

## Validity and Reliability of coaching competency in team sports

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### Abstract

The purpose of this study was to evaluate the validity and reliability of the coaching competency scale for soccer and basketball youth coaches by examining their athletes' perceptions. An additional aim was to compare the perceptions that these athletes had about their coaches. The sample size of this study consisted of 299 young amateur athletes aged 12-18 years old (M=14.64, SD=1.541) and in particularly 181 soccer athletes (M=14.54, SD=1.364) and 118 basketball athletes (M=14.78, SD=1.774). Coaching competency was measured with the Athletes' Perceptions of Coaching Competency Scale II-High School Teams developed by Myers, Chase, Beauchamp and Jackson (2010). The scale consists of 24 questions which constitute four factors: Motivation Competency (MC), Game Strategy Competency (GSC), Technique Competency (TC) and Character Building Competency (CBC). After examining its internal consistency by verifying the Cronbach's  $\alpha$  reliability index, a confirmatory factor analysis followed with the use of the LISREL 8.80. The results indicated that the Cronbach  $\alpha$  values were high and the loadings of the confirmatory factor analysis supported the factors of the original instrument. Conclusively, by examining the athletes' perceptions this coaching competency scale is considered a valid and reliable instrument and can be used for the Greek population. Examining the difference of athletes' perceptions the results didn't show any differences between basketball and soccer young players. The athletes' perceptions were positive to their coaches in both sports.

**Key Words:** coach, competency, efficacy, young athletes, reliability, validity.

### Introduction

The importance of the role of the coach, who according to Martens (2004) has the most outstanding positive or negative influence upon athletes, can be comprehended both at a theoretical level as well as a purely practical one which is the way that those athletes and their team's executives that have selected him/her interact with each other. According to Crust and Lawrence (2006) since these executives are responsible for hiring the coach it is essential to ensure that both their club's as well as the potential leader's vision and goals are compatible; and furthermore that the leader's values and those of the team's members, which is to say the players, are not in contrast with each other. This is so because the coach-leader has to make decisions, motivate and provide feedback to all those around him/her, give proper guidance and define the context of interpersonal relationships in order to enhance the team's efficacy as well as the satisfaction of its members. As Horn (2002) has also stated coaches are thought to have a great influence on the lives of their athletes since they positively affect their performance, their behaviour and their psychological and emotional state.

The most important element which to a major degree defines the importance of the coach's role is how effective he/she can be considered to be in his/her work. For Kavussanu (2008) an effective coach can form various aspects of his/her athletes' experiences. However, a clarification is necessary. As Boardly, Kavussanu and Ring (2008) wrote while citing the study by Horn (2002) in the coaching efficacy literature coaching effectiveness can be typically defined within the frames of sporting results and measurements. In other words the term Coaching Effectiveness refers to the ability that coaches' have in applying their knowledge and skills, whereas the term Coaching Efficacy refers to the coaches' perceptions as for what they can achieve with their capabilities. Moreover, Kavussanu, Boardley, Jutkiewicz, Vincent and Ring (2008) concluded in their research that coaching effectiveness marks the outcomes or results which somebody can produce.

Even so, finding the best way to determine coaching effectiveness is perhaps more a matter of athletes' perceptions rather than coaches' perceptions. It seems more interesting to focus on athletes' perceptions about the effectiveness of their coaches because from an applied perspective they are probably more important for the smooth function of a team since a coach's opinion is merely one whereas athletes' opinions are many and it is not uncommon for these two to be in contrast with each other. This is what Kavussanu et al. (2008) found in their research. According to the results coaches' perceptions differed on average to those of their athletes' as far as how they personally thought that they affected their athletes' motivation, technique, game strategy and character building.

Moreover, Jowett and Cockerill (2003) argued that athletes and coaches who share a common orientation, which is to say, a common knowledge and understanding are more likely to communicate effectively and appropriately. Jowett and Meek (2000) on the other hand claimed that the athlete-coach relationship is fundamental in the coaching practice because its nature is very likely to determine an athlete's pleasure, self-confidence and performance achievements. In addition, Smith, Fry, Ethington and Li (2005) deduced that athletes' perceptions about their coaches' behaviours significantly contribute to the kind of opinion that they will form about the motivational climate of the team. Myers, Feltz, Maier, Wolfe and Reckase (2006) maintained that since athletes' perceptions and their evaluation of coaching behaviours are thought to play an important role in coaching efficacy, it is crucial both for the improvement of coaching as well as for the further development of coaching efficacy models to accurately estimate how athletes evaluate their coaches' fundamental skills.

According to Feltz, Chase, Moritz and Sullivan (1999) the term Coaching Efficacy is a sports specific construction and is defined as the extent to which coaches believe they possess the capacity to affect the learning and performance of their athletes. What is more, after developing the Coaching Efficacy Scale (CES) they also came to the conclusion that this scale could significantly predict coaching efficacy. Additionally, Vargas-Tonsing, Myers and Feltz (2004) considered coaching efficacy as a factor which predicts athletes' efficacy (Bebetsos & Theodorakis, 2003; Kouli, Bebetsos, Kamperis, & Papaioannou, 2010; Bebetsos, 2015; Grapsas, Bebetsos, Godolias, & Tsamourtzis, 2016).

After minor modifications on the CES, however, Myers, Feltz, Maier, Wolfe and Reckase (2006) developed the Coaching Competency Scale (CCS). In order to do so these researchers thought that it was more important to record athletes' perceptions about their coaches' competency since they considered coaching competency to be both multidimensional (motivation, game strategy, technique and character building comprise its dimensions) and multilevel (athletes nested within teams). Furthermore, having defined this multidimensional and multilevel scale as "Coaching Competency" they designated this term as the perceptions which athletes have for their coach's adequacy to affect their learning and performance. Therefore, the specific coaching competencies which are evaluated by the CCS include Character Building Competency (CBC), Game Strategy Competency (GSC), Motivation Competency (MC) and Technique Competency (TC). Overall, the above tool has been certified and tested for its reliability in a subsequent study by Myers, Wolfe, Maier, Feltz and Reckase (2006).

In an effort to use this scale in Greece it was necessary to check the internal consistency and validity of the questionnaire Athletes' Perceptions of Coaching Competency Scale II-High School Teams or APCCSII-HST by Myers et al. (2010). That is why a confirmatory factor analysis was used to validate the factors of the original questionnaire. Thus, the purpose of this study was to examine the reliability and validity of the APCCS II-HST for soccer and basketball coaches by examining the perceptions of their athletes.

## **Material & methods**

### ***Participants***

The participants were 299 young amateur male athletes aged 12 to 18 years old ( $M=14.64$ ,  $SD=1.541$ ). From the above mentioned athletes 181 were basketball athletes ( $M=14.77$ ,  $SD=1.79$ ) from development squads of various amateur basketball clubs which participate in the A1 League of the Basketball Clubs' Union of Thessaly. The remaining 118 athletes were amateur male soccer athletes aged 12 to 18 years old ( $M=14.54$ ,  $SD=1.36$ ) who played in various development squads of a team participating in the 1<sup>st</sup> Division Championship of the Trikala Soccer Clubs' Union. All athletes agreed to participate voluntarily in this research after their parents signed a written consent form.

### ***The Procedure of the Study***

The questionnaires were handed out by the researcher a few minutes before the beginning of a training session and after a brief introduction about the content and purpose of this study. All participants responded to the questionnaire individually without the presence of their coach. The researcher was present when the athletes completed the questionnaire thus ensuring that they understood and answered all the questions while avoiding possible misinterpretations and any major data loss. In addition, the researcher noted that the questionnaires were anonymous and that the results would be used for research purposes only, whereas their coaches would not be informed about their responses.

### ***Instrumentation***

The instrument that was selected for this research was Athletes' Perceptions of Coaching Competency Scale II-High School Teams or APCCSII-HST by Myers et al. (2010) which was considered as the most appropriate for the athletes' age. This coaching competency scale consists of 24 questions. An answer to each question was given via a 4-point Likert-type scale with categories ranging from 1 (no competent) to 4 (extremely competent) in a way that the highest score corresponds to a greater coaching competency. The score which is formed in each range corresponds to the average of all questions. These questions constituted four factors: Motivation Competency (MC) consisting of 7 questions, Game Strategy Competency (GSC) consisting of another 7 questions, Technique Competency (TC) consisting of 6 questions and Character Building Competency (CBC) consisting of 4 questions.

The instrument was translated from English to Greek and backwards from Greek to English as Banville, Desrochers and Genet-Volet (2000) have suggested. Firstly, the questionnaire was translated into the Greek

language by two professors of English who are specialized in translation. The two translators totally coincided with each other after translating all 24 questions. After that, the questionnaire was given to another two official translators in order for them to back translate it into English. The resulting text was compared with the original one drafted by Myers et al. (2010) in the presence of all four translators plus the three researchers and after deliberations they all concurred with each other in the formulation of the questions. For the verification of the validity of the questionnaire's content a pilot study was conducted in which 80 athletes (40 soccer players and 40 basketball players) participated. These questionnaires were completed without reports of any difficulties whatsoever in neither comprehending nor filling them in.

**Statistical analysis**

For the validity and reliability of the questionnaire a Confirmatory Factor Analysis was performed with the LISREL 8.80 on all four factors whereas the verification of the questionnaire's internal reliability (Cronbach  $\alpha$ ) was carried out via the IBM SPSS 20.0 Statistics Data Editor for Windows. For analyzing the results the following statistical analyses were implemented: descriptive statistics for the demographic characteristics of the sample and after examining whether the allocations were normal (verification with the Shapiro-Wilk test) an analysis of variance for independent samples (ANOVA). This was done in order to check the differences of perceptions between soccer and basketball players. The hypotheses were tested for a statistical significance level of  $p < 0.05$ .

**Results**

**Descriptive statistics**

*Age and training experience of athletes*

Means and standard deviations of athletes' age and training experience are presented in table 1.

**Table 1.** Means and Standard Deviations of athletes' age and training experience.

<i>Type of athlete</i>	N	<i>Age</i>		<i>Training Experience</i>	
		<i>M</i>	<i>S.D</i>	<i>M</i>	<i>S.D</i>
<i>Basketball player</i>	118	14.77	1.79	7.28	2.15
<i>Soccer player</i>	181	14.54	1.36	7.08	1.75
<i>Total</i>	299	14.63	1.54	7.16	1.92

**Evaluation of the questionnaire's reliability**

The questionnaire which was selected for waging this study and collecting primary research data was tested for its apparent validity and reliability. The apparent validity of the questionnaire is confirmed by the fact that the selected sections and questions emanate from the theoretical analysis which was preceded. The questionnaire does not face any validity issues since all the questions and instructions are clearly and coherently stated and furthermore the researcher was present to resolve any queries.

Reliability has to do with how much a test or a research actually portrays the true size of the feature under review. Reliability is obtained by the repeatability of a result. When that happens then it may be postulated that the instrument greatly calculates the actual value of the test feature. The most common way to estimate reliability is by calculating the value of the internal consistency coefficient alpha ( $\alpha$ ) by Cronbach. Reliability values greater than 0.70 are considered as acceptable (Fowler, 2013). The reliability analysis that was carried out resulted in a reliability coefficient Cronbach Alpha greater than 0.70 for all the factors that were measured. According to this outcome a satisfactory internal consistency of the questionnaire's reliability can be ascertained. The reliability results of the four aforementioned factors are analytically depicted in Table 2.

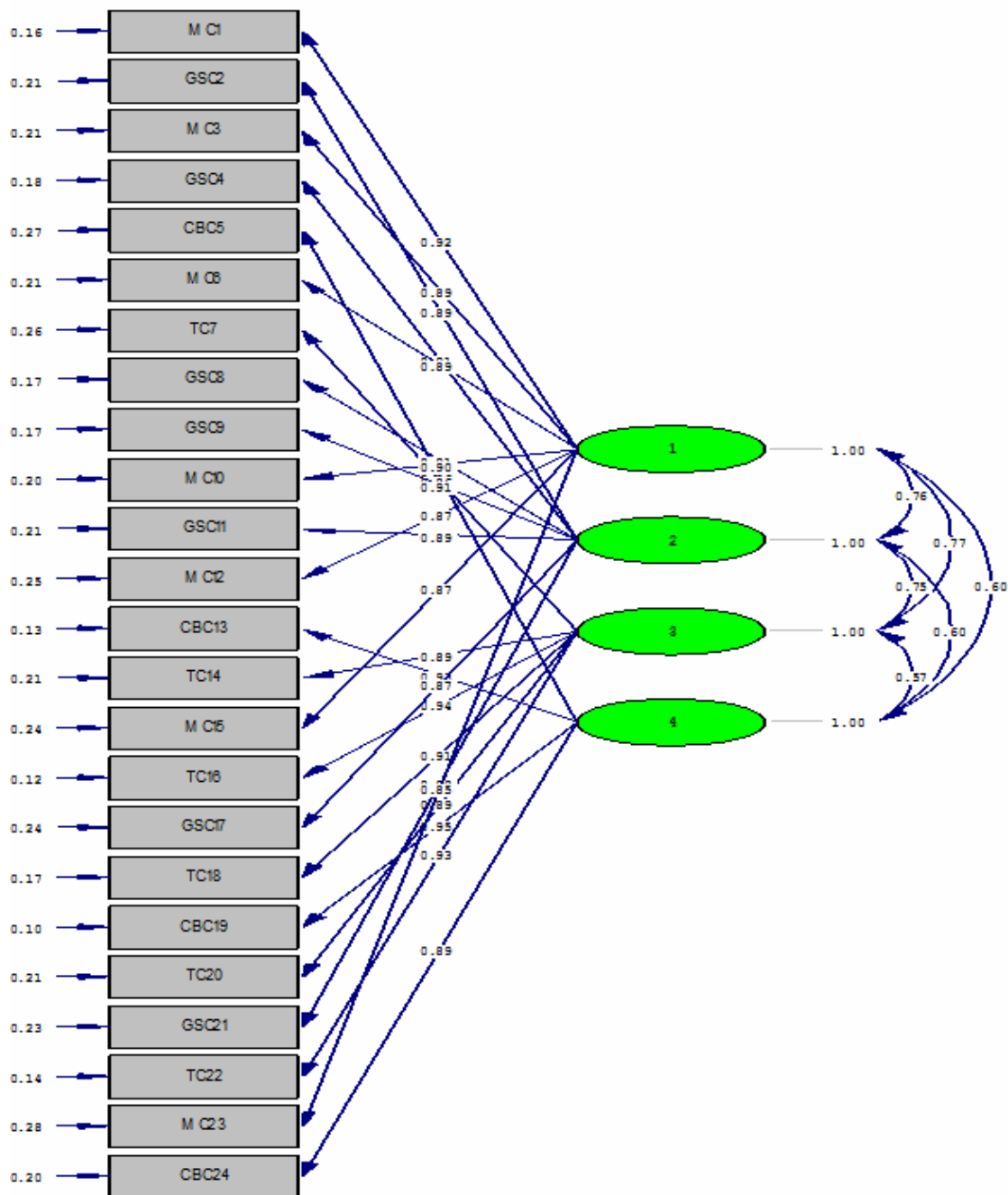
**Table 2.** Reliability analysis of the questionnaire.

<i>Factor</i>	<i>N of Items</i>	<i>N</i>	<i>M</i>	<i>S.D</i>	<i>Cronbach's Alpha</i>
<i>Motivation Competency (MC)</i>	7	299	3.11	.676	.963
<i>Game Strategy Competency (GSC)</i>	7	299	3.18	.695	.967
<i>Technique Competency (TC)</i>	6	299	3.15	.726	.966
<i>Character Building Competency (CBC)</i>	4	299	3.23	.748	.954

**Confirmatory factor analysis**

When doing a Confirmatory Factor Analysis (CFA) it is possible to validate the deterministic variables that are used for measuring specific structures. In other words with a CFA what is tested is whether the preselected factors actually apply. Furthermore, in the case of a Confirmatory Analysis the exact structure of the factorial model, which is based on an existent theory, is considered a fact. Therefore, in CFA the numbers of factors as well as any correlations that exist among them are chosen and a simple testing takes place so as to establish if this model applies well to the data (Dimitriadis, 2011).

The statistical software that was used was the LISREL 8.80 for Windows. The factorial model which was estimated is depicted in Figure 1 and the variables which were excluded were the ones that the factor analysis indicated being uncorrelated with the others. Excluded variables per factor were the following: 1. Motivation Competency (MC) a5, a6, 2. Game Strategy Competency (GSC) b14, b15, 3. Technique Competency (TC) c21, 4. Character Building Competency (CBC). Confirmatory Factor Analysis are presented in Figure 1.



**Figure 2.** Confirmatory Factor Analysis

From the fourth factor no variable was excluded because a satisfactory correlation among them was proven. The results of the Confirmatory Factor Analysis of this particular instrument for testing the goodness of fit indices are presented analytically in Table 3.

**Table 3.** Adjustment indices

$\chi^2$	<i>df</i>	$\chi^2/df$	<i>sig</i>	<i>NNFI</i>	<i>CFI</i>	<i>RMS EA</i>	<i>SRMR</i>
119.2			p<.00				
9	59	2.02	3	.96	.97	.053	.044

Some of the absolute adjustment measures that were used in this study via the CFA were the following:

a) The  $\chi^2$  (Chi-Square Statistic) which is the most important measure for measuring the adjustment of the overall model and simultaneously the only statistic that is available in structural equation models, was 119.29 with  $p < 0.003$ . This proves the statistical importance of the measure since the minimum acceptable level of significance according to the relevant literature has been determined at 0.05 (Dimitriadis, 2011).

b) The Root Mean Square Error of Approximation (RMSEA) and Standardized Root Mean Square Residual (SRMR) indices that attempt to correct the tendency of the  $\chi^2$  statistical to reject each identified model with a large enough sample size. The values representing good adaptation range from 0.05 to 0.08 and researchers usually prefer values smaller than 0.1. The RMSEA and SRMR values were 0.053 and 0.044 respectively.

c) The Comparative Fit Index (CFI) and the Non-Normed Fit Index (NNFI) through which the null model is compared with the proposed model. The value of these indices ranges from 0 to 1 and high values show a higher goodness of fit level (Dimitriadis, 2011). The CFI and NNFI values were 0.97 and 0.96 respectively. According to these values the CFA depicts that the four factor model provides a satisfying cohesion for the 13 Coaching Competency variables.

**Differences between the perceptions of soccer players and basketball players for their coach's competency.**

In Table 4 means and standard deviations of the athletes on all four variables are presented.

**Table 4.** Means and standard deviations of the questionnaire's variables according to the type of athletes.

Type of athlete	Basketball athletes n=118		Soccer athletes n=181		Total N=299	
	M	SD	M	SD	M	SD
Motivation Competency	3.08	.688	3.13	.670	3.11	.676
Game Strategy Competency	3.16	.706	3.19	.690	3.18	.695
Technique Competency	3.13	.728	3.16	.727	3.15	.726
Character Building Competency	3.26	.776	3.22	.732	3.23	.748

ANOVA showed that there were no statistically significant differences ( $p > .005$ ) in the means per kind of athlete for any of the 4 coaching competency variables. Athletes' perceptions for basketball coaches compared to soccer coaches simply portray a slightly higher average in Character Building Competency (CBC) without it being statistically important. Contrariwise, athletes' perceptions for soccer coaches show a slightly higher average in Motivation Competency (MC), Game Strategy Competency (GSC) and Technique Competency (TC).

**Differences of athletes' perceptions for the competency of their coach relating to their age.**

Table 5 shows the means and standard deviations of the athletes in the questionnaire's four variables depending on the two age categories (up to 14 and from 15 to 18 years old).

**Discussion**

The purpose of this study was to examine the validity and reliability of a coaching competency scale through the perceptions of their athletes. Its additional purpose was to compare how youth basketball players' and youth soccer players' perceived their coaches competency. Internal stability results indicated high markers whereas the confirmatory factor analysis supported the four factors.

As for the four factors of coaching competency that consist the APCCS II-HST and according to the athletes' perceptions no statistically important differences were found in any of these four factors between basketball and soccer coaches. Although the athletes may have reported being satisfied with their coaches it is believed that on the other hand they have not trained under the guidance of many different coaches during their limited training age in order to be able to compare them.

It is important, however, to mention that both basketball players as well as soccer players have positively marked their coaches' coaching competency. Youth development coaches of both sports were considered competent fulfilling all the necessary conditions in all four dimensions of this questionnaire according to their athletes' perceptions. This is very positive if one is to consider the studies of Hollembeak and Amorose (2005) who ascertained that any action/behaviour on behalf of the coaches, parents and teachers, which affect the perceptions of their athletes regarding their abilities and autonomy, may ultimately have a positive effect on their intrinsic motivation (Bebetsov & Goulimaris, 2014; Bebetsov, Zetou, & Antoniou, 2014).

The results of this study coincide with those found in the study by Kavussanu and Ring (2008). Those two researches stressed how crucial it is for someone to evaluate athletes' perceptions of coaching competency. They also added that when athletes perceive their coaches as competent it gives them the ability to influence their loyalty, their effort, their joy, their effectiveness and their social behaviour. Myers, Beauchamp and Chase (2011) came to similar conclusions when they postulated in their research that besides everything else the APCCS II-HST scale should be considered as a multilevel preliminary model of evaluating the satisfaction that athletes feel for their coach and this conclusion should be considered as a starting point for similar researches in

the future. Moreover, Feltz, Chase, Moritz and Sullivan (1999) argued that the competency of youth development coaches' had not been fully investigated, especially if one considered the potential that this factor may have on the athletic experience of children and teenagers when it correlates with their learning and performance. They also maintained that coaching competency is a considerable parameter of both coaching efficacy and athletic performance. In this study youth development athletes were selected to elaborate on the competency of their coaches. This was so because it is believed that examining the perceptions of athletes is more useful when trying to improve the coaching process. If one considers the findings of previous surveys such as that of Smith, Smoll and Curtis (1978) the perceptions of athletes are more significant, whereas the perceptions of their coaches may not be reliable in providing information on coaching competency.

Myers et al. (2006) argued that for someone to estimate the way in which athletes evaluate the basic competencies of their coach is important for the ongoing improvement of coaching practices as well as for the further development of coaching efficacy models. And this is so because both the perceptions of athletes as well as their evaluation of coaching behaviour are thought to play a crucial role in coaching efficacy. Moreover, according to Smoll and Smith (1989) a coach's behaviour may have either a positive or a negative effect on an athlete. Furthermore, a competent coach who provides great satisfaction to his/her athletes can motivate them to perform with confidence in their games (Chiu, Mahat, Hua, & Radzuwan, 2013).

However, it should not be disregarded that youth development coaches exhibit behaviours according to their athletes' expectations (Zetou, Amprasi, Michalopoulou, & Aggelousis, 2011) and these behaviours determine not only the relationships among athletes and coaches but also team climate in general. And this is so because team climate is essential for the way in which the athletes will evolve as individuals and as a team members and therefore for how competent their coach may be (Zetou, Saloustrou, Bebetos, & Digelidis, 2015).

In sum, this study aspired to contribute to the relevant literature on coaching competency and this effort is necessary to continue aiming towards the constant progress of athletes as well as the optimization of training processes. However, there were certain restrictions that have to be acknowledged. Firstly, the coaches' perceptions of their coaching competency were not recorded even though Kavussanu et al. (2008) demonstrated that, on average, coaches differed to their athletes in the way they considered that they could effectively influence their motivation, technique, game strategy and character building. Therefore, in some future research a comparison of the view of both the athletes and their coaches would be appropriate. In this way it could be demonstrated more fully whether athletes' and coaches' views correspond to each other or whether they diverge so much that the use of intervention programs would be required.

Secondly, the relatively small sample size of athletes when considering other similar studies such as those by Myers, Vargas-Tonsing and Feltz (2005) or the latter by Myers et al. (2010) which had samples sizes of 1.618 and 748 athletes respectively may have affected the findings of this research. Thus any future studies with larger sample sizes of athletes will have even more reliability and importance. Thirdly, it should be stressed that all the participants play for amateur level teams whatever this may imply as for the quality and quantity of their training programs since those have eventually influenced their final judgment when answering the questionnaire. It would be rather interesting if a similar study were to be carried out in Greece with older athletes who play for teams in professional leagues and can be characterized as elite athletes. Perhaps then the findings would differ from the current ones since the training programs as well as the overall demands are presumptively much higher.

In addition, another restriction of this study was the fact that female athletes did not participate in it neither was the coaching competency of female coaches examined. If such were the case the findings would be probably modified since Horn (2008), for example, has demonstrated that athletes' gender is indeed a factor which influences the perceived coaching competency due to the fact that female athletes rated their coaches substantially lower in all the sub factors of coaching competency with the exception of Game Strategy Competency.

## Conclusions

The results support the hypothesis of the study that the questionnaire should be reliable and valid. Therefore the questionnaire could be used for evaluation of athletes' perceptions about their coaches' competency. The comparison between basketball and soccer athletes didn't present any differences. The athletes of both sport evaluated positive their coaches in all factors of the questionnaire. Finally, in a future research it would be interesting to examine the kind of expectations that athletes have of their coaches in correlation with how they judge their coaching competency.

## References

- Bebetos, E. (2015). Psychological skills of elite archery athletes. *Journal of Human Sport & Exercise*, 10 (2), 623-628.
- Bebetos, E., & Goulimaris, D. (2014). Personal outcome and leadership as defining factors of satisfaction in the context of the course "Arts II: Overview of Greek Music and Dance" of the Hellenic Open University. *Turkish Online Journal of Distant Education*, 15 (2), 12-23.
- Bebetos, E., & Theodorakis, N. (2003). Athletes' Satisfaction Among Team Handball Players in Greece. *Perceptual and Motor Skills*, 97, 1203-1208.

- Bebetsos, E., Zetou, E., & Antoniou, P. (2014). How does parental motivational climate differentiate athletic experience? *Journal of Physical Education and Sport*, 14 (4), 526-531.
- Banville, D., Desrosiers, P., & Genet-Volet, Y. (2000). Translating questionnaires and inventories using a cross-cultural translation technique. *Journal of Teaching in Physical Education*, 19, 374-387.
- Boardley, I. D., Kavussanu, M., & Ring, C. M. (2008). Athletes' perceptions of coaching effectiveness and athlete-related outcomes in rugby union: An investigation based on the coaching efficacy model. *Sport Psychologist*, 22(3), 269-287.
- Chiu, L. K., Mahat, N. I., Hua, K. P., & Radzuwan, R. B. (2013). Student-Athletes' Perceptions of Coaches' Coaching Competency at the Malaysian Public Institution of Higher Learning. *World Journal of Education*, 3(1), p13.
- Dimitriadis, S. (2011). Customers' relationship expectations and costs as segmentation variables: preliminary evidence from banking. *Journal of Services Marketing*, 25 (4), 294-308.
- Feltz, D. L., Chase, M. A., Moritz, S. E., & Sullivan, P. J. (1999). A conceptual model of coaching efficacy: Preliminary investigation and instrument development. *Journal of Educational Psychology*, 91(4), 765.
- Fowler Jr, F. J. (2013). *Survey research methods*. Sage publications.
- Hollembek, J. & Amorose, A. J. (2005). Perceived coaching behaviors and college athletes' intrinsic motivation: A test of self-determination theory. *Journal of applied sport psychology*, 17(1), 20-36.
- Horn, T. S. (2008). Coaching effectiveness in the sport domain. In T. S. Horn (Ed.), *Advances in Sport Psychology* (3rd ed., pp. 239-268). Champaign, IL: Human Kinetics.
- Horn, T. S. (2002). Coaching effectiveness in the sport domain. *Advances in Sport Psychology*, 2, 309-354.
- Kavussanu, M., Boardley, I. D., Jutkiewicz, N., Vincent, S., & Ring, C. (2008). Coaching efficacy and coaching effectiveness: Examining their predictors and comparing coaches' and athletes' reports. *The Sport Psychologist*, 22 (4), 383-404.
- Myers, N. D., Beauchamp, M. R., & Chase, M. A. (2011). Coaching competency and satisfaction with the coach: A multi-level structural equation model. *Journal of Sports Sciences*, 29(4), 411-422.
- Myers, N. D., Chase, M. A., Beauchamp, M. R., & Jackson, B. (2010). Athletes' perceptions of coaching competency scale II-High school teams. *Educational and Psychological Measurement*, 70(3), 477-494.
- Myers, N. D., Feltz, D. L., Chase, M. A., Reckase, M. D., & Hancock, G. R. (2008). The Coaching Efficacy Scale II—High School Teams. *Educational and Psychological Measurement*, 68(6), 1059-1.
- Myers, N. D., Feltz, D. L., Maier, K. S., Wolfe, E. W., & Reckase, M. D. (2006). Athletes' evaluations of their head coach's coaching competency. *Research Quarterly for Exercise and Sport*, 77(1), 111-121.
- Myers, N.D., Vargas-Tonsing, T.M., & Feltz, D.L. (2005). Coaching efficacy in intercollegiate coaches: Sources, coaching behavior, and team variables. *Psychology of Sport and Exercise*, 6, 129–143.
- Myers, N. D., Wolfe, E. W., Maier, K. S., Feltz, D. L., & Reckase, M. D. (2006). Extending validity evidence for multidimensional measures of coaching competency. *Research Quarterly for Exercise and Sport*, 77(4), 451-463.
- Smith, R.E., Smoll, F.L., & Curtis, B. (1978). Coaching behaviors in Little League Baseball. In F.L Smoll & R.E. Smith (Eds.), *Psychological perspectives in youth sports* (pp. 173-201). Washington, DC: Hemisphere.
- Smoll, F. L., & Smith, R. E. (1989). Leadership Behaviors in Sport: A Theoretical Model and Research Paradigm. *Journal of Applied Social Psychology*, 19(18), 1522-1551.
- Vargas-Tonsing, T., Myers, N, & Feltz, D. (2004). Coaches' and athletes' perceptions of efficacy-enhancing techniques. *The Sport Psychologist*, 18, 397–414.
- Zetou, E., Amprasi, E., Michalopoulou, M., & Aggelousis, N. (2011). Volleyball coaches' behavior assessment through systematic observation. *Journal of Human Sport & Exercise*, 6(4), 585-593.
- Zetou, E., Saloustrou, A., Bebetos, E., & Digelidis, N. (2015) Systematic recording of Volleyball coaches and differences on feedback comments in young athletes. *Journal of Physical Activity, Nutrition and Rehabilitation*, URL: <http://www.panr.com.cy/?p=1191>.