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"IMPROVING COACHING EFFECTIVENESS THROUGH THE DEVELOPMENT OF A LONG-TERM 'PROSPECTIVE STRATEGIC' PLAN WITHIN THE TF 'IS' SYSTEM (A CASE STUDY OF BASKETBALL)"

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ABOUT ARTICLE

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Abstract: National and international experience shows that traditional training methods do not always ensure the expected effectiveness in developing the technical and tactical skills of young basketball players. This research proposes a long-term coaching approach based on the "Leader–Coach" model and the TF"IS"2 (Systematic Activity and Prospective Strategic) framework to enhance the technical and tactical preparedness of athletes aged 11–14. The theoretical part analyzes the advantages of small-sided games, strategic planning, and leadership-oriented coaching practices.

Introduction. In recent years, growing attention has been directed toward the development of basketball in Uzbekistan: the national team has begun participating in Asian championships, and both youth sports schools and the related infrastructure are steadily improving. This progress necessitates that young coaches approach the processes of training and education through a scientifically grounded methodology. Adolescent basketball players aged approximately 13–14 fall within the "general preparation" stage of development, during which they acquire fundamental technical skills and begin forming basic concepts of team play.

Traditional coaching methods at this age rely predominantly on repetitive technical drills. However, such an approach is detached from real game conditions and may lead to limited transfer of skills to actual competitive situations. Initial nationwide analyses illustrate this issue: over a two-year period, among 400 adolescent basketball players trained under conventional programs, improvements in 3-point and 2-point shooting accuracy, free-throw precision, and feint execution were minimal and statistically insignificant ($p > 0.05$). This indicates that the standard training programs currently applied in various regions are not producing the expected outcomes, and that essential skills are not being fully developed.

According to scientific literature, such shortcomings arise when technical elements are practiced in isolation from the game context. Indeed, training through small-sided games (e.g., 2×2, 3×3 formats) and constraint-based tasks enables young athletes to develop technical execution alongside situational awareness and decision-making skills. As a result, the practiced elements are more readily and effectively transferred to competitive settings. Therefore, contemporary sports science increasingly emphasizes "game-based" training concepts, which enrich and—when necessary—surpass traditional methodological approaches.

According to the theory of long-term athlete development (the LTAD model), early specialization and one-sided training loads may hinder the comprehensive development of young athletes. Experts emphasize that children should engage in multiple types of sports at least until the age of 14–15, meaning they should avoid early specialization in a single discipline. Consequently, when they later choose to focus more seriously on a specific sport, their general physical preparedness and motivation tend to be higher.

Indeed, youth guidelines developed jointly by the American Academy of Pediatrics (AAP) and the NBA advise against exclusive specialization in one sport before the age of 14. Adhering to this principle helps protect children from overuse, injury, and psychological burnout. At the same time, it promotes well-rounded development and increases the likelihood of achieving high performance outcomes in the long term.

Building on the aforementioned scientific and theoretical foundations, this study developed a new coaching methodology for basketball based on the "Leader–Coach" model and the TF"IS"2 system. The Leader–Coach approach views the coach not merely as an instructor of technical skills, but as a motivating leader who inspires the team. Such a coach not only teaches technical elements but also monitors each athlete's strengths and weaknesses while paying close attention to their psychological readiness. The TF"IS"2 framework represents a two-year prospective development plan that integrates the principles of Systematic Activity and Strategic Foresight. In accordance with this system, the coach organizes the training process by planning annual and quarterly cycles, progressively increasing training loads, and conducting periodic evaluations of performance outcomes.

Additionally, the TF"IS"2 model predetermines expected growth benchmarks for each technical performance indicator. For example, the program sets target improvements such as increasing 3-point shooting accuracy by approximately +10% over the course of a year, and improving free-throw accuracy by +5–8%. Establishing such performance criteria helps the coach determine which aspects of training deserve priority. Specifically, instead of merely increasing the number of feints performed, the model prioritizes developing athletes' creative and effective execution of these maneuvers.

Research Aim:

The purpose of this study is to experimentally evaluate the effectiveness of the proposed new coaching model. Specifically, by comparing changes in the technical–tactical performance indicators of young basketball players in the experimental and control groups, the study assesses the extent to which the "Leader–Coach + TFIS2" approach offers advantages over traditional training methods.

Methodology

Participants and Group Allocation:

The study involved a total of 70 male adolescent basketball players with a mean age of 13.4 ± 0.5 years. The participants were randomly assigned into two equal groups: a control group (n = 35) and an experimental group (n = 35). Coaches of the control group continued training according to the conventional, traditional program. For the experimental group, however, a new one-year training plan—based on the "Leader–Coach" model and the TF"IS"2 system as part of a broader two-year framework—was developed and implemented.

Care was taken to ensure that the participants in both groups had comparable baseline performance levels (the differences in mean initial indicators between the groups were statistically insignificant; $p > 0.05$).

Characteristics of the Experimental Program

Training sessions under the new methodology were conducted 3–4 times per week, each lasting 60–90 minutes. To optimize the athletes' physical and psychological states, training loads were progressively increased according to macro- and microcycles (with workload rising every four weeks, followed by a recovery–consolidation week). The weekly plan included 1–2 official games and 2–3 technical–tactical training sessions. An age-appropriate approach was strictly followed: in accordance with the principle of delaying specialization until age 14, the training schedule incorporated elements from various sports, game-based relays, and competitive tasks. This helped enrich the athletes' general motor skills and prevented excessive fatigue associated with repetitive practice of a single element.

In the experimental group, coaching was conducted according to a leadership-based model. Each coach was tasked with creating a motivational atmosphere within the group, engaging in individual work with players, and promoting healthy competition within the team. Training sessions were designed to simulate game-like conditions as fully as possible: numerous tasks were organized in small-sided formats such as 3×3 or 2×2; time-limited "clutch" situations were created; drills requiring rapid decision-making, one-on-one defensive confrontations, and unexpected tactical responses were implemented. For instance, 3×3 "advantage" drills (attacking with fewer defenders than usual) were employed to cultivate players' sensitivity to space and time. For 1×1 scenarios, drills focused on "beating the individual defender" were introduced. Through these methods, players in the experimental group were consistently trained to overcome defensive pressure and identify optimal solutions. Coaches explained each drill by linking it to a specific aspect of real gameplay—clarifying why a given task was necessary and in which competitive situations it would be applied.

Monitoring and Analysis

Throughout the training process and at the end of each month, systematic statistical monitoring was conducted by the coaches. Each athlete's performance in training sessions (recorded in the form of "bachelor-level" control norms) as well as their indicators from official games (such as effective passes, turnovers, steals, etc.) were documented in dedicated tables. At the end of every month, these data were analyzed and compared with the previous month's results; based on this analysis, minor adjustments were made to the training plans for the following month.

Physical preparedness was also closely monitored: tests assessing growth, body weight, speed, strength, and endurance were administered once per quarter, and their dynamics were plotted in graphical form. This enabled coaches to ensure that young athletes were progressing steadily and appropriately without experiencing excessive physical overload.

Evaluation Criteria

At the beginning and end of the experiment, the following four primary performance indicators were measured in both groups:

1. Accuracy of 3-point shots (%)
2. Accuracy of 2-point shots (%)
3. Free-throw (penalty) success rate (%)
4. Dribbling and feint skills (number of successful feints in game situations)

For each indicator, the initial and final results of each participant were recorded, and group-level mean values were calculated. Statistical analysis included determination of the arithmetic mean ($\bar{X}$), variance (Sx^2), standard deviation (σ), and coefficient of variation (V%) for each indicator. To compare the experimental and control groups, the two-sample Student's t-test was applied. A significance level of $p < 0.05$ was adopted to determine the reliability of the results.

Results and Discussion. At the conclusion of the experiment, the collected data indicated a significant advantage in favor of the experimental group. The results and analysis for each performance indicator are presented below.

Accuracy of 3-Point Shots:

Players in the control group achieved an average 3-point shooting accuracy of 34.9% (σ = 7.50%; V% = 21.5), whereas the experimental group averaged 38.5% (σ = 7.00%; V% = 18.2). This represents an approximate +3.6 percentage point improvement in the experimental group compared to the control group. Statistical analysis confirmed the reliability of this difference (t = 2.08; p = 0.038). These results demonstrate the effectiveness of specialized game drills aimed at improving 3-point shooting in the experimental group. Specifically, 3×3 "advantage" drills, tasks involving long-range passing under time constraints, and combination plays along the perimeter were incorporated to create a realistic game context. As a result, the experimental group improved not only their accuracy but also the stability of their performance, as evidenced by the lower variance and coefficient of variation—indicating more consistent results. Thus, the new methodology enhanced both skill precision and its consolidation into a robust, reliable capability.

Accuracy of 2-Point Shots:

Both groups achieved higher accuracy in 2-point shots (closer-range attempts) compared to 3-point attempts. The control group averaged 48.7%, while the experimental group achieved 52.8%. Variability analysis showed V% = 17.5 in the control group and V% = 15.2 in the experimental group, indicating slightly more stable results in the experimental group. Statistical testing confirmed the significance of this difference (t = 2.08; p = 0.038). 2-point shots primarily involve finishing moves near the basket. To develop this skill, the experimental program incorporated specialized 1×1 and 2×2 drills. These included attacks from various angles and distances against a defender, as well as timed drills requiring rapid passing under pressure. Such exercises trained players to make quick decisions under stress and to recognize open spaces. Scientific research supports that athletes with well-developed decision-making skills under time pressure gain a competitive advantage. In our study, the experimental group, which consistently practiced these drills, performed 2-point shots more successfully in "clutch" situations—characterized by defensive pressure and time constraints—compared to the control group.

Free-Throw (Penalty) Accuracy:

Players in the control group achieved an average free-throw accuracy of 63.2%, whereas the experimental group improved this indicator to 70.5%. This represents a significant difference, which was statistically confirmed as reliable ($t = 2.10$; $p = 0.035$). Notably, in the experimental group, not only was the accuracy percentage higher, but the consistency of performance in this element also improved: the control group exhibited $\sigma = 15.0\%$ ($V\% \approx 23.7$), whereas the experimental group showed $\sigma = 14.0\%$ ($V\% \approx 19.9$), indicating greater stability.

It is well-established that free throws rely heavily on psychological stability and a well-developed routine. In the experimental program, special attention was devoted to free-throw preparation: players were systematically taught to develop a personal pre-shot routine (deep breathing, dribbling the ball a set number of times, visual imagery, etc.). Each athlete was required to establish and consistently apply this routine during training and competitive play. Consequently, by the end of the experiment, the experimental group executed free throws more confidently and with fewer errors.

Scientific literature supports that a pre-established psychological preparation routine helps athletes calm themselves, focus attention, and manage performance pressure effectively. Furthermore, the experimental group incorporated dedicated microblocks for free-throw practice, integrating this element briefly into each training session. The results indicate that this approach was effective, leading to more accurate and stable free-throw performance among the experimental participants.

Number of Feints (Deceptive Moves):

In basketball, deceiving an opponent and executing feints is often considered a refined skill typically developed under the guidance of experienced coaches. In our study, the experimental group demonstrated a significant advantage in this indicator. Players in the control group executed an average of 1.32 successful feints per game ($\sigma = 0.60$), whereas the experimental group achieved an average of 1.62 feints per game ($\sigma = 0.60$). The difference of approximately 0.3 units was statistically significant ($p = 0.036$).

This result reflects the effectiveness of the unconventional methods employed by coaches in the experimental group to teach feinting skills. Specifically, training sessions regularly included 1x1 and 2x2 small-sided games emphasizing tasks to deceive opponents. Players practiced elements such as maneuvering the ball from a closed position, executing sudden halts, and making sharp directional changes during offensive plays. Importantly, coaches analyzed each executed move with the players, explaining under which circumstances each feint would be most effective.

As a result, players in the experimental group developed creative thinking and enhanced game-reading abilities. They learned to select the appropriate feint based on the situation and execute it successfully. In contrast, the control group, which did not receive this specialized focus, often performed ineffective feints or failed to apply them at all during games.

Table 1.

Indicators	**Unit**	**Control Group (n = 35)**				**Experimental Group (n = 35)**				**H**	**L**
		X̄	Sx^2	σ	V%	X̄	Sx^2	σ	V%		
3-point shot accuracy	%	34,90	56,25	7,50	21,49	38,50	49,00	7,00	18,18	2,08	0,038
2-point shot accuracy	%	48,70	72,25	8,50	17,45	52,80	64,00	8,00	15,15	2,08	0,038
Free throw accuracy	%	63,20	225,00	15,00	23,73	70,50	196,00	14,00	19,86	2,10	0,035
Dribble moves / Successful feints	times / game	1,32	0,36	0,60	45,45	1,62	0,36	0,60	37,04	2,09	0,036

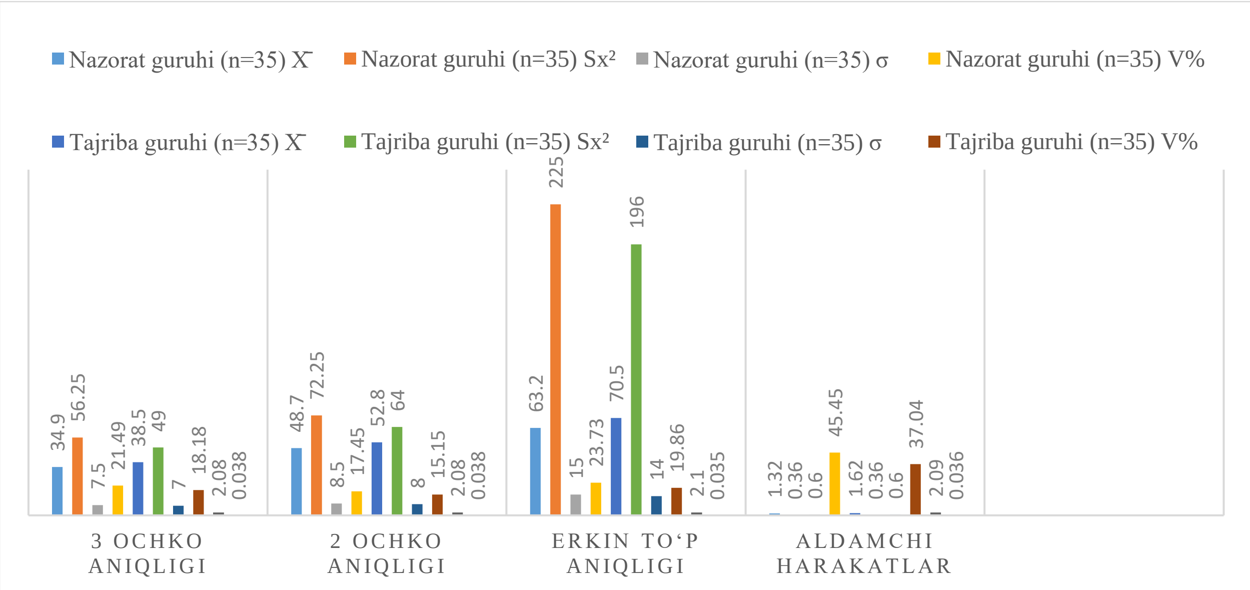

Figure 1. One-year research results (Control vs. Experimental; n = 35 players per group)

The above results indicate that training sessions organized based on the "Leader–Coach" model combined with the TFIS2 system were significantly more effective in enhancing the technical skills of young basketball players compared to the traditional approach. The experimental group demonstrated improvements across all four indicators, and importantly, these gains were statistically significant ($p < 0.05$ in all cases). Moreover, compared to the control group, the experimental group exhibited less variability and more clustered results (lower dispersion and coefficient of variation), which is noteworthy. This suggests that the skills of children trained under the new methodology developed in a stable and consistent manner—meaning that the improvement was not merely due to individual outliers but was observed across nearly all participants.

Based on the analysis of the results, the following methodological conclusions can be drawn:

Game-context-adapted training formats. Small-sided games and a constraints-led approach serve as essential tools for the simultaneous development of technical and tactical skills. In our study, the consistent use of mini-games such as 2x2 and 3x3 resulted in improved ball-handling skills and faster decision-making in game situations. Research also indicates that small-sided games enhance the technical execution of young athletes. Therefore, coaches should not only rely on standard full-court 5x5 games but also incorporate small-sided games that actively engage players.

Age-appropriate planning (periodization). In children's physiology, there is a concept of "sensitive periods," during which certain abilities develop rapidly and should be "captured" or emphasized. For example, speed and agility exercises are most effective at ages 11–13, while strength and endurance development is particularly important at ages 13–15. In our experimental program, periodization principles were applied to align training objectives with participants' age and developmental stage. According to LTAD model recommendations, the annual workload was appropriately distributed: during winter and summer breaks, training loads were reduced to focus on recovery and multisport engagement, whereas spring and autumn seasons involved progressively increased loads for intensive preparation. This approach is crucial for preventing injuries and maintaining young athletes' interest in sports.

Integration of decision-making and technical elements. The training implemented in the experimental group consisted primarily of complex exercises, i.e., tasks requiring multiple skills simultaneously. For example, instead of repetitive dribbling drills, exercises were designed to end with successfully bypassing an opponent; or three-point shooting drills were immediately followed by a defensive recovery task. As a result, the players' technical movements reached an automatic level, while their ability to make appropriate tactical decisions also developed. Scientific literature emphasizes that complex, integrated drills are more effective than simple, isolated exercises, as game situations always require skills to be executed in coordination.

Rest, avoidance of overload, and psychological support. The experimental group was provided at least one full rest day per week, allowing participants to engage in other activities (games, swimming, etc.). The goal was to prevent fatigue from repetitive movements and maintain interest in training. Research indicates that regardless of age, weekly training hours should not exceed certain limits to avoid overtraining. Additionally, continuous encouragement and a positive environment are essential for reducing stress in young athletes. Coaches should serve as friends, mentors, and motivators. In our experiment, coaches recognized each small achievement, and even in the control group, when positive reinforcement was increased, players' motivation noticeably improved. Therefore, the psychological component of the leader-coach model is crucial in youth sports.

Outcome. By adhering to the above methodological principles, the experimental group achieved significantly higher results than the control group after one year of training. It is noteworthy that the coaches of the control group were also qualified professionals who conducted traditional training based on their experience. However, the evidence-based, systematically planned, goal-oriented, and game-contextualized training approach produced observable positive effects in a relatively short period. These findings underscore the importance of using modern coaching models when training young athletes.

Conclusion. This study, conducted on 11–14-year-old basketball players, demonstrated the practical effectiveness of the "Leader–Coach" model and the TF"IS"2 strategic system. At the conclusion of the one-year experimental period, the athletes in the experimental group exhibited significantly higher technical performance compared to their peers in the control group. Notably, they achieved substantial improvements in three-point and two-point shooting accuracy, free-throw accuracy, and successful execution of deceptive moves (all differences statistically significant at $p<0.05$). Furthermore, the experimental group not only showed higher mean values but also lower dispersion, indicating that this approach had a consistent and universal effect across all participants.

The coaching program implemented during the experiment was based on several key principles: age-appropriate progressive development, game-relevant training exercises, individualized approaches with regular analysis, and the creation of a positive psychological environment through the coach's leadership skills. As a result, this comprehensive approach proved highly effective—not only improving technical and tactical preparation but also sustaining and even increasing the players' motivation and interest in sport.

Based on the study results, it can be concluded that enhancing young basketball players' skills is most effective when coaches work consistently according to a targeted plan, organize training in accordance with modern scientific principles (e.g., the LTAD model, constraints-led approach), and engage with athletes through a leadership-oriented interaction style. Traditional approaches, in contrast, have certain limitations, as skills developed may not fully transfer to actual game situations. Therefore, it is recommended to implement the coaching model proposed in this study across other teams and broaden its practical application. Over the long term, this approach is expected not only to improve the performance of individual teams but also to elevate the overall competitive outcomes of children and adolescent athletes in national sports schools.

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