball control in various game situations. The stimulus-response theorists insist upon a connection between the stimulus-response involving body movements. Such a connection leads to development of complex tasks. Learning simple motor skills involves few bonds while complex skills require many such bonds. The idea of connecting the bonds emphasized the learning of "parts"

or "wholes", and this idea is the basic concept of the stimulus-response theorists (16, p. 155; 250, p. 254).

"Connectionism, or Stimulus-Response Bond Theory" in learning deals with learning through the development of a bond between a stimulus and its appropriate response (21, p. 33). A major principle in Thronrdike's theory is that learning takes place as a result of trial and error. Extensive research with cats indicated that little success occurred in early phases of learning. Early success was explained as accidental because initially there existed no true connection between the response and the desired result. As time passed, there was a gradual elimination of incorrect responses and the learner became aware of the proper connection. Continual practice strengthened the correct response and the action became more efficient with learning also occurring.

Learning also requires a level of readiness on the part of the learner. A task or skill must also be practiced in a favorable condition to strengthen the connection between the stimulus and response. The teacher, in dealing with individuals, must handle and organize his ideas from the simple to the complex. Learners must build their learning experiences through these related ideas (11, p. 26, 41; 134, p. 138, 487).

Research evidence in general, indicates that the whole method of teaching is more effective than the part-

whole method. Numerous studies suggest the idea or concept of presenting the entire skill or situation to the learner. Through this method, the learner can grasp the meaning of the material to be learned. In reciting poetry, the reader can conceptualize the meaning and memorize the entire poem more readily through the whole method as compared to learning the poem through various parts. The same idea is applied to motor tasks. However, there are certain situations which require an entirely different approach. Generally speaking, the whole method seems to be superior to the part-whole method in the acquisition of skills. No conclusive statements can be made in regard to the use of one method over the other in the teaching and learning of specific skills. Evidence seems to favor the whole method of learning skills which are understood as one basic unit. However, the part method seems to favor skills which are complex and designed in specific teachable parts or units.

A study comparing the part and whole methods in learning swimming, badminton, and volleyball was conducted by Niemeyer (15, p. 3). These activities represented individual, dual, and team type activities respectively. Three hundred, sixty-six freshman-sophomore Michigan State University students enrolled in the required physical education program served as subjects in the activities investigated. The findings show that swimming appeared to be learned best by the whole method.

Badminton, a dual-type activity, was mastered equally by either method. Volleyball, a team-type activity, was learned best by the part method (15, p. 39).

Numerous investigators have determined that the whole method is superior to the part-whole method in teaching motor activities (17, p. 483; 18, p. 63; 8, p. 400). The whole method of instruction used with the overlapping grip was superior in the acquisition of accuracy and golf ability with college women (17, p. 483).

Knapp and Dixon used matched pairs of university physical education majors to study the whole method, part method, and combination method of learning to juggle three balls. The whole group practiced with three balls for a period of one hour, five days a week for six weeks. The part group practiced with one, two, and then three balls, while the combination group practiced with any of the methods mentioned above. The results showed subjects using the whole method attained the goal of one hundred successive tosses sooner than the part or combination groups (8, p. 401).

In the teaching of tennis, Murphy concluded that a major problem arises when one must decide on using the whole or part-whole method for drills. The concept of the entire game situation as being more meaningful as compared to the acquisition of the parts is a personal opinion. Experiments indicate, however, that the efficiency of

learning by the whole method depends on the meaningfulness of the material to be learned (14, pp. 26-28).

Cotteral states that tumbling is a progressive activity. She designed a model lesson in four parts and pointed out that even the simplest of tumbling skills, the forward roll, can be taught in progressive parts. Cotteral suggests that the tumbling teacher start with a series of activities through which the student can progress rapidly. Mastery of the fundamentals will lead to a greater desire to attempt and achieve more difficult tasks (4, pp. 7-11).

Segmentation of skills into workable parts was found to be a useless means of practice for skill development in some physical activities. On the other hand, part practice was found to be very beneficial in the acquisition of complex sport skills (6, p. 53; 18, p. 64). More conclusive evidence is needed in order to determine the superiority of the whole or part-whole method of teaching in the learning of gymnastic skills.

It appears that the greatest complexity which can be conceived by the learner at any particular time is the most appropriate learning unit. The question to which this study is directed is as follows. "Can college women most effectively conceptualize the whole or part-whole method of learning a glide-kip?" The methods and procedures presented in Chapter III were used to answer the above question.

## CHAPTER III

### METHODS

#### Statement of The Problem

The design of this experiment was to compare the whole method versus the part-whole teaching methods in relationship to successful learning of the glide-kip on the uneven parallel bars. The glide-kip was presented in two different teaching methods. The study was conducted for six weeks. The scores given each learner by three judges were used to analyze the effectiveness of the two methods.

The whole learning approach to a task emphasized that the learner was made aware of the total situation. The total block of material was presented in a learning situation. The learner then began to practice the entire task. In this experiment, the glide-kip was demonstrated and explained as a total or whole task. Even though the skill is made up of distinct parts, the subjects were only made aware of the execution of the whole skill. From this point, the learners began to practice and continued to practice only the entire skill.

In part-whole learning of motor activities, initial attention was focused on only a portion of the total task. The individual practiced a particular phase of the task

until the part was well executed. The learner then proceeded to the other parts to be learned. After mastery of all necessary parts, the learner then connected and practiced the task in its entirety. In the part-whole method, the learner followed a definite sequential pattern in learning the various parts. He began with the initial phase and logically followed with the parts which added continuity to the skill. The learner continued in this pattern in order to develop and establish continuity throughout the entire skill. The entire skill was broken down into three distinct parts. Each part was presented to the learner in logical order. After learning the first part of the glide-kip, the subject moved to the second part. After mastery of this phase, he combined the first two phases to build continuity into the parts. He then proceeded and mastered the third part which led to practice of the entire skill.

### Subjects

Fourteen females from Michigan State University served as subjects for this experiment. Five girls were freshmen majoring in elementary education, four girls were sophomores majoring in physical education, and five girls were juniors, two majoring in speech and three majoring in social science. An announcement of the experiment was presented to each woman's Foundations of Physical Education class. The subjects were volunteers

from these classes. Before acceptance as subjects they were told that some experience in gymnastics was preferred. Each volunteer was interviewed in order to determine her past experience and performance in gymnastics on the uneven parallel bars. Subjects who could perform any phase of the glide-kip were eliminated from this experiment. Subjects were placed into their respective groups by random assignment using a table of random numbers.

#### Procedure

The skill being taught in this experiment was the glide-kip on the uneven parallel bars. The glide-kip was taught in two teaching methods, each group receiving instruction according to their specific experimental group. Group A, working by the whole method, was shown the skill in its entirety. At each session, the subjects executed the entire skill without working on any specific part of the skill. This group, working by the whole method, met three times a week in one hour sessions for a period of six weeks. Within this period of time, each subject received approximately eight minutes of individual help during each practice session. The other subjects in this group continued to practice the entire stunt while one person received individual instruction.

The part-whole group (Group B) was introduced to the glide-kip by demonstration and explanation of the

three basic parts. They were:

1. Glide, full extension of body away from bar with feet together, slight arch.
2. Flexion at thighs, body in a V position, ankles raised to bar.
3. Extension of body at thighs, raising hips close to bar, legs thrust upward and outward during extension bringing upper body to front support position (Hughes) (12, pp. 175-176).

Figure 1 displays the various phases of the glide-kip throughout the entire movement.

The subjects in the part group began by practicing the first phase or the full extension of the body away from the bar. After mastery of the first phase, the individuals proceeded to practice control of the body in a pike position on the low bar. This was done by rocking the body back and forth while keeping the ankles near the bar and the body in a pike position. The first two phases were then combined and practiced until these parts were mastered in combined form. The final phase of extension of the body from a pike position, (kip-up), to a front support position on the low bar was practiced and mastered by each subject. After mastery of the third part, the three phases were combined and the entire stunt was attempted. Each subject did not proceed to the various phases until she successfully performed the previous parts.

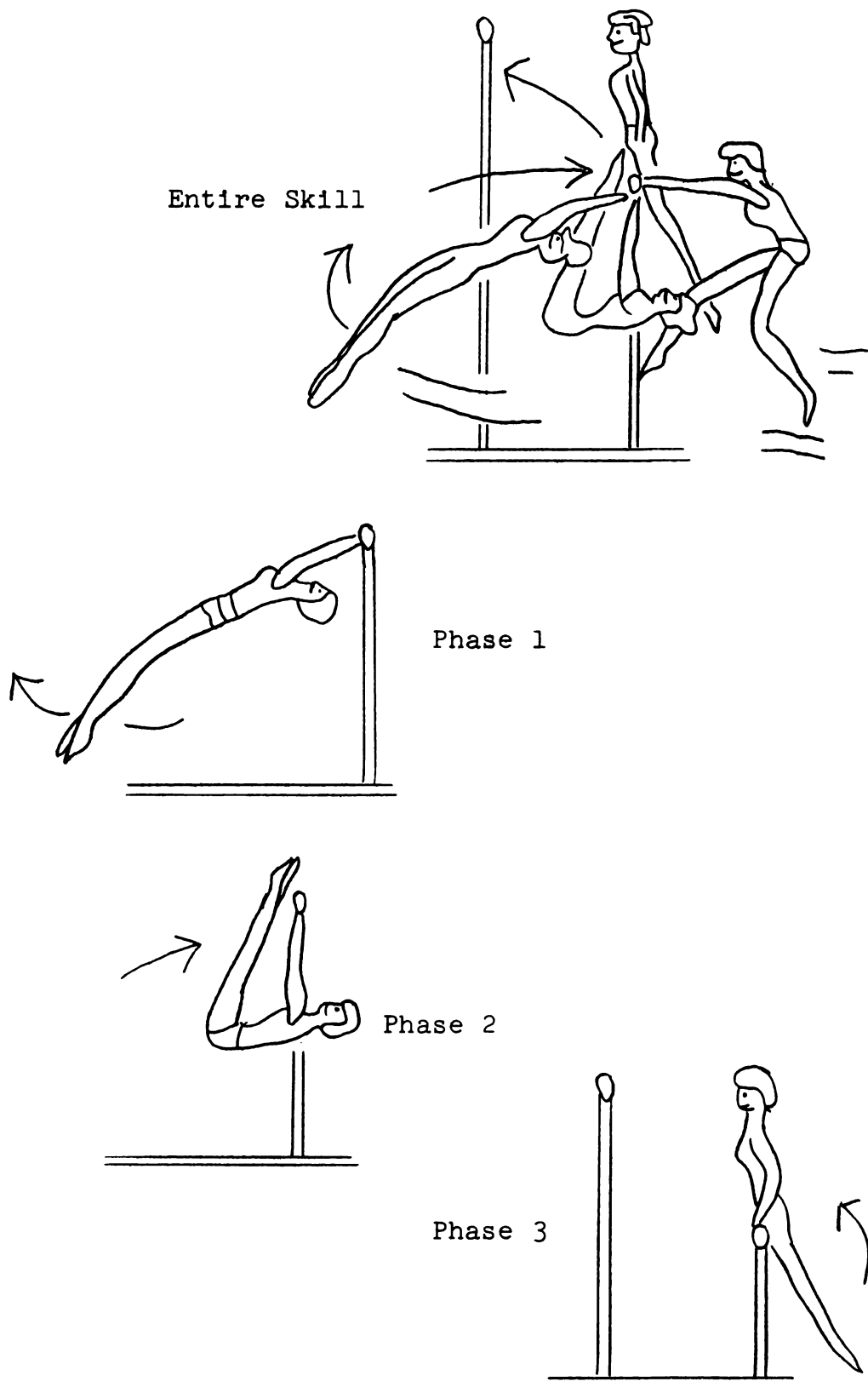


Figure 1.--The illustration at the top shows the glide-kip as it is performed in its entirety. The lower portion of the illustration shows the body position of the three phases in the part-whole sequences.

The part-whole group practiced three times a week, one hour each session for a six week period. Each subject was given approximately eight minutes of individual help during each session. The other subjects in Group B continued to practice the various phases while individual instruction was being given. The experiment for both groups was conducted for six consecutive weeks, meeting three times a week. Both the whole and part-whole groups were instructed not to practice this skill at times other than those assigned to their experimental group.

#### Judging

At the termination of three weeks of practice, the whole and the part-whole groups were rated on their performance by three judges. Each judge is a proficient performer and coach in the area of gymnastics. Each subject executed the glide-kip three times with each of the three judges rating each performance. The judging procedure was repeated at the end of the sixth week of practice. The rating scale used by the three judges ranged from ten to one, with a score of ten representing the highest value any one subject could possibly attain. This rating scale is similar to the rating scales used in official competitive gymnastics. Each trial resulted in three numerical scores, representative of the performance during each phase in the entire task. Each subject received three trials. Thus, at the end of each testing

period, a total of twenty-seven phase scores was recorded for every subject. Each judge also rated each subject on overall performance. The following Table 1 is an hypothetical example of scores given to a subject on phase performance of the glide-kip. The scores of each subject were analyzed in order to determine whether any significant differences existed between the scores in the performance of the phases of the skill in relationship to the type of teaching method employed. The performers in the whole method group did not learn the skill in various parts. However, they were judged on each phase. In order to prevent any bias on the part of the judges, they were uninformed with regard to the design employed in the study. A relationship between successful phase performance of the glide-kip when taught by the whole method was the basis for analyzing the subjects scores.

#### Statistical Treatment

The Mann Whitney U test was used to determine if significant differences existed between the groups taught by either the part of whole method. Differences beyond the .05 level for the Mann Whitney U were accepted as not significantly different from chance occurrences. A U value of 9 or less indicates significant differences between groups. The Spearman Rank Correlation Coefficient test was used to determine any association or relationship

TABLE 1.--Hypothetical table of scores of a performer.

| First Testing<br>Period  | Phase 1       |     |     | Phase 2 |     |     | Phase 3 |     |     |
|--------------------------|---------------|-----|-----|---------|-----|-----|---------|-----|-----|
|                          | 1st           | 2nd | 3rd | 1st     | 2nd | 3rd | 1st     | 2nd | 3rd |
| Judge 1                  | Overall Score | 5   | 5   | 6       | 6   | 4   | 4       | 4   | 5   |
| Judge 2                  | Overall Score | 4.5 | 4   | 4       | 6   | 5   | 5       | 5   | 4   |
| Judge 3                  | Overall Score | 4   | 4   | 4       | 5   | 5   | 5       | 5   | 4   |
|                          |               |     |     |         |     |     |         |     |     |
| Second Testing<br>Period |               |     |     |         |     |     |         |     |     |
|                          | 1st           | 2nd | 3rd | 1st     | 2nd | 3rd | 1st     | 2nd | 3rd |
| Judge 1                  | Overall Score | 6.5 | 6   | 7       | 7   | 6   | 6       | 6   | 7   |
| Judge 2                  | Overall Score | 5.5 | 5   | 6       | 6   | 6   | 5       | 5   | 5   |
| Judge 3                  | Overall Score | 6   | 6   | 6       | 6   | 6   | 5       | 5   | 6   |

in the consistency in the judging of the subjects. The correlation ( $r_s$ ) value at the .05 significant level on a one-tailed test is .456 (19, p. 284). A correlation at this value (.456) would indicate a moderate degree of consistency between the judging. Values beyond this level indicate greater degrees of correlation between the ratings or scores of the judges.

Both statistical treatments were specifically employed through computer programs set up for each test.

## CHAPTER IV.

### PRESENTATION AND ANALYSIS OF DATA

The design of this experiment compared the effectiveness of two teaching methods in relationship to the acquisition of a motor skill. The purpose was to compare the effectiveness of the whole teaching method and the part-whole method in acquisition of the glide-kip on the uneven parallel bars. The relative effectiveness of these teaching methods was determined by the ratings of three judges. The fourteen subjects in the experiment were assigned to either the whole or part group. Both groups were allotted the same amount of time for practice.

#### Glide-Kip - Whole and Part Method

Throughout the six week duration of this experiment, the subjects practiced the skill according to the whole or part-whole method. The ratings of the groups were conducted at the termination of the third and sixth week of the experiment. The judges had no knowledge concerning the design of the experiment and the grouping procedure employed in the analysis. The Mann Whitney U test was employed to compare the significance of either method in the actual learning of the glide-kip. The .05 level of significance was established as the point

at which any significant differences would be noted (19, pp. 116-125). The phase scores of each subject were tested with the U test to note any significance from subject to subject in the part or whole group. Any significance at this level would indicate the superiority of one method in regard to it's use in teaching the glide-kip. A U value of 9 or less indicates significant difference between the groups in this experiment.

### Results

The Mann-Whitney U test was employed to test for significant differences between the whole or part teaching methods. Significance between the two methods is indicated by a U value of 9 or less. The two tail probability at a  $U=9$  is .054. The data collected indicate no significant difference existed between the part or whole group in the acquisition of the glide-kip. Each U value exceeded the predetermined level. The data indicated no significant difference existed between the part or whole group in the learning situation. A comparison of the scores for each subject from the first testing period to the second testing period indicates that learning of the skill occurred for all subjects. However, a large degree of difference in learning the kip between the part and whole group does not exist. Table II and III represent the raw scores

TABLE II.--Raw Scores of Subjects on Glide-Kip - First Testing Period Based on Third Trial.

| Subject No. | Method | Judge 1        |                |                |                |                |                |                |                |                | Judge 2        |                |                |                |                |                |                |                |                | Judge 3        |                |                |                |                |                |                |                |                | Total |                |   |
|-------------|--------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-------|----------------|---|
|             |        | Phase 1        |                |                | Phase 2        |                |                | Phase 3        |                |                | Phase 1        |                |                | Phase 2        |                |                | Phase 3        |                |                | Phase 1        |                |                | Phase 2        |                |                | Phase 3        |                |                |       |                |   |
|             |        | T <sup>c</sup> | T <sub>1</sub> | T <sub>2</sub> | T <sub>3</sub> | T <sub>1</sub> | T <sub>2</sub> | T <sub>3</sub> | T <sub>1</sub> | T <sub>2</sub> | T <sub>3</sub> | T <sub>1</sub> | T <sub>2</sub> | T <sub>3</sub> | T <sub>1</sub> | T <sub>2</sub> | T <sub>3</sub> | T <sub>1</sub> | T <sub>2</sub> | T <sub>3</sub> | T <sub>1</sub> | T <sub>2</sub> | T <sub>3</sub> | T <sub>1</sub> | T <sub>2</sub> | T <sub>3</sub> | T <sub>1</sub> | T <sub>2</sub> |       | T <sub>3</sub> |   |
|             |        |                |                |                |                |                |                |                |                |                |                |                |                |                |                |                |                |                |                |                |                |                |                |                |                |                |                |                |       |                |   |
| 01          | 2      | 4              | 3              | 5              | 3              | 2              | 4              | 2              | 1              | 5              | 5              | 2              | 4              | 6              | 1              | 3              | 4              | 1              | 2              | 3              | 5              | 2              | 2              | 3              | 3              | 2              | 2              | 2              | 1     | 3              | 5 |
| 02          | 2      | 5              | 6              | 4              | 3              | 4              | 4              | 1              | 2              | 1              | 3              | 6              | 6              | 6              | 4              | 5              | 5              | 2              | 4              | 4              | 6              | 5              | 5              | 4              | 4              | 5              | 2              | 1              | 2     | 1              | 4 |
| 03          | 1      | 4              | 6              | 6              | 4              | 5              | 4              | 4              | 6              | 4              | 7              | 1              | 1              | 2              | 2              | 4              | 4              | 4              | 4              | 4              | 5              | 4              | 4              | 5              | 5              | 5              | 5              | 4              | 5     | 5              | 5 |
| 04          | 2      | 2              | 3              | 2              | 2              | 0              | 1              | 1              | 0              | 0              | 2              | 2              | 2              | 3              | 2              | 0              | 3              | 0              | 0              | 2              | 2              | 1              | 1              | 2              | 2              | 1              | 3              | 1              | 1     | 1              | 2 |
| 05          | 1      | 5              | 4              | 3              | 3              | 3              | 2              | 2              | 1              | 1              | 2              | 4              | 2              | 2              | 0              | 0              | 2              | 0              | 0              | 0              | 1              | 5              | 5              | 5              | 3              | 1              | 2              | 1              | 0     | 0              | 3 |
| 06          | 2      | 5              | 4              | 3              | 1              | 1              | 0              | 1              | 0              | 0              | 1              | 3              | 4              | 2              | 1              | 0              | 2              | 0              | 0              | 0              | 1              | 5              | 5              | 4              | 4              | 4              | 1              | 1              | 1     | 1              | 2 |
| 07          | 1      | 2              | 4              | 3              | 1              | 3              | 2              | 1              | 1              | 1              | 3              | 2              | 3              | 3              | 2              | 2              | 2              | 0              | 0              | 2              | 1              | 2              | 2              | 2              | 1              | 2              | 1              | 1              | 1     | 1              | 2 |
| 08          | 1      | 4              | 1              | 1              | 3              | 0              | 0              | 1              | 0              | 0              | 2              | 5              | 3              | 4              | 4              | 0              | 2              | 1              | 0              | 0              | 1              | 4              | 2              | 2              | 5              | 0              | 1              | 3              | 1     | 1              | 2 |
| 09          | 2      | 6              | 7              | 5              | 4              | 5              | 4              | 1              | 3              | 4              | 4              | 6              | 6              | 6              | 2              | 3              | 4              | 0              | 2              | 4              | 2              | 6              | 5              | 5              | 4              | 5              | 2              | 2              | 3     | 4              | 4 |
| 10          | 1      | 2              | 3              | 2              | 1              | 2              | 1              | 0              | 1              | 0              | 2              | 2              | 2              | 4              | 1              | 2              | 4              | 0              | 1              | 2              | 3              | 2              | 2              | 2              | 1              | 2              | 2              | 1              | 0     | 1              | 2 |
| 11          | 2      | 4              | 1              | 2              | 4              | 1              | 1              | 2              | 0              | 0              | 2              | 0              | 0              | 2              | 0              | 0              | 0              | 0              | 0              | 0              | 3              | 2              | 2              | 3              | 1              | 2              | 1              | 1              | 1     | 1              | 2 |
| 12          | 1      | 5              | 5              | 2              | 5              | 2              | 0              | 3              | 1              | 0              | 1              | 4              | 4              | 1              | 2              | 2              | 0              | 2              | 2              | 0              | 2              | 4              | 4              | 2              | 3              | 3              | 0              | 1              | 1     | 0              | 3 |
| 13          | 2      | 0              | 0              | 1              | 1              | 2              | 0              | 2              | 2              | 0              | 2              | 1              | 0              | 0              | 2              | 1              | 1              | 0              | 1              | 1              | 0              | 1              | 1              | 1              | 2              | 1              | 1              | 0              | 0     | 1              | 1 |
| 14          | 1      | 7              | 6              | 6              | 6              | 6              | 5              | 6              | 6              | 7              | 9              | 4              | 6              | 6              | 4              | 6              | 6              | 6              | 6              | 6              | 7              | 6              | 7              | 7              | 6              | 7              | 8              | 6              | 7     | 8              | 8 |

\* U value of 9 = .054 at the .05 level = Two-tail.

a = Method:

1. Whole 2. Part

b = Total- one overall score based on 3rd trial.

c = Trial

TABLE III.--Raw Scores of Subjects of Glide-Kip - Second Testing Period.

| Subject No. | Sex | Judge 1        |                |                |                |                |                | Judge 2        |                |                |                |                |                | Judge 3        |                |                |                |                |                | Total |   |   |   |   |   |   |   |   |   |   |   |
|-------------|-----|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-------|---|---|---|---|---|---|---|---|---|---|---|
|             |     | Phase 1        |                |                | Phase 2        |                |                | Phase 3        |                |                | Phase 1        |                |                | Phase 2        |                |                | Phase 3        |                |                |       |   |   |   |   |   |   |   |   |   |   |   |
|             |     | T1             | T2             | T3             | T1             | T2             | T3             | T1             | T2             | T3             | T1             | T2             | T3             | T1             | T2             | T3             | T1             | T2             | T3             |       |   |   |   |   |   |   |   |   |   |   |   |
|             |     | T <sup>a</sup> | T <sup>a</sup> | T <sup>a</sup> | T <sup>a</sup> | T <sup>a</sup> | T <sup>a</sup> | T <sup>a</sup> | T <sup>a</sup> | T <sup>a</sup> | T <sup>a</sup> | T <sup>a</sup> | T <sup>a</sup> | T <sup>a</sup> | T <sup>a</sup> | T <sup>a</sup> | T <sup>a</sup> | T <sup>a</sup> | T <sup>a</sup> |       |   |   |   |   |   |   |   |   |   |   |   |
| 01          | 2   | 6              | 5              | 6              | 5              | 4              | 5              | 0              | 2              | 1              | 4              | 6              | 6              | 6              | 7              | 6              | 8              | 4              | 6              | 4     | 4 | 3 | 0 | 2 | 4 |   |   |   |   |   |   |
| 02          | 2   | 7              | 6              | 6              | 6              | 4              | 5              | 3              | 2              | 2              | 5              | 8              | 7              | 5              | 8              | 7              | 6              | 2              | 2              | 5     | 5 | 2 | 3 | 6 | 2 | 4 |   |   |   |   |   |
| 03          | 1   | 6              | 7              | 6              | 5              | 4              | 4              | 1              | 0              | 0              | 3              | 5              | 7              | 6              | 7              | 4              | 4              | 4              | 0              | 0     | 4 | 4 | 6 | 5 | 4 | 0 | 2 | 1 | 4 |   |   |
| 04          | 2   | 3              | 4              | 4              | 2              | 2              | 2              | 0              | 0              | 0              | 2              | 5              | 5              | 5              | 6              | 5              | 2              | 2              | 0              | 0     | 1 | 3 | 3 | 1 | 4 | 3 | 0 | 0 | 0 | 2 |   |
| 05          | 1   | 2              | 4              | 4              | 0              | 0              | 0              | 0              | 0              | 0              | 1              | 1              | 2              | 2              | 0              | 0              | 0              | 0              | 0              | 0     | 0 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 1 |   |
| 06          | 2   | 5              | 4              | 4              | 2              | 2              | 3              | 0              | 0              | 0              | 3              | 2              | 2              | 2              | 1              | 0              | 0              | 0              | 0              | 0     | 2 | 5 | 5 | 5 | 4 | 3 | 3 | 0 | 0 | 0 | 4 |
| 07          | 1   | 4              | 4              | 4              | 3              | 2              | 2              | 1              | 0              | 0              | 2              | 4              | 4              | 2              | 2              | 2              | 1              | 0              | 0              | 0     | 1 | 3 | 3 | 3 | 2 | 2 | 3 | 0 | 0 | 0 | 2 |
| 08          | 1   | 8              | 8              | 8              | 7              | 6              | 6              | 4              | 2              | 1              | 6              | 8              | 7              | 8              | 9              | 8              | 8              | 3              | 4              | 6     | 5 | 6 | 7 | 6 | 6 | 6 | 4 | 4 | 4 | 5 |   |
| 09          | 2   | 6              | 6              | 6              | 6              | 5              | 3              | 4              | 3              | 6              | 7              | 6              | 8              | 7              | 8              | 7              | 4              | 0              | 2              | 7     | 5 | 6 | 5 | 6 | 6 | 6 | 4 | 4 | 4 | 5 |   |
| 10          | 1   | 4              | 4              | 4              | 4              | 3              | 3              | 1              | 0              | 0              | 2              | 5              | 6              | 4              | 4              | 2              | 2              | 0              | 0              | 0     | 1 | 4 | 3 | 2 | 4 | 3 | 2 | 2 | 2 | 3 |   |
| 11          | 2   | 5              | 4              | 4              | 3              | 2              | 1              | 0              | 0              | 0              | 1              | 2              | 3              | 3              | 1              | 1              | 1              | 0              | 0              | 0     | 1 | 4 | 3 | 3 | 3 | 2 | 2 | 0 | 0 | 0 | 2 |
| 12          | 1   | 4              | 3              | 3              | 2              | 2              | 2              | 0              | 0              | 0              | 2              | 2              | 2              | 2              | 1              | 0              | 0              | 0              | 0              | 0     | 1 | 3 | 4 | 4 | 4 | 2 | 2 | 4 | 0 | 0 | 2 |
| 13          | 2   | 4              | 3              | 2              | 3              | 3              | 4              | 4              | 2              | 3              | 2              | 4              | 3              | 2              | 4              | 4              | 3              | 3              | 4              | 3     | 2 | 4 | 3 | 3 | 3 | 4 | 3 | 3 | 3 | 2 |   |
| 14          | 1   | 7              | 7              | 7              | 7              | 5              | 5              | 6              | 5              | 5              | 8              | 7              | 8              | 8              | 8              | 7              | 7              | 6              | 5              | 5     | 8 | 7 | 8 | 7 | 8 | 8 | 6 | 6 | 5 | 8 |   |

\* U value of 9 = .054 at the .05 level; Two-tail.

a = Method:

1. Whole 2. Part

b = Total- one overall score based on 3rd trial.

c = Trial

for each subject on the glide-kip. Table II represents the scores from the first testing session and Table III represents the scores from the final testing session. In Table II, the scores for subject 06 (part group), represent her performance of the kip after three weeks of practice. In Table III, the scores of subject 06, again represent her performance of the glide-kip after six weeks of practice. In examining the scores, it is evident that some learning of the skill has occurred. Her total score values, which represent the judges overall view of her total performance, range from 1-1-2 for the first testing session; to 3-2-4 for the second testing session. Another example depicting some degree of learning on the part of a subject is indicated by the scores for subject 09. Subject 09 was a member of the whole group. Her scores for the first testing period were 4-2-4 (See table). At the end of the second testing period, her scores were 6-7-5 (See table). Again, the scores by the judges indicate an increase in the scores relating to the subjects ability to perform the skill. The subjects represent two independent groups drawn randomly from the same population. Neither method used in teaching the glide-kip can be recognized at this time as superior in regard to the acquisition of this skill. Learning has occurred by both groups, but statistically, no significance between the super-

iority of one method in preference over the other can be concluded. The data seem to indicate that either method will elicit learning to some degree of all subjects. Other factors as age, sex and strength can have a bearing on the outcome in the final results, but were not studied, controlled, or used in this experiment.

The Spearman Rank Correlation test was employed to determine the degree of relationship in the consistency of the scores of the judges. A correlation ( $r_s$ ) value of .456 at the .05 level on a one-tailed test indicates a significant correlation between the judges in their scoring of the fourteen subjects.

Table IV represents the judges total scores for three trials on each subject. The correlation between Judges A and B was .940. Note the scores given to each subject by judges A and B in Table IV. The scores are either identical or within one point of each other. This explains the high degree of correlation which existed. The correlation between judges A and C was .934. Again, note the scores given each subject by these judges. The scores represented are either identical or differ from each other by one point. The correlation between judges B and C was .887. The scores again are relatively the same except for a difference of two points in the scoring of subject 06. Judges B's score was 1 and judge C's score was 3. This difference

along with fewer identical scores explains the lower correlation between judges B and C. The average correlation between the three judges was .920. A high degree of correlation does exist between the judges in their actual scoring of the fourteen subjects.

TABLE IV.--Judge's Raw Scores Value for Subjects-  
Three Total Scores

| Subject | Judge A<br>Total | Judge B<br>Total | Judge C<br>Total |
|---------|------------------|------------------|------------------|
| 01      | 4                | 4                | 4                |
| 02      | 5                | 5                | 4                |
| 03      | 3                | 4                | 4                |
| 04      | 2                | 1                | 2                |
| 05      | 1                | 0                | 1                |
| 06      | 2                | 1                | 3                |
| 07      | 2                | 1                | 2                |
| 08      | 6                | 5                | 5                |
| 09      | 5                | 4                | 5                |
| 10      | 2                | 1                | 3                |
| 11      | 1                | 1                | 2                |
| 12      | 2                | 1                | 2                |
| 13      | 2                | 2                | 2                |
| 14      | 8                | 8                | 8                |

\*The  $r_s$  value of  $\geq .456$  indicates significant from correlation between the scoring of the three judges.

### Discussion

This experiment deals with the comparison of two teaching methods in the area of gymnastics. Validated research is lacking in the area of teaching methods in gymnastics. This study was conducted to test the effectiveness of two teaching methods in learning the glide-kip on the uneven parallel bars. Prior

evidence indicates the superiority of the part method in the acquisition of some skill as compared to the superiority of the whole method in the learning of other motor tasks. The results of this experiment do not suggest the superiority of one method as compared to the other method. However, in teaching, we are interested in development and usage of effective methods. This experiment indicates that either method is equally effective in teaching the glide-kip to inexperienced college women. If this is the case, perhaps more studies along this line will aid researchers in establishing a definite method in regard to teaching procedures in some areas of gymnastics. The degree of learning occurring through both methods may be equal or near equal. In this case, the acquisition of this motor skill may be learned with equal efficiency by either the part or whole method of instruction.

Research is needed in order to help educators decide upon the appropriate approach to teaching a particular skill. We know that every teaching-learning situation requires techniques related directly to the teacher and her student. Standard operational procedures are employed by individuals. Continued research in the areas of teaching methods and procedures can be an aid to the beginner as well as the experienced teacher. Our means of organization and presentation can be the key to our success of others. This experiment was designed

and conducted to aid in building ideas and concepts dealing with the learner and the learning situation. The results will aid in clarifying points of significance of both the part and whole teaching methods in this experiment. The results will hopefully be useful to teachers and to those who will continue to conduct research in this area.

## CHAPTER V

### SUMMARY, CONCLUSIONS, RECOMMENDATIONS

#### Summary

The whole and part-whole method of teaching were tested in regard to their effectiveness in the acquisition of the glide-kip. The part-whole group practiced the kip through mastery of the three sequential parts. Upon mastery of the parts, they were allowed to attempt the whole skill. The group working on the whole method practiced the entire skill from the onset. The experiment was conducted for six consecutive weeks, each group meeting for one hour sessions three times a week. Two testing periods were conducted at the end of the third and sixth weeks of the experiment. Three judges rated each subject on three trials of the skill during each testing period. The scores for each subject were analyzed for differences between methods using the Mann Whitney U test. A Spearman Rank Correlation Coefficient test was used to determine the association or relationship of the judges ratings of the fourteen subjects. The statistical results do not indicate the superiority of either the whole or part-whole methods.

#### Conclusions

The following conclusions were drawn from the data received in this experiment:

1. No significant difference existed between the part or whole group in the actual learning of the glide-kip.
2. Either teaching method seems to elicit some degree of learning for all subjects in this experiment.
3. A high degree of consistency or correlation existed between the judges scoring throughout the testing procedures.

#### Recommendations

1. Factors such as age, strength, and I.Q. should be isolated and tested in regard to their effect on the learning process.
2. Variation in the duration of the learning period with respect to the difficulty of the skill should be included as a variable in a subsequent test. The duration variable may have a definite affect on the acquisition of the skill.
3. Further examination of the methods employed (part and whole), in regard to establishing a specific teaching method or procedure for this particular skill and other skills in gymnastics, should be further studied and tested.

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