《論　文》

Learning to make and use space in soccer in high school PE classes:

Learning third-man-running as an offensive group tactics on off-the-ball movements

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高校のサッカー授業におけるスペースを活用した攻撃の戦術学習
―「第3の動き」の教材を用いた授業実践―

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Abstract

　This study examined the effects of third man running for learning how to make and use space in soccer in high school PE classes. Third man running is a typical group tactic used in soccer to give the offense space and time for decision-making. First, we demonstrated that high school students were able to perform the tactic in PE classes. Second, we determined that students who learned and performed the tactic in appropriate games improved their off-the-ball movements to support their teammates with the ball in 4 vs. 4. Based on these findings, we concluded that third man running was effective for learning to make and use space and improving off-the-ball movements to support teammates with the ball.

抄録

　本研究は，高校のサッカーの授業においてスペースを作って活用することを学ぶために，仲間と連携する動きとして「第3の動き」を取りあげ，ボールを持たない動きの学習に及ぼす効果について検討した．「第3の動き」は，攻撃のためのスペースとパスの意思決定のための時間を作ることができる連携した動きであるが，体育授業での活用事例がない．本研究ではまず，一般的な高校生が体育授業の中で「第3の動き」を習得することができることを実証した．次に，「第3の動き」を実施しやすいように修正されたゲームを行ってこの動きをを学んだ後，4対4のミニゲームの

中での生徒のサポートの動きが有意に改善されたことを確認した．これらの結果から，「第３の動き」は，体育授業において攻撃のためのスペースを作って活用することを学習し，ボールを持たないサポートの動きを向上させるために有効であることが明らかになった．

１．Introduction

In the Course of Study for Senior High School (Minister of Education, Culture, Sports, Science and Technology (MEXT, 2009), ball games in physical education covering various sports are categorized into goal games, net games and bat-and-ball games depending on the characteristics and attractiveness of the games, focusing on the learning tasks in manipulating the ball and tools commonly used in offense and defense and off-the-ball movements.

The Commentary on the Course of Study for Senior High School (MEXT, 2009) requires that students learning ball games become able to play games by improving their skills according to the strategy or situation and their moves correspond with their teammates, considering past training. Classes on goal games in the first year in high school aim to teach students to play offense and defense by delivering the ball in front of the goal through stable ball manipulation and corresponding moves such as creating space. Classes in the following years aim to teach the students to play offense and defense by delivering the ball into a space through ball manipulation according to the conditions and corresponding moves such as filling a space (MEXT, 2009, p. 60).

Examples of offensive off-the-ball movements in first-year high school classes include a move to go away from the player's teammates or go to a spot with no other players when attacking and a move to receive the next pass after passing the ball to a teammate. Examples of offensive off-the-ball movements in second and third year classes include a move from the player's team territory to a spot in the opponent's territory that is easy to enter, a move to a space made by teammates for receiving a pass, a move to create a space for teammates to enter such as a screening and post play, and a move based on the player's role in the team such as formation and set plays for scoring goals. At the high school level, students need to create a space and work with their teammates to move to that space.

There are some benefits to moving based on a player's role in working with teammates. Dividing the roles provides each player with advance knowledge of what to do, reducing their burden of assessing each situation and deciding what to select from multiple options. This reduces their learning period. Playing a predetermined role is comprehensible for both offense and defense. The offense, however, enjoys the advantage of moving first, being active and taking the initiative, whereas the defense suffers from the disadvantages of moving after the offence and being passive

(Matsumoto and Suzuki, p. 140).

In goal games classes, students learn to improve their defensive and offensive skills, but offensive improvement stops in some cases. The performance of individual players alone has been increasingly unable to break organized defense in soccer games in recent years, even for top players. Matsumoto and Suzuki (2001) claim that a combination play of three players is an effective means of solving this problem and propose the coaching technique of the third-man running attacking pattern as an offensive tactic that should be acquired at the junior high school level. The guide to soccer terminology attached to the intensive training guidelines (JFA, 2000) of the Japan Football Association describes the third-man-running as the "move of Player 3 to receive the ball in a more advantageous position by starting to run before Player 2 receives the ball when Player 1 passes it to Player 2, not to directly receive the ball from Player 1, but to receive it after it is passed to Player 2. This is a very important move in contemporary soccer that requires anticipation." Ono (1998) also introduces third-man-running as a defense-breaking play in his soccer coaching manual for third to sixth graders in elementary school and youth players.

Matsumoto and Suzuki (2001) describe the attacking pattern of third-man-running. First is a pass from the first attacker to the second attacker in expectation for a subsequent pass to the third attacker; this pass predicts the following play. Second is a one-touch pass from the second attacker after receiving the ball from the first attacker; this pass is a wall pass to the third attacker. Third is a play where the third attacker starts moving before the second attacker sends the pass; the third attacker is moving to receive the pass in an open space; this is third-man running. This attacking pattern enables the first attacker to pass the ball to the third attacker, who cannot directly receive the pass from the first attacker or who is running from behind the first attacker, while intentionally causing the opponent's defense to gather around the second attacker by using the second attacker as a decoy. Changing the direction from the second attacker to the third attacker enables the third attacker to use the space. The preemptive move of the third attacker before the pass ensures time to use an advantageous space faster than the defense (p. 144). Dividing the roles of the three players in this third-man running attacking pattern facilitates training to create a space and move to the space by cooperating with their teammates, which is required at the high school level. This should also enable them to attack by breaking through the defense, even if defense performance improves through repeated games in class.

2. Purpose

This study examines the effectiveness of teaching the third-man running attacking

pattern in goal games (soccer) classes at high school that focus on scoring for students to learn off-the-ball movements at the high school level.

To this end, this study used the following six tasks to examine the results.

Task 1: Determine if third-man-running used to train off-the-ball movements in competitive soccer can be learned in physical education classes.

Task 2: Determine if students can learn the supporting play using a space in front of them through training for third man running.

Task 3: Determine if student judgment improves through training for third-man-running.

Task 4: Determine if students' general supporting play improves by learning third-man-running.

Task 5: Determine if students can learn the move to receive the next pass after passing by learning third-man-running

Task 6: Determine if students can make offensive moves using third-man-running in a normal game.

3．Method

1) Participants

Two test classes were held for this study. Thirty eight 2nd grade high school students (male) participated in the first test class (Figure 1) in which we observed if they were able to learn third-man-running in a PE class using games in settings that facilitate third-man-running. Twenty eight 1st grade high school students (male) participated in the second test class (Figure 2) in which we

	1	2	3	4	5
0 5	Taking attendance, explanation of today's lesson & warm-up				
10	Orientation	Third-man running practice	Trap & pass practice		
15			Third-man running practice		3 on 3 + target game
20					
25			3 on 1 game		
30					
35	3 on 3 + target game		3 on 3 + target game		4 on 4 mini game
40					
45					
50	Clean-up, reflection of today's lesson, & previous notice of the next lesson				

Figure 1: Unit plan for first test class

	1	2	3	4	5	6	7
0 5	Taking attendance, explanation of today's lesson & warm-up						
10	Orientation	Trap & pass practice	Trap & pass practice				Triangle pass practice
15			TMR				
20		Third-man running (TMR) practice	3 on 1 game	3 on 3 + target game		4 on 4 mini game	4 on 4 gane with shooting zone
25	3 on 3 + target game		3 on 3 + target game				
30				4 on 4 mini game			
35							4 on 4 mini game
40	4 on 4 mini game	3 on 3 + target game	4 on 4 mini game				
45				Clean-up, reflection of today's lesson, & previous notice of the next lesson			
50	Clean-up, reflection of today's lesson, & previous notice of the next lesson						

Figure 2: Unit plan for second lesson plan

examined students learning third-man-running under more complex conditions, learning through third-man-running and using third-man running in games without restrictions.

2) Educational material 1: Practice to learn third-man-running

Third-man-running was conducted as follows: A group of three players played in a court 27 meters long and 18 meters wide. Figure 3 illustrates the placement and movement of players and the movement of the ball. As shown in Fig. 3, two players are positioned 10 meters away from each other at the edge opposite the goal and the third player is placed 13.5 meters away from the two to make the formation. One of the two players on the edge has the ball and the
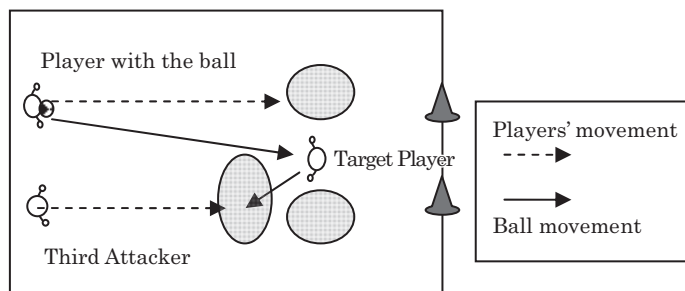

Figure 3: Movements of players and ball and spaces in third-man running

player to receive the first pass at the spot 13.5 meters away becomes the target player. The second player on the edge, standing next to the player in the possession of the ball ("player with the ball"), becomes the third attacker. This third attacker instructs the player with the ball to pass the ball to the target player, simultaneously moves in front of or beside the target player, and receives the next pass from the target player. The player with the ball moves to a space different from the third attacker immediately after passing the ball to the target player. After receiving the pass, the target player passes it to the third attacker who had moved to a space before the player who had the ball then had moved to the space. Starting to move before the player with the ball passes enables the third attacker to quickly move to a space to receive the pass from the target player. In this process, the third attacker provides support using the time advantage of being able to start moving in advance. The player with the ball moves, following the third attacker after passing the ball, moves to a space different from the third attacker's space. Even if the third attacker is blocked by the defense, the target player can pass the ball to the player who originally had the ball when the exercise started and who is now providing support in a different space, instead of the third attacker. The player who originally had the ball at the beginning of the exercise always provides support in a different space from the third player, which is considered support using the

location advantage in the sense that another space is available even if the third attacker is blocked by the defense. In the task training for third-man-running, the players learn the movements of the three roles, the timing to move to acquire the support using the time and location advantages, and actual moves by understanding the locations to move to. If the third attacker can provide quick-move support using the time advantage and the player with the ball moves to a space away from the third attacker to smoothly make the formation, they have learned the timing and destination to move for the support using time and location advantages.

3) Educational material 2: Three on one game to learn third-man running and make good decisions

The following describes how to shoot from a three-on-one formation. A group of four players, three offensive and one defensive, make the formation shown in Fig. 4, and the two players standing near the line on the opposite side of the goal pass the ball back and forth. The offense aims to score a goal. As depicted in Fig. 4, one of the two offensive players passing the ball becomes the third attacker, instructs the player with the ball to pass the ball to the target player standing 13.5 meters away, and simultaneously moves to a space in front of or beside the target player. Upon the instruction, the player passes the ball to the target player and immediately moves to a space different from
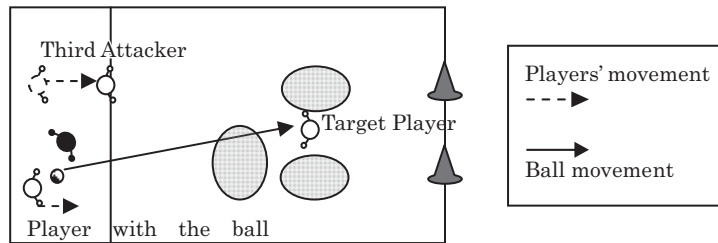
Figure 4: Movements of the third attacker and the other player when passing to the target player for a shoot from three-on-one formation

the third attacker's space. Because of the time advantage the third attacker gained from the advance move, the target player now in possession of the ball aims to pass the ball to the third attacker as the first priority. If, however, the opponent's defense blocks the third attacker, who has moved to a space beside or in front of the target player, and the third attacker no longer has the time advantage, the target player passes the ball back to the player who had the ball previously and who has moved to a space different from that of the third attacker. The defense aims to steal the ball from the two players exchanging passes while preventing them from passing the ball to the target player within a range not exceeding the seven-meter line. The defense returns to defend the goal beyond the seven-meter line if a pass successfully reaches the target player. The two players exchanging passes and the defense cannot cross the seven-meter line until the player with the ball passes the ball to the target player. As soon as the ball leaves the passer's foot, the players are allowed to cross the seven-meter line.

4) Educational material 3: Three-on-three plus a target player game to facilitate third-man running

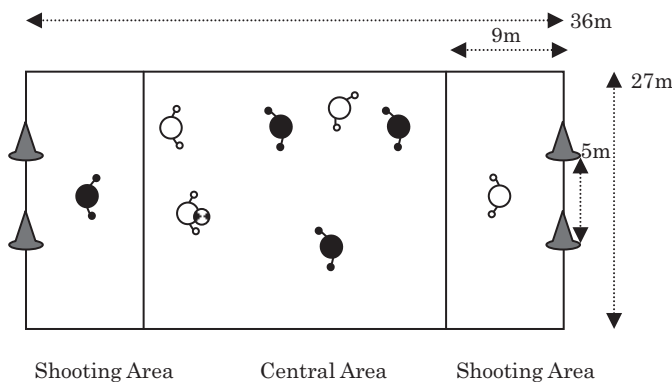The rules for 'three-on-three plus a target player' game (Figure 5) are as follows: Each

Figure 5: Field of three-on-three plus target

team places a target player in the shooting area. This player cannot shoot the ball and cannot enter the central area from the shooting area, but can move freely in the shooting area. The target player's position on each team is the offensive direction of the team. Players other than the target player play in the central zone, but can enter the shooting area and pass the ball to the target player who can shoot at the goal. Players other than the target player can cross the nine-meter line and enter the shooting area from the moment the ball leaves the passer's foot when passing it to the target player. The defense aims to steal the ball from the offense while preventing passes to the target player in the central area. If the defense fails to block a pass to the target player, the defense crosses the nine-meter line and enters the shooting area to defend the goal, attempting to take the ball from the offense. If the ball goes over the touchline, the game is resumed with a kick-in of the team that did not let the ball out. If the ball goes out from the goal line, the game is resumed with a goal kick if the

offense let the ball go over the goal line and with a corner kick if the defense did. For goal kicks, the ball is given to the team when the target player of the opponent team is entitled to a goal kick. If a goal is scored, the game is also resumed with a goal kick to reduce the loss of time.

5) Educational material 4: four-on-four game with shooting area to learn to create a start of attacks and perform third-man running

Figure 6 describes how to conduct a four-on-four game with shooting area. The ball is held in the central area and an off-the-ball player enters the shooting area to be the target player. Only one offensive player can enter the shooting area

The game is resumed with a kick-in if the ball goes over the touchline. If the ball goes into the goal or misses the goal, the game restarts with a goal kick. Corner kicks are played with ordinary rules.
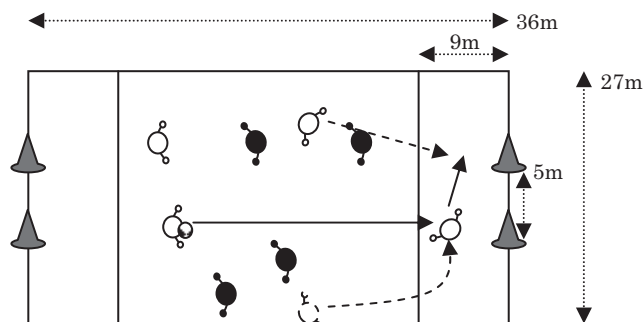

Figure 6: Movements to create the target player for four-on-four play

6) Four-on-four mini game

Figure 7 shows the field of four-on-four mini game. A four-on-four game was played with the same rules as ordinary soccer.

7) Data collection and data analysis

Three-on-three plus a target player game (Main Game 1), four-on-four game with shooting area (Main Game 2), and Four-on-four mini game (the unrestricted game) were videotaped. In Main Games 1 and 2, the action from starting with the pass to the target player until the opponent steals the ball or the play is terminated was extracted as one scene. The types of support in the play and decisions made by the target player were then categorized. In the unrestricted game, the supportive actions in each pass and moves after passing the ball were categorized.

4 . Results and discussion

In order to identify and compare the success rates for providing support using third-man-running in Main Games 1 and 2 for each class, the number of supporting plays using third-man-running in the entire one-hour class, the number of supporting plays in which one-touch passes from the target player were successfully received, and the number of failed supporting plays using third-man-running were counted. The number of attempts in each case and the percentage in the total number were calculated and compared. The number of passes from a single player to the target player was the number of attempts. The number of supporting plays using the time advantage, supporting plays using the location advantage, and supporting plays using both the time and location advantages was counted as supporting plays using third-man-running.

1) Research Task 1: Determine if third-man-running used to train off-the-ball movements in competitive soccer can be learned in physical education classes.

The differences in the percentages of supporting plays using third-man-running in the course of the first test class were
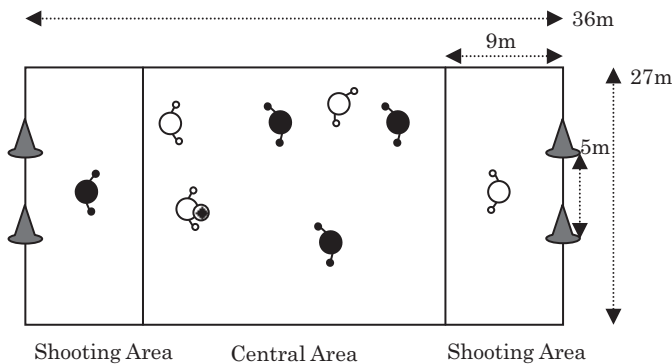

Figure 7: Field of an unrestricted game

compared (Table 1). Fisher's exact probability test was used in this analysis as the expected frequency was less than five. The results displayed an increase in the success rate of supporting plays using third-man-running in the fourth class (p<.05). 'One touch' in the table refers to the supporting plays incidental to learning third-man-running. These plays are where the target player was able to pass without trapping the ball, such as entering the shooting area immediately after passing the ball, even without any advantages. The percentage of supporting plays using third man running was 47.0% in the fourth class. Since three players can pass to the target player, at least one player should have been able to pass to the target player using either the time or location advantage.

A chi-square test was performed to compare the differences in the percentages of supporting plays using third-man-running in the course

of the second test class. The results indicated an increase in the success rate of supporting plays using third man running in the fourth and fifth classes (Table 2). The percentage of supporting plays using third-man-running exceeded 50% from the fourth to sixth classes. One pass to the target player from among three players should enable at least one player to pass to the target player using either the time or location advantage.

2) Research Task 2: Determine if students can learn the supporting play using a space in front of them through training for third-man-running.

Learning supporting plays using a space in front was examined based on the success rate of supporting plays using the time advantage, that of supporting plays using the location advantage, and that of supporting plays by moving to the front. In order to

Table 1: Performance of third-man running in the first test class

Class	1	3	4	6	χ^2
Successes(%)	21(26.6%)	16(31.4%)	31(47.0%)	13(44.8%)	
One touch(%)	6(7.6%)	9(17.6%)	8(12.1%)	2(6.9%)	12.889*
Failures(%)	52(65.8%)	26(51.0%)	27(40.9%)	14(48.3%)	
Total	79	51	66	29	

*p<.05

Table 2: Performance of third-man running in the second test class

Class	1	2	3	4	5	6	7	χ^2
Successes(%)	36(34.6%)	68(37.8%)	68(44.2%)	90(51.7%)	91(52.9%)	73(50.3%)	70(45.8%)	
One touch(%)	19(18.3%)	27(15.0%)	30(19.5%)	30(17.2%)	31(18.0%)	24(16.6%)	23(15.0%)	24.202*
Failures(%)	49(47.1%)	85(47.2%)	56(36.4%)	54(31.0%)	50(29.1%)	48(33.1%)	60(39.2%)	
Total	104	180	154	174	172	145	153	

*p<.05

identify and compare the success rates of providing support for each class using the time advantage in Main Games 1 and 2, the numbers of successful and unsuccessful supporting plays using the time advantage in the entire one-hour class were counted. The number of attempted supporting plays using the time advantage is the number of successful passes from an individual player, when the player who started the play with the ball does not have possession, to the target player. When the ball was passed to the target player, the player who began providing support for the target player before the ball left the passer's foot was considered to have provided successful support using the time advantage. The number of successful supporting plays using the time advantage includes the number of successful support plays using both the time and location advantages. The success rate of supporting plays using the time advantage was calculated by comparing the total number of attempts and successful attempts. A chi-square test was performed to compare the differences in the success rates for providing support play using the time advantage in the course of the second test class. The results revealed growth in the success rate in the fourth and fifth

classes near the end of Main Game 1 (Table 3).

Starting to move to provide support and using the time advantage by predicting the development before the ball is passed prevents the player with the ball from using the time advantage to provide support. Two of the three players in the central area are therefore able to use the time advantage to provide support for each pass to the target player. The success rate of supporting plays using the time advantage exceeded 50% in the fourth and fifth classes. This suggests that at least one of the two players capable of providing support for each pass to the target player using the time advantage was providing support using the time advantage.

In order to identify and compare the success rates for each class for providing support using the location advantage in the Main Games, the numbers of successful and unsuccessful supporting plays using the location advantage in the entire one-hour class were counted. The number of passes from an individual player to the target player was the number of attempts. When the ball was passed to the target player, the player who determined and moved to a space different from the teammate who had started moving earlier was considered to

Table 3: Performance of support play using the time advantage in the second test class

Class	1	2	3	4	5	6	7	χ^2
Successes(%)	19(29.2%)	41(35.0%)	34(34.3%)	59(50.0%)	58(52.3%)	42(45.7%)	31(33.3%)	
Failures(%)	46(70.8%)	76(65.0%)	65(65.7%)	59(50.0%)	53(47.7%)	50(54.3%)	62(66.7%)	20.111**
Total	65	117	99	118	111	92	93	

**p<.01

have provided successful support using the location advantage. The number of successful supporting plays using the location advantage includes the number of successful support plays using both the time and location advantages. The success rate of supporting plays using the location advantage was calculated by comparing the total number of attempts and successful attempts.

A chi-square test was performed to compare the differences in the success rates for providing support using the location advantage in the course of the second test class (Table 4). The results revealed an increased success rate in Main Game 2 near the end of the classes. All three players in the central area can provide support using the location advantage. The success rate of supporting plays using the location advantage exceeded 30% in the sixth and seventh classes. This suggests that at least one of the three players in the central area provided support for each pass to the target player using the location advantage.

In order to identify and compare the success rates for each class for providing support by moving forward in four-on-four mini game (unrestricted game) in the first, fourth, and seventh classes, the numbers of successful and unsuccessful supporting plays by moving forward in the entire one-hour class were counted. The number of times an individual player moved in the direction of the goal simultaneously as the player with the ball passed the ball was considered the number of attempts; when no opponent player was standing between the player with the ball and the intended receiver was considered successfully providing support by moving forward. The success rate of supporting plays by moving forward was calculated by comparing the total number of attempts and successful attempts.

A chi-square test was performed to compare the differences in the success rates for providing support by moving forward in unrestricted games in the course of the second test class

Table 4: Performance of support play using the location advantage in the second test class

Class	1	2	3	4	5	6	7	χ^2
Successes(%)	21(20.2%)	34(18.9%)	40(26.0%)	40(23.0%)	46(26.7%)	44(30.3%)	54(35.3%)	
Failures(%)	83(79.8%)	146(81.1%)	114(74.0%)	134(77.0%)	126(73.3%)	101(69.7%)	99(64.7%)	15.775*
Total	104	180	154	174	172	145	153	

*p<.05

Table 5: Performance of support play by moving forward in the second test class

Class	1	4	7	χ^2
Successes(%)	38(58.5%)	186(76.9%)	73(88.0%)	
Failures(%)	27(41.5%)	56(23.1%)	10(12.0%)	17.632***
Total	65	242	83	

***p<.001

(Table 5). The results indicated an increase in the success rate in the seventh class. The success rate for providing support by moving forward increased to nearly 90% in the seventh class, which is a satisfactory learning achievement. The factors of providing support by moving forward and determining a space, which are included in third-man-running, were effective in players learning to provide support by moving forward.

3) Research Task 3: Determine if student judgment improves through training for third-man-running.

In order to identify and compare the decision success rates of the target player in Main Games 1 and 2 for each class, the numbers of successful and unsuccessful decisions of the target player in the entire one-hour class were counted. The decision success rate of the target player was calculated by comparing the total number of attempts and successful attempts. The number of times the target player received the ball was considered the number of attempts of the target player; the target player's attempts to pass the ball to an unmarked teammate were considered successful decisions. The number of attempts made by an individual player in one hour was counted, and the number of decisions made by each individual was also calculated. The number of attempts made by each individual and types of support provided were added up for the entire class to calculate the number of attempts made in the entire one-hour class and the number of decisions of each type in the entire class.

The differences in the successful decision rates of the target player in the course of the second test class were compared. Fisher's exact probability test was used in this analysis as the expected frequency was less than five (Table 6). The results revealed a decrease in the success rate in Main Game 2 in the seventh class. That is, the successful decision rate of the target player was high from the beginning in the learning in Main Game 1 involving starting the attacks (target player). In Main Game 2 to create starting attacks (target player), the successful decision rate of the target player declines and the level of the games advances as learning progresses. Deciding becomes a more complex task.

4) Research Task 4: Determine if students' general supporting play improves by learning third-man-running.

In order to identify and compare the success

Table 6: Decision making of the target player in the second test class

Class	1	2	3	4	5	6	7	χ^2
Successes(%)	40(93.0%)	62(80.5%)	61(92.4%)	46(75.4%)	61(84.7%)	41(85.4%)	35(68.6%)	
Failures(%)	3(7.0%)	15(19.5%)	5(7.6%)	15(24.6%)	11(15.3%)	7(14.6%)	16(31.4%)	17.659**
Total	43	77	66	61	72	48	51	

**p<.01

rates for providing general support in the unrestricted games in the first, fourth, and seventh classes, the numbers of successful and unsuccessful supporting plays in the entire one-hour class were counted. The number of times an individual player passed the ball was considered the number of attempts; when no opponent was between the player with the ball and the intended receiver was considered a success. The success rate for providing supporting plays was calculated by comparing the total number of attempts and successful attempts.

A chi-square test was performed to compare the differences in the success rates for providing general support in unrestricted games in the course of the second test class. The results indicated growth in the success rate in the fourth and fifth classes (Table 7). The success rate of supporting plays exceeded 80% in the seventh class. This is a satisfactory learning achievement. The factors for determining a space included in third-man-running were effective for learning to provide the appropriate support.

5) Research Task 5: Determine if students can learn the move to receive the next pass after passing by learning third-man running

In order to identify and compare the success rates of passes and moves in the four-to-four mini game (unrestricted game) in the first, fourth, and seventh classes, the numbers of successful and unsuccessful passes and moves in the entire one-hour class were counted. The number of times an individual player passed the ball was counted as the number of pass and move attempts; the number of successful passes and moves was counted for calculation. The number of attempts made by each individual and the number of successful passes and moves were totaled for the entire class. The number of attempts made in the entire one-hour class and the number of passes and moves made in the entire class were calculated. The success rate of passes and moves was calculated by comparing the total number of attempts and successful attempts. A chi-square test was performed to compare the differences in the success rates of passes and moves in unrestricted games in the course of the second test class. The results found growth in the success rate in the fourth and seventh classes (Table 8). The success rate of passes and moves exceeded

Table 7: Performance of general support in mini game

Class	1	4	7	χ^2
Successes(%)	160(55.7%)	451(77.4%)	247(80.2%)	
Failures(%)	80(27.9%)	119(20.4%)	58(18.8%)	108.931***
Ignored(%)	47(16.4%)	13(2.2%)	3(1.0%)	
Total	287	583	308	

***p<.001

Table 8: Performance of pass-and-move in mini game

Class	1	4	7	χ^2
Successes(%)	21(26.6%)	98(64.1%)	60(63.8%)	
Failures(%)	58(73.4%)	55(35.9%)	34(36.2%)	33.790***
Total	79	153	94	

***p<.001

60% in the fourth and seventh classes. In the unrestricted games, the players sometimes passed the ball to one another at the same spot to maintain possession of the ball while seeking attack opportunities. The 60% success rate is the rate of passes and moves when running towards the goal while passing the ball on offensive. Considering this, the 60% success rate is conceivably the standard of achievement for passes and moves.

6) Research Task 6: Determine if students can make offensive moves using third-man-running in a normal game.

In order to identify and compare for each class, the success rates of third-man-running in the unrestricted games in the first, fourth, and seventh classes, the numbers of third man running plays, and passes made in the entire one-hour class were counted. One pass made by the offense was considered one attempt; any player performing third-man-running was recorded. The number of passes counted for each team and the number of times third-man-running was conducted were aggregated for the entire class. The number of attempts in the entire one-hour class and the number of times third-man-running was conducted in the entire class were calculated. Even only one player performing third-man-running in one attempt was counted as an instance of third-man-running, and third-man-running performed by two or more players was also counted as one instance of third-man-running. The rate of third-man-running conducted was calculated by comparing the total number of plays and the number of passes.

A chi-square test was performed to compare the differences in the rates of third-man-running in unrestricted games in the course of the second test class. All students participating in the class were included in the statistics since groups conduct third-man-running in unrestricted games; players were not identified individually. The results displayed an increase in the rate of third-man-running

Table 9: Setting up third-man-running in

Class	1	4	7	χ^2
Successes(%)	25(11.8%)	91(20.8%)	32(18.2%)	
Failures(%)	186(88.2%)	347(79.2%)	144(81.8%)	7.719*
Total	211	438	176	

*p<.05

in the fourth class (Table 9). The rate of third-man-running was approximately 20% in the fourth and seventh classes. Third-man-running is conducted when attacking towards the goal and not in every pass in a game. It is when the offense passes the ball and can pass the ball to the target player. In competitive soccer games, players pass the ball to the sides and backwards, seeking opportunities to pass it to the target player who begins an offensive drive. This suggests that the success rate of 20% means third-man running succeeds in one in five passes made, which is an adequate use of third-man running during the games.

5．Conclusion

This study researched the effectiveness of third-man-running in learning attacks using a space in front. For this purpose, the study established five research tasks to examine the results. The following conclusions were derived from the results.

Examination of learning third-man-running at the stage involving starting the attacks resulted in finding that the success rates for providing support using the time advantage and that using third-man running increased in the course of the curriculum. Third-man running at the stage involving starting the attacks can therefore be mastered.

Examination of learning third-man running at the stage creating the start of the attacks resulted in finding that the success rates for providing support using the location advantage and that using third man running increased in the course of the curriculum. Third man running at the stage creating the start of the attacks can therefore be mastered. These findings all demonstrate that third man running can be learned in physical education classes.

Through learning third man running, the success rates for providing support using the time and location advantages increased over the course of the curriculum. The success rate for providing support by moving forward also rose in the course of the curriculum. Students became able to use a space in front in the course of the curriculum and learned how to provide support using third man running.

The decisions of the target player at the stage involving starting the attacks and that creating the start of the attacks indicated a high success rate. This result suggests consistency with a preceding study (Matsumoto & Suzuki, 2001) which found that third man running facilitates prompt decisions.

The above suggests that decisions had already been successful at a high level to begin with and did not improve through third-man running. Deciding learned by third-man running aimed to prioritize passes for early supporting plays and to alternatively pass the ball to a teammate standing at another space if the first-priority player is blocked by the defense. The presence of such priorities simplifies deciding, which is likely the reason for the high success rate from the beginning. Third-man running can simplify deciding.

The study also examined the success rate for providing support attempting to receive a pass by moving to a position with no opposing defensive player between the player with the ball and the intended receiver in an unrestricted game. The result was an increase in the success rate for supporting plays in the course of the curriculum. The rate of providing successful support can be increased through third man running.

The study subsequently examined the success rate of 'pass and move' which is the move to receive the next pass after the first pass in an unrestricted game. The results showed a rise in the success rate of pass and move over the course of the curriculum. The move to receive the next pass after the first pass can be learned through third man running.

Examining the use of third-man running in unrestricted games showed an increase in the rate of third man running in unrestricted games. Players can learn to attack with third man running in unrestricted games. Learning third man running and learning through third man running progressed in the process of each task. Having students learn to attack using a space in front in third man running is effective in training off-the-ball movements at the high-school level.

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