A Study on the Effectiveness of Flag Football as Teaching Materials in Physical Education Classes: Through Analysis of the Change in Planning and Executing Strategies by Children

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Interest in flag football for teaching ball game in PE has been increasing in the last decade. Flag football is one of the few ball games in which the players have the opportunity to plan what they would do for each play. Therefore, it is more suitable teaching material for learning tactics and strategy in PE classes. However, the effectiveness of flag football as teaching materials was not clarified before.

The purpose of this study was to examine the effectiveness of flag football as teaching materials in PE classes, by analyzing the change in planning and executing strategies by children in the process of the PE unit. Concretely speaking, the change of strategy patterns which were planned and executed by children was examined in games during fifth grade and sixth grade flag football units.

As a result of this study, the following was clarified: 1) Children had planned many strategy patterns using basic tactics in flag football, and these patterns had developed only to those taking in defense into consideration. 2) The rate of executing strategies during game play increased gradually in the whole process unit.

Keywords: flag football, tactics, planning strategy, executing strategy

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1. Introduction

In Japan, people of different ages enjoy well-known sports such as soccer and basketball and unconventional ball games. With all these varieties of ball games becoming increasingly popular, elementary schools are actively adopting them as part of teaching materials for physical education. The revised New Courses of Study of 1998 [Ministry of Education (1998)] categorizes ball games for middle graders of elementary schools into types including basketball, soccer, and baseball, and teaching materials are chosen from among a variety of ball games belonging to these types. The revision is intended to broaden the discretion on the part of the school, making it choose types of sports from among a wide array of options, most suitable for the developmental stage of children and the characteristics of the district and the school. Schools, however, now have to make their own decision and explain the reason for that particular decision, which is why ball games need to be categorized from

the viewpoint of subject matter contents.

In the recent revision of the New Courses of Study, the annual number of class hours has been reduced dramatically, which made it necessary to review the contents of the PE class and to assign contents to hours of study. The above must be reviewed for preparing the school curriculum. So far when ball games are taught during the PE class, although it is expected that students learn the skill and grow physically, the focus has mostly been on the development of socially acceptable attitudes toward others, and as such, teachers tend to let the students play the game and do not encourage them to make efforts to learn the skill. Accordingly, there are many cases where the children's performance never improves and the game is played just for fun. In other words, the issue of the degree of achievement has mostly been ignored. Thus, teachers and students alike are often unsatisfied with the result of the class.

One possible solution for the improvement of the above situation is to teach tactics of games as part of

study. Tactical approach has been proposed in the U.S. recently based upon similar concerns [Griffin et al. (1997)]. Also, there is a report of the result of a study on the effectiveness of the theoretical model [Rink et al. (1996)], in which badminton, among net games, is specifically discussed, as the sport is suitable for making comparisons of achievement of skills and tactics. In schools in Japan, however, what we have to study urgently is the curriculum system and the learnability in terms of learning invasion games.

The current Courses of Study for elementary schools [Ministry of Education (1998)] set forth that upper graders of elementary school are to learn ball games that require the use of simple strategy. However, as situations continuously change in games such as soccer and basketball, it is not clear what kind of strategy is supposed to be made for what kind of potential situations. Furthermore, it is even more difficult to execute drawn up strategies in actual games and identify achievements. As for flag football, however, plays are planned before the start of the game, which makes it possible to carry out strategies more accurately than the other ball games [McCarthy (1991)]. It is also easier to confirm achievement. Accordingly, it is highly evaluated as a good teaching material and the sport is increasingly included in PE classes in school [Masumura, 2000; Seino (2001)]

However, we have not seen a study that has verified the effectiveness of flag football in terms of the study of tactics and strategy. Uchida et al (1999) and Yamazaki (1999) studied it, but their studies are mostly practical reports, and the process and degree of changes from the strategies the children drew up to those actually executed in games have not been clearly discussed, which leaves the replicability of the results in question. Accordingly, in order to verify the effectiveness of the game of flag football as a teaching material for the study of tactics, it is necessary to analyze more objectively the process of changes from the planning to the executing by children.

Through a study of flag football focusing on planning strategies, we reviewed the effectiveness of flag football as a teaching material from the viewpoint of tactical games approach, based upon the objective analysis of how strategies planned and executed by children changed along with the progress of the unit of study.

2. Method

2.1. Subjects and Class Period

The flag football class (totaling 11 hours) was held

between mid-November and mid-December 2001 with a class of 5th graders and another of 6th graders of an elementary school in Chiba Prefecture.

2.2. Preparation of the Study Program

The homeroom teachers who gave the class and the writers cooperatively prepared the study program of flag football in this study.

During the earlier period of the unit of study (3rd to 5th hour), children learned run play with blocks and fakes (run fake only), and pass play which are basic moves of the game. The teachers explained moves to the children with illustrations shown on the board. Then they did the move themselves in order to let the children learn the positions of the offense and the defense, and how to use available space effectively.

In the middle of the unit of study (6th to 11th) and after, children in groups drew up respective strategies using the moves they had learned, and then executed them in actual games. In order to efficiently plan the strategy, assignment cards were provided. Also, in order to secure the opportunities to use the strategy in the game, we kept children play 3 on 3 flag football every hour after the 3rd hour of the unit.

2.3. Settingup of Different Levels of Tactical Complexity

The offense of American football consists mostly of run and pass plays, which means to run holding the ball and to throw the ball forward [Takeda (1994)], and it is necessary in the practice of flag football to let players learn how to create a space for the holder of the ball and how to run into the space to receive a pass [Nichols (1990)]. Accordingly, in the case of flag football, different levels of tactical complexity can be created concerning tactics focusing on available space for both run play and pass play.

The tactics that includes run play can be categorized into 4 kinds: (1) a tactics that involves blocks; (2) a tactics that involves the reaction of the defense; (3) a tactics that involves the move of the defense against the possible pass (4) a tactics that aims at outnumbering defense players [Goto (1998)]. The tactics using blocks, among others, is the very basics of flag football, in which the ball carrier rushes while the defense is being blocked effectively. The space at the start of the play is where the offense focuses. On the other hand, in the tactics using the reaction of the defense, the offense encourages the defense to move to one side and make full use of the created space on the other side. Accordingly, the key to success in this tactics is a subtle fake effective enough to force the defense make the wrong move. The tactics that involves the

Table 1. Levels of tactical complexity and typical plays in flag football.

Levels of tactical complexity	Level I	Level II	Level III
	To attack the existing space	To attack a created space	To attack by the state of circumstance
Running play	Blocking play	Fake play	Option play
	Inside running play	Inside running play	Hand-off play
	Outside running play	Outside running play	Pitch play
		A fake of passing play	
Passing play	Streak pattern	Crossing pattern	Pass or run option pattern
	Post pattern	Across pattern	
	Hook pattern	Throwback pattern	

move of the defense against the imminent pass (actually a pass fake), in situations when passes have often been successful, is similar in the way in which the offense subtly encourages the defense make the wrong move in order to create an available running space. There are other tactics with various optional moves that require higher levels of skills and tactical knowledge.

The tactics that includes mainly pass plays is categorized into 3 kinds: (1) a tactics to use the existing space; (2) a tactics to intentionally create a space; (3) a tactics to choose among the play options depending on the situation. To use the existing space is the most basic tactics, in which the receiver rushes into the space where there is no defensive player at the start of the game and basic passes such as post pattern and streak pattern are used. A space can be created intentionally by drawing the defense to other players than the target so that the target could run into the created space. Passes such as crossing pattern and throwback pattern are used in such a case, and the move of the decoys is the key to a complete pass. The tactics with play options based upon the judgment on the on-going situation is executed based upon the QB's decision on either to throw a pass or keep the ball and run by observing the move of one particular player on the defense. This is one of the most skill demanding passes, as the ability of QB to make good judgment is essential.

Thus, the writers set the levels of tactical complexity of flag football as shown in **Table 1** based upon the above categorization of the tactics.

2.4. Method of Analysis of Strategy

When you put together some of the tactics shown in **Table 1**, you can have a strategy of flag football. In this study, the change in the contents of the strategy is treated as the index of the understanding and execution of tactics. In order to review the process of

changes in the strategy prepared by the children, we categorized strategies children put on assignment cards based upon the levels of tactical complexity as shown in **Table 1**. When a strategy is not clearly described, it was put in the category titled "others." Furthermore, the hourly frequency of strategies was calculated using categorized data.

Also for the revision of the changing process of the execution of the strategy, we recorded 3 on 3 games after the 6th class with a digital camera, and put down the move of players and the trajectory of the ball on record sheets play by play. This data was then categorized based upon the levels of tactical complexity as shown in **Table 1**. When some player fumbled the ball at the start of a game or the playtime was too long, they were categorized as "others." Furthermore, we compared the above-mentioned data concerning the planning with the data concerning the execution in order to find out the frequency and the rate of execution of the strategy in the actual game for each class hour. The rate of execution was calculated in the following equation: The rate of execution (%) = Number of executed strategies / number of planned strategies X 100. A person who has an experience as a coach in American football did the analysis.

3. Results

3.1. Changes in Strategies Planned by Children

Table 2 shows changes in strategies planned by children. The number of strategies per hour was 72 during the unit of study.

As for the average frequency per hour in terms of the play, there were 45.2 strategies consisting of run plays and 21.8 consisting of pass plays.

When we take a look at strategies with run play by level of tactical complexity, as an hourly average, 18 run-level 1, 15.8 run-level II, and 11.3 run-level III

Table 2. Results of children's planning strategies.

	Lesson 6	Lesson 7	Lesson 8	Lesson 9	Lesson 10	Lesson 11	Average
Running play	45 (62.5)	50 (69.4)	45 (62.5)	44 (61.1)	46 (63.9)	41 (56.9)	45.2 (62.7)
Level I	16 (35.6)	18 (36.0)	18 (40.0)	15 (34.1)	21 (45.7)	20 (48.8)	18.0 (39.9)
Inside running	12 (26.7)	9 (18.0)	8 (17.8)	4 (9.1)	11 (23.9)	12 (29.3)	9.3 (20.7)
Outside running	4 (8.9)	9 (18.0)	9 (20.0)	10 (22.7)	10 (21.7)	8 (19.5)	8.3 (18.5)
Others	0 (0.0)	0 (0.0)	1 (2.2)	1 (2.3)	0 (0.0)	0 (0.0)	0.3 (0.7)
Level II	20 (44.4)	20 (40.0)	17 (37.8)	14 (31.8)	13 (28.3)	11 (26.8)	15.8 (35.1)
Inside running	8 (17.8)	5 (10.0)	6 (13.3)	4 (9.1)	2 (4.3)	4 (9.8)	4.8 (10.7)
Outside running	8 (17.8)	8 (16.0)	6 (13.3)	4 (9.1)	6 (13.0)	5 (12.2)	6.2 (13.7)
A fake of passing	1 (2.2)	5 (10.0)	3 (6.7)	6 (13.6)	5 (10.9)	1 (2.4)	3.5 (7.7)
Others	3 (6.7)	2 (4.0)	2 (4.4)	0 (0.0)	0 (0.0)	1 (2.4)	1.3 (3.0)
Level III	9 (20.0)	12 (24.0)	10 (22.2)	15 (34.1)	12 (26.1)	10 (24.4)	11.3 (25.1)
Hand-off	8 (17.8)	10 (20.0)	9 (20.0)	15 (34.1)	12 (26.1)	10 (24.4)	10.7 (23.6)
Others	1 (2.2)	2 (4.0)	1 (2.2)	0 (0.0)	0 (0.0)	0 (0.0)	0.7 (1.5)
Passing play	14 (19.4)	15 (20.8)	22 (30.6)	28 (38.9)	26 (36.1)	26 (36.1)	21.8 (30.3)
Level I	10 (71.4)	11 (73.3)	15 (68.2)	17 (60.7)	16 (61.5)	16 (61.5)	14.2 (64.9)
Streak	6 (42.9)	7 (46.7)	8 (36.4)	12 (42.9)	11 (42.3)	13 (50.0)	9.5 (43.5)
Post	4 (28.6)	4 (26.7)	6 (27.3)	4 (14.3)	5 (19.2)	3 (11.5)	4.3 (19.8)
Others	0 (0.0)	0 (0.0)	1 (4.5)	1 (3.6)	0 (0.0)	0 (0.0)	0.3 (1.5)
Level II	4 (28.6)	3 (20.0)	4 (18.2)	6 (21.4)	6 (23.1)	5 (19.2)	4.7 (21.4)
Crossing	4 (28.6)	2 (13.3)	0 (0.0)	3 (10.7)	3 (11.5)	1 (3.8)	2.2 (10.0)
Throwback	0 (0.0)	1 (6.7)	4 (18.2)	3 (10.7)	3 (11.5)	4 (15.4)	2.5 (11.5)
Others	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0.0 (0.0)
Level III	0 (0.0)	1 (6.7)	3 (13.6)	5 (17.9)	4 (15.4)	5 (19.2)	3.0 (13.7)
Pass or run option	0 (0.0)	0 (0.0)	3 (13.6)	5 (17.9)	3 (11.5)	4 (15.4)	2.5 (11.5)
Others	0 (0.0)	1 (6.7)	0 (0.0)	0 (0.0)	1 (3.8)	1 (3.8)	0.5 (2.2)
Other plays	13 (18.1)	7 (9.7)	5 (6.9)	0 (0.0)	0 (0.0)	5 (6.9)	5.0 (6.9)
Total	72 (100)	72 (100)	72 (100)	72 (100)	72 (100)	72 (100)	72.0 (100)

Note . The value shows number of times. The ratio by play is shown in the parenthesis.

strategies were planned, or tactically easier strategies were more frequently planned. When we see them in terms of the progress of the unit of study, 16 run-level I strategies were planned in the 6th hour, and the number increased to 20 in the 11th hour. On the other hand, 20 each of run-level II strategies were planned in the 6th and 7th hours, and the number decreased after the 8th hour, until in the end in the 11th hour, the number was down to 11. As for run-level III strategies, the number increased temporarily in the 9th hour, but in all of the other hours, the number was kept at the lower levels of 9 to 12.

When we take a look at strategies with pass plays by level of tactical complexity, as an hourly average, 14.2 pass-level I, 4.7 pass-level II, and 3 pass-level III strategies were planned. Tactically easier strategies

were more frequently planned just like the strategy consisting of run plays. When we see them in terms of the progress of the unit of study, the number of pass-level I strategies gradually increased as the unit of study progressed. This tendency was very apparent with the strategy using the streak pattern. On the other hand, the number of pass-level II strategies did not increase along with the progress of the unit of study. Its frequency was kept at an hourly average of between 4 and 6. Concerning pass-level III strategies, the number gradually increased along with the progress of the unit of study, peaking in the 9th and 11th hours to be 5.

Table 3. Results of children's rate of executing strategies.

	Lesson 6	Lesson 7	Lesson 8	Lesson 9	Lesson 10	Lesson 11	Average
Running play	31.1 (14/45)	18.0 (9/50)	33.3 (15/45)	36.4 (16/44)	47.8 (22/46)	58.5 (24/41)	36.9 (16.7/45.2)
Level I	37.5 (6/16)	27.8 (5/18)	33.3 (6/18)	53.3 (8/15)	61.9 (13/21)	70.0 (14/20)	48.2 (8.7/18.0)
Inside running	33.3 (4/12)	22.2 (2/9)	25.0 (2/8)	25.0 (1/4)	36.4 (4/11)	58.3 (7/12)	35.7 (3.3/9.3)
Outside running	50.0 (2/4)	33.3 (3/9)	44.4 (4/9)	70.0 (7/10)	90.0 (9/10)	87.5 (7/8)	64.0 (5.3/8.3)
Level II	25.0 (5/20)	20.0 (4/20)	52.9 (9/17)	35.7 (5/14)	46.2 (6/13)	54.5 (6/11)	36.8 (5.8/15.8)
Inside running	12.5 (1/8)	20.0 (1/5)	50.0 (3/6)	25.0 (1/4)	50.0 (1/2)	50.0 (2/4)	31.0 (1.5/4.8)
Outside running	50.0 (4/8)	12.5 (1/8)	33.3 (2/6)	25.0 (1/4)	33.3 (2/6)	60.0 (3/5)	35.1 (2.2/6.2)
A fake of passing	0.0 (0/0)	40.0 (2/5)	100.0 (3/3)	50.0 (3/6)	60.0 (3/5)	100.0 (1/1)	57.1 (2.0/3.5)
Level III	33.3 (3/9)	0.0 (0/12)	0.0 (0/10)	20.0 (3/15)	25.0 (3/12)	40.0 (4/10)	19.1 (2.2/11.3)
Hand-off	37.5 (3/8)	0.0 (0/10)	0.0 (0/9)	20.0 (3/15)	25.0 (3/12)	40.0 (4/10)	20.3 (2.2/10.7)
Passing play	57.1 (8/14)	53.3 (8/15)	68.2 (15/22)	60.7 (17/28)	57.7 (15/26)	53.8 (14/26)	58.7 (12.8/21.8)
Level I	60.0 (6/10)	63.6 (7/11)	80.0 (12/15)	52.9 (9/17)	56.3 (9/16)	50.0 (8/16)	60.0 (8.5/14.2)
Streak	66.7 (4/6)	71.4 (5/7)	100.0 (8/8)	58.3 (7/12)	54.5 (6/11)	53.8 (7/13)	64.9 (6.2/9.5)
Post	50.0 (2/4)	50.0 (2/4)	66.7 (4/6)	50.0 (2/4)	60.0 (3/5)	33.3 (1/3)	53.8 (2.3/4.3)
Level II	50.0 (2/4)	33.3 (1/3)	25.0 (1/4)	66.7 (4/6)	50.0 (3/6)	60.0 (3/5)	50.0 (2.3/4.7)
Crossing	50.0 (2/4)	0.0 (0/2)	0.0 (0/0)	33.3 (1/3)	33.3 (1/3)	0.0 (0/1)	30.8 (0.7/2.2)
Throwback	0.0 (0/0)	100.0 (1/1)	25.0 (1/4)	100.0 (3/3)	66.7 (2/3)	75.0 (3/4)	66.7 (1.7/2.5)
Level III	0.0 (0/0)	0.0 (0/0)	66.7 (2/3)	80.0 (4/5)	75.0 (3/4)	60.0 (3/5)	66.7 (2.0/3.0)
Pass or run option	0.0 (0/0)	0.0 (0/0)	66.7 (2/3)	80.0 (4/5)	100.0 (3/3)	75.0 (3/4)	80.0 (2.0/2.5)
Total	30.6 (22/72)	23.6 (17/72)	41.7 (30/72)	45.8 (33/72)	51.4 (37/72)	52.8 (38/72)	41.0 (29.5/72.0)

Note. "Frequency in strategy execution/frequency in strategy planning" is shown in the parenthesis.

3.2. Changes in the Strategies Executed by Children

Table 3 shows the changes in the rate of execution of strategies by children. The overall rate of execution of strategies mostly increased along with the progress of the unit of study with a temporary decrease during the 7th hour. As for the rate by play, the rate of execution of strategies with run play, it was 31.1% in the 6th hour. The rate continuously increased after that and it finally reached 58.5% in the 11th hour. On the other hand, the rate concerning the pass play was kept at a higher level with an hourly average of 58.7%, and between the 6th and 11th hour, the rate was always over 50%.

Per hour average of the rate of execution of strategies with run play, by level of tactical complexity was 48.2% for run-level I, 36.8% for run-level II, 19.1% for run-level III, which indicates that the tactically easier a strategy was, the more frequently it was executed. As for changes made along with the progress of the unit of study, run-level I showed increase along with the progress. On the other hand, run-level II did not show a significant difference. However, its rate of execution, which was 25% in the 6th hour, increased to 54.5% in the 11th hour. As for run-level III strategies, the relevant rate never exceeded 50% unlike

strategies of other levels.

Per hour average of the rate of execution of strategies with pass play, by level of tactical complexity, was 60% for pass-level I, 50% pass-level II, and 66.7% for pass-level III. Strategies of every level were executed at a very high rate. As for changes made along with the progress of the unit of study, pass-level I showed a rate of 60% in the 6th hour, which suddenly increased to 80% in the 8th hour. The rate then lowered somewhat but kept at between 50 and 56.3%. Strategies with streak pattern, among others, were executed at a high rate all through the unit of study. On the other hand, pass-level II and III did not show any significant change in the rate of frequency and the rate was always over 50% during the latter half of the unit of study. Pass-level II strategies with throwback pattern, among others, executed an average hourly rate of 66.7%, and pass-level II with pass or run option pattern also showed a higher rate of 80%.

4. Discussion

4.1. Changes in Strategies Planned by Children

When we analyzed the process of changes in strategies planned by children, we found that the tactically easier a strategy is, the more frequently it is planned

concerning both pass and run plays.

As for the run play, the fact that many strategies were planned that included blocks and fakes that had been presented by teachers during the first half of the unit of study, i.e., the 3rd and 5th hour, indicates that children successfully acquired knowledge of tactics of flag football, which had been set for the study this time. When we see strategies in terms of changes made along with the progress of the unit of study, run-level I strategies increased in number and run-level II strategies decreased as the study progressed. This was partly because the opponent changed its method of defense from the simple method of following the player with the ball to a systematic method of man-to-man defense. The said change in the defense made fake play of run-level II lose its advantage in terms of the number of people and became tactically ineffective. Accordingly, children changed the strategy to include run play with blocks that would secure a running space for the player with the ball. This result shows, as reported by Yamazaki (1999), that children acquired the ability to improve their strategies according to opponent behavior.

As for the pass play, strategies that include pass-level I streak pattern were the most popular throughout the unit of study and they even increased in number as the unit of study progressed. In this strategy, the target receiver runs up the sideline of the field to go into the space behind the defense. As the position of the defense at the start of the game determines this particular space where the receiver is to go in, it is not necessary for QB to have the ability to find the most suitable receiver to pass the ball by assuming the possible move of the defense. Accordingly, from the result of the study this time, it has been indicated that upper graders in elementary school are quite capable of drawing up strategies that include basic pass tactics such as running into certain existing space.

4.2. Changes in Strategies Executed by Children

When we analyzed the process of changes in the execution of strategies by children, we found an increase in the rate of execution along with the progress of the unit of study. Toward the end of the unit of study, or after the 10th hour in particular, the rate exceeded 50%. Uchida et al (1999) analyzed the moves of children by watching videotaped games and reported that the rate that was 12.5% in the 4th hour improved to 55.6% in the 6th hour. These figures are the result of the analysis of the data of only 2 hours during the unit of study, and the data of strategies planned by children is ambiguous. The result of the study this time enabled us to evaluate more objectively

the value of flag football as teaching material as it allows children to execute strategies they planned in actual tactical operation.

Changes in the execution of strategies by children by play is summarized as follows:

For run play, the strategy using run-level I blocks increased in number along with the progress of the unit of study. The outside run strategy with blocks was executed at a very high rate toward the end of the unit of study. It was clear that run-level I strategies are sufficiently feasible for execution by upper graders of elementary school.

Concerning run-level II, the rate of execution of strategies with pass fakes always exceeded 50% from the 8th hour on. This play that includes pass fakes was not taught during the practice this time. Still the rate of execution was high, probably because a pass fake play is an effective run play when the defense is watching out for the possible pass play by the offense. As shown in **Table 3**, the number of strategies with pass plays executed increased suddenly from the 8th hour on. When the defense backed up and marked the intended player to receive the pass, it became increasingly difficult to achieve a successful pass. In order to get out of the above difficult situation, children on the offense schemed run plays with pass fakes and tried to outmaneuver the defense.

For pass play, the rate of execution of strategies with pass-level I streak pattern was kept at a higher rate all through the unit of study. The play was the highest frequency of execution per hour as well, which suggests that it is a sufficiently feasible pass play for upper graders in elementary school.

There were strategies with very high rate of execution, although the frequency was low. Pass-level II with throwback pattern was typically such a play. In this play, the offense makes the defense go to either side of the field and one of the offense runs into the other side at an opportune time. It is important to make the defense focus on one side. As shown in **Table 3**, run plays with blocks were executed often from the 9th hour and after. At the same time, the defense became watchful for the player with the ball. Children, by letting the defense watch the player with the ball, tried to make a pass to the player who ran into the other side. This is not something that popped into children's head. They executed the strategy, assuming the possible move of the defense.

5. Summary

In this study, in order to identify the effectiveness of flag football as teaching material from the viewpoint

of tactical games approach, we reviewed the changing process of strategies planned and executed by children over the progress of the unit of study.

- 1) It has been identified that children are sufficiently capable of planning strategies including run plays with blocks and fakes, which are basic moves of flag football, as well as pass plays with streak pattern, which involves running into the existing space. It has been identified also that they acquired, along with the progress of the unit of study, the ability to plan strategies, assuming the possible move made by the opponent team.
- 2) The rate of execution of strategies went up along with the progress of the unit of study to as high as more than 50% toward the end of the unit. This verifies that flag football is suitable for use as teaching material because concerning strategies are easy to be applied to the actual tactical operation. We also confirmed that run play tactics at Level I to II are sufficiently feasible and that the rate of execution of pass play tactics at all levels had exceeded 50% toward the end of the unit of study. Thus, as feasible levels of tactics have been confirmed concerning upper graders in elementary school, this will serve as an important clue for applying flag football in PE classes.

The above results suggest that the game of flag football, which we made implemented in this study, is useful teaching material from the viewpoint of tactical games approach. However, we still do not know if the tactical knowledge and ability acquired in the study of flag football in this study is applicable to other similar games categorized in the same type. Unless we confirm applicability, it is difficult to establish a theory of a curriculum system of ball games based upon the developmental stage of children and reasons for specifically choosing flag football from a variety of ball games. It is now necessary to review the effectiveness of flag football as teaching material with due consideration on the above and to prepare verifiable class models.

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