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**A COMPARISON OF THE WHOLE METHOD
AND THE PART METHOD OF TEACHING
BASKETBALL SKILLS TO COLLEGE MEN**

BY

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**A COMPARISON OF THE WHOLE METHOD AND THE PART METHOD
OF TEACHING BASKETBALL SKILLS TO COLLEGE MEN**

A Research Paper
Presented to
the Graduate Council of
Austin Peay State University

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts
in Education

by
Tristan Neil Kington

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To the Graduate Council:

I am submitting herewith a research paper written by Tristan Neil Kington entitled, "A Comparison of the Whole Method and the Part Method of Teaching Basketball Skills to College Men." I recommend that it be accepted in partial fulfillment of the degree of Master of Arts in Education, with a major in Health and Physical Education.



Major Professor

Accepted for the Council:



Dean of the Graduate School

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CHAPTER I

INTRODUCTION TO THE PROBLEM

A study was made comparing the improvement of two groups of students enrolled in a 202 basketball class during the Winter Quarter, 1970, at Austin Peay State University.

Group I was taught by the part method. This group was required to follow a fairly rigid procedure involving practice of basketball fundamentals. These fundamentals included the basic skills of basketball as follows:

1. chest pass
2. chest bounce pass
3. baseball pass
4. speed dribble
5. control dribble
6. ball handline
7. pivot
8. shooting lay-ups
9. shooting baskets
10. dribble and pass

11. foul shots
12. speed of start and stop
13. defensive foot work
14. rebounding position

Group II was taught by the whole method, using no drills. They were given a basketball and told to play the game.

The purpose of this research was to determine how the students in Group I compared in skill development with the students in Group II. This information was obtained by pre-tests, post-tests, and a tournament. Both groups were given the American Association of Health, Physical Education, and Recreation Basketball Skills Test.

CHAPTER II

REVIEW OF LITERATURE

Oxendine (11) said that past studies organized to determine the relative excellence of whole and part methods of teaching were usually set up in one of three ways; one group using the part method, a second group using the whole method, and a third group using some combination of the two methods. When the study was terminated, the groups were compared by some means to determine which method proved more effective. Most of the early research in comparing the whole and part methods consisted of memorization of verbal material or the learning of numerous physical acts. However, in recent studies there was a great deal of research involving the more common motor skills.

Knapp and Dixon (6) compared two groups of college students in the development of juggling skills. One group used the whole method and one group used the part method while learning to juggle. Their study showed favorable results toward the whole method as compared to the part method of teaching juggling. They concluded that the "whole" approach forced the learner

to perform at a constant speed. It seemed that the attempt to improve performance by slowing down movement while building up accuracy was actually placing the learner under an unrealistic qualitative situation.

Thomas (14) found that junior high school boys developed sports skills more efficiently and rapidly when placed in a competitive situation. These results also support the whole method of instruction.

Singer (12) found that if the learner is knowledgeable about his goal and is aware of how the final or ultimate act should be executed, he will gain quicker insight into the problem. "The parts will be more meaningful and will be more easily coordinated into the desired ultimate skill."

McGuigan and MacCaslin (7) found that army trainees developed better rifle marksmanship by using the whole method of instruction. The results showed the group taught by the whole method to be superior in both slow firing and sustained firing.

Vannier and Fait (15) stated as a result of their studies that learning was best accomplished when the whole method of instruction was used. They believed that learning comes about faster and had a more lasting result if large blocks of material were presented and mastered at a time. Daughtrey (4) also defended the superiority of the whole method of teaching motor skills.

Theunissen,(13) in comparing the whole and part methods of teaching golf, found the whole method superior in both indoor

and outdoor instruction.

O'Donnell (10) states that college women showed the greatest improvement in tennis skills when taught by the whole method.

Most of the experiments read by the writer showed some advantages in teaching by the whole method. However, Niemeyer (9) rationalized that when acquiring skills which involve complex interaction with an opponent, such as in badminton or volleyball, the part method proved superior in skill development.

Hirsch (5) indicated in his research that retardates usually responded better to motor skills taught by the part method. Cratty (2) stated that younger subjects also learned best if the task was divided into smaller parts. Another advocate of the part method was Barton (1). He developed a maze and taught it in three different ways: (1) the whole, (2) the part, and (3) the continuous part. The results of his study showed the part method to be superior. Barton reasoned that in many cases the whole method of teaching was too complex and overwhelmed the learners. Naylor and Briggs (8) investigated the effects of task complexity and organization on the efficiency of the whole and part methods of instruction. As a result of their study they advocate the use of the part method, particularly when tasks are unorganized.

Cratty (2) wrote that, "when practice is massed and the material is difficult, the part or progressive-part method is usually found to

be best." In conjunction with this statement, he further introduced some thoughts concerning the rate at which something can be learned.

His thoughts are as follows:

Quickest learning is generally obtained by practicing the whole. If subsequent evaluation of performance suggests that the portions of the task selected, or a task as an entirety, proved too large and/or complex for acquisition, the progressive-part method would then seem to hold the most promise.

Cross (3) used the whole method, the whole-part method, and the minor games method in teaching seventeen basketball skills to ninth grade boys. In his study he found advantages for each method depending on the complexity of the skills taught. The more complex skills were acquired more quickly with the whole-part method; the simpler unitary skills were best learned by the whole method; and the skills that required an intermediate degree of complexity were best learned by the minor game method.

CHAPTER III

THE HYPOTHESIS

The hypothesis of the study was that following treatment there would be no difference in the level of skill possessed by the two groups. Consequently this led to the possibility of the alternative hypotheses, that Group I would be more skilled than Group II or Group I would be less proficient than Group II.

The proposed study would be very helpful to coaches and physical education teachers. Such a study could also be of great value to Austin Peay State University and other colleges in deciding course offerings and requirements for proposed physical education teachers.

The identification of the various methods in teaching physical education would be an aid to prospective teachers considering the field of physical education as a profession. The new teachers in the field could also gain insight into the various teaching methods.

There is a definite need for continual follow-up programs, and although this study was not concerned with the development of physical education programs, if it should provide worthwhile

findings, they should contribute to the recognition of the value of using various methods in teaching physical education.

CHAPTER IV

PROCEDURES

Limitations of the Study. The subjects in the experiment were Austin Peay State University male students enrolled in the 202, 1970 Winter Quarter, basketball class. There were thirty-one students involved in the testing program.

Division of the Groups. The entire class was given the 1966 edition of the A.A.H.P.E.R. Basketball Skills Test on January 28 and 30, 1970. The scores of the group were then placed in a rank order relationship. Starting with the top score and placing it in Group I, and the second highest score being placed in Group II, the class was divided as equally as possible placing every other score in Group I and Group II respectively. Group I had sixteen students and Group II had fifteen students.

The division was based entirely on average percentile scores with no regard to age, height, weight, or previous experience.

Divisions were also made within each group. The top five scores in Group I and Group II were classified as A competition teams, the second five or middle groups were classified as AA competition teams, and the remaining six players in Group I and the remaining five players

in Group II were classified as AAA competition teams. The following table gives a breakdown of the class into groups and teams.

TABLE I
AVERAGE PERCENTILE RANKING AND DIVISIONS OF THE
GROUPS INTO TEAMS ON PRE-TEST SCORES

Subject Number Group I	Average Percentile Score*	Team Classification Group I	Subject Number Group II	Average Percentile Score*	Team Classification Group II
1	74	A	1	72	A
2	72	A	2	72	A
3	72	A	3	72	A
4	69	A	4	69	A
5	68	A	5	68	A
6	65	AA	6	62	AA
7	61	AA	7	60	AA
8	57	AA	8	57	AA
9	56	AA	9	56	AA
10	54	AA	10	54	AA
11	53	AAA	11	53	AAA
12	51	AAA	12	50	AAA
13	44	AAA	13	44	AAA

*An average of the nine individual test items.

TABLE I (continued)

Subject Number Group I	Average Percentile Score*	Team Classification Group I	Subject Number Group II	Average Percentile Score*	Team Classification Group II
14	43	AAA	14	42	AAA
15	40	AAA	15	31	AAA
16	24	AAA			

*An average of the nine individual test items.

Description of the Test. The test was devised by the A.A.H.P.E.R. to measure the degree of basketball skill a person possessed.

The test included nine individual tests: (1) front shot, (2) side shot, (3) foul shot, (4) under basket shot, (5) speed pass, (6) jump and reach, (7) overarm pass for accuracy, (8) push pass for accuracy, and (9) dribbling.

Description of the Games. Each team played three ten minute games. Team A, Group I played Team A, Group II three games. Team AA, Group I played Team AA, Group II three games. Teams AAA of each group also played three games.

At the end of the ten minute period each game was stopped and the score recorded. The results of the games are presented in Table II.

TABLE II
GAME SCORES OF POST-TREATMENT TOURNAMENT

Game Number	Team Classification	Score Group I	Score Group II
1	A	8	16 *
1	AA	14	14
1	AAA	7	10 *
2	A	16	16
2	AA	14 *	8
2	AAA	10	16 *
3	A	18 *	14
3	AA	14	16 *
3	AAA	12	16 *

*Winning score

Administration of the Test. On January 28, 1970 and January 30, 1970, the class was given the pre-test. The tests were administered by the writer and two aides. The tests were administered according to the recommendation made by the A. A. H. P. E. R. Basketball Skills Test Manual. The pre-tests scores tabulated in mean scores for each individual test item are shown in Table III.

TABLE III
MEAN PERCENTILE SCORES OF THE
TWO GROUPS ON THE PRE-TEST

Test Number	Test Name	Average Percentile	Average Percentile
		Group I	Group II
1	Front shot	61.37	64.13
2	Side shot	63.43	72.46
3	Foul shot	67.51	57.46
4	Under basket shot	57.00	65.00
5	Speed pass	48.68	48.60
6	Jump and reach	42.56	33.93
7	Overarm pass for accuracy	66.25	74.00
8	Push pass for accuracy	46.87	43.33
9	Dribble	54.50	51.46

The post-tests were given on February 25, 1970 and February 27, 1970, by the writer and his two aides. Table IV gives the results of the post-tests in mean score for each individual test given.

The whole method proved superior in tests three, six, eight, and nine. All of these skills lend themselves better to a game situation because each student was exposed to these skills, by necessity, much more than if taught by the part method. Exposure may have made it possible to master the skills to a higher degree of proficiency than could be done by using the part method. The greater degree of improvement in shooting the foul shot was probably as much the result of the psychological effect of shooting under game pressure as the result of practice.

The part method was superior in tests one, two, four, five, and seven. This proved superior in the greatest number of skill tests. Also an interesting fact is that the group taught by the part method improved to a higher degree of skill in all but one of the shooting skills test. Shooting a basketball is a very complex skill and was learned best when it was broken down into simpler parts. The other two skills learned best by the part method, the overarm pass for accuracy and the speed pass, are skills not frequently used in a game situation. Therefore, the students in the whole group method were not exposed to these types of passes as much as those students in the part group method.

TABLE IV
MEAN PERCENTILE SCORES OF THE
TWO GROUPS ON THE POST-TEST

Test Number	Test Name	Average Percentile	Average Percentile
		Group I	Group II
1	Front shot	82.06	82.33
2	Side shot	72.56	77.40
3	Foul shot	65.25	69.00
4	Under basket shot	76.06	79.00
5	Speed pass	65.18	63.46
6	Jump and reach	54.68	49.86
7	Overarm pass for accuracy	73.31	79.06
8	Push pass for accuracy	59.37	59.00
9	Dribble	66.25	70.93

TABLE V
AVERAGE PERCENTILE RANKING OF THE
TWO GROUPS ON THE POST-TEST

Subject Number Group I	Average Percentile Score*	Subject Number Group II	Average Percentile Score*
1	82	1	79
2	78	2	91
3	78	3	78
4	77	4	74
5	73	5	70
6	71	6	76
7	69	7	79
8	73	8	68
9	77	9	61
10	72	10	73
11	61	11	57
12	62	12	67
13	59	13	62
14	52	14	68
15	56	15	47
16	50		

*Average of the nine individual test items.

CHAPTER V

METHODS USED IN ANALYZING DATA

The experimental design which was used in this research was set up to compare the degree of improvement between Group I, which was the control group, using only drills on fundamental basketball in their learning process; and Group II, which played basketball games using five players on each team the entire quarter. The two groups consisted of only those students enrolled in the 202 basketball class during the Winter Quarter, 1970, and were graded with no regard to their age, height, weight, or previous experience. The t-test was used to determine the significance of gain or critical ratio of the two respective groups.

The mathematical formula used to compute the t-test score was:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\left(\frac{\sum x_1^2}{n_1} + \frac{\sum x_2^2}{n_2} - 2\right)\left(\frac{n_1 + n_2}{n_1 n_2}\right)}}$$

A simple mathematical breakdown of comparisons between the pre-test and the post-test of the two groups was made, as well as a simple percentage breakdown showing the degree of improvement between the comparative scores and the percent of differences between the degree of improvement.

TABLE VI
AVERAGE IMPROVEMENT ON THE NINE TEST ITEMS

Subject Number Group I	Average Improvement	Subject Number Group II	Average Improvement
1	8	1	7
2	6	2	19
3	6	3	6
4	8	4	5
5	5	5	2
6	6	6	14
7	8	7	19
8	6	8	11
9	11	9	5
10	18	10	19
11	8	11	4
12	11	12	17
13	15	13	18
14	9	14	16
15	16	15	16
16	26		

TABLE VII
TEST DATA

	Group I	Group II
1. Skill test before the Winter Quarter instruction period (total of the average percentile points)	903	862
2. Skill test at the end of Winter Quarter instruction period (total of the average percentile points)	1090	1050
3. Total percentile points improvement per group	187	188
4. Ratio of percentile points improvement per student	11.69	12.53
5. Average percentile scored on first test	56.44	57.47
6. Average percentile scored on second test	68.13	70.07
7. Average percentile improvement of each group	11.69	12.53
8. Average percentile improvement on front shot test	20.69	18.20
9. Average percentile improvement on side shot test	9.13	4.49

TABLE VII (continued)

		Group I	Group II
10.	Average percentile improvement on foul shot test	-2.25	11.54
11.	Average percentile improvement on underbasket shot test	19.06	14.00
12.	Average percentile improvement on speed pass test	16.50	14.86
13.	Average percentile improvement on jump and reach test	12.12	15.93
14.	Average percentile improvement on overarm pass for accuracy test	7.06	5.06
15.	Average percentile improvement on push pass for accuracy test	12.50	15.67
16.	Average percentile improvement on dribble test	11.75	19.47
17.	Number of test items improved on the most	5	4
18.	Mean score on Test One	56.44	57.47
19.	Mean score on Test Two	68.13	70.07
20.	t-test ratio of comparison between Group I and Group II on Test Two		-.49
21.	Total number of tournament games won	2	5

TABLE VII (continued)

		Group I	Group II
22.	Number of games won in first day of tournament games	0	2
23.	Number of games won in second day of tournament games	1	1
24.	Number of games won in third day of tournament games	1	2

CHAPTER VI

SUMMARY AND CONCLUSIONS

Results showed that the students in Group II did improve at an average of .84 percentile points per student more than the students in Group I on the basketball skills tests. However, the students in Group I improved on five of the nine skills test to a higher degree than the students in Group II. A t-test ratio was also run on the post-test and a t-test ratio of $-.49$ was computed.

After testing thirty-one students and finding the above results, the writer believes the results shown are correct. The null hypothesis was accepted because there was no significant difference in the two groups' post-test scores.

The writer feels it is important that teachers not teach exclusively by the whole or part method. An excellent teaching procedure might well combine both of these concepts. In view of the writer's research, these suggestions are offered as guides to those who teach motor skills.

1. The whole method should be used to a greater extent in teaching motor skills than in the past.
2. Sometimes a combination of the whole and the part methods would be the most successful teaching technique.

3. The slow or less intelligent students should be given smaller wholes or key parts of something to enable them to better grasp the whole.
4. The selection of a desirable method depends upon the complexity, length, organization, age, intelligence, and motivation of the learner.
5. An essential of good teaching seems to be flexibility, which is also important in the use of whole and part organization of learning tasks.

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