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Research article

Handball coaches' perceptions about the value of working competences according to their coaching background

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Abstract
The purpose of this study was to analyze the value attributed to given working competences, by Portuguese handball coaches according to their coaching background, certification level, coaching experience, and level of education. A sample of 207 handball coaches responded to a questionnaire which included demographic characteristics and a scale focused on perceptions of the level of importance attributed to working competences. Data analysis included an exploratory factorial analysis applying Maximum Likelihood Factoring (MLF) and Oblimin rotation. These factors were submitted to a One-way ANOVA and Tukey's post hoc multiple comparisons to analyse coaches' perceptions according to their coaching background. A six factor solution was found where three major domains of competences were highlighted; the first one related to training and competition (e.g. planning and conducting the training, team administration in competition, annual and multi-annual planning, and coaching methodology); the second one related to social and cultural issues and management (e.g. implementation of youth sport development projects, team leadership and coach education) and the third one related to the cognitive background (meta-cognitive competences). The importance ascribed to some working competences was influenced by their coaching experience and certification level. Highly experienced and qualified coaches perceived competences of everyday practice, social, cultural and management issues related to training and competition as more important than the other coaches. This study suggests the need to consider some working competences, until now not explicitly present in the Portuguese coaching education curriculum which could enable coaches to choose the best way to practice/work in a manner that will foster and support their professional development.

Key words: Science of coaching, coaching education, competences, handball coaches.

Introduction

Traditionally, studies centered on the coaches' education have been characterized by the dispersion and absence of conceptually robust theoretical models (Lyle, 1999; 2002). The turn of the century is a particularly pertinent moment for the improvement of the knowledge in the coaching educational field as it conjugates the fact that sport acquires a plural sense, the increase of the coaches' qualifications and the growing research interest in this domain (Lyle, 2002). Indeed, throughout the last two decades we have seen a considerable growth in sports coaching research from different perspectives, with a wide range of methodologies applied (e.g. Irwin and Kerwin, 2007; Jones et al., 2003; Thompson et al., 2009). Such descriptive and critical studies have involved a variety of coaching aspects, from psychological (e.g. Jowett and Ntoumanis, 2004), to sociological (e.g. Cushion and Jones, 2006), and pedagogical points of views (e.g. Jones and Turner, 2006; Mesquita et al., 2010; Pereira et al., 2009; Santos et al., 2010).

Particularly, the pedagogical research has showed dissatisfaction with the results of the investigation centered on the analysis of the coaches' behavior. It describes the performance without explaining the cognitive, cultural and social presuppositions that have influenced coaches' behaviors, which enables research into the coaches' thoughts and knowledge (Jones and Wallace, 2005). Indeed, the earlier research agenda which was restricted to coaches' overt performance was criticized for missing the underpinning cognitive, cultural and social premises that could explain the coaches' behaviours. Since the beginning of the 90s and through the investigation of a predominantly qualitative nature, the cognitive dimensions of the coaches' performance have been valued, diverting the focus on behavior (what they do) to the focus on knowledge and thought (what they think) (Knowles et al., 2005; Jones and Wallace, 2005) in different and complex settings.

The conceptual *coaching model* proposed by Cotê and his colleagues (Cotê, 1998; Cotê et al., 1995) is based on the understanding that the coach sustains his/her intervention in the cognitive representations for what he/she intends to build up within the team/athlete. This way, mastering in situational training process depends at first on the knowledge and the cognitive and social abilities developed by coaches in their career. Therefore, a broad range of competences are necessary to be an effective coach (Abraham and Collins, 1998; Gilbert and Trudel, 1999; Lyle, 1993), as coaching is a dynamic, complex and a constantly evolving activity (Jones, 2006).

In attempt to foster coaching knowledge and expertise coaches are expected to develop competences that allow them to perform a variety of tasks and take charge of complex professional situations. Coaching Education must reflect the nature and range of the competences to be developed, the professional environment in which they will be applied, and the areas of coaching practice that must be mastered. The issue of the working competences involved in the coaching activity has filled the coaching research agenda more consistently (Abraham et al., 2006;

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Demers et al., 2006; Jones et al., 2004; Kirschner et al., 1997; Westera, 2001). In this ambit, job-task analysis and qualitative approach have shown that working competences extended mainly to the domains of training, competition, management (Côté and Salmela, 1996; Côté et al., 1993; Côté and Sedgwick, 2003; Demers et al., 2006; Duffy, 2008), cultural and social issues (Jones, 2006) funded on a broad domain of auto- reflection.

Those demands borrow working competences from different areas in order to allow coaches to effectively apply theory into their practices. Therefore, the identification of coaches' conceptions concerning the value ascribed to coaching working competences will allow a more thoroughly understanding. This could introduce a higher adjustment of coaching education programs to coaches' reality, needs and motivations, enhancing coaching effectiveness.

Furthermore, coaches' perceptions about the value attributed to given working competences could vary according to their coaching background which includes among other aspects their coaching qualifications, experience and level of education. Particularly the academic background in the fields related to sport sciences and Physical Education can provide a richer understanding about the whole coaching process (Rupert and Buschner, 1989; Bloom, 1997). In the same line of thought, coaching experience (Gilbert and Trudel, 2001; Irwin et al., 2004; Jones et al., 2004; Mesquita, et al., 2010; Santos et al., 2010) and coach educational level (recreational, developmental or elite level coaching) (Erickson et al., 2008) could have influence on the value attributed to working competences as coaches bring rich information to coach education, and development.

Beyond their coaching background, the specificity of the sport in which they have coached could differentiate their perceptions about the issues related to the working competences. For this reason we believe it is important to identify the coaches' perceptions taking in consideration the sport they coach or have coached in order to obtain a more contextualized knowledge, bringing new insights for coaching education in this particular setting. In this study, the analysis of coaches' perceptions about the value attributed to the working competences was applied in handball, a sport with a high impact and acceptance in Portuguese society. Although in Portugal coach education is somewhat under-developed leaving each specific sport federation to decide to have or not to have a coaching education structure (Mesquita et al., 2010), handball is one of the sports with a higher developed framework of coach education. This federation has a coaching education program divided in four levels, which is mandatory for all handball coaches who are part of, and responsible for the continued development of handball programs at all levels in the country.

Handball is also a sport with a high impact and interest in Portuguese society since is amongst the four most popular sports in the country (Statistics Portugal, 2010). It is a sport which has a well developed professional league (with 12 teams), with a large fan base within the community. Portugal has also an effective handball development program that ranges from beginners to adult athletes. The main purpose of this study was to identify the value attributed by the Portuguese handball coaches to different areas of working competences for coaching, while clarifying their view of core competences. Moreover, it was intended to analyse how coaches' perceptions of different competences were associated with their coaching background, certification level, experience, and level of education.

Methods

Participants

The participants were 207 coaches (181 men and 26 women), whose ages ranged from 16 to 64 years of age (M= 31.84, SD= 9.52). Coaching experience ranged from 5 to 25 years (M = 9.47; SD = 8.12). To classify the *coaching experience* the criterion of years of experience was applied. Although this criterion is somewhat limitative to characterize coaching experience, as it is a multidimensional variable, the extensive sample of this study does not allow to include a broad range of criteria. Thus, three levels were considered: less experienced (less than 5 years of experience; n = 89, 43.0%), intermediate experienced (5 to 10 years of experience; n = 43, 20.6%), and high experienced (10 and above years of experience; n = 72, 34.8%). The criteria applied was based on the classification of Burden (1990), which takes into consideration that the coach stabilization period is achieved after 5 years of experience, overcoming a survival stage (first year), and an adjustment stage (second to fourth year), and the criteria of ten years as a prerequisite to reach some quality as a coach (Abraham et al., (2006).

Academic education level was differentiated also into three levels: below higher education (n = 63, 30.4%), higher education in Physical Education (n = 95, 45.9%), or other higher education (n = 47, 22.9%). In this last group, it was verified that coaches had degrees from a broad range of fields not related to education. As coaching requires practitioners who are capable of engaging in complex cultural processes similar to that of an educator (Jones, 2006) the academic background is important as a basic support and particularly in the domain of the Sport Sciences and Physical Education (Bloom, 1997; Rupert and Buschner, 1989).

In spite of the four levels of certification which are considered in the Portuguese coaching curriculum, the *coach certification level* was divided into three levels. Level III and IV were joined because, until now, they are not differentiation enough in the curriculum agenda of national certification programs and coaches perform in the same level of practice. So, level I which is mainly orientated to the beginners athletes at the recreational setting included 14.5% of the participants (n =30), level II that is orientated to the intermediate athletes at the developmental setting comprised of 37.7% (n =78) and III and IV located at the elite setting (advanced athletes), embraced 43.0% (n =89).

Procedures

Three procedures were used to develop the questionnaire, while fulfilling the requirements for construct and content validity. First, the process of item generation and design for the first version of the questionnaire was based on a

deductive analysis of literature and on several conceptual frameworks (Abraham et al., 2006; Côté and Salmela, 1996; Côté et al., 1995; Duffy, 2008; Jones et al., 2003) to guarantee the construct validation. Second, a panel of three experts with PhD degrees in Sport Pedagogy and experience in coaching education evaluated if the initial pool of items in the questionnaire represented the competences profile related to the specific theme under analysis and if they are representative considering the coaching reality in Portugal. Some items were updated from the contribution of the experts' assessment; the revised version of the questionnaire was then subjected to a pilot study with a sub-sample of twenty (n = 20) coaches of a range of sports and coaching experience, in order to test the clarity, intelligibility, accuracy and feasibility of the questionnaire.

The final version of the questionnaire was composed of two distinct parts, the first part requested demographic information (e.g. age, level of education, gender, coach educational level coaching experience and, sport coached) and the second part included a scale focused on coaches' perceptions of working competences. The final version resulted in a twenty-three (n = 23) item questionnaire, using a Likert scale from 1 to 5, varying from not at all important to extremely important.

The data collection was obtained during the coaching seminars and clinics, of the 2007/2008 season, which are part of the coaches' educational system. The confidentiality and privacy was guaranteed and official consent was obtained according to the code of ethics of the University of Oporto. The questionnaire was completed in a quiet room where the volunteers received some guidance on how to answer it. Time was given to clarify possible doubts and the time to complete the questionnaire was unlimited. The time that the coaches took to answer the questionnaire ranged from twenty-eight to thirty-eight minutes.

The questionnaire's psychometric properties and factorial structure were assessed through an exploratory factorial analysis. Maximum Likelihood Method was used aiming to reduce the number of variables as it minimises the discrepancy between the population and sample covariance matrix and maximises the fitting function. In order to analyze the relations between factors, the Oblimin rotation was applied allowing the factors to be correlated (Tabachnick and Fidell, 2007).

The number of participants assured the Comrey and Lee's (1992) recommendation of having at least a subject to item ratio of 5:1. The criteria of a minimum eigen value of 1.0 (Pedhazur, 1971) and at least three loads above 0.40 to save a factor were guaranteed. In order to validate the number of selected factors the scree plot approach was used confirming the factorial solution. The results showed a very good correlation between the variables (KMO = 0.939 and 0.946) and a significant difference from the Bartlett's Test ($p < 0.01$). To assess the fidelity of the instrument through its internal consistency, the Cronbach alpha was fixed on 0.70 (Nunnally and Bernstein, 1994). Finally, a weighted arithmetic mean of the items for each factor was considered to calculate the factor scores.

To obtain frequencies, percentages, means and-standard deviations descriptive statistics were calculated. After verification of the normality and homocedasticity requirements (respectively, with Shapiro-Wilk and Levene Tests), an ANOVA was carried out to analyze the value attributed to working competences from the handball coaches according to their certification level, coaching experience, and level of education. Effect size was evaluated with η^2_P (eta partial squared) and post hoc comparisons were obtained through the Tukey HSD test ($\alpha = 0.05$). The SPSS Statistics (v. 17, SPSS Inc. Chicago, IL) was used in data analysis.

Results

A six factor solution was obtained from the exploratory factorial analysis (Table 1), showing a good internal consistency (Cronbach's alpha of 0.75 to 0.88). No factor was excluded, as each one presented *eigen values* higher than 1.0, composed by 3 to 7 items. As confirmed in Table 1, the six factors of working competences scale explain 69.35% of the total variance, where the first factor loaded (*competences related to annual and multi-annual planning*) presents the greatest amount of variance (32.10%). This factor, demonstrated the highest average value (4.45), followed by: factor 5 (*competences related to planning and conducting the training and competition*), average of 4.15; factor 2 (*competences related to coaching methodology*) average of 3.85; factor 3 (*competences to implement youth sport development projects*) average of 3.79; factor 4 (*competences related to team leadership and coaching education*), average of 3.75; factor 6 (*Metacognitive competences*) average of 3.41. The value attributed by handball coaches to these several groups of competences ranged from *important* to very *important*.

Regarding coaches' perceptions according to their coaching background, only *academic education level* did not show significant differences in any of the six factors ($F_{12.368} = 1.152$; $p = 0.317$) (Table 2).

Considering *coaching experience* (Table 3) significant differences were found in three factors; *competences related to planning and conducting the training and competition* ($F_{2.200} = 4.239$; $p = 0.016$; $\eta^2_P = 0.041$; $\pi = 0.817$), *competences related to coaching methodology* ($F_{2.197} = 5.124$; $p = 0.007$; $\eta^2_P = 0{,}049$; $\pi = 0{,}819$) and *competences related to team leadership and coaching education* ($F_{2.196} = 6.807$; $p = 0.001$; $\eta^2_P = 0.065$; $\pi = 0.917$). The post-hoc results revealed that high experienced coaches perceived planning and conducting the training and team administration in competition as more important ($p = 0.016$) than the less experienced coaches. A similar finding for competences related to coaching methodology was found, as the high experienced coaches attributed more value of these competences than the intermediate experienced coaches ($p = 0.043$) and the less experienced ones ($p = 0.013$). Concerning team leadership and coach education, high experienced coaches perceived those competences as more important than the less experienced ones ($p = 0.001$).

There were no significant differences in *competences related to annual and multi-annual planning,*

Table 1. Coaches' perceptions about the value of working competences from a factorial analysis with *Oblimin* rotation.

Factors / Itens		Loadings	Alpha	*Eigen values*	% Variance
Competences related to annual and multi-annual planning	To organize and implement the multi-annual plan.	.855	.887	10.916	32.105
	To carry out the multi-annual preparation planning, considering the team and the individual needs.	.819			
	To establish the competition multi-annual plan.	.785			
	To evaluate the multi-annual preparation planning.	.763			
	To relate the competition with the multi-annual plan.	.713			
	To organize and implement the annual plan	.581			
	To evaluate and modify the annual planning, adapting it to unexpected situations	.465			
Competences related to coaching methodology	To manage and evaluate training contents	.803	.867	2.906	8.548
	To fit competition demands into training	.719			
	To organize the training, articulating individual and team work.	.700			
	To apply training theory on the coaching practices	.698			
	To apply observational and diagnostical competences	.687			
	To apply training methods according to the situational demands	.649			
	To apply instructional methods according to the situational demands	.533			
Competences to implement sport development projects	To implement and manage sport careers	.863	.825	2.444	7.189
	To implement inclusion through sport	.579			
	To integrate research in the training programs	.574			
Competences related to team leadership and coach education	To lead an organization as coordinator	.771	.810	1.766	5.195
	To lead a group, managing the athletes, coaches and sport specialist's activities.	.762			
	To assume the head coach's role, managing other coaches and sport specialist's activities.	.688			
	To guide the education of beginner coaches.	.686			
Competences related to planning and conducting the training and competition	To prepare an athlete and a team to the competition.	.766	.777	1.392	4.094
	To prepare a season's competition, establishing goals adjusted to the team's level.	.681			
	To guide an athlete during the competition, considering technical and discipline aspects.	.561			
	To organize and direct the practice session.	.557			
	To coordinate the competition with the annual plan.	.410			
Metacognitive competences	To be responsible about the world vision, social aspects and norms, trying to modify aptitudes and behaviors	.772	.757	1.332	3.916
	To be self-sufficient in learning, by a reflexive practice.	.727			
	To solve problems within new situations.	.697			

competences related to implementing youth sport development projects and meta-cognitive competences.

The analysis of the *coach certification level* (Table 4) showed significant differences in coaches' perceptions in two factors; *competences related to coaching methodology* ($F_{2.190} = 5.482$; $p = 0.005$; $\eta^2_P = 0{,}055$; $\pi = 0{,}846$) and *competences related to team leadership and coach education* ($F_{2.189} = 5.409$; $p = 0.005$; $\eta^2_P = 0.054$; $\pi = 0.842$). The post-hoc results revealed that coaches from the highest levels (level III and IV) perceived *competences related to coaching methodology* as more important than the coaches from the intermediate level (level II) ($p = 0.031$) and the lowest level (level I) ($p = 0.003$); *Competences related to team leadership and coach education* are also considered as more important by level III than the level I ($p = 0.027$) and the level II ($p = 0.027$).

Discussion

The purpose of this study was to analyze the value attributed to given working competences by handball coaches according to their coaching background, certification level, coaching experience, and level of education. Results showed that a six factor solution was found where three major domains of competences were highlighted: the first domain related to training and competition (e.g. annual and multi-annual planning, coaching methodology, planning and conducting the training and team administration in competition); the second one related to social and cultural issues and management (implementation of youth sport development projects, team leadership and coaching education) and the third one related to the cognitive background (meta-cognitive competences). Therefore, Portuguese handball coaches recognized a broad domain of working competences what could be somewhat related to the fact that this sport within the Portuguese sport culture is indeed one among others which is better organized in terms of coach education, development programs and competitive framework. However most part of these working competences are not yet explicitly announced in the Portuguese handball coaching education curriculum (for instance, implementation of youth sport development projects, team leadership and coaching education) deserving to be implemented and developed considering the importance ascribed by coaches. Moreover as meta-cognitive competences require its development

Table 2. Comparative analysis of coaches' perceptions about the value of working competences according to their academic education level.

	Factors	Level	M	SD
1	Competences related to annual and multi-annual planning	BHE	4.46	.44
		HEPE	4.47	.45
		OHE	4.42	.61
2	Competences related to coaching methodology	BHE	3.84	.54
		HEPE	3.89	.60
		OHE	3.85	.64
3	Competences to implement sport development projects	BHE	3.66	.54
		HEPE	3.86	.69
		OHE	3.82	.73
4	Competences related to team leadership and coach education	BHE	3.71	.60
		HEPE	3.76	.64
		OHE	3.80	.66
5	Competences related to planning and conducting the training and competition	BHE	4.00	.54
		HEPE	4.26	.58
		OHE	4.17	.54
6	Meta-cognitive competences	BHE	3.38	.67
		HEPE	3.43	.77
		OHE	3.41	.76

BHE- Below Higher Education; HEPE – Higher Education in Physical education; OHE- Other higher education.

through the problems that emerge from coaching practice (Trudel and Gilbert, 2006) coaching education must provide a curriculum designed to stimulate coaches to become active learners, problem-solvers, with developed assessment skills and with the capacity to inquire and reflect on their coaching tasks.

Related to the first domain, although Portuguese handball coaches perceived that all competences were important, as values ranged from *important* to very *important,* the ones related to training and competition were the most recognized. The competences, planning and conducting the training and team administration, also emerged in the study of Santos et al., (2010), about the coaches' perceptions of competence and acknowledgement of training needs, which comprises an extensive sample of 343 Portuguese coaches from twenty-two sports. Particularly, the ability to develop long term plans, for training and competition, which demands the ability to adapt training plans previously established to unexpected season situations, were highlighted by coaches from this study, as a fundamental part of their working competences emerging as the first factor. Indeed, a coaching competence of major importance is to prepare coaches for the unexpected, in training and competition, reinforcing the ability to deal with different scenarios that could occur (Sedgwick et al., 1997). First, because sometimes in practice players might or might not get the answers for the task/exercise proposed to them by the coach or by the practice opponent (team that mirrors the real competition opponent) and this task or game strategy will need adjustments (Pereira et al., 2009). Second, because, particularly in team sports, the offensive and defensive tactics and strategies in real game will always demand adaptations brought by the way the opponent is playing their game (Mesquita et al., 2005; De Souza and Oslin, 2008). Demers et al. (2006) emphasized that learning to develop

Table 3. Comparative analysis of coaches' perceptions about the value of working competences according to their coaching experience.

	Factors	Coaching experience	M	SD
1	Competences related to annual and multi-annual planning	LE	4.38	.55
		IE	4.45	.47
		HE	4.54	.39
2	Competences related to coaching methodology	LE	3,72	.56
		IE	3.96	.58
		HE	3.98	.59
3	Competences to implement sport development projects	LE	3,74	.07
		IE	3,74	.78
		HE	3,90	.60
4	Competences related to team leadership and coach education	LE	3.59	.65
		IE	3.82	.09
		HE	3.92	.58
5	Competences related to planning and conducting the training and competition	LE	4.06	.58
		IE	4.12	.65
		HE	4.32	.48
6	Meta-cognitive competences	LE	3.31	.66
		IE	3.42	.86
		HE	3.56	.73

LE- Less experienced; IE- Intermediate experienced; HE- Highly experienced.

Table 4. Comparative analysis of coaches' perceptions about the value of working competences according to their certification level.

	Factors	Level	M	SD
1	Competences related to planning and conducting the training and competition	Level I	4.02	.61
		Level II	4.12	.56
		Level III	4.26	.54
2	Competences related to coaching methodology	Level I	3.56	.62
		Level II	3.89	.53
		Level III	3.98	.60
3	Meta-cognitive competences	Level I	3.34	.67
		Level II	3.38	.86
		Level III	3.49	.86
4	Competences related to annual and multi-annual planning	Level I	4.26	.76
		Level II	4.47	.46
		Level III	4.53	.39
5	Competences related to team leadership and coach education	Level I	3.56	.76
		Level II	3.67	.62
		Level III	3.92	.63
6	Competences to implement sport development projects	Level I	3.65	.66
		Level II	3.78	.67
		Level III	3.87	.68

annual and multiannual plans are a major importance for coaching and should be considered on the coach educational programs under real training settings.

Related to this first factor emerged the second one (*competences related to coaching methodology*) and the fifth one (*competences related to planning and conducting the training and competition*) both demanding a large sport-specific knowledge. Since "Training is the corn stone of exceptional performance" (Durand-Bush, 1996, p.137), and one of the coaches' primary roles is to help athletes realize their potential (Hansen *et al.*, 2003), building a training environment which provide means for athletes/players to become skilful while becoming effective decision makers in game play (De Souza and Oslin, 2008) is part of the process. Therefore the knowledge about training methodologies is essential to improve athletes and team performance (Douge and Hastie, 1993). Other researches corroborate our results (Gould et al., 1990; Jones et al., 2003; Thompson et al., 2009) highlighting that the specific knowledge of the sport is crucial for the everyday coaching activity.

An extensive domain of competences related to social and cultural issues, sport management and coaching education was proclaimed by coaches from this study, that emerged through the third (*competences to implement youth sport development projects*) and fourth (*competences related to team leadership and coaching education*) factors. Wilcox and Trudel (1998), using verbal cueing stimulated recall interviews, found that youth ice hockey coaches ascribed importance to the planning and management of the players' sport careers where the personal and social issues are mostly emphasized. Nowadays, the implementation of youth sport programs is considered as the main factor to foster positive development, in sport and life in general, while decreasing the risk of behavioral problems where coaches develop an important role alongside the parents (Fraser-Thomas et al., 2005). Therefore, the recognization and the understanding of the social aspects of the coaching process is a necessary step toward understanding coaching practice and valuable to support coaches in their daily tasks more effectively (Jones et al., 2002).

Moreover, values and principles related to inclusion through sport were underpinned by coaches of this study which corroborate other studies. McCallister et al., (2000) found that volunteer youth coaches espoused a wide range of values for sport such as sportsmanship, respect and support for team-mates, sport skill development, equal treatment of all participants, and fun. Potrac and Jones (2009) claim that sport is a human activity that involves interaction between people of different ethnicity, gender, class, philosophies, values and experiences making the social issues of coaching practice of vital importance. Notwithstanding it has been increasingly recognised that coaching is vulnerable to social pressures and constraints (for instance, athletes interaction; competition effects; coach leadership acceptance, etc.) the sociological analysis has remained a largely under-developed and under-researched area (Cushion et al., 2006). Further studies should examine the coaches' practices using ethnographic research, in order to contribute to a deeper understanding of the social interactions operated in real training settings.

The participants of this study also recognized the importance of the leadership related to one of the head coach major roles (coordination and management of other coaches, specialists and athletes) and the competence of educating beginner coaches, supporting the findings of Santos et al., (2010) study. The skill, of managing human resources and leading a team of support staff are underpinned by experts' coaches as the major importance for successful head coaches, referring to themselves as program leaders (Abraham et al. 2006). Laberge and Lalime (2005) demonstrated that twenty- five percent of the high-performance coaches in Quebec engage administrative positions within sport that asserts the requirement to embrace this matter on the coaching educational programs. Moreover, the thematic network project AEHESIS (Duffy, 2008) and the *Baccalaureate in Sport Intervention*'s program (Demers et al., 2006) also highlight the managerial tasks inherent to coaching which includes guiding the education of the beginner coaches as funda-

mental skills to be developed. In this ambit the development of training programs for mentors is considered by elite coaches the foremost value to the improvement of coaching education (Abraham et al., 2006; Bloom et al., 1995).

The third domain of the competences ascribed by coaches reflects somehow the cognitive background which is characterized by meta-cognitive competences, concerning reflexion, problem-solving, social responsibility and professional ethics. As coaching is a social activity (Cassidy et al. 2004) coaches need to understand and believe in the social impact of the sport as a tool to modify attitudes and behaviours. Moreover, coaching education must prepare coaches to use their ability for critical thinking providing an active contribution to the development of tactical and content knowledge, coaching methodologies, practice and game administration, performance assessment tools and methods, professional autonomy, ethics and responsibility. These skills must be acquired by learning through experience which occurs throughout the coaching practice from an active engagement, involving the reflection about the new information within the existing ideas (called *participation metaphor*, Sfard's, 1998) (Werther and Trudel, 2006). These findings proclaim a new conceptualization of coaching education that recognize the importance of the complementarities of the *acquisition* (core competency knowledge through classroom-based curriculum) and *participation* metaphors (Sfard, 1998) in the progression towards becoming a sports coach. As Irwin et al. (2004) verified, from a study with six graduate sports coaches on coaching science, reflective practice is essential to enhance the working competences as there is a 'gap' between the academic background and the complex "real world" of coaching practice.

Coaching experience seems to accentuate the importance of some working competences. Indeed, coaching experience has been perceived by coaches as a main source of coaching knowledge (Erickson et al. 2007; Gilbert and Trudel, 2001; Salmela, 1995) since it comprises learning by doing, develops skills of reflection in and on action (Gilbert and Trudel, 2001), and could allow coaches to decide about the appropriateness of their decisions and behaviours, facing the difficulties placed by the environment. The results of this study showed that high experienced coaches perceived the competences related with the training and competition, joined to the daily practice, as more important than less experienced ones. The major importance ascribed by high experienced coaches could be explained by the fact that experienced coaches are more diligent planners, taking more time to plan and expressing far more confidence in the efficiency of their plans than inexperienced ones (Jones et al.,1997). Indeed, the skills to plan proactively by preparing training and competition facing the dilemmas of the daily practice and preparing the athletes for unexpected situations is built continuously throughout the development of the coach's career (Côté and Sedgwick, 2003). Moreover, the competences related to the coaching knowledge background, coaching methodology, team leadership and coaching education, which are particularly essential on the highest levels of the practice, were more valued by the highly experienced coaches than the intermediate and less experienced ones. This profile was also confirmed according to coaches' *certification level* which is comprehensive as the most experienced coaches usually coached on the higher levels of the practice which is only accessible to coaches with the highest level of certification. The great awareness of the coaches with more experience and from the highest certification level could be explained, into certain extent, due to the sport-specific coaching context of Portuguese handball, where a strong competitive environment especially in more advanced levels of practice, like the professional league, demands higher levels of performance. Therefore, on this level of practice refining, deepening coaching competences to reach athletes' performance and being a team leader are fundamental for their athletes' success (Abraham et al., 2006).

Level of education did not differentiate the value ascribed by coaches to working competences. Nor higher education degrees, in general, neither higher Physical Education degrees showed to be an advantage to acknowledge some competences to coach as more valued ones. Indeed this variable is not directly related to coaching activity, as coaching experience and coach certification level. Notwithstanding in the study of Santos et al. (2010) coaches with higher education degrees (Physical Education majors or others) perceived themselves as more competent than coaches with no higher education showing that the level of education could have more significance in the self-efficacy and less in the importance ascribed by coaches to working competences. The increasing specific demands of the coaching competences could be showing that the coaching education content used so far by many institutions is out dated, simplistic and lack a broader range of content, emphasizing the need to embrace a more complex and a wider range of specific skills and knowledge as sports coaching is a particularly dynamic and complex process (Cushion et al., 2003). Although the results here are interesting in themselves, we suggest that further research and analysis is needed through qualitative case studies, before more concrete conclusions can be drawn.

Conclusion

The main finding of this study highlights that Portuguese handball coaches acknowledge that a broad range of competences are important to perform as a coach, bringing an important feedback to coaching education in this sport-specific coaching context. Three major domains of competences emerged from six main factors. The first one related to training and competition (competences related to annual and multi-annual planning, coaching methodology, planning and conducting the training and the competition and team administration); the second one related to social and cultural issues and management (implementation of youth sport development projects, team leadership and coaching education) and the third one related to the cognitive background (meta-cognitive competences).

Therefore, these results claim the need to identify, develop, and evaluate different coaching competences, some of them (for instance, implementation of youth sport development projects and coaching education) not explic-

itly present until now in the Portuguese coaching education curriculum and particularly in handball. This will enable coaches to access the evolving body of coaching knowledge and to the best practices in a manner that will foster and support continuous learning and development. Regarding the competences that emerged in this study and the subjects that compose each competence, it is advisable to consider them in a practical context, i.e., within the educational programs field to allow coaches facing the dilemmas of the daily coaching practice. Particularly, the meta-cognitive competences, about which there is still a lot of issues to explore, should be considered in the coaching education programs and effectively included into the learning strategies applied.

The importance ascribed by Portuguese handball coaches to working competences was influenced by their coaching experience and certification level which are both directly related to coaching activities. Indeed, high experienced coaches and coaches with the highest certification levels (level III and IV) perceived competences related to training and competition of everyday practice and social, cultural issues and management as more important than the other coaches. Although academic education background could be a differentiating factor of coaches' perceptions (Santos et al., 2010), no differences between coaches with different educational backgrounds were found concerning the value attributed to coaching competences. Moreover, coaches valued the meta-cognitive competences, the competences to implement youth sport development projects and related to annual and multi-annual planning independently of their coaching background.

Recent research has concluded that coaching is imbedded with social responsibilities and obligations. Consequently, coach education should be aligned to develop such competencies; a tendency which is currently not realised in Portugal. Furthermore, to provide a deeper and contextual understanding about the issues related to coaching competences, qualitative analysis is needed from the examination of the coaches' beliefs, knowledge and behaviours facing the dilemmas that they have in their everyday practice.

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Key points

- Three major domains of competences were highlighted by Portuguese handball coaches. The first one related to training and competition, the second one related to social and cultural issues and management and the third one related to the cognitive background.
- The importance ascribed by Portuguese handball coaches to some working competences was influenced by their coaching experience and certification level, as high experienced coaches and coaches with higher certification levels perceived competences related to training and competition of the everyday practice and social, cultural issues and management as more important.
- The value attributed by Portuguese handball coaches to working competences did not vary according to the coaches' academic education level.
- Portuguese handball coaches valued the metacognitive competences, the competences to implement sport development project and related to annual and multi-annual planning independently of their coaching background.

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