



RESEARCH ON CRITERIA AND A CHAIN OF OBSERVED BEHAVIORS APPLYING DEFENSIVE TECHNIQUES OF THE U21 FOOTBALL TEAM OF AN GIANG PROVINCE, VIETNAM

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Abstract:

Defensive tactics in football are a combination of individual and collective efforts aimed at preventing the opponent's attack, protecting the goal, and regaining ball control. The effectiveness of defense depends on the players' ability to coordinate, judge situations, and apply techniques. The purpose of the research is to identify the criteria and sequences of observed behaviors applying techniques in defense of the U21 football team of An Giang province, Vietnam. The research employs methods of document synthesis and analysis, interviews, pedagogical observation, and statistical mathematics. The subjects observed were 19 matches of the U21 football team of An Giang province, Vietnam, and 30 male athletes from the U21 football team of An Giang province, Vietnam. The interview subjects were 15 football managers and coaches, as well as experts from both within and outside An Giang province, Vietnam. The research results have identified 05 observation criteria. (Breaking the ball with the foot (breaking the ball with the sole, with the instep, with the thigh. etc. high, low); Clearing the ball with the head; Slide tackle - Tackle from behind; Marking the opposing player; Other (clearing the ball with other parts of the body); 02 Behavior chain: Successful behavior chain (The opponent does not finish the goal) and Unsuccessful behavior chain (The opponent takes a shot on goal, the opponent scores a goal).

Keywords: criteria, observation behavior chain, defensive technique, football, An Giang, Vietnam

1. Introduction

Football is considered the "king" of sports due to its strong influence and ability to attract a large number of fans worldwide. With its high level of competition, excitement, and emotional depth, football is not just a sport but has also become a cultural and social phenomenon that profoundly influences many layers of the community. According to

the Fédération Internationale de Football Association (FIFA), football currently has more than 200 countries and territories participating in its development, making it the most popular sport globally (FIFA, 2022) [1]. In the past 30 years, football has become increasingly popular, highly socialized, and commercialized as part of the global economy and social sporting events. The level of national football, especially the performance of the national men's football team, has become a microcosm reflecting social development, while also serving as an important symbol of national strength and international standing [2], [3]. In that sense, the performance of the national team has a widespread impact on the country's economy, while also significantly affecting the financial efficiency of clubs, domestic leagues, and related industries [4].

Modern football is developing in the direction of increasing game speed, high intensity of movement, and continuous transitions between attack and defense. In that context, defensive effectiveness not only depends on the individual capabilities of the players but is also directly influenced by the ability to organize tactics, coordinate as a team, and apply appropriate techniques in each specific game situation. Many international studies show that high-performing teams often possess a tightly organized defensive system, synchronized pressing ability, maintain reasonable team spacing, and effectively handle transitional situations (Clemente F. M. *et al.*, 2020; Sarmiento *et al.*, 2018) [5], [6]. This confirms that modern defensive tactics are no longer passive but have become a strategic element that determines the team's performance.

In elite football, the analysis of tactical behavior and sequences of observed actions during matches has become an important research trend aimed at quantifying the professional performance of players and teams. The studies by Hughes and Bartlett (2002) [7], O'Donoghue (2014) [8] suggest that using an observation criteria system and tactical behavior chains helps coaches accurately identify movement characteristics, tactical organization patterns, and limitations during actual competition. Especially in defensive activities, analyzing behavior sequences such as pressing, contesting, covering, transitioning, and ball recovery is crucial in evaluating the effectiveness of players' technical and tactical application in each playing position. As a result, the training process can be tailored in a specific, scientific manner to better meet the needs of modern football. In recent years, along with the strong development of sports science, methods of tactical analysis through systematic observation and performance analysis have been widely applied in professional football. The works of Lago-Peñas *et al.* (2010) [9], Memmert, Lemmink, and Sampaio (2017) [10] show that the development of a reliable evaluation criteria system and a sequence of competitive behaviors enhances objectivity in professional assessments, while also effectively supporting training and athlete selection. FIFA and UEFA currently also encourage the application of tactical behavior analysis as a core tool in youth training and the development of high-performance football (Kelly, S., & O'Regan, N., 2021) [11].

In Vietnam, football continues to be identified as a key sport in the national sports development strategy. The training of young athletes, especially at the U19 and U21 levels, is being prioritized and invested in by localities to create a pool of successors for

professional football [12]. However, current training practices show that the evaluation of the effectiveness of defensive tactics in many youth teams still primarily relies on the subjective experience of the coaches, lacking a systematic set of criteria and a sequence of observational behaviors that are scientific, quantitative, and tailored to the specific characteristics of each team [13]. This is a significant limitation that affects the quality of training and the ability to effectively control tactics during matches [14].

For the U21 football team of An Giang province, in recent years, the team has made certain strides in youth training and participation in national competitions. However, through practical observation of the matches, it is evident that the team's defensive organization still reveals many limitations, such as: the ability to coordinate cover is not synchronized, the tactical response in transitioning states is slow, the handling of area defense situations lacks consistency, and the effectiveness in one-on-one duels and aerial defense is not high. In addition, the current evaluation of expertise is not based on a system of observation criteria and specific behavior sequences, making it difficult to accurately identify the limitations and to set adjustment directions in training.

In sports coaching science, establishing criteria and a sequence of observable behaviors is considered an important basis for evaluating the effectiveness of tactical movements in competitions. This system not only helps quantify professional performance but also reflects the level of team coordination, decision-making ability, and the effectiveness of technical application in practical situations. For youth football, especially at the U21 level – the stage of perfecting professional playing skills – studying the criteria and sequences of observed technical application in defense is of significant importance both theoretically and practically. This contributes to improving training quality, enhancing match performance, and guiding player development according to the demands of modern football.

Through the synthesis of research works both domestically and internationally, it is evident that there have been many studies related to performance analysis, tactical evaluation, and defensive organization in football; however, in-depth studies on the criteria and sequences of observed technical application in defense for local youth football teams in Vietnam are still limited. Especially, there has been no systematic research on the U21 football team of An Giang province. Therefore, conducting research on the topic: "Study of criteria and behavioral sequences in observing the application of defensive techniques of the U21 football team of An Giang province, Vietnam" is of urgent scientific and practical significance, contributing to the theoretical foundation in the field of football tactical analysis, while also providing scientific arguments to support training and improve the team's performance. With the importance of the above, the research topic was chosen: "Research on criteria and a chain of observed behaviors applying defensive techniques of the U21 football team of An Giang province, Vietnam".

2. Methodology

2.1 Research methods

2.1.1 Documentary research method

This method helps researchers collect information from various sources. Refer to and analyze the materials related to the research process such as scientific research methods, football training methods, football tactics regarding the criteria, behavior sequences, and observation of technical application in defense of the U21 football team of An Giang province, Vietnam, related to the research subjects, and video recordings of football training and matches.

2.1.2 Pedagogical observation method

Using this method to collect and record data on criteria and sequences of observed defensive techniques of the U21 football team of An Giang province, Vietnam, after observing video recordings of 19 matches of the U21 football team of An Giang province in the Second Division and the U21 National Championship.

Building a system of observation indicators

To proceed with recording data from the matches, we will develop a system of observation indicators along with corresponding codes and operations as follows:

Table 1: Table of observed indicators

Defensive Techniques		
Indicators	Code number	Operation
Technique 1	1	Mark the opposing player with the ball.
Technique 2	2	Defensive Header
Technique 3	3	Breaking the ball with the foot
Technique 4	4	Sliding tackle
Technique 5	5	Others
Phase 1 – Beginning of Defense		
Start defending 1	1	The opposing goalkeeper kicked the ball up.
Start defending 2	2	Throw-in
Start defending 3	3	Corner kick
Start defending 4	4	Direct free kick, indirect free kick
Start defending 5	5	The opponent directly gained possession of the ball
Start defending 6	6	The opponent indirectly gained possession of the ball
Phase 2 - Comprehensive Defense		
Defense 1	1	Delay – wait for teammates to support
Defense 2	2	Delay – let the opponent make a mistake
Defense 3	3	Sticking close – fighting for the ball
Defense 4	4	Pressing – direct ball theft
Defense 5	5	Defending against set pieces
Phase 3 - End of the Defensive Period		
Success 1	1	Phá bóng ra biên
Success 2	2	Phá bóng lên
Success 3	3	Giành lại quyền kiểm soát bóng

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Failed 2	4	Phạm lỗi, phạm luật
Failed 3	5	Đối phương kết thúc cầu môn

Annotation:

- The technique of marking an opponent with the ball: observe to decide whether to slow down the attack or wait for a favorable opportunity to intercept the ball.
- Other techniques: using other parts of the body to clear the ball: shoulder, chest, thigh... But using hands to play the ball is not allowed because football rules state that using hands to play the ball is a foul.
- The opponent directly gains possession of the ball: at this moment, the opponent is controlling the ball and actively attacking.
- The opponent indirectly gains possession of the ball: the ball bounces off a player, the referee, a bad pass, a foul, or a rule violation.
- Delay – wait for teammates to support: slow down the opponent's attack pace and wait for teammates to return to balance in defense.
- Delay – force the opponent to make mistakes: slow down the opponent's attack pace, apply pressure to make them lose the ball (dribbling, passing).
- Marking – intercepting the ball: applying pressure and waiting for the right moment to intercept the ball.
- Surrounding – direct ball stealing: At this moment, the defending team has enough or more players, creating pressure to steal the ball (pressing).
- Fixed penalty: organizing defense (setting up barriers, man-marking).
- Regaining ball control: using defensive techniques to steal the opponent's ball.
- Observe the match progress and record the data.

Table 2: Match information board

Tournament		
Indicators	Code number	Operation
Tournament 1	1	U21
Tournament 2	2	Second place
Match Result		
Result 1	1	Win
Result 2	2	Draw without goals
Result 3	3	Draw with goals
Result 4	4	Lose
Match		
Match 1	1	First match
Match 2	2	Second match
Match 3	3	Extra time
Behavior Chain		
Behavior chain 1	1	The opponent finished the goal.
Behavior chain 2	2	The opponent did not finish the goal.
Behavior chain 3	3	Commit a foul

Annotation:

I proceed to record data in the order of the athletes' competitive behavior on the field for each action to establish a basis for identifying the sequence of actions related to ball termination situations.

a. Interview method:

The research applies this method with the aim of exchanging and interviewing reputable, longtime football experts and coaches. Through this, the aim is to understand and identify the criteria and sequences of

observed behaviors, applying defensive techniques of the U21 football team of An Giang province, Vietnam. In the study, both direct and indirect interview methods were used.

b. Statistical methods:

The study uses this method to process and analyze the information obtained from the pedagogical observation method. In data processing, we use SPSS 22.0 software.

c. Research subjects:

- 19 matches of the U21 football team of An Giang province, Vietnam.
- 30 male athletes from the U21 football team of An Giang province, Vietnam.
- 15 football management officials and coaches, as well as experts from both within and outside An Giang province, were interviewed.

3. Results and Discussion

To determine the criteria, the sequence of behaviors observing the application of defensive techniques of the U21 football team of An Giang province, Vietnam, includes:

- Identify the criteria for observing the application of defensive techniques by the U21 football team of An Giang province, Vietnam.
- Identify the sequences of observed behaviors applying defensive techniques of the U21 football team of An Giang province, Vietnam.

3.1. Identify the criteria for observing the application of defensive techniques by the U21 football team of An Giang province, Vietnam.

To determine the criteria for observing the application of defensive techniques by the U21 football team of An Giang province, Vietnam, the study was conducted in the following two steps:

- **Step 1:** Compile the criteria for observing the application of defensive techniques in a football match.
- **Step 2:** Conduct interviews with experts, specialists, and coaches to identify the criteria for observing the application of defensive techniques of the U21 football team of An Giang province, Vietnam.

3.1.1. Summary of the criteria for observing the application of defensive techniques in a football match

Summarizing the criteria for observing the application of defensive techniques in a football match from research works by both domestic and international authors, such as:

- According to the INSAT match analysis software [15]: Stealing the ball, Intercepting the ball, Clearing the ball, Heading.
- Training football coaches at levels C, B, A, TTT Publishing House [16]: Sliding tackle, Interception, Steal, Clearance, Header.
- Youth football training program for ages 11 to 18, Sports Publishing House [17]: Tackle, Steal, Slide, Clear, Header.
- Practice at training centers and football clubs in the Mekong Delta provinces: Sliding tackle, Tackle, Clearance, Header.

- Practice at An Giang Football Center: Marking opposing players, sliding tackles, dribbling, clearing the ball, and heading.

The summarized results show that football federations, experts, and coaches use criteria for observing the application of defensive techniques in a football match in a non-uniform and dispersed manner. In football, there are many techniques such as:

- Clearing the ball with the foot (clearing the ball with the instep, the middle of the foot, the thigh, above, below, etc): Head clearance, sliding tackle, interception, marking the opposing player.
- Based on practical conditions, based on the characteristics of the research object, based on the research purpose, select the characteristic observation criteria that frequently appear and are suitable for the research object, including:
 - Ball interception with the foot (interception with the sole, with the instep, with the thigh, above, below, etc),
 - Head the ball,
 - Slide tackle – Tackle,
 - Marking the opposing player,
 - Other (clearing the ball with other parts of the body).

3.1.2. Interview experts and specialists

From the above summary results, proceed to construct a questionnaire and conduct two interviews with football coaches, experts, and managers in An Giang, Dong Thap, Binh Duong, Ho Chi Minh City, and Can Tho, spaced one month apart, using the same evaluation method, the same content system, and the same subjects, with responses being agree and disagree.

The interview subjects in the first round included 15 people, of which 5 were experts, accounting for 33.33%, and 10 were coaches, accounting for 66.67%.

The interview subjects in the first and second rounds consisted of 29 people, including 10 experts accounting for 34.48% and 19 coaches accounting for 65.52%.

To test the consistency of the results from the two interviews, they were compared using the χ^2 (chi-square) statistic. The interview results are presented in Table 3.1.

The results in Table 3.1 show that with a value of $\alpha = 0.05$, there is always $\chi^2 < \chi^2_{\alpha} = 3.84$, the difference is not statistically significant at the probability threshold $P > 0.05$; in other words, the results of the interviews are consistent, with no significant difference. So, the results of the two interviews with experts and coaches show a high level of agreement in their responses.

Table 3.1: Results of the interview on the criteria for observing the application of defensive techniques by the U21 football team of An Giang province, Vietnam

	Criteria	First Interview (n = 15)		Second Interview (n = 14)		χ^2	χ^2_{α}	P
		Agreed		Agreed				
		Quantity	%	Quantity	%			
1	Clearing the ball with the foot (clearing the ball with the instep, the laces, etc., high, low).	15	100.0	14	100.0	0.00	3.84	>0.05
2	Defensive Header	15	100.0	14	100.0	0.00	3.84	>0.05
3	Sliding tackle	14	93.33	13	92.86	0.08	3.84	>0.05
4	Mark the opposing player	15	100.0	14	100.0	0.00	3.84	>0.05
5	Other (breaking the ball with other parts of the body)	14	93.33	13	92.86	0.08	3.84	>0.05

Through the interview results, the observation criteria with a total agreement rate of over 75% from respondents across two interviews were selected. The research results selected the observation criteria for applying defensive techniques of the U21 football team of An Giang province, Vietnam, which include:

- Clearing the ball with the foot (clearing the ball with the sole, with the instep, with the thigh, etc.). etc. above, below),
- Defensive Header,
- Slide tackle – Tackle,
- Marking the opposing player,
- Other (clearing the ball with other parts of the body).

As we know, football is a sport where techniques and movements are relatively complex, diverse, and rich (both in form and content), primarily using the feet to control the ball and perform a series of actions with varying degrees of difficulty, especially applying very complex defensive techniques such as: As we know, football is a sport where techniques and movements are relatively complex, diverse, and rich (both in form and content), primarily using the feet to control the ball and perform a series of actions with varying degrees of difficulty, especially applying very complex defensive techniques such as: Thru observing the match on the field, criteria such as: marking the opponent, clearing the ball (with head, with foot), and sliding tackles repeatedly during the match. The study only recorded the above criteria as the criteria that needed to be statistically observed during the match.

3.2. Identify the sequences of observed behaviors applying defensive techniques of the U21 football team of An Giang province, Vietnam

To identify the sequences of observed defensive technical behaviors of the U21 football team of An Giang province, Vietnam, the study was conducted in the following two steps:

Step 1: Compile the sequences of observed defensive technical behaviors in a football match.

Step 2: Conduct interviews with experts, specialists, and coaches to identify the sequences of observed defensive technical behaviors of the U21 football team of An Giang province, Vietnam.

3.2.1. Summarizing the sequences of observed behaviors applying defensive techniques in a football match

Based on the criteria established in section 3.1.1, the study categorizes the criteria according to the sequences of actions from when the opponent gains ball control to the end of an attack, including the most frequently occurring actions, and divides them into two groups (successful and unsuccessful) as follows:

Successful behavior chain

- The opponent does not finish the goal.

Unsuccessful behavior chain

- The opponent finishes the goal.
- The opponent scores a goal

3.2.2. Interview experts and specialists

From the above summary results, proceed to construct the survey and conduct interviews (Appendix 1) twice with football coaches, experts, and managers in An Giang, Dong Thap, Vinh Long, Ho Chi Minh City, and Can Tho, timed one month apart, using the same evaluation method, the same content system, and the same subjects, with responses being agree and disagree.

To test the consistency of the results from the two interviews, they are compared using the χ^2 (chi-squared) statistic. The interview results are presented in Table 3.2.

Table 3.2: Results of interviews on the observed behavior sequences applying defensive techniques of the U21 football team of An Giang province, Vietnam

	Criteria	First interview (n = 15)		Second interview (n = 14)		χ^2	χ^2_α	P
		Agreed		Agreed				
		Quantity	%	Quantity	%			
	<i>Successful behavior chain</i>							
1	The opponent did not finish the goal.	15	100.0	14	100.0	0.00	3.84	>0.05
	<i>Chain of unsuccessful behaviors</i>							
2	The opponent finished outside	15	100.0	14	100.0	0.00	3.84	>0.05
3	The opponent scores.	14	93.33	13	92.86	0.08	3.84	>0.05

The results in Table 3.2 show that, with the α value = 0,05 always there $\chi^2 < \chi^2_\alpha = 3.84$, that is, the difference is not statistically significant at the probability threshold $P > 0.05$, in other words, the results of the interviews are consistent, with no significant difference.

Therefore, the results of the two interviews with experts and coaches show a high level of agreement in their responses.

Through the interview results, select the observed behavior sequences with a total agreement rate of > 75% from the respondents over two rounds of interviews. The research results selected the observed behavior sequences applying defensive techniques of the U21 football team of An Giang province, Vietnam, which include:

Successful behavior chain,

- The opponent does not finish the goal,

Unsuccessful behavior chain,

- The opponent finishes the goal,
- The opponent scores a goal.

Through observing football matches, the sequences of the opposing team's actions that do not end in a goal occur continuously. The study only recorded the above sequences of actions as those that need to be statistically observed during the course of the match.

4. Conclusion

The criteria and sequence of observed behaviors applying defensive techniques of the U21 football team of An Giang province, Vietnam, have been identified as follows:

4.1 Observation criteria

Clearing the ball with the foot (clearing the ball with the sole, with the instep, with the thigh, etc.). etc. above, below).

- Defensive Header
- Slide tackle – Tackle
- Marking the opposing player
- Other (intercepting the ball with other body parts)

4.1.1 Behavior chain

Successful behavior chain,

- The opponent does not finish the goal,

A series of unsuccessful actions,

- The opponent finishes the goal,
- The opponent scores a goal.

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Conflict of Interest Statement

The authors declare no conflicts of interest.

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