

Volleyball Players' Performance During Competition and Its Relation to The Coach's Familiarity with The Pedagogical Requirements of Training

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ABSTRACT

The study outlines the necessary training requirements for a coach to achieve athletic excellence in players. These factors include the coach's scientific knowledge, such as their understanding of scientific concepts related to modern coaching and assessment methods, knowledge of fundamentals and training methods, ability to instill personal qualities in players, and knowledge of teaching and learning methods. Additionally, the coach's personal qualities in relation to the players are important, including their behavior, ability to develop a spirit of competition, socialization, and team spirit, and understanding of the educational aspects of coaching. Finally, the coach's application of scientific knowledge in training is crucial, including mastery of the training load, game plans, and the organizational aspects of matches. Furthermore, the coach's understanding of the selection criteria is recognized as a crucial element in enhancing player performance.

Keywords: volleyball players, performance, coach's familiarity, pedagogical requirements.

INTRODUCTION

Although volleyball is a fun and easy game, for the higher levels, it requires a coach who is familiar with various sports-related sciences such as physiology and sports training in its various physical, psychological, mental and skill aspects, as well as the ability to deal with players during competition and training [1]. In addition to his willingness to respond to develop himself in the field of sports technology [2]. Talent discovery [3], scientifically selecting players, and evaluating players' technical skills [4] to form a competitive team. Coaches are the most important people who influence athletes' playing experiences, so the athlete-coach relationship has recently become one of the most interesting topics in the field of sport psychology [5].

The coach-athlete relationship is expressed as a state in which the feelings, thoughts, and behaviors of coaches and athletes are mutually and causally interconnected. The coach-athlete relationship is based on three basic dimensions: (commitment, closeness, and integration), where "commitment" refers to dedication, continuity of the relationship, and the desire to continue it in good faith. Convergence refers to emotional exchange, trust, fondness, respect for one another, promoting teamwork, mutual support, cooperation, and sharing values and goals, which can be only achieved through open communication through discussion, dialogue, negotiations, and decision-making based on them. The concept of integration emphasizes working together in a friendly manner with the right conditions to improve the performance of the coach and the athlete [6]. Ideas of commitment, feelings of closeness, and integrative behaviors are the main determinants that shape the coach-athlete relationship and are all interdependent on each other [7]. A positive coach-athlete relationship contributes to the development of athletes' competitiveness and mastery experience [8,9], as well as individual player development and positive life skills [10]. On the other hand, a negative coach-athlete relationship can increase the stress and fatigue experienced by athletes and may even cause some athletes to stop practicing altogether [9,10]. One of the most crucial factors that support the coach to improve the performance of his/her players is his/her scientific knowledge of anatomy and physiology, biomechanics, testing and measurement, psychology, motor learning, teaching, and nutrition [11].

Importance of the Research

Coaches need strong procedural knowledge about the pedagogical strategies required to help athletes learn effectively, in addition to having specific knowledge about their sport. Recent studies have investigated coaches' knowledge and familiarity with topics related to sports coaching such as training load distribution and talent selection [12, 13]. However, there is a significant gap in this growing body of literature regarding coaches' knowledge of using pedagogical approaches to coaching such as feedback, player handling, and other training requirements and their application of these during training. Therefore, the current research seeks to contribute to bridging this gap by identifying and summarizing the training requirements that a volleyball coach needs to maximize the performance of his/her players in the least number of factors.

Research Objective

The current research aims to identify and summarize the training requirements that a volleyball coach needs to improve the performance of his/her players in the least number of factors.

Research Hypotheses

- a) The coach's scientific knowledge and its use during training are the most important training requirements that the volleyball coach needs to improve the performance of the players during sports competitions.
- b) The coach's familiarity with the determinants of selection is the most key factor in improving player performance.

STUDY PROCEDURES

Study Tool

To achieve the desired objectives of the study, the researcher used a scientifically standardized questionnaire (Volleyball Coaches Evaluation Scale) 2005, which contained eleven axes. The first axis contained (9 paragraphs) related to the cognitive aspect of the coach about the educational and educational aspects related to training, while the second axis contained (6 paragraphs) related to the coach's behavioral aspect. The second axis includes (6 items) related to the coach's qualities and the behavioral aspect, and the third axis includes (4 items) related to the extent to which players are familiar with the plans and positions of play and the organizational aspects of the matches. The fourth contains (10 paragraphs) related to the coach's ability to provide players with some personal and subjective qualities, the fifth contains (10 paragraphs) related to the coach's abilities in developing the spirit of competition, socialization and team spirit, the sixth contains (10 paragraphs) related to the coach's awareness of scientific concepts about modern training, while the seventh includes (7 paragraphs) related to the coach's knowledge of load distribution in sports training The eighth included (7 paragraphs) related to the coach's knowledge of the sciences related to training and continuous evaluation, the ninth axis contained (9 paragraphs) related to the coach's knowledge of selection, its methods and basics, the tenth axis contained (5 paragraphs) related to the coach's knowledge of teaching and learning methods, while the eleventh and final axis contained (5 paragraphs) related to the coach's knowledge of the scientific principles of dealing with players.

Research Approach

The researcher used the analytical descriptive method, which deals with the study of reality or phenomenon as it exists and is concerned with describing it accurately and expressing it qualitatively or quantitatively.

Bounds of the Study

- Date of study: The results of this study are summarized during the 2020/2021 season.
- Geographical area: Volleyball coaches for the junior category in Libya during the 2020/2021 sports season.

Research Population and Sample

The sample included (60) coaches for the age stages of volleyball for the 2020/2021 sports season, representing (90%) of the population distributed among the sub-federations of the first region (Benghazi), the second region (Misrata), and the third region (Tripoli) as shown in the results of table (3). The results of table (1) also showed that the percentage of those with diploma and bachelor's degrees reached 45.6%, while only 8.8% of those with a master's degree did not exceed. It also showed that most of the sample of trainers ranged from 5 to 10

years of training experience by 68.7%, while the percentage of those with 11 to 15 years of experience amounted to 19.3%, while the percentage of those with more than 15 years of training experience did not exceed 12.3%.

Table 1: Characterization of the study sample in terms of branch unions, experience, and degrees

Sequence		Count	Percentage
Sub-Federations	Benghazi	20	%33
	Misrata	20	%33
	Tripoli	20	%33
Training Experience	Less than 10 years	29	%48
	From 11to 15 years	22	%37
	Over 15 years	9	%15
Level of Education	Diploma	26	%43
	Bachelor	29	%48
	Master's degree	5	%8

Statistical Manipulations

The Statistical Package for Social Sciences (SPSS v26) was used for the following statistical treatments were used:

- Cronbach's alpha equation to extract Reliability.
- Pearson correlation coefficient to extract internal consistency reliability.
- Exploratory and confirmatory factor analysis.
- Stepwise linear regression.

RELIABILITY AND STABILITY OF THE TOOL

After presenting the questionnaire to a group of experts from the faculty members of the Faculty of Physical Education and Sport Sciences in Tripoli and the Five with high academic degrees, the construct consistency reliability of the axes of the study was extracted, and the results in Table (2) showed that the correlation coefficients between each axis of the questionnaire and the total questionnaire were statistically significant at 0.05 level of significance, so the axes can be considered true to what they were designed to measure.

Table 2: Correlation coefficient between the axes of the study and the total questionnaire

	Correlation coefficient and statistical significance value	r	Sig.
1	Pedagogical and educational aspects related to training.	0.961	0.000**
2	Coach's qualities and behavioral aspect	0.951	0.000**
3	The extent to which players are aware of the plans, playing positions, and organizational aspects of the games.	0.901	0.000**
4	Coach's ability to provide players with some personal and subjective qualities.	0.927	0.000**
5	Coach's ability to develop the spirit of competition, socialization, and team spirit.	0.944	0.000**
6	The coach's awareness of scientific concepts about modern training.	0.96	0.000**
7	Familiarity with the load in sports training and its components.	0.944	0.000**
8	Science related to training and continuous evaluation.	0.96	0.000**
9	Knowledge of selection, its methods, and fundamentals.	0.944	0.000**

10	The trainer's familiarity with teaching and learning methods.	0.927	0.000**
11	Familiarity with the scientific principles of dealing with players.	0.951	0.000**

** Values are statistically significant at the 0.01 significance level.

STABILITY OF THE QUESTIONNAIRE

Stability is the consistency in the results of the scale as it gives the same results after applying it twice at two separate times to the same individuals, and the stability was calculated by the method of semi-compartmentalization, which showed that all research axes enjoy stability as shown in Table 3.

Table 3: Reliability coefficient alpha of the questionnaire.

N	Questionnaire Sentences	N. of answers	Correlation	Reliability
1	The first is the educational and pedagogical aspects related to training.	9	0.963	0.981
2	The second is the coach's qualities and behavioral aspect	6	0.937	0.967
3	The third is the extent to which players are aware of the plans, play centers, and organizational aspects of the games.	4	0.966	0.982
4	The fourth is the coach's ability to provide players with some personal and subjective qualities.	10	0.937	0.967
5	The fifth is the coach's ability to develop the spirit of competition, socialization, and team spirit.	10	0.942	0.97
6	The sixth is the coach's awareness of scientific concepts about modern training.	10	0.955	0.977
7	The seventh is familiarity with the load in sports training and its components.	9	0.931	0.964
8	Eighth, science related to training and continuous evaluation.	7	0.963	0.981
9	IX Knowledge of selection, its methods, and fundamentals.	7	0.967	0.983
10	Tenth The trainer's familiarity with teaching and learning methods.	5	0.937	0.967
11	Eleventh, familiarity with the scientific principles of dealing with players.	5	0.956	0.977
Total questionnaire		82	0.954	0.977

* Reliability = the square root of the alpha coefficient

DISCUSSION

Validation of the First Hypothesis

The coach's scientific knowledge and its use during training are the most important training requirements that the volleyball coach needs to improve the performance of the players during sports competitions. To validate the hypothesis, the exploratory and confirmatory factor analysis formula was used as shown in the following tables:

Kaiser Meyer Olkin Scale:

The result of the Kaiser Meyer Olkin scale showed that Olkin's value amounted to (0.83), which is greater than (0.05), which indicates the adequacy of the sample to conduct the factor analysis, and the significance level of the (Bartlett) test amounted to (0.000), which is less than (0.05), which indicates that the correlation matrix is not a single matrix, and there is a correlation between some variables in the matrix, so we can conduct the factor analysis on the study data.

Component Matrix After Rotation:

The Component Matrix was also built after rotation, showing the value of the correlation coefficient between the factor and the variable for the extracted factor, where we find that the saturation values (correlation coefficient) were arranged in descending order for each of the three extracted factors, and empty boxes appeared due to the selection of correlations that exceed 0.40 from the program. Table (4) shows the component matrix after rotation for the three factors.

Table 4: Factor structure of the scale.

		Components		
		1	2	3
Scientific Knowledge of the trainer	The trainer's awareness of scientific concepts about modern training.	0.908		
	The trainer's knowledge of the sciences related to training and continuous evaluation.	0.864		
	The trainer's knowledge of selection, methods, and basics.	0.855		
	The coach's ability to provide players with certain personality traits.	0.81		
	The coach's familiarity with teaching and learning methods.	0.79		
Personal qualities of a coach	Coach qualities and behavioral aspects.		0.8	
	The trainer's abilities in developing the spirit of competition, socialization, and group spirit.		0.72	
	The trainer's knowledge about the educational aspects associated with training.		0.518	
Applying scientific knowledge during training	The coach's knowledge of the athletic training load and its components.			0.824
	The extent to which players are familiar with game plans, positions, and organizational aspects of the game.			0.724

The researcher accepts the first hypothesis of the research, which assumes that the scientific knowledge of the coach, and his use of it during training are the most important training requirements that a volleyball coach needs to improve the level of performance of players during sports competitions.

Validation of the Second Hypothesis

The coach's familiarity with the determinants of selection is the most crucial factor in improving player performance.

To verify this hypothesis, the Stepwise linear regression equation was used as shown in the results of the following table:

Table 6: The results of the coefficients of the multiple linear regression analysis to predict the effect of the dimensions of the coach's familiarity with the training requirements on the performance of volleyball players participating in the Libyan Premier League.

Variables	B	Std-Error	Beta	T. Test	Sig.
Consistent of performance	36.68	52.14		0.70	0.48
The trainer's knowledge of selection, methods, and basics	9.77	2.56	0.45	3.81	0.00

From the results of the previous table, the R Square value is equal to 0.20 (20%), which indicates the amount or percentage of the contribution of the independent variable represented by the dimensions (coach's knowledge of selection, methods and basics), which appeared to have the greatest impact on the regression equation in explaining or predicting the variance in

the dependent variable (level of player performance) and is statistically significant at a level less than 0.05, which indicates the suitability of the regression model. This indicates the appropriateness of the regression model, and the results of the stepwise multiple regression analysis show the significance of the regression equation using the Anova test, where the Fisher's F value reached 14.53, which is statistically significant at a level of less than 0.05, indicating the significance of the regression and confirming the existence of a relationship between the independent variable (the coach's knowledge of selection and its methods and basics) and the dependent variable (the level of player performance).

Through the output of the SPSS Software, a DW value of 1.40 was extracted, indicating that there is no autocorrelation of first-order errors. Thus, through the statistical tests conducted on the model, it can be said that the estimated model is statistically acceptable.

Using the Stepwise method in the regression equation, it was found that the variable of the coach's familiarity with selection, methods and fundamentals was the only dimension that had a significant effect in predicting the level of player performance, while the rest of the dimensions of the coach's familiarity with the training requirements were excluded from the equation as they did not appear to have a statistically significant effect on the level of player performance.

Therefore, the researcher accepts the second hypothesis of the research, which assumes that the coach's familiarity with the determinants of selection is the most crucial factor in improving player performance.

CONCLUSIONS

1. The most crucial factors constituting the training requirements that a coach must possess to reach his players to reach athletic excellence are:
 - A. The trainer's scientific knowledge, which includes:
 - The coach's awareness of scientific concepts about modern training.
 - The coach's familiarity with the sciences related to training and continuous evaluation.
 - The coach's knowledge of selection, methods, and fundamentals.
 - The coach's ability to provide players with some personal and subjective qualities.
 - The coach's knowledge of teaching and learning methods.
 - B. The coach has the personal qualities to deal with the players, which includes:
 - Coach's qualities and behavioral aspect.
 - The coach's abilities in developing the spirit of competition, socialization, and group spirit.
 - The trainer's knowledge about the educational and educational aspects related to training.
 - C. Applying scientific knowledge during training, which included:
 - The coach's knowledge of the load in sports training and its components.
 - The extent to which players are familiar with the plans, play centers, and organizational aspects of the games.

2. The coach's familiarity with the determinants of selection is the most important factor in improving player performance.

References

1. Zetou, E., Amprasi, E., Michalopoulou, M., & Aggelousis, N. (2011). Volleyball coaches' behavior assessment through systematic observation.
2. Palao, J. M. (2014). Normative profiles for serve speed for the training of the serve and reception in volleyball. *Sport Journal*.
3. Milistetd, M., Mesquita, I., Sobrinho, A. S., Carrara, P., & Nascimento, J. (2013). Coaches' representation about detection and selection of talents on the brazilian volleyball. *Int J Sports Sci*, 3(5), 157–162.
4. Grgantov, Z., Jurko, D., & Milić, M. (2013). Evaluation of volleyball techniques–differences between expert and novice coaches. *Sport Science*, 6(1), 61–65.
5. Jowett, S. (2006). Interpersonal and structural features of Greek coach–athlete dyads performing in individual sports. *Journal of Applied Sport Psychology*, 18(1), 69–81.
6. Avci, K. S., Çepikkurt, F., & Kale, E. K. (2018). Examination of the relationship between coach-athlete communication levels and perceived motivational climate for volleyball players. *Universal Journal of Educational Research*, 6(2), 346–353.
7. Jowett, S. (2017). Coaching effectiveness: The coach–athlete relationship at its heart. *Current Opinion in Psychology*, 16, 154–158.
8. Mageau, G. A., & Vallerand, R. J. (2003). The coach–athlete relationship: A motivational model. *Journal of Sports Science*, 21(11), 883–904.
9. Weiss, M. R., Amorose, A. J., & Wilko, A. M. (2009). Coaching behaviors, motivational climate, and psychosocial outcomes among female adolescent athletes. *Pediatric Exercise Science*, 21(4), 475–492.
10. Gould, D., Collins, K., Lauer, L., & Chung, Y. (2007). Coaching life skills through football: A study of award-winning high school coaches. *Journal of Applied Sport Psychology*, 19(1), 16–37.
11. Yudiana, Y., Slamet, S., & Hambali, B. (2020). Education and training of Volleyball Information System (VIS FIVB) based volleyball playing performance assessment program for volleyball coaches in West Java, Indonesia. 327–329.
12. Harden, M., Bruce, C., Wolf, A., Hicks, K. M., & Howatson, G. (2020). Exploring the practical knowledge of eccentric resistance training in high-performance strength and conditioning practitioners. *International Journal of Sports Science & Coaching*, 15(1), 41–52.
13. Suijkerbuijk, M. A., Ponzetti, M., Rahim, M., Posthumus, M., Häger, C. K., Stattin, E., Nilsson, K. G., Teti, A., Meuffels, D. E., & van der Eerden, B. J. (2019). Functional polymorphisms within the inflammatory pathway regulate expression of extracellular matrix components in a genetic risk dependent model for anterior cruciate ligament injuries. *Journal of Science and Medicine in Sport*, 22(11), 1219–1225.