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COACHES' PERCEIVED KNOWLEDGE AND COMPETENCES: IMPLICATIONS FOR SPORT MANAGEMENT AND HUMAN RESOURCE DEVELOPMENT

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Abstract: *The aim of this study was to investigate coaches' perceived knowledge and competences and to examine their implications for sport management and human resource development (HRD). Using a quantitative, cross-sectional approach, data were collected from 216 basketball coaches through the Coaches' Knowledge and Competence Questionnaire (CKCQ). Descriptive statistics, dependent correlation comparisons, and correlation analyses were employed to assess the relationships between professional, interpersonal, and intrapersonal domains of knowledge and overall coaching competences. The results indicate that coaches report high levels of knowledge across all domains, with strong positive interrelationships between them and overall competence. However, lower scores were identified in areas related to external communication and sports legislation, suggesting potential gaps in domains associated with broader organizational responsibilities. These findings suggest that coaching competence represents an integrated system of knowledge and skills, where intrapersonal reflection serves as the strongest statistical driver of perceived competence. Importantly, the study contributes to literature by positioning coaches not only as performance specialists but also as key agents of human resource development, influencing learning processes, organizational culture, and long-term sustainability within sport organizations.*

Key words: coaching effectiveness, human capital in sport, competence assessment, coach education, organizational performance, talent development

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Introduction

Integrating coaching knowledge and competencies using sports management through the lens of human resource development represents a relatively novel perspective in sport research (Garavan, 2007; Swanson & Holton, 2009; Nelson, Cushion, & Potrac, 2013). Today, the role of the sports coach as a human capital manager has become increasingly important within competitive sport contexts (Côté & Gilbert, 2009; Lyle & Cushion, 2017). While human resource management primarily focuses on people, and sport management on organizational functioning and strategy, these domains intersect in coaching practice (Garavan, Carbery, & Rock, 2012). In the business world, human resource manager is to motivate, educate and train employees, while the coach's role in sports is very similar and focused on motivating, training and educating athletes (Garavan, 2007; Swanson & Holton, 2009).

The connection between the coach and the human resource manager refers to the selection and recruitment of talent because the coach needs to recognize the talented athletes that he has to fit into his team, while performance management refers to the feedback information that the coach receives through the analyzed performance of each subunit player using analytics that coincides with the function of the sports manager who analyzes and evaluates his employees (Garavan et al., 2012; International Council for Coaching Excellence [ICCE], 2012). Learning and development processes in sport involve the systematic improvement of athletes' knowledge and skills through tailored individual development plans (Côté & Gilbert, 2009; ICCE, 2012). From this perspective, contemporary coaches are expected to possess competencies related to strategic planning, leadership, communication, decision-making and interpersonal relations, which closely correspond to core human resource management competencies (ICCE, 2012; Quinaud et al., 2018). In this sense, sport management provides the organizational framework and resources, while the coach applies human resource principles in managing athletes in order to achieve competitive success (Garavan et al., 2012).

Beyond their technical responsibilities, coaches increasingly function as key agents of human resource development within sport organizations (Garavan, 2007; Swanson & Holton, 2009). Through mentoring, feedback, role-modeling and everyday interaction, they influence the acquisition of knowledge, motivation, career progression and the long-term retention of athletes and support staff (Côté & Gilbert, 2009; Lyle & Cushion, 2017). In this sense, coaching practice extends beyond performance outcomes and becomes a strategic human resource development (HRD) function that contributes to the sustainable development of sport organizations (Nelson, Cushion, & Potrac, 2013).

Coaching knowledge can be divided into three interconnected domains, according to Côté and Gilbert (Côté & Gilbert, 2009): the intrapersonal domain, which includes self-reflection, personal awareness, and ongoing practice improvement; the professional domain, which includes sport-specific knowledge and knowledge related to sports science (Abraham, Collins, & Martindale, 2006); and the interpersonal domain, which refers to the abilities of effective

communication and relationships with athletes and other stakeholders. This framework has been widely adopted and forms the basis of modern coach education systems.

Competences in coaching work refer to the ability to effectively apply knowledge, skills and attitudes in order to achieve the desired results. This implies not only knowing what to do, but also the ability to do it appropriately, consistently and adaptively. ICCE defines coach competencies as the integration of knowledge in functional domains such as strategic planning, practice management, communication, decision-making and reflective learning (International Council for Coaching Excellence (ICCE), Association of Summer Olympic International Federations (ASOIF), & Leeds Beckett University, 2012).

Recent studies confirm the importance of the integration of knowledge and competences in the practice of sports coaches. Quinaud and associates (Quinaud et al., 2020) developed and validated the Coaches' Knowledge and Competence Questionnaire (CKCQ), which is based on the model of Côté and Gilbert (Côté & Gilbert, 2009). This instrument enables the quantitative assessment of professional, interpersonal and intrapersonal knowledge, as well as the functional competences arising from that knowledge base. Research findings indicate that successful coaches not only possess expert knowledge of sports, but have also developed communication and reflective skills, which are key to effective team management and adapting to the demands of the modern sports environment. From this perspective, coaches' knowledge and competences should be understood not only as performance-related attributes, but also as organizational resources that shape human resource development processes in sport organizations — including learning, talent development, leadership formation and organizational culture (Garavan, Carbery, & Rock, 2012; ICCE, 2012).

Despite the recognized importance of coaches, previous research has predominantly focused on coaching effectiveness, performance outcomes, and athlete development. While these perspectives have contributed significantly to understanding the technical and pedagogical aspects of coaching, limited attention has been given to how coaches perceive their own knowledge and competences from a sport management and human resource development (HRD) perspective. In particular, the role of coaches as organizational actors and contributors to broader development processes remains insufficiently explored.

In this context, the present study examines how basketball coaches assess their own knowledge and competences and considers the implications of these perceptions for the management and development of sport organizations. The study contributes to the existing literature by positioning coaches not only as performance specialists, but also as key agents of human resource development who influence learning processes, organizational culture, and long-term organizational sustainability. The aim of this study is to examine coaches' perceived knowledge and competences and to explore their implications for sport management and human resource development (HRD), systematically validating the structural hierarchy of their knowledge domains in predicting overall coaching competence.

Based on the theoretical framework and previous research, the following hypotheses are proposed:

H1: There are positive relationships between professional, interpersonal, and intrapersonal knowledge domains.

H2: Coaches' perceived knowledge is positively associated with their perceived competences.

H3: Intrapersonal knowledge shows a statistically significant, stronger association with overall coaching competence compared to both the professional and interpersonal knowledge domains.

Methods

Participants and Sampling Design

This study applied a quantitative, cross-sectional research design with a descriptive–correlational approach. The sample consisted of 216 basketball coaches (188 male and 28 female) from European FIBA member countries, working with different age categories, from youth to senior levels, and with varying levels of formal and informal education and coaching experience. Participants were recruited from European FIBA member countries through national basketball federations and professional coaching networks using a convenience sampling procedure, and their participation was voluntary. Given the exploratory nature of the study and the difficulty of accessing a diverse population of basketball coaches across multiple countries, a convenience sampling approach was considered appropriate. However, this sampling method may limit the generalizability of the findings.

Measures

For the purposes of this research, a two-part questionnaire was used. The first part collected socio-demographic data from respondents, including gender, age, formal/informal education, and years of coaching experience. The second part employed the validated Coaches' Knowledge and Competence Questionnaire (CKCQ). The instrument enables the assessment of key knowledge and competences that are necessary for the successful performance of the coaching role. Its purpose is to enable the collection of data on how important certain domains of knowledge and competence are in everyday coaching practice, as well as to enable coaches to assess their level of expertise in each of them (Quinaud et al., 2020; International Council for Coaching Excellence (ICCE), Association of Summer Olympic International Federations (ASOIF), & Leeds Beckett University, 2012; Côté & Gilbert, 2009). The CKCQ has been previously validated and has demonstrated satisfactory psychometric properties, including reliability and construct validity (Quinaud et al., 2020). The CKCQ contains 38 questions divided into two categories: "knowledge" (20 questions) and "competences" (18 questions). The part related to "knowledge" includes three groups of knowledge: professional ($n = 10$), interpersonal ($n = 5$) and intrapersonal ($n = 5$) knowledge, while the part related to "competences" contains questions related to defining vision and strategy ($n = 3$), shaping the environment ($n = 3$), building relationships ($n = 3$), performing practices ($n = 3$), recognizing and responding to situations in the field ($n = 3$) and learning and reflecting ($n = 3$). Participants answered the CKCQ questions using a Likert scale, rating the importance assigned (from 1 = "not important" to 5 = "very important") and perceived

proficiency (from 1 = "I know nothing" to 5 = "I know a lot") for a specific topic. Attributed importance refers to the level of importance that the participant attaches to a certain topic (in this research, a certain knowledge or competence) in the context of the trainer's work. Perceived domain refers to the participant's perception of how much knowledge or competence they possess as coaches (Del Corto Motta, Barreira, Corrêa Cortela, & Galatti, 2021). The data collected rely on self-reported psychological measures, which are systematically treated as subjective perceptual evaluations.

Procedure

We gathered the empirical data between May 2024 and March 2025 through an online survey sent out via email. Involvement in this research was entirely optional and contingent upon obtaining informed consent from each participant. We clearly explained the research objectives to all respondents, guaranteeing complete confidentiality and anonymity throughout the process. The survey did not collect any personal identifiers, and we utilized the generated database strictly for academic purposes. The study process aligned with international ethical guidelines for human subject research. Additionally, the Institutional Ethics Committee of Singidunum University formally reviewed and authorized our study protocol (Protocol Reference Number: 131 – 1, date: 04.02.2026).

Data Analysis

We executed all statistical computations using SPSS version 23. Our analytical approach incorporated several methods: descriptive statistics (arithmetic mean, standard deviation), Cronbach's Alpha-coefficient to determine the reliability of the used scales on the examined sample and Pearson's coefficient to check the connection between the scales. The level of statistical significance was set at $p < 0.05$. Skewness and kurtosis were used to check the deviation of the scores from the normal distribution. In addition, the normality of the data distribution was tested using the Shapiro–Wilk test. The statistical outputs showed no significant deviations from normality, confirming that the data was suitable for parametric testing. Skewness indices fall within the range of -2 to +2, and kurtosis values remain between -7 and +7, which meets the standard criteria for parametric analysis (Hair, Black, Babin, & Anderson, 2020; Finney & DiStefano, 2006).

Results

The results indicate high levels of perceived knowledge and competences among coaches, with strong positive relationships between knowledge domains and overall coaching competence. A total of 216 basketball coaches participated in the study, of whom 188 were male (87.0%) and 28 female (13.0%). The majority of respondents were under the age of 45 (71.3%), while 28.7% were over 45. Regarding educational background, 10.2% of the coaches had completed secondary education, 19.4% had graduated from a college of applied studies, 19.0% held a bachelor's degree, 16.7% had a bachelor's degree specifically in physical education and sport, and 34.7% had completed a master's or PhD program. When it comes

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to non-formal education, most coaches (41.7%) were educated as youth basketball coaches, 31.5% as senior basketball coaches, 16.2% as top national level basketball coaches, 7.4% as top international level basketball coaches, and 3.2% as mini basketball coaches. In terms of coaching experience, the largest share (44.0%) had more than 15 years of experience, one in four (25.0%) reported having between 10 and 15 years of experience, 17.1% had between 5 and 10 years, while 13.9% of respondents had less than 5 years of coaching experience (*Table 1*).

Table 1. Respondents' socio-demographic characteristics and coaching experience.

Respondent gender	N	%
Male	188	87.0%
Female	28	13.0%
Age		
Under 45	154	71.3%
Age		
Over 45	62	28.7%
Formal education		
High school	22	10.2%
Higher school (3-year studies)	42	19.4%
Bachelor studies (4-year studies)	41	19.0%
Bachelor studies in Physical education and sport (4-year studies)	36	16.7%
Master studies and PhD	75	34.7%
Informal education		
Mini basketball coach – instructor	7	3.2%
Youth basketball coach	90	41.7%
Senior basketball coach	68	31.5%
Top national level basketball coach	35	16.2%
Top international level basketball coach	16	7.4%
Experience		
Up to 5 years	30	13.9%
5-10 years	37	17.1%
10-15 years	54	25.0%
Over 15 years	95	44.0%

Source: Authors' analysis

Table 2. Descriptive indicators of the scales and subscales used in the research (the number of variables included in each scale is shown in parentheses).

Variables	Min.	Max.	AS	SD	α	Skewness	Kurtosis
Knowledge (18)	2.50	5.00	4.24	0.46	.899	-.430	.207
Knowledge Professional (9)	2.89	5.00	4.20	0.50	.825	-.204	-.546
Knowledge Interpersonal (5)	2.20	5.00	4.19	0.57	.786	-.574	.109
Knowledge Intrapersonal (4)	2.00	5.00	4.38	0.52	.710	-.901	1.389
Competence (12)	2.67	5.00	4.37	0.49	.902	-.685	.149

Source: Authors' analysis.

The distributions of all scales and subscales were close to normal, and the reliability of the measures was satisfactory (*Table 2*).

Table 3 shows the descriptive indicators for the variables that make up the professional, interpersonal and intrapersonal domains of knowledge and competence of basketball coaches. In the professional domain, the highest rated item was training planning (AS = 4.58), followed by pedagogical approach (AS = 4.55) and training management (AS = 4.36). The lowest values were recorded for knowledge of sports legislation (AS = 3.65) and competition organization (AS = 3.98). In the interpersonal domain, the highest mean score was obtained for communication with players and coaching staff (AS = 4.59), while the lowest score was observed for communication with parents, media and referees (AS = 3.66). In the intrapersonal domain, high scores were recorded for reflection on coaching practice (AS = 4.41), emotional control (AS = 4.32), and providing feedback (AS = 4.45). Overall, the results indicate a high self-assessment of the trainers' competences, with identified weak points that represent potential domains for additional education and professional development.

Table 3. Descriptive indicators of individual variables within the examined subscales.

	Variables	AS	SD
Professional	Practice planning (goals, content, structuring, and drills progressions).	4.58	0.61
	Practice management (time, space, equipment, and players).	4.36	0.69
	Pedagogical approach (equal opportunities, respect, methodology).	4.55	0.62
	Evaluation of basketball skills, physical, and psychological abilities in the context of sports training.	4.33	0.68
	Short, Medium and Long-term goals in development of players.	4.41	0.69
	Programs and practice load monitoring and correction that involve the integration of specialists in Sports Sciences.	3.98	0.81
	First aid.	3.94	0.88
	Legislation that regulates the sports system.	3.65	0.99
	Organization of basketball competitions.	3.98	0.86
Interpersonal	Leadership and management of athletes and coaching staff	4.33	0.73
	Effective communication with players and coaching staff during practice.	4.59	0.62
	Mentoring other coaches.	4.13	0.81
	Communication with other actors in the sports scene (parents, media, referees).	3.66	0.91
	Development of acceptable attitudes, values, and social behaviors.	4.23	0.81
Intrapersonal	Reflection for your own coaching performance.	4.41	0.72
	Control of your own emotion and the emotion of others (athletes, parents, media, referees)	4.32	0.76
	Coaching philosophy.	4.36	0.68
	Providing feedback to players (after practice and games).	4.45	0.67

Source: Authors' analysis.

The results of the Pearson correlation analysis indicate a strong positive correlation between the subscales of the knowledge scale. A strong positive correlation was found between the

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interpersonal and intrapersonal subscales ($r(216) = +0.72, p < .01$), indicating a strong positive association between interpersonal and intrapersonal knowledge domains. A moderately strong positive correlation was identified between the professional and interpersonal subscales ($r(216) = +0.64, p < .01$), indicating a meaningful association between these domains. Likewise, a moderately strong positive correlation was observed between the professional and intrapersonal subscales ($r(216) = +0.61, p < .01$), further supporting the interconnectedness of different knowledge domains (Table 4).

Table 4. Pearson correlation coefficients between subscales.

	Professional	Interpersonal	Intrapersonal
Professional	1	.640**	.612**
Interpersonal		1	.725**
Intrapersonal			1

Source: Authors' analysis.

Note: **. Correlation significant at the level of 0.01 (2-tailed).

The results of the Pearson correlation analysis indicate a strong positive relationship between the knowledge and competence scales ($r(216) = +0.77, p < .01$), suggesting a close association between these constructs (Table 5).

Table 5. Pearson correlation coefficient between the knowledge and competence scales.

	Knowledge	Competence
Knowledge	1	.772**
Competence		1

Source: Authors' analysis.

Note: **. Correlation significant at the level of 0.01 (2-tailed).

The results of the Pearson correlation analysis indicate positive relationships between the competence scale and all knowledge subscales. A strong positive correlation was found between the intrapersonal subscale and the competence scale ($r(216) = +0.77, p < .01$), indicating a particularly close association between these variables. Moderate positive correlations were observed between the professional and competence scales ($r(216) = +0.65, p < .01$), as well as between the interpersonal and competence scales ($r(216) = +0.65, p < .01$), further supporting the relationship between knowledge domains and overall coaching competence (Table 6).

Table 6. Pearson correlation between knowledge subscales and the competence scale.

	Professional	Interpersonal	Intrapersonal	Competence
Professional	1	.640**	.612**	.655**
Interpersonal		1	.725**	.654**
Intrapersonal			1	.773**
Competence				1

Source: Authors' analysis.

Note: **. Correlation significant at the level of 0.01 (2-tailed).

Overall, the findings indicate that coaches perceive all domains of knowledge as highly important and closely interconnected. Strong positive relationships were observed both among knowledge domains and between knowledge and competences. In particular, intrapersonal knowledge showed the strongest association with overall coaching competence, while relatively lower scores were identified in areas related to external communication and sports legislation, highlighting potential areas for further development. These findings provide support for the proposed hypotheses, confirming positive relationships between knowledge domains (H1), a strong association between knowledge and competences (H2), and the particularly strong role of intrapersonal knowledge in relation to overall coaching competence (H3).

Discussion

The findings of this study provide insight into how coaches perceive their knowledge and competences and highlight their broader role within sport management and human resource development. . The surveyed coaches rate highly all three key areas of knowledge – professional, interpersonal and intrapersonal – which is in line with the models developed by Côté and Gilbert (Côté & Gilbert, 2009), as well as the ICCE guidelines (International Council for Coaching Excellence (ICCE), Association of Summer Olympic International Federations (ASOIF), & Leeds Beckett University, 2012). Professional components, such as training planning, pedagogical approach and resource management, represent the basis of the coach's professional work, while lower scores in domains such as sports legislation and competition organization indicate the need for additional formal education in those segments.

This pattern indicates that coaches tend to understand competence as a combination of different aspects of their work, rather than as a set of separate skills. Technical knowledge, interaction with others and personal self-control appear to be closely connected in everyday coaching practice. This way of understanding coaching reflects the practical demands of the profession, where effective work depends on the ability to combine different forms of knowledge and experience within a specific organizational setting.

The interpersonal domain shows that coaches highly value communication and managing people within the team, but rate relations with external stakeholders, such as parents and the media, less highly, which suggests that this aspect of the coaching role is less developed and may require further professional support and training. In this respect, the present findings are consistent with those of Gould et al. (2007), who emphasize the important role of coaches in the psychological and personal development of athletes, as well as with the study by Jowett and Cockerill (2003), who highlight the crucial contribution of high-quality communication with external stakeholders to athletic success. As pointed out by Cushion, Armour, and Jones (2003), a large part of a coach's professional development takes place through everyday experience, mentoring and reflection on practice. This supports the importance of interpersonal and pedagogical competences identified in the present study, as these forms of learning are closely linked to direct work with athletes and colleagues.

The findings further suggest that not all domains contribute equally to overall coaching competence. The particularly strong association between intrapersonal knowledge and overall coaching competence can be explained by the central role of self-reflection, emotional regulation, and adaptive thinking in coaching practice. These competencies enable coaches to respond effectively to complex and dynamic situations, which are characteristic of modern sport environments. In line with HRD perspectives, intrapersonal capabilities can be seen as foundational for continuous learning and personal development, which in turn influence broader organizational outcomes.

At the same time, the results reveal certain areas that are less developed and may require additional attention. The relatively lower scores observed in areas such as sports legislation and external communication may reflect the traditional focus of coach education programs, which tend to prioritize technical and performance-related competencies over broader organizational and regulatory knowledge. Additionally, communication with external stakeholders, such as media and parents, often falls outside the core coaching role, which may help explain lower perceived importance and competence in these areas.

These findings further highlight the importance of reflection, emotional regulation, and adaptive capacity in coaching practice. The close relationships observed between different areas of knowledge and overall coaching competences indicate that these aspects do not develop independently but rather function as an interconnected system. In practice, professional, interpersonal, and intrapersonal elements are mutually reinforcing, with progress in one domain often accompanied by changes in others. These results also support the validity of the CKCQ as an instrument for evaluating coaches' professional competence and further illustrate the complex and multidimensional nature of coaching work.

From a human resource development perspective, these findings indicate that coaches should be understood not only as trainers of athletes, but also as facilitators of learning and development within sport organizations. Through everyday interactions, feedback processes, and role modeling, coaches contribute to the development of individual and team capabilities, thus influencing organizational culture and long-term performance. In this sense, coaching can be understood as a micro-level HRD function embedded within the broader organizational system. The interrelations among professional, interpersonal, and intrapersonal domains are consistent with strategic HRD models that emphasize continuous learning, talent development, and leadership formation as key drivers of organizational sustainability (Garavan, 2007; Swanson & Holton, 2009; Garavan, Carbery, & Rock, 2012). The results should be interpreted with certain limitations in mind. The analysis is based on coaches' own assessments and does not include evaluations from other perspectives, which may have influenced the responses. The study focuses only on basketball coaches, so the findings cannot be directly applied to other sports. In addition, the data were collected at one point in time and do not reflect possible changes in coaching competences during different phases of a coaching career. Future studies could reduce these limitations by including coaches from various sports, relying on additional sources of evaluation and following the development of coaching competences over a longer period.

Conclusion

This study highlights the importance of understanding coaching competence as a multidimensional construct, encompassing professional, interpersonal, and intrapersonal domains. The findings emphasize the particularly strong role of intrapersonal competences, such as reflection and emotional regulation, while also identifying areas for further development, especially in communication with external stakeholders and knowledge of sports legislation.

From a practical perspective, these findings suggest that coach education and development programs should move beyond a narrow focus on technical skills and incorporate elements related to communication, leadership, and organizational understanding. In this way, coaches can be positioned as key contributors to human resource development and organizational sustainability within sport organizations.

The study is limited by the use of self-reported data, its cross-sectional design, and its focus on basketball coaches, which may limit the generalizability of the findings. Future research could include coaches from other sports and organizational settings and rely on multiple sources of evaluation in order to provide a more comprehensive understanding of how coaching competences develop over time.

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