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APPLICATION OF CERTAIN CHESS ARTISTIC ENDGAME EXERCISES TO IMPROVE CHECKMATE SKILLS FOR A MALE CHESS TEAM OF TRAN HUNG DAO HIGH SCHOOL - NINH PHONG WARD - NINH BINH CITY

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Abstract:
Physical Education (PE) and Sports are means of educating, training and nurturing the young generation for a comprehensive future development. Chess is a new sport introduced to Vietnam, but it has become a cultural and spiritual need of many classes of people [1]. The country's sports are honored thanks to this sport. Chess plays a key role in improving the ability to calculate with continuous and complex developments. Especially improving the ability to think tactically helps athletes to improve their ability to analyze - evaluate, and plan the game. The checkmate is essentially a continuous thinking process to find the most effective moves in changing chess situations during the competition. This skill helps learners to improve their ability to coordinate between pieces on the board towards solving clear tasks such as checkmate, draw, and capture.

Keywords: checkmate, team, chess

1. Introduction

In recent years, the Education and Training sector has proactively and actively implemented the physical education and sports activities in schools at all levels in order to contribute to helping the pupils, students to form their motor skills, develop comprehensive physical strength, ensure the implementation of the educational objectives of comprehensive human development in terms of morality - intelligence - physical fitness - aesthetics. [2] Chess has become a cultural and spiritual need of many classes of people, and the country's sports are honored thanks to this sport. Chess athletes have demonstrated their abilities in regional and international chess tournaments. Through studying some Chess tournaments, it is found that many players have

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advantages in the endgame but unfortunately did not win because their checkmate skills were still bad. With the long-term objective of gradually perfecting the checkmate skills for chess players, synchronously supplementing theoretical bases and especially groups of exercises and specific ones is necessary. This topic has also been studied, but most studies only aimed to improve general checkmate skills, while the two-move checkmate skill (also known as Fool's Mate) has not been represented in detail by any author.

2. Research Methods

During the research process, the author used the following research methods: document analysis and synthesis method, pedagogical observation method, interview method, and statistical mathematics method [1].

3. Research Results

3.1 Selecting Some Exercises to Improve the Checkmate Skills of Research Subjects

3.1.1 Practical Basis for Determining the Exercises

With aim to select the exercises to effectively improve the checkmate skills of research subjects, after consulting the Chess Coach of Tran Hung Dao High School, high schools in Ninh Binh city and lecturers of Hanoi University of Physical Education and Sports, following types of exercises to improve the check skills of the Chess team of Tran Hung Dao High School were included in this research [3]:

- Tactical assessment exercises,
- Combination exercises,
- Calculation assessment exercises,
- Basic endgame exercises.

In order to select the exercises to improve the checkmate skills, the authors interviewed the teachers of Tran Hung Dao High School and lecturers of Hanoi University of Physical Education and Sports. The interview was conducted using questionnaires; the interview results were as follows: the number of questionnaires distributed was 30, and the number of fulfilled questionnaires received was 30.

The interview items are presented in Table 1.

Table 1: Interview Results to Select the Chess Exercises to Improve the Chess Team's Checkmate Skills (n=30)

No.	Exercise	Interview results					
		Priority 1		Priority 2		Priority 3	
		n	%	n	%	n	%
Technical endgame							
1	Checkmate with Rook	**28**	**93.33**	**2**	**6.67**	**0**	**0**
2	Checkmate with Queen	**27**	**90**	**2**	**6.67**	**1**	**3.33**
3	Checkmate with 2 Bishops	**24**	**80**	**4**	**13.33**	**2**	**6.67**
4	Checkmate with Bishop + Knight	15	50	10	33.33	5	16.67
Tactical form, combination attacks							
5	Promotion	9	30.0	8	26.6	5	16.6
6	Thematic Sacrifice	**24**	**80**	**5**	**16.67**	**1**	**3.33**
7	Attraction	**27**	**90**	**2**	**6.67**	**1**	**3.33**
8	Strangulation	15	50	10	33.33	5	16.67
9	Double Check	9	30.0	8	26.6	5	16.6
10	Diversion	9	30.0	8	26.6	5	16.6
Artistic endgame							
11	**2-Move Checkmate**	**28**	**93.33**	**2**	**6.67**	**0**	**0**
12	3-Move Checkmate	9	30.0	8	26.6	5	16.6

From the results in Table 1, it can be seen that: among the 3 groups of exercises given in the interviews for selection in forming the checkmate skills for the High School Chess team, 3 groups of exercises: technical endgame, combination moves and artistic endgame were mostly chosen by the majority of coaches, accounting for 80.00% or more, and most of them were ranked at priority 1, with following exercises:

3.1.2 Group of Technical Endgame Exercises (3 exercises)

This is a group of endgame exercises with clear rules and a small number of pieces. The types of exercises include:

- Checkmate with Rook: use the King and Rook to force the opponent's King to the corner of the board and then use the Rook to checkmate.
- Checkmate with Queen: use the King and Queen to force the opponent to the corner of the board and then use the Queen to checkmate.
- Checkmate with 2 Bishops: two bishops are close together to control two consecutive diagonals, then combine with the King to force the opponent's King to the corner of the board and checkmate.

3.1.3 Combination Moves (2 exercises)

This group of exercises is applied after the technical endgame exercises because the number of pieces is large and the coordination between pieces is more difficult.

- Thematic sacrifice: a type of combination that requires specific calculation.

- Attraction: a move to draw a piece that is protecting an important position to another direction, then uses another piece to attack the position outside the control of such piece.

3.1.4 Group of Artistic Endgame Exercises (1 exercise)

- **Checkmate in two moves:** use the last two moves to end the game.

Principles of choosing chess exercises to improve the checkmate skills for the chess team of Tran Hung Dao High School:

- **From easy to difficult:** The types of exercises are increased from easy to difficult level, need to change regularly to renew the tasks to the general trend of gradually increasing the difficulty of the chess exercise; from simple checkmate to comprehensive analysis and implementation of combination moves. However, gradually increasing the difficulty of the exercise must still ensure the adaptability for the Chess team of Tran Hung Dao High School.
- **From small to large number of pieces:** This is also to ensure the principle on the basis of the psychological characteristics of chess players. Gradually increasing the complexity of the exercises must meet the principles of being suitable for the chess players' ability and level.
- **Principle of limiting moves:** Due to psychological characteristics, the exercises should be selected to be suitable for the chess players' ability. From the above research results, 3 groups of exercises on technical endgame, combination moves and artistic endgame were selected in this research.

3.1.5 Experimental Organization

Before the experiment, the initial performance of the experimental group and control group, with the same items to 16 female students of the chess team, including 8 students of the experimental group, and 8 students of control group were checked, assessed; these subjects were randomly distributed. The students in both groups (control and experimental) were checked before the pedagogical experiment to determine the uniformity of both groups.

Based on the program, plan, progress and teaching plan of the school and the department, the authors developed a teaching-training program to improve the checkmate skills in Chess for the experimental group. A teaching time is 03 periods/week on Mondays, Thursdays and Saturdays. The practice time is 90 minutes/session. The total number of teaching lesson plans in the pedagogical experiment program is 18. The practice time is based on the content and curriculum of the subject. The teaching and training time is strictly managed by teachers in each group; objective factors affecting training, leaving only the impact of exercises on each research group, were eliminated.

The experimental group practiced in 3 groups of exercises selected by the research topic. The exercises were provided from easy to difficult level and simple to complex level. The practice time for the above exercises is from 35 to 40 minutes/session. The number and types of exercises in a session are arranged in rotation, corresponding to the

teaching and training tasks in each lesson plan while ensuring the principles of the physical education and sports training process. The control group practiced old exercises under the curriculum of Tran Hung Dao High School - Ninh Phong Ward - Ninh Binh City.

3.2 Evaluating the Effectiveness of Selected Exercises to Improve the Checkmate Skills of the Research Subjects

3.2.1 Pre-experimental Test Results

Before conducting the experiment, selected tests to evaluate the uniformity between the experimental and control groups were conducted. The results are shown in Table 2.

Table 2: Pre-experimental Test Results

No.	Test	Test results ($\overline{x} \pm \delta$)		t	P
		Control group (n = 8)	Experimental group (n = 8)		
1	Technical Endgame (scores)	4.68 ± 0.53	4.67±0.43	1.254	>0.05
2	Optimal Option Selection (scores)	5.68 ± 0.76	5.66±0.84	1.236	>0.05
3	Combinations (scores)	5.26 ± 0.65	5.26 ±0.43	1.302	>0.05

From the results shown in Table 2, it can be seen that the test results in the selected tests between the experimental and control groups were not statistically significant difference, t = 2.179 at threshold P > 0.05); it proves that, before conducting the experiment, the checkmate skills in Chess of the two groups were equal.

3.2.2 Test Results After 6 Weeks

After the 06-week experimental period, the research subjects were relatively fully equipped with professional capacity, technical-tactical skills, physical fitness and psychology in the teaching-training program. The checkmate skills of the research subjects were tested. The results are shown in Table 3 [3]; [4].

Table 3: Post-experimental Test Results

TT	Test	Test results ($\overline{x} \pm \delta$)		t	P
		Control group (n = 8)	Experimental group (n = 8)		
1	Technical Endgame (scores)	4.92 ± 0.33	6.25±0.22	2.865	<0.05
2	Optimal Option Selection (scores)	6.12 ± 0.57	7.52±0.34	2.985	<0.05
3	Combinations (scores)	5.87 ± 0.52	7.02 ±0.24	2.975	<0.05

From the results shown in Table 3, it can be seen that: In all the test items to evaluate the checkmate skills in Chess of the experimental and control groups, there was a statistically significant difference, all $t_{calculated} > t_{table} = 2.179$ at threshold P < 0.05, or in other words, the application of training means and exercises selected under this research topic has

shown its effectiveness in improving the checkmate skills for the male chess team of Tran Hung Dao High School - Ninh Phong Ward - Ninh Binh City.

In order to verify the effectiveness of selected exercises applied to the male chess team of Tran Hung Dao High School - Ninh Phong Ward - Ninh Binh City. The growth rate of test performance in the experimental group and control group was evaluated; the results are presented in Table 4 and Chart 1.

Table 4: 2 Groups' Growth Rate of the Performance in Pre-experiment and Post-experiment ($n_A = n_B = 8$)

No.	Test	Control Group ($\overline{X} \pm \delta$)		Growth rate (W%)	Experimental Group ($\overline{X} \pm \delta$)		Growth rate (W%)
		Pre-experiment	Post-experiment		Pre-experiment	Post-experiment	
1	Technical Endgame (scores)	4.68 ± 0.53	4.92 ± 0.33	1.176	4.67±0.43	6.25±0.22	9.546
2	Optimal Option Selection (scores)	5.68 ± 0.76	6.12 ± 0.57	2.102	5.66±0.84	7.52±0.34	9.407
3	Combinations (scores)	5.26 ± 0.65	5.87 ± 0.52	1.107	5.26 ±0.43	7.02 ±0.24	11.966

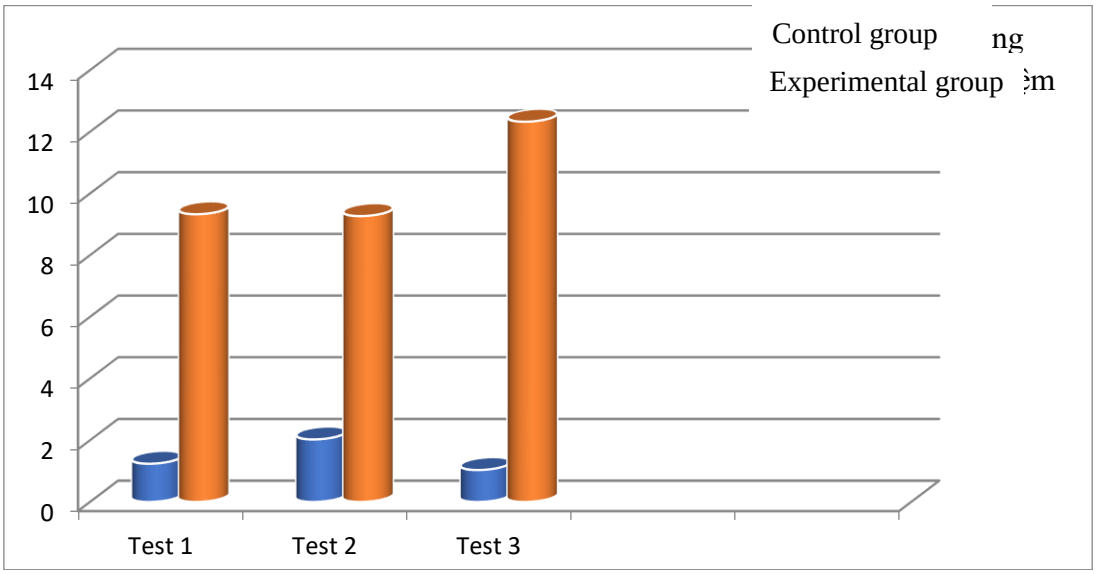

Chart 1: 2 Groups' Growth Rate of Test Performance in Pre-experiment and Post-experiment

From the results shown in Table 3 and Chart 1, it can be seen that: The performance of all three tests to check and evaluate the checkmate skills of the experimental group increased more than that of the control group, and in addition, the growth rate of the experimental group was also greater than that of the control group.

As a result, it shows that the exercises selected to apply to the training experiment gave the effect of improving the checkmate skills of the male Chess team of Tran Hung Dao High School - Ninh Phong Ward - Ninh Binh City.

4. Conclusions

The research results proposed the selected 3 groups of exercises with 6 specific exercises to improve the checkmate skills of the male chess team of Tran Hung Dao High School - Ninh Phong Ward - Ninh Binh City, specifically:

- Group of technical endgame exercises (3 exercises),
- Group of combination moves exercises (2 exercises),
- Group of artistic end game exercises (1 exercise)

After 6 weeks of research, the initial results showed that there was a statistically significant difference between the control group and the experimental group in all 3 test results. Hence, it can be affirmed that the exercises selected in this research are completely objective and offer clear results in improving the checkmate skills of the male chess team of Tran Hung Dao High School - Ninh Phong Ward - Ninh Binh City.

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Conflict of Interest Statement
The article has no conflicts of interest.

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