Analysis of Variance: Coaching Efficacy and Coach-Athlete Relationship in Iranian Sports Leagues

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Abstract

According to many conducted researches, coaches' personality and leadership and behavioral style connect to athletes' performance, motivation and satisfaction. Creating effective and successful relationships between coach and athlete is not easy and also is a thoughtful act and requires coaches' interpersonal and practical skills. Self-efficacy feeling in coaching defines coaches' development, trust, and sureness and capability of influencing each athlete for training and performing. Self-efficacy in coaching has four factors including game strategies use, motivating athletes, coaching technique, and character building. So, the present study has made efforts to explore some variables in athletes and coaches varied groups and to discuss the differences in coach-athlete relationships and also coaches' efficacy by their own personal differences. 92 coaches and 256 athletes, who were cooperated with each other for at least 6 months, were selected as the study sample. Analysis of variance and t test were used to survey the study variables on demographic characteristics. The results showed that demographic characteristics including educational levels and coaches' experience as an athlete are considered significant in exploring closeness and complementary subscales, and sports, coaching background in schools levels, and coaching grades are considered significant in exploring coaching efficacy. By studying athletes, sports explored athlete-coach relationships.

Keywords: Coach-Athlete Relationship, Self-Efficacy, Sports Leagues

Introduction

Today, coaches' role and importance in victory or failure of sports teams are not covert to anyone (Poursoltani, et al., 2009). Coaches have been considered as one of the basic dimensions of forming and progressing teams and their roles in players' performance are not ignorable. According to many conducted researches, coaches' personality and leadership and behavioral style connect to athletes' performance, motivation and satisfaction (Moradi, 2004). Creating effective and successful relationships between coach and athlete is not easy and also is a thoughtful act and requires coaches' interpersonal and practical skills (Leyland, 2004).

Lots of researches have confirmed that coach-athlete relationship consists of transactions and behaviors indicating coaches' control and mastery dimensions and dependence, friendship, and accountability of both (coach and athlete). So, coaches and athletes who use such transactional patterns can coordinate coach-athlete relationship consisting three dimensions of complementary, closeness, and commitment which form the coach-athlete relationship construction (Jowet, 2003; Jowet & Cockerill, 2003; Jowet and Timson-Katchis, 2005).

One of the new concepts in sports literature is coaching efficacy which is defined by Bandura's (1986) theory as coaches' development, trust and confidence and capability of influencing each athlete for training and performing (Bandura, 1986). Self-efficacy in coaching has four factors including game strategies use, motivating athletes, coaching technique, and character building (Feltz, et al., 1999). Pourafkari (2006) defined self-efficacy as person's believes on his/her own

ability to cope with various situations. Low self-efficacy feeling leads decrease in individual's behavioral and cognitive function and then gradual failure of his/her interests and skills (TorkLadani, 2010).

Researches on conceptual model of coaching efficacy have been increasing since last decade (Kavvusano, 2008). Research interest on relationship between behaviors and coach's and athlete's believes and also team results leads Feltz, et al. (1999) to developing the conceptual model of coaching efficacy and its scale (Porter, 2005). Feltz, et al. (1999) accomplished examining the conceptual model of coaching efficacy: initial study and construct development. The researchers explored conceptual model of coaching efficacy and they developed a guideline for measuring that concept and four dimensions of coaching efficacy scale as: game strategies use, motivating athletes, coaching technique, and character building were analyzed. The research results indicated that conceptual model of coaching efficacy could be used to measure coaches efficacy and capability. Getting informative and valuable results by exercise is a coach's task. A coach who committed to him/her players will be the most victories sport teacher and coach by the final analysis (Jowet, 2003). The results from Lafrenière, et al. (2011) showed that coach's enthusiasm for athlete's cooperation in discussing performance goals, considering athletes' ideas, properly addressing expectations, and showing real concern about athletes' life would be leaded to athletes' closeness and commitment toward coaches and then athletes' welfare would be promoted. The results from Boardley, et al. (2008) and Tsorbatzoudis (2003) indicated evaluating coaches' ability to motivating, presenting guideline (training), developing fair play by athletes predict athletes' perception of coaching efficacy. Treasure, et al. (1996), Jeorge (1994), Gould, et al. (1989), Bandura (1986), Bandura (1997), Jackson, Robert, and Beauchamp (2010), Vargas-Tonsing (2009), Gearity and Murray (2011), Mayers (2005) found that there is negative significant relationships between self-efficacy and stress and positive relationship between self-efficacy and team satisfaction and victory probability, and it is indicated that athletes' competitive situations to win or better performance against others are related to their own self-efficacy expectations.

Self-efficacy feeling is one of the most effective factors for developing sport skills performance properly and the results from lots of studies have shown that coaches' capability to influence athletes' learning and performance is not ignorable. Self-efficacy feeling is a central and basic factor for athletes' psychological adaptation and sport succession. Coach-athlete relationship quality plays an important role in facilitating physical and technical efforts (Jowet and Pczawodoski, 2007). The good relationship among coach and athlete will lead to more enjoyment and less resignation from sport, and energy and resources failure needed for achieving goals will be prevented. So, the present research has focused on the present variables in various groups of athletes and coaches to determine coach-athlete relationships and coaching efficacy differences by personal characteristics. Considering importance and necessity of positive coach-athlete relationships and coaching efficacy in sport and exercise and lack of same researches in Iranian sports community, the present research aimed to advice sports coaches and the findings will be utilized by educational planners in the field of sports coaching and psychology of sport and exercise.

Methodology
Participants
The present study statistical community consisted of 121 male coaches and 721 athletes (who work with the selected coaches) from Football, Basketball, Wrestling, and Taekwondo in Iranian sports leagues. By selecting randomly, 92 coaches with the Mean age of 41 (3.4) and 256 athletes

with the Mean age of 22 (2.1), who had been cooperating with each other for at least six months, participated in the survey as the statistical sample.

Measures

Coach–Athlete Relationship Questionnaire (CART-Q) (Jowett and Ntoumanis, 2007): This scale consists of 11 statements which are responded by Likert seven values scale from "Not at all (degree of 1)" to "Extremely (degree of 7)". The scale also contains a cover letter, a guideline, demographic information, and the statements. The present scale has three sub-scales as follows: Commitment (statements 1 to 3, α=0.708) indicating duty or assurance toward a person or a thing. Personal commitment means the works doing for duties and requirements. The commitment for a collection to do a work is different with the personal commitment indicating assurance for personal growth. Closeness (statements 4 to 7, α=0.842) indicating warm relationship among coaches and athletes which is one of the most vital factor for sports achievements. Complementary (statements 8 to 11, α=0.849) is a foundation which coach and athlete gain it by being together. Relationship among a coach and an athlete without feedback is insignificant. So, cooperation is located in the interaction heart of complementary in coach-athlete relationship (Jowet and Cockril, 2003; Jowet, Frast, and Ntomaize, 2004; Tojari, Soheili, and Manouchehri, 2013).

The Coaching Efficacy Scale (CES) (Feltz, et al., 1999): This scale contains 24 statements which were measured on a variance from 0 not at all confident and 9 extremely confident. The variance would enable coaches to survey their own extent of confidence. The Coaching Efficacy Scale has four subscales. Motivating Athletes: this subscale indicates individuals' evaluation and judgment about their own tendencies and needs which would lead the behavior direction, tension and consistency to their goals (i.e. "Maintain confidence in athletes", and "Mentally prepare athletes for competition") and it was measured by the statements 1, 3, 10, 15, 16, and 23. Strategy Use: this subscale indicates individuals' evaluation and judgment about their own ability in arranging team by athletes in order to achieve proper result (i.e. "Make critical decisions during competitions", and "Maximize own athletes' strength during competition") which was measured by the statements 2, 4, 9, 11, 17, and 21. Coaching Technique: this subscale indicates individuals' evaluation and judgment about their own skills and abilities on training athletes (i.e. "Detect skill errors", and "Teach the skill of the sport") which was measured by the statements 7, 8, 14, 18, 20, and 22. Character Building: this subscale indicates individuals' evaluation and judgment about their own attitude power and the right ethical relationship (i.e. "Instill an attitude of fair play among athletes", and "Promote good sportsmanship") which was measured by the statements 5, 6, 12, 13, 19, and 24. The obtained internal consistency coefficients by Cronbach's Alpha for Motivating Athletes, Strategy Use, Coaching Technique, and Character Building were 0.89, 0.87, 0.91, and 0.86 respectively. The levels of these coefficients suggested that the Scale was acceptable for use and this result is supported by Manouchehri, et al. (2013). As the scale was used in Iranian (Persian) community, the scale was given to academic experts for confirming its reliability and validity after translating from English to Persian (Farsi).

Statistical Methods

Descriptive statistics were used for describing and categorizing raw data and for measuring Mean, frequency, SD and table drawing. ANOVA was used for measuring difference between athletes' perception about coach-athlete relationships and coaches' perception about efficacy and coach-athlete relationships. Tukey test was used for means differences places. For analyzing data the SPSS software was applied and 95% of confidence level was considered.

Results

Results related to the athletes:

The descriptive results showed that from 256 participated athletes, 87 individuals (about 34%) were 19-25 years old, 125 individuals (about 49%) were 25-30 years old, 38 individuals (about 15%) were 30-35 years old, and 6 individuals (about 2%) were 35-40 years old. And also, 80 individuals (about 31%) were competing in Olympics, Asian Games, and/or world championships, 37 individuals (about 14.5%) were competing in international tournaments, 106 individuals (about 41%) were competing in national level, and 33 individuals (about 13%) were competing in provincial level.

The results showed that despite lack of significant difference in research variables between groups: closeness had the highest mean ($\bar{X}$=5.81) and commitment had the lowest mean ($\bar{X}$=5.75), and also commitment had the highest standard deviation (SD=0.94) and complementary had the lowest standard deviation (SD=0.77). Likewise, the results from ANOVA on Table 1 demonstrated that commitment [$F_{(3,252)}$=2.604, P=0.052] had not significant relationship in athletes' various sports (P<0.05), and complementary [$F_{(3,252)}$=5.271, P=0.002], and closeness [$F_{(3,252)}$=4.252, P=0.006] had significant relationship in athletes' various sports (P<0.05).

So it can be realized that athletes' various sports did not predict the commitment alternations, however, the athletes' various sports can predict complementary and closeness alternations athlete-coach relationships.

The results from Tukey test demonstrated that closeness had significant difference between groups of athletes who belong to Taekwondo and Football (P=0.009), complementary had significant difference between groups of athletes who belong to Taekwondo and Football (P=0.030) and Wrestling and Football (P=0.005). The results also showed that the highest mean ($\bar{X}$=6.23) belonged to closeness in Basketball Sport and the lowest mean ($\bar{X}$=5.61) belonged to commitment in Football Sport.

Table 1. ANOVA for athletes' various sports

			Sum of Squares	df	Mean Square	F	Sig.
Closeness	Between Groups	(Combine)	8.236	3	2.745	4.252	0.006
	Within Groups		162.701	252	0.646		
	Total		170.937	255			
Complementary	Between Groups	(Combine)	9.097	3	3.032	5.271	0.002
	Within Groups		144.937	252	0.575		
	Total		154.070	255			

Likewise, the results from ANOVA on Table 2 demonstrated that commitment [$F_{(4,251)}$=0.538, P=0.708] had not significant relationship in athletes' educational levels (P<0.05), and complementary [$F_{(4,251)}$=4.92, P=0.001], and closeness [$F_{(4,251)}$=4.29, P=0.002] had significant relationship in athletes' educational levels (P<0.05). The results from Tukey test demonstrated that closeness had significant difference between groups of athletes with diploma and postgraduate diploma (P=0.001) and bachelor and diploma (P=0.010), complementary had significant difference between groups of athletes who with diploma and postgraduate diploma (P=0.004) and bachelor and diploma (P=0.002). The results also showed that the highest mean

($\overline{X}$=6.23) belonged to closeness in athletes with diploma level and the lowest mean ($\overline{X}$=5.61) belonged to commitment in athletes with undergraduate diploma level.

Table 2. ANOVA for athletes' educational levels

			Sum of Squares	df	Mean Square	F	Sig.
Closeness	Between Groups	(Combine)	10.948	4	2.737	4.294	0.002
	Within Groups		159.989	251	0.637		
	Total		170.937	255			
Complementary	Between Groups	(Combine)	11.208	4	2.802	4.923	0.001
	Within Groups		142.862	251	0.569		
	Total		154.070	255			

Results related to the coaches:

The descriptive results showed that from 92 participated coaches, 27 individuals (about 29%) were 30-40 years old, 52 individuals (about 56.5%) were 40-50 years old, 12 individuals (about 13%) were 50-60 years old, and 1 individuals (about 1%) was above 60 years old. And also, 21 individuals (about 23%) had 5-10 years coaching background, 50 individuals (about 54%) had 10-15 years coaching background, 12 individuals (about 13%) had 15-20 years coaching background, and 9 individuals (about 10%) had above 20 years coaching background. Additionally, it was found that 44 individuals (about 48%) had coaching background in national teams.

The results showed that despite lack of significant difference in research variables between groups: coaching technique had the highest mean ($\overline{X}$=7.02) and the highest standard deviation (SD=0.73), and closeness had the lowest mean ($\overline{X}$=5.33) and also commitment had the lowest standard deviation (SD=0.58). The results indicated that the means of commitment, closeness, and complementary in both athletes and coaches groups were sort of equal. Therefore, it is realized that coaches' and athletes' perceptions about their relationship were positive.

Likewise, the results from ANOVA on Table 3 demonstrated that commitment [$F_{(3,88)}$=1.065, P=0.368], closeness [$F_{(3,88)}$=1.774, P=0.158], complementary [$F_{(3,88)}$=1.349, P=0.264], game strategy [$F_{(3,88)}$=1.842, P=0.145], motivating athletes [$F_{(3,88)}$=1.638, P=0.186], character building [$F_{(3,88)}$=2.058, P=0.112] had not significant relationship in coaches' various sports (P<0.05), and coaching technique [$F_{(3,252)}$=3.951, P=0.011] had significant relationship in coaches' various sports (P<0.05). The results from Tukey test demonstrated that coaching technique had significant difference between groups of coaches who belong to Taekwondo and Football (P=0.015) and Taekwondo and Basketball (P=0.039). The results also showed that the highest mean ($\overline{X}$=7.39) belonged to coaching technique in Taekwondo Sport and the lowest mean ($\overline{X}$=5.14) belonged to closeness in Football Sport.

Table 3. ANOVA for coaches' various sports

			Sum of Squares	df	Mean Square	F	Sig.
Coaching Technique	Between Groups	(Combine)	5.798	3	1.933	3.951	0.011
	Within Groups		43.042	88	0.489		
	Total		48.840	91			

The results from ANOVA on Table 4 demonstrated that commitment [F(3,88)=0.828, P=0.482], coaching technique [F(3,88)=2.570, P=0.059], complementary [F(3,88)=1.836, P=0.146], game strategy [F(3,88)=0.565, P=0.640], motivating athletes [F(3,88)=1.421, P=0.242], character building [F(3,88)=1.438, P=0.237] had not significant relationship in coaches' experience as athlete (P<0.05), and closeness [F(3,252)=6.756, P=0.000] had significant relationship in coaches' experience as athlete (P<0.05). The results from Tukey test demonstrated that closeness had significant difference between groups of coaches who had 10-15 and above 20 years experience as athlete (P=0.010) and 15-20 and above 20 years experience as athlete (P=0.000). The results also showed that the highest mean ($\bar{X}$=7.66) belonged to game strategy in coaches with 5-10 years experience as athlete and the lowest mean ($\bar{X}$=4.75) belonged to complementary in coaches with 5-10 years experience as athlete.

Table 4. ANOVA for coaches' experiences as athlete

			Sum of Squares	df	Mean Square	F	Sig.
Closeness	Between Groups	(Combine)	7.709	3	2.570	6.756	0.000
	Within Groups		33.470	88	0.380		
	Total		41.179	91			

The results from ANOVA on Table 5 demonstrated that commitment [F(2,89)=0.074, P=0.929], coaching technique [F(2,89)=1.470, P=0.235], complementary [F(2,89)=0.533, P=0.589], game strategy [F(2,89)=4.494, P=0.064], closeness [F(2,89)=1.390, P=0.254], character building [F(2,89)=0.351, P=0.705] had not significant relationship in coaches' coaching grades (P<0.05), and motivating athletes [F(2,89)=7.110, P=0.001] had significant relationship in coaches' coaching grades (P<0.05). The results from Tukey test demonstrated that motivating athletes had significant difference between groups of coaches who owned coaching 1st grade and 2nd grade certificate (P=0.010). The results also showed that the highest mean ($\bar{X}$=7.51) belonged to motivating athletes in coaches who owned coaching 2nd grade certificate and the lowest mean ($\bar{X}$=5.09) belonged to closeness in coaches who owned coaching international grade certificate.

Table 5. ANOVA for coaches' coaching grades

			Sum of Squares	df	Mean Square	F	Sig.
Motivating Athletes	Between Groups	(Combine)	5.003	2	2.501	7.110	0.001
	Within Groups		31.309	89	0.352		
	Total		36.312	91			

The results from ANOVA on Table 6 demonstrated that commitment [F(3,88)=1.506, P=0.219], coaching technique [F(3,88)=2.521, P=0.063], closeness [F(3,88)=1.398, P=0.249] had not significant relationship in coaches' coaching experience in interscholastic and institutional levels (P<0.05), and motivating athletes [F(3,88)=4.290, P=0.007], complementary [F(3,88)=3.207, P=0.027], game strategy [F(3,88)=3.429, P=0.021], character building [F(3,252)=3.058, P=0.032] had significant relationship in coaches' coaching experience in interscholastic and institutional levels (P<0.05). The results from Tukey test demonstrated that complementary had significant difference between groups of coaches who had 1-5 and 10-15 years coaching experience in interscholastic and institutional levels (P=0.029), game strategy had significant difference between groups of coaches who had 1-5 and above 15 years coaching experience in interscholastic and institutional levels

(P=0.041), motivating athletes had significant difference between groups of coaches who had 1-5 and 5-10 years (P=0.007) and 1-5 and 10-15 years (P=0.020) and 1-5 and above 15 years (P=0.004) coaching experience in interscholastic and institutional levels, character building had significant difference between groups of coaches who had 1-5 and 5-10 years coaching experience in interscholastic and institutional levels (P=0.019). The results also showed that the highest mean ($\bar{X}$=8.11) belonged to motivating athletes and coaching technique in coaches with less than 5 years coaching experience in interscholastic and institutional levels and the lowest mean ($\bar{X}$=5.16) belonged to closeness in coaches with above 15 years coaching experience in interscholastic and institutional levels.

Table 6. ANOVA for coaches' coaching experience in interscholastic and institutional levels

			Sum of Squares	df	Mean Square	F	Sig.
Complementary	Between Groups	(Combine)	3.692	3	1.231	3.207	0.027
	Within Groups		33.768	88	0.384		
	Total		37.460	91			
Game Strategy	Between Groups	(Combine)	4.110	3	1.370	3.429	0.021
	Within Groups		35.163	88	0.400		
	Total		39.273	91			
Motivating Athletes	Between Groups	(Combine)	4.633	3	1.544	4.290	0.007
	Within Groups		31.670	88	0.360		
	Total		36.312	91			
Character Building	Between Groups	(Combine)	4.199	3	1.400	3.058	0.032
	Within Groups		40.273	88	0.458		
	Total		44.472	91			

Discussion

Probably, the most important relationship is one which forms among coach and athlete. Although there is no text to state that there are casual relations between coach-athlete relationship quality and successful performance, there are some evidences indicating successful relationships lead to interpersonal qualities such as confidence, respect, commitment and understanding. Coaches' kind and principled relations with athletes can be emerged by kind and safe climate which cope with sadness and concerns for athletes created by coaches and focus on sport activities leading to team or individual strong performance. Coach-athlete relationships have been studied in depth. A coach has great influence on athlete's physical and psychological development. As Jowet (2007) defined, a positive and constructive relation between coach and athlete refers to a situation in which coach-athlete closeness (for instance, confidence and respect feeling and interpersonal appreciation), commitment (for instance, thinks and goals toward maintaining long term relations), and complementary (interpersonal behaviors and cooperation such as accountability, friendship and assistance) are existed bi-directionally and casually. Effective and efficient coaches must communicate properly and they should have knowledge on learning process, training methods and principles and evaluation ways related to their sports. These skills enable coaches for playing accurately their own roles.

On the other hand, the results from Tsorbatzoudis (2003), Feltz, et al. (2009), Sullivan and Kent (2003) indicated that highly experienced coaches compared with less experienced coaches gain higher scores in technique and self-esteem factors which were inconsistent with the present results indicating insignificant differences between groups of coaches with various coaching experience in technique. Moreover, the results showed that closeness and complementary subscales in groups of coaches who owned diploma certificate and postgraduate diploma certificate and the same in coaches who owned diploma certificate and bachelors had significant differences and any consistent results by others had not found. Likewise, closeness subscale, according to the present findings, had significant differences between coaches who had 10-15, 15-20, and above 20 years background as athlete. Comparing complementary subscale in groups of coaches with 1-5 and 10-15 years background as athlete also found significant differences. Additionally, coaching technique subscale had significant differences between coaches of Taekwondo and Football and coaches of Taekwondo and Basketball, any consistent results by others had not found. Regarding the present results, strategy subscale had significant differences between coaches how had 1-5 and above 15 years background of coaching in institutional in interscholastic coaching level which were supported by the results from Kavussanu, et al. (2008) indicating direct relationship between coaching age and experience with coaching efficacy. Moreover, motivation subscale had significant differences between coaches who owned coaching certificate grade 1 and 2, coaches 1-5 and 5-10 years, 1-5 and 10-15 years, 1-5 and above 15 years background as athlete which were consistent with the mentioned results from Kavussanu, et al. (2008). Finally, character building subscale had significant differences between coaches how had 1-5 and 5-10 years background of coaching in institutional in interscholastic coaching level which were supported by the mentioned results from Kavussanu, et al. (2008). Relating to the present athletes statistical sample, closeness and subscale had significant differences between athletes from Taekwondo and Football sports and complementary subscale had significant differences between athletes from Taekwondo and Football sports and also Football and Wrestling sports, and any consistent results by others had not found.

Conclusion

The results from present study indicated that demographic variables, for instance, educational level, coaches' background as athlete, can be considered as effective factors in exploring closeness and complementary subscales in coaches' community. Likewise, sports, background of coaching in institutional in interscholastic coaching level are considerable in exploring coaching efficacy. In athletes' community, sports are important in exploring athlete-coach relationship. So, few kinds of sports as a research limitation, it is recommended to other researchers to use wide range of sports for studying the same variables. Finally, the present paper proposes studying the same variables in student and grassroots athletes and their coaches and also women community to compare the results on the gender.

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