HOW DO TURKISH SPORT COACHES ACCESS THE KNOWLEDGE OF SPORT SCIENCE?

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ABSTRACT

HOW DO TURKISH SPORT COACHES ACCESS
THE KNOWLEDGE OF SPORT SCIENCE?

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The purpose of this study was to examine the following research questions in Turkish coaching context: a) How do coaches perceive sport science research? b) Which sources do coaches utilize when obtaining the knowledge they need? c) What obstacles do coaches confront when trying to access the knowledge they need? Participants were 322 coaches (256 men, 66 women) from diverse sports and coaching levels working in Ankara. "New Ideas for Coaches" questionnaire by Reade, Rodgers and Hall (2008) was translated and adapted into Turkish for the current study. There was a strong concurrence between Turkish coaches in terms of the belief that sport science contributes to sport (%78). Gaps exist, however, between what coaches were looking for and the research that is being conducted. Coaches were most likely to attend seminars or consult other coaches to get new information. Scientific publications were ranked very low by the coaches. The barriers to the coaches' access to sport science were finding out the source of

information, being able to implement the knowledge that was obtained from sport sciences into field of coaching, lack of monetary support for the expenses about obtaining knowledge, and language barrier respectively. Coaches' demographic characteristics influenced their perceptions of and preferences for obtaining new information. Strategies to remove the barriers could include providing further education opportunities for coaches and eligible scientific knowledge sources to ensure successful knowledge transfer.

Keywords: Coach Education, Unmediated Learning, Knowledge Transfer, Sport Science

ÖZ

TÜRK ANTRENÖRLER SPOR BİLİMLERİNDE ÜRETİLEN BİLGİYE NASIL ULAŞIRLAR?

Kılıç, Koray
Yüksek Lisans, Beden Eğitimi ve Spor Bölümü
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Bu araştırmanın amaçları aşağıdaki sorulara Türk antrenörlerinin ilgili özelliklerini inceleyerek cevap bulmaktır; 1) Antrenörler spor bilimi araştırmalarını nasıl algılamaktadırlar? 2) Antrenörler ihtiyaçları olan bilgiye hangi kaynaklardan ulaşmaktadırlar? 3) Antrenörler ihtiyaçları olan bilgilere ulaşırken hangi engellerle karşılaşmaktadırlar? Katılımcılar farklı sporlardan ve antrenörlük seviyelerinden aktif olarak Ankara ilinde çalışan 321 antrenörden (265 erkek, 66 kadın) oluşmaktadır. Veri toplama amacıyla Reade, Rodgers ve Hall (2008) tarafından geliştirilen "*Antrenörler için Yeni Fikirler*" Anketi Türk kültürüne uyarlanmıştır. Nicel verilerin analizinde "betimsel istatistik"ten, nitel verilerin analizinde ise içerik analizi yönteminden yararlanılmıştır. Bulgulara göre, antrenörlerin % 78'i spor bilimi araştırmalarının branşları ile ilgili yeni fikirler sağladığına inanmaktadır. Fakat antrenörlerin araştırmaya ihtiyaç duydukları alanlar ile onların yapılan mevcut araştırmalar hakkındaki algıları arasında boşluklar bulunmaktadır. Antrenörler yeni bilgi edinmede çoğunlukla seminerlere katılma ve diğer antrenöre danışma

yöntemlerini kullanmakta iken, bilimsel makaleleri ise bilgi edinim kaynağı olarak son sıralara koymuşlardır. Antrenörler sırasıyla “bilginin kaynağını bulma”, “spor bilimlerinden elde edilen bilimlerinden elde edilen bilgiyi antrenörlük uygulamasına dönüştürebilme”, “maddi destek alma” ve “dil bariyeri ile karşılaşma”yı yeni bilimsel bilgiye ulaşma yolundaki ana engeller olarak belirtmişlerdir. Ki kare analizleri sonucunda yeni bilgiye ulaşmada antrenör algılarının ve tercihlerinin onların belirli demografik özelliklerine (eğitim seviyesi, antrenörlük lisans seviyesi, takım antrenörü veya bireysel antrenör olmak, profesyonellik, deneyim ve cinsiyet) bağlı olarak değişiklik gösterdiği bulunmuştur. Sonuç olarak, antrenörlerin ihtiyaçları ile onların spor bilimlerinde üretilen bilgi hakkındaki algıları arasında önemli farklılıklar vardır. Antrenörler spor bilimlerinde üretilen bilgiye yeterince etkili bir biçimde ulaşamamakta ve onu kendi profesyonel gelişimleri yönünde etkili bir biçimde kullanamamaktadırlar. Antrenörler için ileri eğitim olanakları, nitelikli kaynakların üretimi ve bunların kullanılmasının desteklenmesi sağlanılarak iki taraf arasındaki bilgi transferi boşluğu ve antrenörlerin bilgiye ulaşmadaki karşılaştıkları engeller ortadan kaldırılabilir.

Anahtar Kelimeler: Antrenör Eğitimi, Kendi Kendine Öğrenme, Bilgi Aktarımı, Spor Bilimleri

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CHAPTER 1

INTRODUCTION

1.1 Background of the Study

Coaches, ranging from the context from participation to professional, have different routes, but the common purpose is to teach and inspire others to improved performances (Jones et al., 2011). Coaching is a process akin to teaching, tutoring or mentoring. It requires an understanding of the complex business of how people learn and develop as well as knowledge and skill in the discipline or field (Parsloe and Wray, 2000). Therefore, the coaches need to ply their trade well to be effective in their areas. Cote and Gilbert (2009) defined effective coaches as individuals who can consistently apply their professional (i.e., subject matter, curricular and pedagogical knowledge), interpersonal (i.e., relationships with students, the educational community, local community), and intrapersonal knowledge (i.e., reflection, ethics, dispositions) to improve athletes' competence, confidence, connection and character in specific coaching contexts. As can be deducted from the definition, coaches firstly need to obtain knowledge for their sport to realize the coaching process. There are many ways for obtaining coaching knowledge.

For instance, in many countries, coaches are mostly required to take national coaching certification programs that provide them with different aspects of coaching knowledge related to their sport. However, their knowledge acquisition is not limited to these certification programs. For instance, they also accumulate knowledge from their athletic past experiences and books (Cushion et al., 2003; Irwin et al., 2004; Lemyre and Trudel, 2007), from their more proficient counterparts (Bloom et al., 1998; Gould et al., 1990), by their own implementations in coaching contexts (Erickson et al, 2008; Cushion et al., 2003), and from

technological sources such as videos and the internet (Reade et al., 2008a; 2008b; Wright et al., 2007).

The previous research illustrates that knowledge acquisition takes place from a wide spectrum of sources in which coaches obtain knowledge professionally, intra-personally and interpersonally; utilizing formal, informal, and non-formal knowledge sources. The sources that coaches utilized were categorized into more encapsulated terms by several scientists. For instance, Trudel and Gilbert (2006) categorized the knowledge sources utilizing Sfard's (1998) learning metaphors (Acquisition and participation metaphors). Acquisition metaphor is represented by formal coach education programs, whereas participation metaphor implies informal learning situations and their contexts in which learning occurs. The authors advocated that learning does not occur in a vacuum, and they regarded formal coach education courses inadequate in coach development when used alone. Therefore, they suggested that those metaphors be regarded equally important for coach development.

When it comes to coaches obtaining new scientific information, in addition to gaining the minimum technical, tactical physical and psychological aspects of their sport to become a coach in their own field, it is obvious that coaches need to constantly pursue up-to-date knowledge in order to improve their athlete's performances. To achieve this purpose, they inevitably need to reach the knowledge produced in sport science continuously and use it in accordance with their need. Because, as Lyle (2002) suggests, coaching is a complex process and is ever-changing and ever-developing rather than being an unsystematic aggregation of isolated training episodes (p.43). In this ever-changing area, utilizing from scientific knowledge seems crucial for coaches to develop both themselves and their athletes. More recently, however, there has been a concern regarding coaches' utilization of sport science research. Coaches are the intended beneficiaries of the outcomes of a large proportion of sports science research, yet, in the literature on coaching, frequent references claim existence of a "gap" between sports science research and coaching practice (Goldsmith, 2000). Recent studies examined the gap between what

sport science researchers produce and what coaches really need in different cultures (Williams and Kendall, 2007; Reade el al., 2008a; 2008b; Mesquita et al., 2010).

However, there is limited information indicating the use of sport science knowledge by Turkish coaches. There is only one Master's Thesis which focuses on physical education teachers' strategies to obtain and manage knowledge (Demirtaş, 2010).The main research tendencies in Turkish coaching literature are more related to leadership behaviors, management of sport facilities, work satisfaction, burnout, stress management, and effectiveness of coaching courses.

1.2 Purpose of the Study

The aim of this study was, therefore, to understand a) the perceptions of Turkish coaches towards sports science knowledge, b) the coaches' preferences when obtaining knowledge they need, and c) the barriers that the coaches might encounter when trying to obtain the knowledge they need.

1.3 Research Questions of the Study

The specific questions to be examined to reach the aim of the study are below:

1. How do Turkish coaches perceive sport science research?

   Sub question 1.1. Do the team and individual sport coaches differ in perception of sport science research?

   Sub question 1.2. Do the coaches' educational levels influence their perceptions of sport science research?

   *Sub question 1.*3. Do the coaches' coaching license levels have an influence on their perceptions of sport science research?

   Sub question 1.4. Do the professional and amateur coaches differ in the perceptions of sport science research?

   Sub question 1.5. Do the coaches' experience levels have an influence on their perceptions of sport science research?

   *Sub question 1.*6. Do the coaches' gender differences have an influence on their perceptions of sport science research?

2. Which sources do Turkish coaches utilize when obtaining the knowledge they need?

   Sub question 2.1. Do the team and individual sport coaches differ in their preferences when they look for new information?

   Sub question 2.2. Do the coaches' educational levels influence their preferences when they look for new information?

   Sub question 2.3. Do the professional and amateur coaches' preferences differ when they look for new information?

   Sub question 2.4. Do the coaches' experience levels have an influence on their preferences when they look for new information?

   Sub question 2.5. Do the coaches' gender differences have an influence on their preferences when they look for new information?

   *Sub question 2.*6. Do the coaches' coaching license levels have an influence on their preferences when they look for new information?

3. What barriers do Turkish coaches encounter when trying to access the knowledge they need?

   Sub question 3.1. Does being a team or individual coach influence the coaches' form of barriers encountered when trying to access new information?

   Sub question 3.2. Do the coaches' coaching license levels influence the coaches' form of the hardships encountered when trying to access new information?

   Sub question 3.3. Do the coaches' experience levels influence the coaches' form of barriers encountered when trying to access new information?

   *Sub question 3.4.*Do the coaches' educational levels influence the coaches' form of barriers encountered when trying to access new information?

   Sub question 3.5. Does being an amateur or professional coach influence the coaches' form of barriers encountered when trying to access new information?

   *Sub question 3.*6. Do the coaches' gender differences influence the coaches' form of barriers encountered when trying to access new information?

1.4 Significance of the Study

Recently, the effective utilization of sport science knowledge by the coaches has been a critical issue. There is ample evidence in the coaching literature illustrating the importance of studying the knowledge gap between the sport-specific scientific research and the coaches' information needs. It is important to know what kinds of knowledge coaches do need, where they look for to obtain this knowledge, what kind of knowledge they find relevant and reachable to them, and what barriers they encounter in accessing relevant knowledge. Therefore, this issue was worth studying in a new, unexplored context (i.e., Turkey) to provide a valuable information not only to enable us to distinguish the differences and similarities of this phenomenon investigated in other cultures, but also to think about specific strategies to touch upon the identified research-practice gap, which may have also specific valuable implications for current Turkish coach education system.

1.5 Definition of the Terms

The functional definitions of the terms mentioned in this study are below:

- *A Sport Coach:* Someone who fulfils a leadership role within sport, which is characterized by goals based on improved sport performance (Lyle, 2002).
- *Coaching Levels:* A fivefold classification of coaches depending on holding proficiencies defined and designated by director general of sport education of Turkey. These are: "1st Level Coach" (Assistant Coach), "2nd Level Coach" (Coach), "3rd Level Coach" (Senior Coach), "4th Level Coach" (Head Coach), "5th Level Coach" (Technical Director) (Directorate General of Sport Education of Turkey, 2011)
- *Coaching Experience:* The experience represented by the years of coaching.

CHAPTER 2

LITERATURE REVIEW

Coaching is about striving to contribute to the success of each athlete (Kidman & Hanrahan, 2011). It is an ongoing process that is dependent on the changes occurring in the world; therefore, it needs skilled individuals to be competent in its area increasingly (Cassidy et al., 2009). Coaches do not just complete a coaching course, coach for a specified period of time and then, become perfect coaches (Cross & Lyle, 1999). Coaching is very multifaceted process (Cushion et al., 2003) that coaches always have to develop their knowledge and skills to catch up with their ever changing surroundings (Nash & Collins, 2006). A coach needs to improve his/her athletes' performance, being critical acumens in variety of situations effectively (Jones et al., 2003). As Nash et al. (2006) also suggest, he or she may be taken up with a countless tasks but the main role is to develop and improve the performance of teams and individuals, and to achieve this aim, the coach must utilize many different types of knowledge to make decisions and solve problems in coaching.

2.1 Coaches' Ways of Obtaining Knowledge in Elite Coaching Context

In the coaching literature there are ample studies which analyze the ways the coaches obtain coaching knowledge. In elite coaching context, for instance, the studies were mostly in favor of informal learning situations for elite coach development, even though there are studies that support formal learning situations. Gould et al. (1990) examined 130 expert coaches' self-perceived coaching educational needs and found that coaches were interested in coaching education workshops and seminars, as well as mentor coach programs and participating in a variety of coaching science courses if their content was to be aligned according to

the needs of different coaching contexts. The findings of the study put the importance on experiential learning and informal education as ways of developing elite coaching knowledge. Mentoring was seen as a key theme for the development of elite coaching knowledge. It refers to a 'relationship in which a person of greater rank, experience or expertise teaches, guides and develops a novice in a profession' (Alleman et al., 1984: 329).

In another study, Bloom et al. (1998) interviewed 21 expert team-sport coaches' mentoring experiences to determine whether the coaches were mentored when they were athletes and developing coaches in the past. They found that mentoring had a big influence on the interviewed coaches when they were athletes and subsequently developmental coaches. Bloom et al., (1998) stated that once coaches get matured, they were regarded as potential experts to pass on their knowledge they accumulated to the beginner coaches. They emphasized the multifaceted characteristics of mentoring in that they claimed many elite coaches were influenced strongly from their own coaches not only technically but also philosophically. Those mentor coaches were said to shape "their athletes' beliefs and values about coaching and dealing with people" (Bloom et al., 1998, p. 273), and therefore were seen very critical actors in novice coaches' development. In order for mentoring not to be accidental and formless, the authors emphasized the importance of providing novice coaches and athletes with opportunities to work with expert coaches by establishing formalized and eligible mentoring programs.

For Cassidy et al. (2009), many researchers of coaching agree that mentoring is valuable; however, there is not a conceptual definition of a mentoring. According to the recent research, mentoring has been used in the coaching settings, but its success is debatable because its unstructured and uncritical form only serves to reproduce the existing coaching culture and practice (Cushion, 2001). Cassidy et al. (2009) claimed that it is the "methods that inform the mentoring strategies used" which causes mentoring to be reproducing existing practice. Cassidy et al. (2009) termed "quality mentoring" and said that mentoring should involve doing something *with* a trainee instead of doing *to* a trainee. They suggested that mentoring be seen as an investment of whole personal development of a coach. Cushion et al. (2003) also

drew attention to danger of mentoring process which allows mentors to rule their trainees to become their copied coaches. Bloom (1998) stated that matured coaches were being honored to serve as mentors, for their positive past experiences in their previous careers, bringing about the importance of "reflection" in coaches' knowledge development. The resurgence of interest can largely be attributed to the work of Schön (1983), who discussed reflection in relation to architecture, town planning, engineering and management (Cassidy et al., 2009; p.17) According to Cassidy et al. (2009), reflection, as a term, has multiple understandings such as 'turning a subject over in the mind and giving it serious and consecutive consideration' (Dewey 1910: 3); 'having a capacity for autonomous professional self-development through systematic self-study' (Stenhouse, 1975: 144). According to Cassidy et al. (2008), John Dewey was considered the 'founder' of reflection. Dewey (1910: 6) described reflection as an active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it, and the further conclusions to which it tends. Cassidy et al. (2009) contended that for Dewey (1966), being reflective entails investigating the assumptions that inform the behavior and accept responsibility for the actions.

Schön (1983, 1987) introduced a theoretical framework of reflection for developing knowledge professionally. He suggested that by reflecting in (e.g. thinking about what coaches are doing, even while doing it) and reflecting on the experience, the professional growth can be achieved, which he called it to as 'reflective conversation with the situation', that is when attempting to solve the initial problem, finding out the incongruence of the efforts to solve it, and then reframing the problem afterwards.

Starting from the point that reflection is a key factor for coaches to learn from their practical experiences, Nelson and Cushion (2006) carried out a case study to explore the use of reflection as a framework to have a connection between coach education, theory and practice by studying United Kingdom National Governing Body in the process of developing a coach education program. Their study suggested that although reflection can be useful in the coach education considered, NGB's coach education program was found 'two-dimensional and mechanistic', and coach

education providers were asked to shape coach education around practical and aligned with their related contexts for coaches to reflect on their experiences.

Illustrating what kind of experiences could allow coaches to develop learning through reflective practice in their environment, Irwin et al. (2004) investigated the sources of elite coaching knowledge and the use of this knowledge in the construction of progressions in artistic gymnastics context. They interviewed sixteen elite men's artistic gymnastics coaches utilizing semi-structured interview technique. According to the findings of the study, the coaches showed independence in terms of learning the skill of coaching and identified that their knowledge obtaining occurred mostly through interactive coaching clinics and mentorships which encourage critical examination of issues and active participation.

Abraham et al. (2006) offered a coaching schematic after interviewing sixteen expert coaches to obtain a total description of their coaching process. After the analysis of the structured interviews with sixteen elite coaches from thirteen different sports, they found six categories as 'roles', 'goals', 'typical actions', 'required knowledge', 'support for the schematic', and 'factors influencing development'. The coaches participated in the study indicated that they accumulated coaching knowledge through their previous coaching and playing experiences besides formal sources. The authors claimed that the coaches also obtained their coaching role from their experiences with their coaches who were potentially their role models. These findings demonstrate the importance of contexts, which allows coaches to realize reflection in and on the situations they meet, and therefore scaffolds coach development.

To describe developmental paths of successful sports coaches drawing upon ecological systems theory, Gilbert et al. (2006) investigated fifteen successful coaches from three different sports to define the developmental paths and activities of coaches. Some of their findings showed that, the coaches spent thousands of hours of experience when they were competitive athletes, and they devote little time to formal coach education compared with other coaching activities. According to Gilbert et al. (2006) these findings highlight the importance of considering the coaching context when scrutinizing coach development.

Being similar to the results of Gilbert et al.'s (2006) work, Rodgers et al. (2007) drew upon a consensus survey of 821 competitive level coaches to examine their characteristics and their unique contexts which might have an effect upon their positive coaching behaviors leading to positive outcomes. They found that 'competitive experience as an athlete', 'hours of coaching per week', and 'whether the coaches are coaching individual or team sports' were the factors which influenced desired coaching behavior. Jones et al. (2004) also gave more credit to coaches' interactive, contextual coaching experiences, observing others and sharing their knowledge with other coaches than professional preparation programs.

It can be deducted from the previous works in the coach development literature that the 'situation' plays a very important role in developing coaching knowledge. As a cognitive orientation to learning, 'situated learning theory' explains how learning occurs in a constructive fashion. This theory, which belongs to Lave and Wenger (1991), suggest that learning is a social activity and dependent on and influenced by our participation in everyday life. These theorists suggest that in order for learning to occur, involvement in a 'community of practice' is necessary (CoP). As Cassidy et al. (2009) suggests, Lave and Wenger (1991) defined CoP's as sharing common characteristics, especially in terms of knowledge, a community of people, and shared practices. Furthermore, Wenger (1998) claimed that the process of learning in a defined community is a 'vehicle for the evolution of practices and the inclusion of newcomers while also the vehicle for the development and transformation of identities' (p.13). For Wenger (1998), participants of CoP's have to have an engagement of a shared activity that they have a common ground. Therefore, Wenger suggested that learning is not to do with acquiring knowledge with only social participation (Cassidy et al. 2009). 'Legitimate peripheral participation' (LPP), is a term that helps us to understand the process of CoP defined by Lave and Wenger (1991). It is about how to becoming a part of a CoP. According to this term, for Lave and Wenger (1991), starting from periphery, a newcomer joins a CoP and in time they get more competent and settle himself at the center of the CoP even it does not seem as an intentional act.

For Cassidy et al. (2009) the overview of Trudel and Gilbert's (2006) coach research literature, which drew upon one of Sfard's (1998) two metaphors of learning (participation metaphor), is a basic principle of situated learning theory. Sfard's (1998) two metaphors (participation and acquisition metaphors), which inspired coaching area, aimed at clarifying learning under two circumstances. She defined *acquisition metaphor* as conceptualizing the knowledge as a private property and basements of additional knowledge to be learnt. In this metaphor, teacher (read coach) transfers knowledge to a learner. In coach learning, coach certification courses correspond to this metaphor. A Sport science expert conveys the knowledge to the apprentice coaches building a basement which supports their further knowledge. For Sfard (1998), in *participation metaphor*, on the other hand, learner is seen as a person who is interested in participation of certain kinds of activities, rather than accumulating private possessions associating it with "situatedness, contextuality, cultural embeddedness, and social meditation" (p.6). Therefore, in *participation metaphor*, learning happens with being a part of a whole and having mutual relationships with it. Sfard (1998) explained the difference between the two metaphors as a transfer from individual mind and what goes "into it" to the "evolving bonds between the individual and others". Becoming a member of a community, then, is regarded as the first condition of experiential learning, then communicating its language and obeying its norms come after as following crucial preconditions. Trudel and Gilbert (2006: 528) explained the continuum of becoming a more legitimate member of coaching society using legitimate peripheral participation to clarify the process of becoming an elite coach starting from being an athlete in the coaching community. Using this theory, Cassidy et al. (2006c) showed the different interpretations of team belonging between the athletes who are more central and who are more peripheral in the community of elite netball. They also found that 'the sense of belonging' constitutes the base of players' desire and motivation to improve them. Citing Cassidy et al., (2006a) and Culver and Trudel's (2006) studies, Cassidy et al. (2009) stated that, in a professional developmental context, the round table discussions with others in a community was found beneficial to the coaches, on the condition that the discussions has a facilitator to

align the direction and length of the discussions to assure their value. Cassidy et al. (2009) cited Cassidy and Rossi's (2006) study, which discussed the implications of using the concept of CoPs to strengthen the idea of the internship in coach education, and emphasized the inevitable occurrence of learning situation in a community, either when it is designed or not. However, citing Wenger's (1998: 225) work, they suggested that learning be designed by facilitating the conditions to build knowledge.

Besides Lave and Wenger's (1991) work, researchers recognized situated learning theory in Canadian coaching contexts. Werthner and Trudel (2006) used Moon's (2004) view of learning in their case study with an elite coach to understand the learning process of coaches. Moon uses the metaphors of the 'building a brick wall' and the 'network' to illustrate her situated view of learning. The first metaphor represents Sfard's (1998) acquisition metaphor and Moon's latter metaphor represents Sfard's (1998) *participation* metaphor to explain learning situations. Werthner and Trudel (2006) suggested that coaches learn under three learning situations: (i) mediated, (ii) unmediated, and (iii) internal. In mediated learning situations, the learning occurs with the direction of an instructor. In unmediated learning situations, the coach is alone, and is free to choose what to learn. In internal learning situations, the coach reevaluates his/her own ideas without the presence of any information. Werthner and Trudel (2006) claimed that unmediated learning situations were preferred by more experienced coaches where they look for new information when they need.

Table 1.

Recent Studies on the Coaches Ways of Obtaining Knowledge in Elite Coaching

Author (Year)	**Participants**	**Instruments**	**Findings**
Gould et al. (1990)	130 Expert American coaches	The Elite Coaches Questionnaire	Experiential knowledge, informal education (mentor coach programs) and having participated in a variety of coaching science courses in the development of an elite coach were found important.
Bloom et al. (1998)	21 Expert team-sport coaches	Open-ended semi-structured interviews	The coaches were found to be the advocates of more structured mentoring programs. Most coaches were found to be mentored by more experienced coaches during both their athletic and early coaching careers. Establishing structured mentoring programs for developing coaches and athletes was found crucial.
Nelson and Cushion (2006)	2 Key National Governing Body Employees	Interviews, observation, and documentation over a seven-month period	The coach education program could promote reflective practice; however, the learning environment in which learning occurs is largely decontextualized. The current coaching program does not adequately develop coaches.
Cushion et al. (2003)	Data utilized from Educational Field	An examination of current coach education and assessment	Coach education programs should include supervised field experiences throughout, possibly in a variety of contexts, to enable coaches to consider differences, make mistakes, reflect and learn from them, and try again.
Irwin et al. (2004)	16 elite men's artistic gymnastic coaches	Semi-structured interviews	High levels of individuality were found in terms of how coaches learnt to coach. Knowledge acquisition was facilitated mostly through interactive coaching clinics and mentorships that promoted critical inquiry and active experimentation.

Table 1. *(Continued)*

Abraham et al. (2006)	16 elite coaches from 13 different sports	Structured interviews	Coaches gain knowledge through previous coaching and playing experiences in addition to formal ways. When being athletes, the coaches obtained the understanding of the coaching role.
Rodgers et al., (2007)	821 Competitive-level Coaches	A consensus survey of Canadian coaches	Having competitive experience as an athlete, hours of coaching per week, and whether the coaches are coaching individual or team sports were the factors that influenced desired coaching behaviors.
Werthner and Trudel (2006)	A single coach case study (a full-time coach)	In-depth interviews with a Canadian Olympic level coach	Coaches might take the initiative to create their own learning situations and they should not be perceived as only consumers of formal education programs or unplanned informal encounters. Internal learning situations (reflection) should be seen as an important complement to the mediated and unmediated learning.
Reade et al. (2008a)	205 high-performance coaches	A questionnaire	Coaches are most likely to consult other coaches, or attend coaching conferences to get new information. Sport scientists and their publications were ranked very low by the coaches as a likely source of sport science information.
Reade et al. (2008b)	20 high-performance coaches	A questionnaire, followed by structured personal interviews	Most of the coaches get new ideas from other coaches, or from coaching clinics and seminars, and not from sport scientists or their written work.

2.2 Coaches' Ways of Obtaining Coaching Knowledge in Developmental Coaching Context

Drawing upon Shön's(1983) theoretical framework, Gilbert and Trudel (2001) examined how model youth sport coaches (three ice hockey coaches and three soccer coaches) learn to coach through experience studying with six youth team sports coaches in Canada. The data were gathered using semi-structured interviews, observations and documents. The findings illustrated that the coaches they examined used Shön's (1983, 1987) 'reflective conversation approach' to resolve their coaching problems by having interactions with others to consult, constructing a solution and cooperating with others, or observing and modeling other coaches. Gilbert and Trudel's (2001) reflective model has six parts (coaching issues, role frame, issue setting, strategy generation, experimentation and evaluation). The authors indicated that a reflective conversation that is related to the last four parts, triggered by coaching issues and bound by the coach's personal role frame, was central to reflection. Gilbert and Trudel (2001) proposed that four circumstances influence the reflective conversation: 1) access to respected and trusted peers, 2) a coach's stage of learning (the more experienced the coach the less likely they consult coaching materials), 3) issue characteristics, 4) environment (e.g. support by community). They found reflection to have a crucial role in the development of coaching knowledge and competence.

Using Moon's (2004) conceptualization, Wright et al. (2007) studied with thirty-six youth sport coaches to reveal the ways that they learn how to coach. The findings of the study showed that the coaches benefited from seven different learning situations including 1) large-scale coach education programs, 2) coaching clinics/seminars, 3) formal mentoring, 4) books/videotapes, 5) personal experiences related to sport, family, and work, 6) face-to-face interactions with other coaches, and 7) the Internet. In mediated learning situations, coaches with considerable experience were found to be more likely to ask for sport specific knowledge, whereas their less experienced counterparts were more keen to learn practical drills that they could use than learning coaching theory. Another important finding of the study is that coaches were found reluctant to share their knowledge with other coaches.

As an another study in developmental coaching context, Lemyre et al. (2007) investigated thirty-six youth sport coaches (ice hockey, soccer, and baseball) to understand how they learn to coach. The results of the interviews with the coaches were similar with both developmental (Wright et al. 2007) and elite contexts (Gould et al., 1990; Irwin et al., 2004) in that coaches' previous coaching experiences gives the coaches a degree of sport-specific knowledge, while formal coach education programs were found by coaches only one opportunity of the many options to learn how to coach. Coaches were also found not to interact with each other in their context, for they generally regard the other coaches as rival to themselves. The authors stated that there were isolated coaching teams, which indicates the lack of the presence of communities of practice. The study also showed the individuality of learning situations between sports.

More recently, Erickson et al. (2008) investigated the sources of coaching knowledge in developmental context, conducting quantitative interviews with 44 developmental-level coaches and found the coaches' actual sources of coaching sources as 'learning by doing', 'interaction with coaching peers', and 'formal coach education' respectively. The coaches investigated in the study found both experiential and formal guided sources valuable in coach learning. The results of the study showed that coaches would prefer more guided learning instead of self-directed learning by doing Just as Irwin et al.'s (2004) study, the study also emphasized the idiosyncratic and context-specific nature of coach learning.

Table 2.

Recent Studies on the Coaches' Ways of Obtaining Knowledge in Developmental Coaching Context

Author (Year)	**Participants**	**Instruments**	**Findings**
Gilbert and Trudel (2001)	6 youth team sports coaches	Semi-structured interviews, observations, and documents were used.	The coaches used a reflective-conversation approach (Schön, 1983, 1987) to solve their coaching issues, which included interacting with others to ask for advice, to jointly construct a solution, or to observe and model what the others were doing. Process of reflection was found to have a crucial role in developing coaching knowledge and competence.
Wright et al. (2007)	35 youth ice hockey coaches from Canada	Semi-structured interviews	The results revealed seven learning situations including (a) large-scale coach education programs, (b) coaching clinics/seminars, (c) formal mentoring, (d) books/videotapes, (e) personal experiences related to sport, family, and work, (f) face-to-face interactions with other coaches, and (g) internet.
Lemyre et al. (2007)	36 youth-sport coaches (ice hockey, soccer, baseball)	2 interviews with each participant	Formal programs were found only one of the many opportunities to learn how to coach; coaches' prior experiences as players, assistant coaches, or instructors were found to provide them with some sport-specific knowledge and allow them to initiate socialization within the subculture of their respective sports.
Erickson et al. (2008)	44 Developmental-level coaches from variety of sports	Structured quantitative interviews	Learning by doing, interaction with coaching peers, and formal coach education were the top actual sources of coaching knowledge.
Malete and Feltz (2000)	60 High school coaches	Quasi-experimental design with questionnaires	A significant effect of a coach education program on the perceived efficacy levels of the trained coaches compared to control group of coaches.

2.3 Formal Learning Situations in Learning How to Coach

Although informal learning situations were favored by many studies in the coaching literature, formal learning situations have also been found valuable in obtaining coaching knowledge. Drawing upon situated learning theory, Nelson et al. (2006) also divided learning situations into formal (e.g., coaching education courses), informal (e.g., coaching experience), and non-formal (activities unconnected to formal education, such as conferences) learning situations with the idea that learning should take place in different learning situations. In their review of coach development, Cushion et al. (2010) also suggested that the structure of coaches' learning sources had to be holistic which necessitates connections and interactions between each different learning situation. Sfard (1998) had first suggested us the balanced use of the two metaphors in learning by stating "an adequate combination of the acquisition and participation metaphors would bring to the fore the advantages of each of them, while keeping their respective drawbacks at bay" (p. 11). Indeed, there is evidence that formal learning situations are and should be regarded as effective knowledge gaining sources.

Malete and Feltz (2000) scrutinized the effect of participating in a coach education program on 60 high school coaches' perceived coaching efficacy using quasi-experimental design and found that the levels of coaching efficacy were significantly higher in the group of coaches who participated in the coach education program designed by the researchers. The study conducted by Erickson et al. (2008) in developmental level coaching also suggested that coaches find mediated learning opportunities (i.e. formal coach education) valuable. Lyle (2002) also suggested the balanced contribution of formal and informal learning stating that "education and training depends on a mix of formal and informal provision, and understanding how learning and preparation is taking place is important in analyzing practice" (p. 275-276). Lyle (2002) emphasized the importance of "informal aspects of provision" as both complementary activities to formal programs and being an essential element of the coaches' education and training (p. 276).

Viewing the different types of learning opportunities and their contribution to coach development from their pedagogical perspectives as a part of a workshop at the 2007 International Council of Coach Education Master Class in Beijing, Mallett

et al. (2009) suggested that discussing the superiority of formal or informal coach education/learning is not valuable. They indicated the necessity of acknowledging their unique contributions to coach education and, giving coaching literature as reference, added that coaches perceive that they learn more in informal settings.

2.4 Coaches Ways of Obtaining New Ideas

More recently, the subject that coaches actively obtaining new scientific knowledge has also been a matter of debate. From the related literature, it seems the issue of transferring sport science knowledge to the coaches has been problematic. Needless to say, coaches need to keep themselves close to the latest improvements to keep up with the ever changing and developing area of coaching. It is also clear that those advancements in sports have been rooted by the research done in sport science dominantly. Therefore, coaches are the intended beneficiaries of the outcomes of a large proportion of sport science research (Goldsmith, 2000). However, according to the related literature, it has been perceived by coaches and scientists that a knowledge gap present between the two parties, in other words, it has been believed that there is incongruence between what sport research produce and what the knowledge the coaches say they need. In coaching literature, to define the sources of the knowledge gap, the coaches' perceptions toward sport science research, their preference in research areas related to coaching, and the types of barriers that prevent them from obtaining new knowledge has been investigated in several cultures.

By taking the two parties' opinions related to the transfer of sport research, Williams and Kendall (2007) examined the knowledge gap with 222 elite coaches and 125 sport science researchers using surveys and follow-up interviews with smaller groups of coaches and sport science researchers afterwards. According to their findings, both the coaches and sport science researchers perceived sport science research as important and necessary for their coaching situations. Additionally, the coaches perceived a need for more research in the area of sport psychology. In terms of what coaches and researchers value more in elite coaching, the study revealed that while coaches put more emphasis on the success of their athletes and long years of coaching experience, researchers valued keeping up to date with the latest

developments and having good rapport with personnel (including sport science researchers) more. As for qualities valued in a sports science researcher, while coaches emphasized 'knowledge of the sport', 'experience working with coaches and athletes'; researchers put the emphasis on 'presenting at conferences', 'professional qualifications', 'quality of the journals published in', and 'number of publications produced'. In terms of the two parties' preferences for the knowledge seeking strategies, the study showed that coaches emphasized 'coaching conferences', sports-specific magazines' and 'lay reports', while the researchers put more emphasis on 'sports science conferences' and 'scientific journals. All in all, the study shows congruence between coaches and the sport science researchers to an extent, having both common perceptions in terms of meeting the research needs of the coaches. However, if the environment that the study was conducted is taken into account, it can be stated that the generalizability of the study to other sporting cultures seems unfeasible, for the two parts (the coaches and the sport scientists) already were accustomed to work together in a familiar environment (Australian Institute of Sport). Read et al. (2008a) suggested that the findings of the study were the first in terms of proving a successful knowledge transfer between the two parties and worth studying in other environments.

In order to pin down the situation in Canadian context, Reade et al. (2008a) conducted a study with 205 elite coaches involved in Canadian Interuniversity Sports. Similar to Williams and Kendall's (2007) study, the coaches were found to perceive that sport science research contribute to their sport; however, differently from the previous study mentioned above, they were found to have a perceived non-existence of sport research in the coaching area of 'tactics and strategies'. Contrary to Williams and Kendall's (2007) study, the coaches in the study seemed satisfied with the area related to sport psychology. However, there was incongruence between the coaches' demands and what they perceive is being done in the area of tactics and strategies. In terms of the sources that coaches prefer to use in obtaining coaching knowledge, the study revealed that coaches often obtain information from their counterparts. The study also showed that coaches at institutions with sport-related academic programs had a better connection with sport science researchers. Additionally, full-time coaches were found more likely to be

aware of the present sources of sport science than part-time coaches. Another finding related to coach preferences was that more experienced coaches were found more likely to have access to sport scientists than their less experienced counterparts. In relation to the barriers that coaches encounter in obtaining knowledge, the study revealed that 'having other higher priorities', 'finding access to funding for sport science sources', and 'finding out the source of information when they need' were the top mentioned barriers that coaches indicated. To have a deeper understanding of the place of sport science knowledge in high-performance coaches' use of sources when they look for new ideas, Reade et al. (2008b) conducted a case study with twenty high-performance coaches from university environment in Canada. They found that despite the coaches believed sport science had a potential to contribute to coaching, most of them learnt new ideas from other coaches, or from coaching clinics and seminars. Being in parallel with the previous findings, the coaches appeared not to use the sport scientists' studies. The reason for not preferring the written scientific sources were reported as lack of time to look for new ideas, and a lack of interest in academic publications (Reade, 2008b).

More recently, Mesquita et al., (2010) examined "the perceptions of and preferences for knowledge sources" of coaches in terms of their backgrounds in Portuguese coaching context. The findings of the study showed that the coaches perceived that coaching knowledge comprised a wide range of sources from experiences to different learning situations (formal, informal, and non-formal). The coaches were found to put the importance on experiential sources than to the formal learning situations. One of the remarkable results of this study was that bachelor's degree and graduate degree coaches gave more credit to informal and non-formal sources such as attending seminars and clinics, reading books and magazines etc. Thus, the authors determined the gap between what coaches need (predominantly informal and non-formal education) and what Portuguese formal coach education system present to them to build coaching knowledge.

Table 3.

Recent Studies Revealing Coaches' Perceptions of Sport Science and Preferences for Their Needs

Author (Year)	Participants	Instruments	Findings
Williams and Kendall (2007)	222 elite coaches and 125 researchers	Surveys and Follow-up Semi-structured interviews	Both coaches and sport science researchers found sport science research important, and necessary to apply to coaching situations. Elite coaches perceived a need for more research in the area of sports psychology.
Reade et al. (2008a)	205 high-performance coaches	A questionnaire	Coaches believe sport science makes an important contribution to their sport. Gaps were found between what coaches are looking for and the research that is being conducted, especially in the area of tactics and strategies.
Reade et al. (2008b)	20 high-performance coaches	A questionnaire, followed by structured personal interviews	Coaches do believe that sport science can contribute to coaching, are interested in having a sport scientist work with them, and are motivated to find and implement new ideas in their sport programs. Most of the coaches get new ideas from other coaches, or from coaching clinics and seminars, and not from sport scientists or their written work.
Mesquita et al. (2010)	336 Portuguese coaches	A questionnaire	Coaches preferred experiential sources more such as working with experts, learning by doing, interacting with peer coaches than current formal learning situations.
Erickson et al. (2008)	44 Developmental-level coaches from variety of sports	Structured quantitative interviews	Coaches prefer more guided learning and less self-directed learning by doing. Both experiential and formally guided sources of coaching knowledge and the context-specific nature of coach learning were found important. Idiosyncratic nature of coach development was emphasized.

Table 4.

Recent Studies Revealing the Barriers to Coaches When Obtaining Knowledge

Author (Year)	Participants	Instruments	Findings
Williams and Kendall (2007)	222 elite coaches and 125 researchers	Surveys and Follow-up Semi-structured interviews	Dissemination of research findings via coaching clinics and sports-specific magazines, and the use of more appropriate "lay" language in information dissemination.
Reade et al. (2008a)	205 high-performance coaches	A questionnaire	The barriers to the coaches' access to sports science are the time required to find and read scientific journals, and lack of direct access to a sport scientist, finding access to funding for sport science resources, and finding out exactly where information is when coaches need it.
Reade et al. (2008b)	20 high-performance coaches	A questionnaire, followed by structured personal interviews	Lack of time to look for new ideas, and a lack of interest in academic publications.
Lemyre et al. (2007)	36 youth-sport coaches (ice hockey, soccer, baseball)	2 interviews with each participant	Coaches rarely interact with rival coaches, and therefore share their knowledge each other.
Kerr (2012)	47 participants from different contexts	Observations and interviews	Without the inclusion of the government and its funding, sport scientists are unable to be enrolled to the coaching context without backing of the coach. The beliefs and preconceived opinions of the coaches that they knew best about how to work with the gymnasts is one reason that prevents them from obtaining hands-on scientific knowledge
Wright et al. (2007)	35 youth ice hockey coaches from Canada	Semi-structured interviews	The coaches were found reluctant to share their knowledge with other coaches.

2.5 Bridging the Knowledge Gap between Coaches and Sport Science Researchers

The critical importance of relevant sport science information to coaches and its inevitable positive impact on athletes' performance is undeniable in the path of advancement in coaching. Breathing in an atmosphere in which coaches can benefit from up-to-date scientific knowledge that are brand new to them will surely have a more significant positive impact on coaches' competencies and their athletes' performances than only sharing existing coaching practices in the same context.

Recent studies that aimed at bridging the 'knowledge gap' between the sport scientist and coach illustrate the significant positive impact of transmitting scientific knowledge to the coaches and the athletes (Judge et al., 2008; 2011; Kerr, 2012). In his case study, Judge (2008) brought the coach and the sport scientist (a biomechanist) together to make a significant improvement in an elite hammer throw athlete's performance. He contended that if coaches could properly understand the conclusions of biomechanical data, they could make significant difference in their athletes' performance. By getting together and working for the improvement of the athlete's performance, the two parties enabled the hammer throw athlete to produce a national record. In line with the previous study, Judge et al. (2011) this time brought a sport scientist and a throws coach together in the field to improve a shot put athlete's performance. With the help of the sport scientist, the throws coach's knowledge was improved to make necessary amendments on the athlete's training routine and to develop new methods when necessary. In this case study, the shot put athlete produced a World Championship record through the collaboration of sport science and coaching. Both of the studies mentioned above illustrated the non-negligible importance of transmitting relevant and up-to-date sport science information to the coaches which leads to subsequent coach and athlete improvement. Bringing sport scientists and coaches together and having them work collaboratively also seems crucial to enabling coaches to learn new ideas.

By examining the issue from sociological aspect, Kerr (2012) examined how sport scientists who operate the sports training setting are mobilized to work with gymnasts in New Zealand using ethnographic methods. She observed ten high-performance training centers for two days and conducted formal interviews with 47

participants (gymnasts, coaches, judges, parents, administrators, and scientists). The study revealed the power relations and the actors, which influence the sport scientists' enrolment process within the gymnastics network. The coaches were found most dominant actors, having control over sport scientists and influence on the gymnasts. All in all, the study illustrated that although the coaches were trying to take whole control over the gymnasts, the enrolment process of sport scientists into gymnastics made gymnasts feel empowered and happy, indicating a positive effect of the presence of sport science on the gymnastics context.

Bringing sport scientists and coaches together and having them work collaboratively, which allows coaches to work with scientific knowledge produced by sport scientists, therefore, seems crucial to enabling coaches to learn new ideas.

Table 5.

Recent Studies Illustrating Bridging the Knowledge Gap between Sport Scientists and Coaches

Author (Year)	Participants	Instruments	Findings
Judge et al. (2008)	A hammer throw athlete	Video Analysis and biomechanical analysis.	Cooperation between the coach and the sport scientist (a biomechanist) helped to produce a national record by the athlete in the women's hammer in 2005.
Judge et al. (2008)	A shot put athlete	Quantitative biomechanical analysis	By using scientific approach to the shot put, the throws coach was made enable to make adjustments when necessary and to devise procedures which will improve performance measurably by the help of the sport scientist.
Kerr (2012)	47 participants from different contexts	Observations and interviews	The inclusion of the sports science researchers into the gymnastics network can be highly effective for improving gymnastics performance.

When we consider the studies related to scientific knowledge transfer between the coaches and sport science researchers in different cultures that were obtained from large samples quantitatively (Williams and Kendall, 2007; Reade et al., 2008a; Mesquita et al., 2010), it can be deducted that the issue investigated is unique to their own environments, each pointing out their own contextual picture. Therefore, this phenomenon is worth studying it in Turkish coaching context, for there is a lack of study in Turkish coaching literature which shed light on the situation of knowledge transfer between sport scientists and coaches. Using extensive sample of coaches, the present status of this important phenomenon would be examined subsequently revealing the needs of the two parties in Turkish context. This large sample of coaches would create an important opportunity to see the parallel ways of acquiring sport science information and therefore allows us to point out where the knowledge gap is, providing a deeper understanding about where coaches look for information, what kind of information they regard as relevant and reachable, and which barriers they encounter in accessing the knowledge they need in Turkish context.

The aim of the study, therefore, was to scrutinize the sport science knowledge transfer within a sample of coaches to answer three specific questions in Turkish context: a) How do coaches perceive sport science research? b) Which sources do coaches utilize when obtaining the knowledge they need? c) What obstacles do coaches confront when trying to access the knowledge they need?

CHAPTER 3

METHOD

The purpose of this study was to answer these following three questions: a) How do Turkish sport coaches perceive sports science research? b) What sources do Turkish sports coaches consult when looking for new ideas? c) What barriers do coaches confront when trying to access the knowledge they need? In this chapter, research design, sampling and the participants, the instrument utilized, data collection procedures, data analyses, and finally the limitations of the study are presented.

3.1 Design of the Study

A Cross-Sectional Survey Design was utilized to fulfill the purpose of this study. Creswell (2008) remarks that "Surveys help *identify important beliefs and attitudes of individuals"* (p.388). The focus of this present study was on the current opinions and practices of coaches as a whole. Therefore, cross-sectional survey design was chosen to find more appropriate answers to the questions of the study. Sport coaches who were located in Ankara from variety of coaching levels and contexts (sport clubs, universities e.g.) were reached to obtain the data. The data obtained from the survey was examined through descriptive methodology and contingency table analyses.

3.2 Participants of the Study

The participants in the present study consisted of 321 coaches from 14 different sports who have variety of coaching levels in Ankara. Each coach was required to have a coaching certificate, which is given to the accredited coaches by Directorate General of Sport Education of Turkey. All of them were actively coaching at the time of the study.

The coaches represented divergent team and individual sports: artistic gymnastics (n = 22), badminton (n = 18), basketball (n = 42), boxing (n = 10), football (n = 34), handball (n = 13), kickboxing (n = 20), swimming (n = 13), taekwondo (n = 14), tennis (n = 22), track and field (n = 34), volleyball (n = 50), weight lifting (n = 11), and wrestling (n = 18). The number of participants who coached only male athletes was 103, and 43 of them coached only female athletes, and 176 coaches coached both female and male athletes.

Of the 321 coaches analyzed, 66 of them were female (21%), 255 were male (79%). The coaches who completed the survey identified themselves working as full-time head coaches (n = 142), full-time assistant coaches (n = 52), part-time head coaches (n = 31), part-time assistant coaches (n = 40), unpaid head coaches (40), unpaid assistant coaches (16). The coaching role were regrouped into two categories as "salaried" (n = 265; 83 %) and "unsalaried" (n = 56; 17%) coaches. The data regarding coaches' extent of experience is as follows: The years of experience in coaching were 0-5 years of experience (n = 120), 6-15 years of experience (n = 138), and 15 years of experience and above (n = 63). Among the coaches 139 of them work as team sport coach (43%), and 182 of them work as individual sport coach (57%). The coaches' education levels were high school (n = 85), university bachelor's degree (n = 196), university master's and doctorate degree (n = 40).

Except for 34 football coaches, the coaching certificates given to the coaches by Ministry of Sports of Turkey's Directorate General of Sport Education were reported by coaches as Level 1 (n = 56), Level 2 (n = 115), Level 3 (n = 70), Level 4 (n = 23), and Level 5 (n = 19). Four coaches did not report their coaching levels. The football coaches' levels are as follows: TFF Grassroots Level "C" (n = 11), UEFA Level "B" (n = 10), UEFA Level "A" (n = 10), and UEFA Level "A" Pro (n = 3). The coaching levels were regrouped into two groups as "Low-level Coach" (level 1 and 2; n =168, 58.5%) and "High-level Coach" (level 3, 4, and 5; n = 115, 40.1%). The reason for segregating 34 football coaches from the sample is that there are totally four levels of coaching certification in football, which are given by both Turkish Football Federation and Union of European Football Associations. However, according to Directorate General of Sport Education in Turkey, there are standardized five coaching levels of coaching. Therefore, football branch was

excluded from the analysis on the subject of coaching levels.

Concerning job type, several coaches reported themselves as "regular staff" which indicates that those coaches were working for the government with promised salary. According to Ministry of Sports' archives, for the first quarter of 2012, the number of coaches working for the government as regular staff in Ankara was 164. 16 of the participants reported that they were regular staff. The sports that they belonged to were artistic gymnastics (n = 1), basketball (n = 1), boxing (n = 3), kickboxing (n = 1), swimming (n = 1), taekwondo (n = 1), track and field (n = 2), weight lifting (n = 1) and wrestling (n = 5).

3.3 Data Collection Instrument

In this study, to collect the data on Turkish coaches' perceptions of and preferences for obtaining scientific knowledge, and the barriers they encounter when they try to obtain it, New Ideas for High Performance Coaches Questionnaire(Reade et al., 2008) was used.

It was developed to examine how sport research knowledge is transferred to high-performance coaches in Canadian context. The questionnaire consists of 3 categories and 33 items. The categories are: (i) Coaches' perceptions of sport science research, (ii) Possible sources coaches use when obtaining new knowledge, and (iii) The barriers coaches encounter when trying to access new information. The questionnaire consists of ranking scales, yes-no questions and open-ended questions (see Appendix A).

3.3.1 Adaptation of the Instrument

For the purpose of cultural adaptation, three approaches were used. Firstly, a standard translation - back translation procedure was applied. Then, an expert group with PhD (six experts) in sport sciences and coaching field evaluated the questionnaire. Lastly, a cognitive interview procedure was followed with a participation of a group of coaches.

For the translation - back translation, two independent bilingual experts in the field of physical education translated the original questionnaire into Turkish. After that, the two translations were compared and reached an agreement on its

Turkish form. Following the agreement in the Turkish form by translators, another bilingual translator translated it into English. The two prepared questionnaires were found to be matching and the questionnaire was given its Turkish form to move on to the next adaptation procedure. After translation procedure finishes, six experts with PhD degrees in sport sciences and coaching examined the translated questionnaire to make relevant and necessary changes on the constructs of the questionnaire to ensure its suitability for Turkish coaching setting. After the adaptation process, the number of the items in the survey was increased from 33 to 34, with definite changes on several items and their content to make the questionnaire best suit to Turkish coaches (See Appendix A).

Lastly, to examine the validity of the adapted form of the instrument, "Cognitive Interview" method was used. Ten sport coaches from different sports were purposefully selected for the cognitive interviews. The cognitive interviews took approximately an hour for each coach. The cognitive interviews were audio taped and transcribed into a written form verbatim. Finally, in the light of the written data from the analyses of the cognitive interviews, the instrument was given its last shape. The definition of Cognitive Interview Method and its application procedures on the questionnaire is elaborated on in the following sections.

3.3.1.1 Cognitive Interviews

Cognitive interview is a diagnostic tool for pre-testing survey instruments such as questionnaires (Collins, 2001). It is a method that does allow for in-depth analysis of individual items of a questionnaire (Desimone and Le Floch, 2004). This method test the validity of verbal reports of the respondents thought process (Conrad & Blair, 1996, Blair & Presser, 1993); it has roots in the cognitive theory of Herbert Simon and his colleagues (Ericsson & Simon, 1980).

Usually, tests of surveys measure the reliability - whether repeated trials yield the same results - and validity - whether the instrument measures the construct it purports to measure (Collins, 2001). An important aspect of validity is that the respondent has a similar understanding of the questions as the survey designers; and that the questions do not omit or misinterpret major ideas, or miss important aspects of the phenomena being examined (Collins, 2001). Collins (2001) indicates that

behind this standardization idea, there are assumptions in that firstly, respondents are able to understand the questions being asked; secondly, questions are understood in the same way by all respondents; and lastly, respondents are willing and able to answer such questions. According to Collins (2001), we would like three kinds of evidence to evaluate the performance of survey questions: Statistical - identifying the specific effect of question measurement error on survey estimates, direct study of the question-and-answer process - identifying how and where the question fails to achieve its measurement purpose, and experimental - identifying whether proposed changes to question forms actually improve data quality. She states that cognitive interviewing of survey questions addresses the second type of evidence (2001). The author argues that, cognitive methods, derived from social and cognitive psychology, enable us to explore the processes by which respondents answer survey questions, and the factors which influence the answers they provide.

According to Collins (2001), piloting may detect overt problems that disrupt the response elicitation process they often do not provide evidence of causes, nor do they provide evidence of covert problems. Desimone and Floch (2004), contend that cognitive interviews serve an exploratory function by revealing reasons for the responses, identifying which questions on the survey may omit critical constructs or represent an incomplete or misleading view of the topic under question. The authors argue that cognitive interviews enable the researcher to see the potential conflict or harmony between the intention of the instrument's question and the participants' understanding of the intention of the question.

Cognitive interview methodology is a particularly effective approach to remedying the most common threats to survey validity (Biemer, Groves, Lyberg, Mathiowetz, &Sudman, 1991). Most threats to validity stem from the complexity of phenomena that researchers seek to capture in a survey instrument, the possibility that respondents may answer in a socially desirable way, and or the hazard of a teacher [coach] unknowingly providing misleading responses (Desimone and Floch, 2004). It is contended that cognitive interviews help avoid the above mentioned threats that might be induced either by respondents or badly prepared surveys, and therefore, allow us to build more valid and reliable instruments to conduct a sound study.

Methodology of Cognitive Interviews

Cognitive interviews have a distinctive methodology in scrutinizing the examination tools in terms of its ability to capture respondents' answers validly and reliably. The cognitive interview theoretical model is based on the four-stage response model of thought process (Tourangeau, 1984; Willis et al., 1991). In regard to this model, a participant must firstly understand an item; then bring back relevant information; thirdly, make judgment based on the recall of knowledge; and lastly draw the answer onto the survey. Desimone and Floch (2004) argued that these four areas were all potentially problematic for any given participant, and they put the emphasis on the importance of cognitive laboratory in the way of determining the possible aspects that the participant encounters difficulties in understanding a survey thoroughly.

Collins (2001) explains the two main cognitive techniques as "think aloud interviewing" and "probing". In the think aloud technique the participant is asked to conversate the thoughts as she or he answers the question or completes the questionnaire. Desimone and Le Floch contend that the "think aloud interview" is the crucial component in the cognitive interview, during which participants talk through their thought process as they answer questions on a survey (American Statistical Association, 1997). In this technique, the participants are encouraged to engage in a running commentary of everything that occurs to them as they are working through an item (Desimone and Le Floch, 2004). Probing technique, on the other hand, gives the interviewer an active role in the process to ask specific questions that are designed to obtain how the participant dealt with answering the question. The probes used in the study are shown in the Table 6.

Table 6.

The Cognitive Probes Utilized For the Instrument (Collins, 2001)

Think-aloud/general	How did you go about answering that question? Tell me what you are thinking I noticed you hesitated before you answered What were you thinking about? How easy or difficult did you find this question to answer? Why do you say that
Comprehension	What does the term x mean to you? What did you understand by X?
Retrieval	How did you remember that? Did you have a particular time period in mind?
Confidence Judgment	How well do you remember this? How sure of your answer are you?
Response	How did you feel about answering this question? Were you able to find your first answer to the question from the response option shown?

Cognitive Interview Procedures

For the piloting of the survey, the cognitive interview process was launched with ten interviewees in May of 2012. In June of 2012, the cognitive interviews were conducted with ten respondents in the same cognitive lab with the same interviewer. The respondents were coaches from ten different sports in Ankara. The interviewees comprised both beginner and professional coaches; two of the interviewees participated were women. From the coaches who participated in the cognitive interviews, there were coaches from korfball (n = 2), basketball (n = 3), swimming (n = 1), football (n = 3), and badminton (n = 1). The interviews occurred in a university setting (classroom), which was arranged as a cognitive interview laboratory for the purpose. Each coach participated in an approximately one-hour-interview. During the interview, they responded the survey items while they were thinking "aloud" and answering to probes that came after with the aim of exploring the conceptualization of the survey constructs.

The participants were encouraged to be involved in a continuing commentary of everything that occurs to them as they were answering an item – what was clear and accurate reflection of their experience, what was ambiguous or awkward, and what was absent from the item (Desimone and Le Floch, 2004). After completing the item, participants were probed by the interviewer (the researcher) working with a protocol of questions designed to further investigate the

participant's degree of understanding of the item as it was intended. For instance, a conversation between a participant and an interviewer proceeded as follows:

Coach: [reading the survey question aloud] "In which of the following areas of your sport do you think coaches are looking for new ideas? Rank each of the following from most likely to least likely. Each point on the rating scale can be used only once." Does it mean that I must order every area in the question? I mean I need to give an order number, right? Would it be better if the rank order was from the most to the least?

Interviewer: Well, why don't you just respond just as if you had received this survey on the Internet or by a researcher?

Coach: I could not understand the rule of ranking in the first place. With the explanation of "use the points only once" I thought that I cannot rank the same subcategory, not between categories. [Reading the question once more] Which one is the highest? Wait a second, it was between one and eight and the biggest is the most important. I was going to mark them vice versa. It was as if the number one is the most important for me. I think I would rank them wrong if I hadn't read it again. I am having hardships with answering the scale.

Interviewer: That is okay. You are talking about your thoughts and reactions and they are very helpful for validation of the survey.

Coach: [Reading aloud another question] "Do you agree that sport research is contributing new ideas that could be used by coaches in your sport." I think it is not so clear to me. By saying "sport research" it reminds me of both theoretical and applied studies or something like that. Anyway, I would say "yes".

Interviewer: When you answered "yes," what were you thinking?

Coach: Well, I was thinking of whether it refers to the scientific findings, or the findings that appeared from the experiences of coaches. I guess I need an extra explanation for this term to answer it surely. I am confused. I would skip answering this question if you hadn't asked what I was thinking of...

Findings from the cognitive interviews allowed the researcher and the expert researcher group to see the ways of how to improve the validity and reliability of the survey items by spotting possible inaccurate responses that the participants have given by misunderstanding the question, forgetting crucial

information, making flawed inferences by mapping irrelevant memories, or reporting with social desirability response bias.

3.4 Data Collection Procedures

Originally, to utilize the survey "New Ideas for High Performance Coaches" (Reade et al., 2008) and determine the constructs of the aims of the study, permission was granted from its authors. After that, the Research Center for Applied Ethics of Middle East Technical University's permission was obtained prior to the start of the study. The adapted and validated form of the survey was implemented to the wide range of coaches from different sports contexts in their own settings (private or public sports settings, national or local sport organization settings, federations, sport clubs etc.). Because of the uncertainty of reaching all of the aimed representative number of sport coaches from sport branches present in Ankara, the data collection procedure was primarily dependent on convenient sampling, trying to cover as many coaches from different sports with adequate numbers as possible. Before the implementation of the questionnaire, the participants were informed that their responses would be kept anonymous and confidential. Additionally, they were also informed that they were free to quit the study at will. Practically 20 minutes were needed to complete the survey. A general explanation on the research topic and definitions needed were provided on the introductory page, which was attached to the surveys. The researcher assured the minimum amount of supplementary instruction so that instruction or persuasion does not compromise the study. Once the participant accepted to complete the survey, he/she began the survey in privacy. The participants were able to ask additional questions related to the study and the questions of the survey to the researcher whenever they stumbled on any questions, and the researcher was able to correct participant's possible misconceptions instantly, for all data was obtained one-on-one by the researcher.

3.5 Data Analyses

Once the target sample size (n = 343) was reached, a screening procedure of the surveys began to make sure if there were any incorrect data, and/or insufficient representative data to form clusters, which belong to a definite sport

branch. Twenty two surveys were excluded from the analyses, for either their inappropriate data representation or not constituting adequate number as a group to form a representative cluster. The flawed surveys excluded were from track and field (n = 3), volleyball (n = 7), boxing (n = 1), wrestling (n = 2), swimming (n = 2), and basketball (n = 2). The surveys that have inadequate numbers to analyze as clusters were from kayaking (n = 2), Judo (n = 1), karate (n = 1), and korfball (n = 1). As a result, the analyses were done with 321 surveys, setting the significance level as .05 (Gravetter & Wallnau, 2004).

In the survey utilized, there are questions that have both quantitative and qualitative characteristics. To analyze the quantitative data, descriptive statistics; and as for analyzing qualitative data, content analysis method was utilized. To determine whether any of the demographic variables (i.e., gender, education, coaching level, years of experience, coaching role) influenced how coaches responded to the particular items of the survey, Chi-square analyses were undertaken. Descriptive analyses were computed with IBM SPSS Statistics 20 packaged software.

The purpose of this chapter was to describe the methodology that was utilized in the current study. As mentioned before, the purpose of this study was to examine the transfer of sport science knowledge within a representative sample of sport coaches located in Ankara. If the present sample of coaches from a variety of sports shows approximately similar patterns of obtaining sport science information, it will be possible to consider definite steps to address the knowledge gap between the two parts.

3.6 Limitations

This present study is descriptive in nature. Nevertheless, it has the potential to provide a basis to further steps to take for further studies in sport coaching area. In terms of internal validity threats, it can be said that “location” threat might be considered. The location in which tests, interviews, or other instruments are administered may affect responses (Fraenkel & Wallen, 2008).

One of the threats in this current study can be location. The participants completed the survey of the study in a variety of settings (i.e., gymnastics hall, athletics track). It was not possible to hold the locations of data collection constant;

but the fact that data collection was one-on-one, the researcher ensured the different locations did not systematically favor or jeopardize the hypotheses having additional information about the location (Fraenkel & Wallen, 2008).

The purpose of the present study might imply to the coaches that they could see the study as a kind of favor to them, which provides an opportunity to let them what they have to say, and they probably felt to be cared about. This could hearten the participants to give biased answers to the questions. Besides, the extraneous variables such as socio-economic status and cultural differences have to be taken into consideration, too.

Even if the participants were reached from a variety of sports and contexts, all of them were located in Ankara, and therefore limits the boundaries of generalizability of the present study. Furthermore, there was an inconsistency in the coaching level of football coaches and the other coaches. As a result, as mentioned before, football coaches were excluded from the contingency table analyses containing coaching levels.

CHAPTER 4

RESULTS

The aim of this study was to examine the transfer of sport science knowledge within the sample of Turkish sport coaches in Ankara. To achieve the main purpose of the study, following research questions were examined in Turkish coaching context: a) How do coaches perceive sport science research? b) Which sources do coaches utilize when obtaining the knowledge they need? c) What barriers do coaches confront when trying to access the knowledge they need? The findings related with each research question and related sub questions are presented below in the order.

4.1 Research Question 1

How do Turkish sport coaches perceive sport science research?

According to the descriptive statistics findings including all coaches participated in this study (n = 321), higher number of the coaches (79.8%) believed that the sport research contributes to new ideas in their specific sport, whereas 12.1% of them were not sure and 8.1% did not perceive the contribution of sport science to new ideas. 88.2% of the coaches reported that they were always looking for new ideas, whereas 11.8 % of them were looking for new ideas when their athletes did not perform well.

The coaches also mentioned that they were looking for new ideas mostly in the areas of *"drills special to sport*" (22.1%), "*fitness and conditioning*" (18.7%) and "*mental training and preparation*" (16.8%). On the other hand, in the areas of "*tactical/strategy*" (6.9%), "*injury prevention/recovery*" (4.0%) and "*nutrition*" (3.7%), coaches were looking for new ideas at the least. The areas of sport that coaches looking for new ideas based on their ratings are presented in Table 7.

Table 7.

Areas of Sport that Coaches Looking For New Ideas

Area	Number of Coaches Most Likely	%	Number of Coaches Least Likely	%
Drills special to sport	71	22.1	18	5.6
Fitness/conditioning	60	18.7	15	4.7
Mental training and preparation	54	16.8	25	7.8
Individual skill development	46	14.3	10	3.1
Team building/cohesion	43	13.4	98	30.5
Tactical/strategy	22	6.9	27	8.4
Injury prevention/recovery	13	4.0	87	27.1
Nutrition	12	3.7	41	12.8
Total	321		321	

If the coaches' responses of "strongly agree" and "agree" are taken into consideration, it can be discerned that the coaches believed the research on the areas of "fitness and conditioning", "individual skill development" and "drills special to sport" were more substantially contributing to new ideas in their sports. The findings of coaches' belief about the contribution of sport research to areas of sport are presented in Table 8.

Table 8.

Coaches' Belief about the Contribution of Sport Research to Areas of Sport

Area of sport research	Strongly Agree	Agree	Partly Agree	Disagree	Strongly Disagree	N/A
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
Fitness/conditioning	213 (66.4)	82 (25.5)	20 (6.2)	5 (1.6)	1 (0.3)	0 (0.0)
Individual skill development	165 (51.4)	118 (36.8)	28 (8.7)	8 (2.5)	0 (0.0)	2 (0.6)
Drills special to sport	176 (54.8)	102 (31.8)	33 (10.3)	6 (1.9)	2 (0.6)	2 (0.6)
Technical	173 (53.9)	98 (30.5)	41 (12.8)	6 (1.9)	1 (0.3)	2 (0.6)
Mental training and preparation	143 (44.5)	125 (38.9)	47 (14.6)	5 (1.6)	1 (0.3)	0 (0.0)
Injury prevention and recovery	151 (47.0)	114 (35.5)	44 (13.7)	6 (1.9)	6 (1.9)	0 (0.0)
Nutrition	164 (51.1)	93 (29.0)	50 (15.6)	9 (2.8)	5 (1.6)	0 (0.0)
Tactical/strategy	133 (41.4)	111 (34.6)	57 (17.8)	16 (5.0)	2 (0.6)	2 (0.6)
Team building/cohesion	100 (31.2)	113 (35.2)	75 (23.4)	21 (6.5)	7 (2.2)	5 (1.6)
Understanding today's athletes	99 (30.8)	111 (34.6)	82 (25.5)	16 (5.0)	13 (4.0)	0 (0.0)

The coaches were asked six statements about the relevance of sport science to their practice. Coaches' ratings on the statements related with "presence of sport specific research", "understandability of presented research", "relevancy of research with them and their athletes", "accessibility of research", "accessibility of a sport scientist when they need", and "use of sport scientists' services regularly" are presented in Table 9.

The coaches did not agree with the first statement about the presence of sport specific research in the coaches' own sports, "there is no sport research being conducted in my sport specifically", confirming the previous finding that they believe sport research is being conducted. Nevertheless, the coaches also agreed the fourth statement that the research was not accessible and also agreed with the second statement that it is not offered in the formats that can be understood easily. In the fifth statement, the coaches pointed out that they did not have access to sport science researchers and sport scientists when they try to solve coaching problems. In the sixth statement, the coaches indicated that they and their athletes did not regularly utilize from the services of sport science researchers and scientists.

Table 9.

Answers to Statements Related to Sport Science Research and Researchers

Statements	Strongly Agree	Partly Agree	Partly Disagree	Strongly Disagree	No Idea	N/A
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
There is no sport research being conducted in my sport specifically	39 (12.1)	68 (21.2)	56 (17.4)	139 (43.3)	19 (5.9)	0 (0.0)
The research is not presented in formats that can be understood easily by coaches	76 (23.7)	106 (33.0)	87 (27.1)	45 (14.0)	7 (2.2)	0 (0.0)
The research being done is not relevant to the problems that athletes and coaches in my sport have	34 (10.6)	104 (32.4)	93 (29.0)	78 (24.3)	11 (3.4)	1 (0.3)
The research being done is not easily accessible to coaches	69 (21.5)	124 (38.6)	87 (27.1)	37 (11.5)	4 (1.2)	0 (0.0)
Coaches in my sport have access to sport researchers and sport scientists when trying to solve coaching problems	32 (10.0)	104 (32.4)	97 (30.2)	69 (21.5)	19 (5.9)	0 (0.0)
Coaches and their athletes regularly utilize the services of sport science researchers and scientists	22 (6.9)	81 (25.2)	94 (29.3)	107 (33.3)	16 (5.0)	1 (0.3)

For the item “In your opinion, does the sport research information need to be sport specific, or are you comfortable adapting it to your on situation?” 70.4% of the coaches indicated that sport research needed to be sport specific. Only 26.8% of them indicated that they thought they could adapt research information from other sports for their needs.

71.3% of the coaches knew a sport scientist personally to ask for advice. Of these, 173 coaches have university degree, and 56 coaches have high school degree. The remainders (28.7%) reported that they did not personally know a sport scientist. Only 44.2% of them had an opportunity to work with a sport scientist. A similar pattern was observed with regard to working with a sport scientist, except for bachelor’s degree coaches (n = 196). The majority of the bachelor’s degree coaches (n = 113) said they did not have an opportunity to work with a sport scientist in reality. On the whole, there is a consensus between the coaches that a degree of relevant research is being conducted, but sport science does not seem to have a strong presence in the coaches’ exercises.

To decide if demographic variables have effect on how coaches answered the items related to their perception of sport research, Chi-square analyses were carried out. The results are reported under their relevant sub questions:

Sub question 1.1. Do the team and individual sport coaches differ in perception of sport science research?

Chi-square analyses indicated that team sport coaches were looking for new ideas more than individual sport ones in the area of *team building / cohesion,* expectedly ($\chi^2(7) = 117.68$, $p<.05$). In the area of *nutrition,* individual sport coaches were more likely to look for new ideas than team sport coaches ($\chi^2(7) = 23.09$, $p<.05$). Team sport coaches were found to be less likely to look for new ideas than individual sport coaches in the area of *injury prevention / recovery* ($\chi^2(7) = 15.255$, $p<.05$).

Team sport coaches were more likely than their counterparts to agree that there is a sport research being conducted in their sport specifically ($\chi^2(4) = 44.49$, $p<.05$).Team sport coaches were also more likely than individual sport coaches to agree that the research being done was relevant to the problems that athletes and

coaches have in their own sports ($\chi^2(4) = 13.28$, $p<.05$). In terms of the adaptation of sport research information to a specific coaching situation, team sport coaches were more likely to be comfortable with adapting sport research information into their own situation than individual sport coaches ($\chi^2(1) = 8.23$, $p<.05$). Chi-square analysis ($\chi^2(4) = 13.28$, $p<.05$) also revealed that Team sport coaches were more likely to agree that they had access to sport scientists when trying to solve their problems related to coaching.

Sub question 1.2. Do Coaches' educational levels influence their perceptions of sport science research?

Chi-square analyses indicated that graduate degree coaches were more likely to believe there is sport research being done that is relevant to their sport than other coaches ($\chi^2(8) = 38.07$, $p<.05$). This trend in the coaches' belief decreases in line with their decrease in their educational level. These more educated coaches were also more likely to agree that there is research being done, which meet the coaches and their athletes' needs, compared with high school degree coaches ($\chi^2(8) = 23.11$, $p<.05$).According to Chi square analysis, graduate degree coaches were found to know a sport scientist personally much more likely than bachelor's degree and high school degree coaches respectively ($\chi^2(2) = 6.43$, $p<.05$). They also rated "yes" as to having an opportunity to work with a sport scientist in a research project alone or with their athletes more than their less educated counterparts ($\chi^2(2) = 30.44$, $p<.05$).

Chi-square analyses indicated that graduate degree coaches were more likely to adapt sport research information to their specific coaching situation ($\chi^2(2) = 12.28$, $p<.05$). This preference has a decreasing fashion in parallel with the decrease in coaches' educational level just as the same trend, which is seen in the coaches' tendencies in the previous finding in educational level.

Sub question 1.3. Do the coaches' license levels have an influence on their perceptions of sport science research?

Chi-square analyses indicated that the low level coaches (1st and 2nd levels) were more likely to agree that sport science research contributes to "understanding

today's athletes" compared with their high-level (from 3rd to 5th level) counterparts ($\chi^2(4) = 12.39$, $p<.05$). In terms of having chance to work with sport scientists, high-level coaches were more likely to state that they had the opportunity to work with them compared with low-level coaches ($\chi^2(1) = 4.6$, $p<.05$).

Sub question 1.4. Do the professional and amateur sport coaches differ in the perceptions of sport science research?

Chi-square analysis indicated that amateur coaches were more likely to look for new ideas when their athletes do not perform well ($\chi^2(1) = 4.0$, $p<.05$). In terms of having a connection with a sport scientist, the professional coaches were more likely to state that they knew a sport scientist to consult personally, compared with their amateur counterparts ($\chi^2(1) = 8.48$, $p<.05$).

There were no associations of gender or experience found from the respondents' answer patterns.

4.2 Research Question 2

What sources do sport coaches consult when looking for new ideas?

The sources coaches consult when looking for new ideas were investigated on five different points, which are coaches' preferences for ideal knowledge sources when they obtain new information, the formats they most commonly receive new sport research currently, relevant organizations as probable knowledge sources to obtain new ideas for them, their primary probable source to consult if they had an urgent question or problem with regard to coaching, and their ideas about how to best convey sport science information to the coaches.

The descriptive statistics findings comprising all coaches participated (n = 321) indicate that when searching for new ideas, far more number of coaches would prefer to use *"sport science researcher / academics"* (22.4%), *"other coaches (directly)"* (14.3%), *and "websites special to sport"* (12.8%). On the other hand, they would least likely to prefer to use *"trainers"* (4.0%), *"online discussions"* (2.5%), and *"magazines"* (1.6%) respectively. Coaches' preferences of sources when obtaining new knowledge are presented in Table 10.

Table 10.

Coaches' Preferences of Sources When Obtaining New Knowledge

Sources	Number of Coaches Most Likely	%	Number of Coaches Least Likely	%
Sport science researchers/academics	72	22.4	25	7.8
Other coaches (directly)	46	14.3	7	2.2
Websites special to sport	41	12.8	32	10.0
Videos	35	10.9	11	3.4
Seminars and conferences	35	10.9	5	1.6
Watching elite competition live or on television	29	9.0	16	5.0
Books	19	5.9	17	5.3
Published peer-reviewed articles in academic journals	18	5.6	29	9.0
Trainers	13	4.0	36	11.2
Online discussions	8	2.5	97	30.2
Magazines	5	1.6	46	14.3
Total	321		321	

In terms of the formats that the coaches most commonly receive new sport research currently, most selected responses by the coaches were *"seminar or presentation by sport researcher"* (45.2%) and *"personal conversations with other coaches"* (29.0%). The least selected responses were, on the other hand, *"original full text from an academic research journal"* (2.2%), and *"personal conversation with a trainer"* (0.9%). These findings are presented in Table 11.

Table 11.

The Formats Coaches Most Commonly Receive New Sport Research

Formats	Number of Coaches	%
Seminar or presentation by sport researcher	145	45.2
Personal conversations with other coaches	93	29.0
Other	27	8.4
Personal conversations with sport researchers	26	8.1
A summary article of the major research findings in newsletters, magazines or newspapers	20	6.2
Original full text from an academic research journal	7	2.2
Personal conversation with a trainer	3	0.9
Total	321	

Another point was related to asking the coaches about various organizations to rate them as probable knowledge sources in terms of obtaining new ideas. *"Individual's own sport association"* was responded more positively. However, limited number of coaches answered any of the listed sources as "excellent". Besides, the source of "University academic departments" took place at the ends of the list. The ratings of the coaches are listed in Table 12.

Table 12.

The Potential Sources of Obtaining New Ideas for the Coaches

Sources	**Excellent** N (%)	**Good** N (%)	**Fair** N (%)	**Poor** N (%)	**No Idea** N (%)	**N/A** N (%)
Individual's own sport association	58 (18.1)	116 (36.1)	89 (27.7)	56 (17.4)	2 (0.6)	0 (0.0)
National sport organizations	57 (17.8)	106 (33.0)	104 (32.4)	49 (15.3)	4 (1.2)	1 (0.3)
Sport science/ research congresses, symposiums	52 (16.2)	99 (30.8)	92 (28.7)	62 (19.3)	16 (5.0)	0 (0.0)
University academic departments	39 (12.1)	103 (32.1)	84 (26.2)	78 (24.3)	16 (5.0)	1 (0.3)
Provincial sport organizations	18 (5.6)	70 (21.8)	129 (40.2)	91 (28.3)	13 (4.0)	0 (0.0)
Performance evaluation/research centers (i.e., SESAM)	21 (6.5)	64 (19.9)	94 (29.3)	101 (31.5)	41 (12.8)	0 (0.0)
The Ministry of Youth and Sport – General Directorate of Sport	20 (6.2)	61 (19.0)	83 (25.9)	146 (45.5)	11 (3.4)	0 (0.0)

About the coaches' primary source to consult if they had an urgent question or problem with regard to coaching, which the coaches responded from the list of six statements, the predominant one selected among them was "asking another coach in their sport" (n = 141; 43%). The second highest answer was "looking for something relevant to read" selected by 24.3% of the coaches. The third highest answer was "asking a sport scientist" selected by 21.2% of the coaches. The other three answers were "looking for a seminar or congress" (5.0%), "Asking a coach in another sport" (3.1%), and "asking a sport manager or administrator (2.2%).

The last point was investigated asking an open-ended question to the coaches, to find out their ideas about the best ways of conveying sport science information to the coaches. The data obtained yielded variety of preferred types of transmitting knowledge they thought best. The highest response from the coaches was "Applied and compulsory seminars, and conferences" (n = 71; 31.4%). The second and third most frequent responses were "Internet and e-mailing" (29.2%), and "Federations' announcements to informing coaches on the web" (10.6%) respectively. The remaining responses were "working with sport scientists together in the field" (8.8%), "books and monthly journals, and CD's" (4.9%), "easy accessibility of new research for small regions" (3.5%), "collaboration of universities and federations" (3.5%), "Affordable journal subscription with monthly payment" (3.5%), "facsimile" (2.7%), and lastly "publishing scientific findings on the General Directorate of Sport's website" (1.8%).

To decide if demographic variables have effect on how coaches answered the items related to the sources the coaches consult when looking for new ideas, Chi-square analyses were carried out. The results are reported under their relevant sub questions:

Sub question 2.1. Do the team and individual sport coaches differ in their preferences when they look for new information?

Chi square analyses indicated that team sport coaches were more likely to see their own sport associations as knowledge obtaining sources than individual sport coaches ($\chi^2(4) = 14.47$, $p<.05$). They also see university academic departments as knowledge obtaining sources much more than individual sport coaches ($\chi^2(4) =$

13.362, $p<.05$). In terms of deciding what to do in case of an urgent problem related to coaching, Chi Square analysis revealed that team sport coaches were more likely to opt for looking something relevant to read than individual sport coaches ($\chi^2(5) = 11.90$, $p<.05$). On the other hand, individual sport coaches were much more in favor of asking a sport scientist, in case of an emergency occurrence relative to coaching, than team sport coaches ($\chi^2(5) = 11.07$, $p<.05$).

Sub question 2.2. Do the coaches' educational backgrounds influence their preferences when they look for new information?

Chi Square analyses revealed that high school degree coaches regarded "General Directorate of Sport" as an adequate source to obtain new information more likely than their higher educated counterparts ($\chi^2(8) = 16.81$, $p<.05$). However, the bachelor's degree coaches and graduate degree coaches showed a declining trend in preferring General Directorate of Sport as information source, respectively. High school degree coaches were also more likely to rate "national sport organizations" as a good source than other coaches ($\chi^2(8) = 15.51$, $p<.05$). This tendency, just as previous finding, declines with the increase in coaches' educational levels.

The coaches were asked what they would do in case of confronting an urgent question or problem related to coaching. Graduate level coaches were more likely to find "looking for something relevant to read" by far more important than other coaches from lower educational levels ($\chi^2(10) = 31.35$, $p<.05$).

Sub question 2.3. Do the professional and amateur coaches' preferences differ when they look for new information?

According to Chi square analysis, amateur coaches were more likely to regard "peer-reviewed academic journals" as information source than their professional counterparts ($\chi^2(10) = 27.01$, $p<.05$).

Sub question 2.4. Do the coaches' experience levels have an influence on their preferences when they look for new information?

Chi square analysis revealed that the most experienced group of coaches were more likely to consider "universities' academic departments" as poor(er),

compared with their less experienced counterparts ($\chi^2(10) = 27.01$, $p<.05$).

Sub question 2.5. Do the coaches' gender differences have an influence on their preferences when they look for new information?

Chi square analysis revealed that female coaches were more likely to rate "conditioners" as information source than male coaches when looking for new ideas ($\chi^2(10) = 27.43$, $p<.05$).

There were no associations of coaching level found from the respondents' answer patterns.

4.3 Research Question 3

What barriers do sport coaches encounter when trying to access new information?

The descriptive statistics findings yielded that higher percentage of coaches frequently share new ideas obtained from sport research, with coaches in their sport (70.1 %). Higher number of coaches also reported that they were frequently sharing their own ideas, which was accumulated from their experience in their field, with other coaches in their sport (n = 226). In terms of coaches sharing their own ideas with other coaches, they reported that they were sharing the ideas they obtained from sport research with other coaches usually, but when it comes to sharing their own ideas with coaches from other sports, most of them reported that they rarely share them (n = 162). The findings related to transferring of ideas between coaches are illustrated in Table 13.

Table 13.

Transfer of Ideas between Coaches

Coaches	With Coaches in their sport			With coaches in other sports		
	Frequently	Rarely	Never	Frequently	Rarely	Never
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
From Sport Research	225 (70.1)	93 (29.0)	3 (0.9)	183 (57.0)	132 (41.1)	6 (1.9)
From Their Own Ideas	226 (70.4)	91 (28.3)	4 (1.2)	148 (46.1)	162 (50.5)	11 (3.4)

The descriptive statistics findings related to the monetary support of the organizations (federation, sport club etc.) that the coaches belong to revealed that the coaches mostly were not provided with any funding to attend conferences or seminars where they could find sport research ideas (70.7%). However, 68 of the coaches (21.2%) reported that they were supported by their organizations, and 26 of them (8.1%) were not sure about such funding. Concordantly, it was found that while a number of coaches (n = 42) reported that their organizations did provide them with funding to purchase resources such as journals, books, magazines, or online resources; the majority of them (n = 256) said they were not supported. Furthermore, 23 of the coaches reported that they were not sure about such support (7.2%). The coaches were asked if they knew a sport scientist personally that they could ask them for advice. 229 of the coaches (71.3%) said they knew a sport scientist personally.

The coaches were asked to rate the three possible barriers that they encountered in accessing sport science information. The majority of the coaches (n = 162) rated the statement "not being able to get any financial support to cover the expenses of obtaining information" as the least difficult. The coaches (n = 120) were more likely to regard the statement "not being able to find out the source of information" as the most difficult as a barrier to access sport science information comparably. The findings are presented in Table 14.

Table 14.

The Difficulty of the Barriers in Accessing Sport Science Information

Possible Barriers	Most Difficult	2nd Most Difficult	Least Difficult
	N (%)	N (%)	N (%)
Being able to get any financial support to cover the expenses of obtaining information	88 (27.4)	71 (22.1)	162 (50.5)
Being able to find out the source of information	120 (37.4)	130 (40.5)	71 (22.1)
Being able to transform the information obtained from sport science into applied coaching contexts	113 (35.2)	120 (37.4)	88 (27.4)

The coaches were also additionally asked whether they counter any additional possible barriers which prevents them from accessing sport science information, their mostly mentioned ones were “language barrier” (n =35), “Being aware of the presence of new information and being able to look for it” (n =29), and “lack of time” (n =22) respectively.

To decide if demographic variables had effect on how coaches answered the items related to the barriers the coaches encounter when looking for new ideas, Chi-square analyses were carried out. The results are reported under their relevant sub questions:

Sub question 3.1. Does being a team or individual coach influence the coaches’ form of barriers encountered when trying to access new information?

With regard to the transfer of ideas between the coaches, chi square analyses revealed that individual sport coaches were more likely to be open to knowledge sharing with the coaches from another sports ($\chi^2(2) = 6.38$, $p<.05$).

Sub question 3.2. Do the coaches’ coaching license levels influence the coaches’ form of the hardships encountered when trying to access new information?

Compared with their lower level counterparts, high level coaches (from 3rd to 5th levels) were more unwilling to share their own ideas with the coaches from other sports ($\chi^2(2) = 6.44$, $p<.05$). They also regarded “finding financial support to cover the expenses of obtaining information” less difficult as a barrier than low level coaches did ($\chi^2(2) = 5.94$, $p<.05$).

In terms of the barrier of “transforming the information obtained from sport science into applied coaching contexts”, high level coaches were more likely to regard it as more difficult than their counterparts ($\chi^2(2) = 5.78$, $p<.057$).

Sub question 3.3. Do the coaches’ experience levels influence the coaches’ form of barriers encountered when trying to access new information?

Although the coaches’ general opinions were predominantly negative, coaches with 0 – 5 year experience level were more likely to regard their organization as more supportive than their more experienced counterparts financially

($\chi^2(4) = 12.85$, $p<.05$).

No associations were found in the coaches' educational levels, genders, and professionalism, from the respondents' answers.

CHAPTER 5

DISCUSSION

The aim of the study was to understand the coaches' new knowledge seeking situations, which subsequently improve their coaching. The participants of the study were from variety of coaching levels, a total of 321 coaches, men and women coaches of team and individual sports, from different duration of coaching experience, having variety of educational background, and working in a variety of coaching environments, enabling us to understand the issue from a large spectrum of coaches.

In this chapter, the findings of each research question will be discussed.

5.1 Research Question 1

How do Turkish sport coaches perceive sport science research?

According to the findings of the present study, majority of the coaches participated believe that sport science research contributes to new ideas in their specific sport areas. This belief is a starting point leading to knowledge transmission from sport science researchers to coaches. Reade et al. (2008b) also found this finding as a foundation, which allows for knowledge transfer to be realized between the two parties. The coaches' ratings illustrated that most of them seemed to be looking for new ideas all the time while a small amount of coaches indicated that they look for new ideas when their athletes do not perform well. These findings were in line with the findings of Williams and Kendall (2007) and Reade et al. (2008a; 2008b) in that the coaches are generally looking for new ideas in several areas of sport science. Concordantly, they believe that sport science research is being done and that it is valuable for their sports. Additionally, the results indicated that team sport coaches were more likely to agree the presence of specific research in their sport.

The coaches were found to be looking for new ideas mostly in the areas of "Drills special to sport", "Fitness and conditioning", and "Mental training and preparation" respectively. However, the coaches believe that sport science research is more contributing to new ideas in the areas of "Fitness and conditioning", "Individual skill development", and "Drills special to sport" respectively. Therefore, the findings of this study revealed knowledge gaps between what coaches are seeking and their perceptions of sport science research being conducted.

This knowledge gap found in this present study showed a degree of congruence with Australian coaching context (Williams and Kendall, 2007) while it was dissimilar from that of the study conducted in Canadian context (Reade et al., 2008a). The coaches who participated to this present study comprised a mixture of individual and team sports, having different coaching levels, while in Reade's (2008a) study the coaches were from team sports dominantly and they were all elite sport coaches. Therefore, the reason for the difference between the two studies in terms of the knowledge gap would be because of different types of the coaches investigated in the studies in addition to the cultural differences. Indeed, Read et al. (2008a) also expected that their sample of coaches would point out a need for research in the area of "Tactics and Strategies". It does not seem possible to suggest a presence of an actual knowledge gap in the area of mental training and preparation, for this present study did not cover a literature review in each coaching area. Reade et al. (2008a) also stated that their findings about the knowledge gap dependent upon the coaches' perceptions. Therefore, it would not be totally acceptable to suggest that sport science research has not been focusing on "Mental training and preparation" in Turkish context. However, the coaches participated in the study surely indicated a perceived knowledge gap in this area.

On the other hand, the coaches pointed out that they were less inclined to be looking for new ideas in the areas of "Nutrition" and "Injury prevention and recovery" but they were sure in their belief that sport science research was contributing to these above mentioned coaching areas. The coaches in this present study seemed agreed that there was congruence between the coaches' needs and their belief about sport research being done in the areas of "Drills special to sport" and "Fitness and conditioning". Just as in this present study, in Williams and

Kendall's (2008) study, the coaches were also found confident that they could have a grip on physical fitness, and strength and power development whereas the issues of mental preparation of athletes and sport psychology were said to be the areas that coaches had limited knowledge and needed support. However, in Reade's (2008a) study, the coaches seemed to be certain about congruence in this area.

The coaches believe the research produced is hard to access, and it is offered in the formats that they have difficulty in understanding them. The coaches perceive that they generally do not have access to sport science researchers and sport scientists when they try to solve coaching problems, although they reported that they know sport scientists personally. Specifically, the results of this present study show that team sport coaches were more likely to have an access to sport scientists compared with individual sport coaches when they try to solve their problems. In terms of professionalism, results show that professional coaches are more likely to know a sport scientist to consult personally than their amateur counterparts. Being parallel to Reade et al.'s (2008a; 2008b) findings, these findings might be an indication that professional coaches utilize from unmediated learning situations when they try to obtain new scientific information, in other words, they are actively seeking new scientific knowledge in coaching area.

The coaches also indicated that they have not been using sport science researchers' services regularly. These findings are similar to earlier research findings about the coaches' perceptions towards the relevancy of sport science to coaching. The coaches' indications were in the same direction with those who were studied in Reade et al.'s (2008a) and Williams and Kendall's (2008) works. In Reade's study, for example, it was also articulated that the coaches perceived that they were having problems with the accessibility of sport science research and researchers, and were not using the services of sport science researchers. The earlier literature also illustrates the coaches' perceptions that the format of the written research produced was hardly comprehensible to them (Williams and Kendall, 2008; Reade et al., 2008a).

To an extent, the coaches perceived sport science as relevant to their sports. Results indicated that the team sport coaches were more likely to think in this way than individual sport coaches do. They were also more likely to believe the presence

of research, which meets their coaching needs. These perceptions of the coaches have a decreasing fashion with the decrease in the coaches' educational levels. In Reade et al.'s (2008a) study, it is seen that the coaches believed the presence of some relevant research, too. In terms of the specificity of sport science to a sport, in this present study, the majority of the coaches believed the necessity of sport-specific research. Only one-third of the coaches indicated that they thought they could adapt research information from other sports for their needs. Related field notes also indicated that the individual sport coaches were more likely to believe that sport science research is too generalized or oriented to team sports, preventing them from utilizing hands-on scientific knowledge because of their irrelevancy or difficulty of transferability to their own situation. It seems that the research has not been giving adequate attention to the individual sport coaches. Rodgers et al. (2007) suggested that coaching scientists have appeared to have focused mostly on team sport coaches and school-based coaches and added that there was a shortage of research related to individual coaches. When we consider the team coaches in this present study, however, the results showed that their tendency was in favor of having the ability to adapt sport research information into their own situation more than individual sport coaches'. In Canadian context, however, the situation is dissimilar to what was found. In Reade et al.'s (2008a) work, it was found that more than half of the participants stated that they could adapt the information they obtain from different research areas to their needs. That the participants of Reade et al.'s (2008a) study were dominantly from team sports, it might be reasonable to deduct that this result can be contributed to the characteristics of team sport coaches. This tendency found in their perceptions might have a connection with the demographic factors of Turkish coaches such as their educational level, as well. Indeed, when looked at the educational backgrounds of the coaches in the present study, it is seen that team sport coaches' educational levels were seen generally higher than that of individual sport coaches'. As a result, this may again imply an unmediated learning approach (Werthner and Trudel, 2006) that the team sport coaches could seek for new scientific knowledge more actively. The reason for team coaches and more educated coaches to think in this way might be having more possibility of contacting with sport scientists at universities. Indeed, slightly more than half of the coaches

who participated to this present study indicated that they knew a sport scientist personally to ask for advice, and of these, most of the coaches held graduate degree. The other part of the coaches indicated that they did not work with a sport scientist. Results showed that having an opportunity to work with a sport scientist has also a connection with coaching level of the coaches. High-level coaches were more likely to state that they had opportunity to work with sport scientists. These findings remind us of one of basic principles of situated learning theory, which is "participation" metaphor. It can be suggested from the findings that the more coaches get educated the more their likelihood of benefiting from sport scientists increases. In the context that coaches communicate with sport scientists, they might have an opportunity to make "evolving bonds" with the sport scientists (Sfard, 1998). In this way, the coaches might also be more aware of and familiar with the academic language of written scientific works, which sport scientists produce.

The results of the study illustrates that the coaches are concerned in terms of the types of research being studied in sport science. The results also show comparably higher perceived accessibility of the sport science literature related to fitness and skill development. They also seem to be aware of the types of research in sport science in that they were able to distinguish its areas by not generalizing them all into a one term. This reflects the fact that the coaches' educational levels are moderately adequate to appreciate the areas of coaching research. Demographic data from the coaches in this present study shows that approximately two third of the coaches surveyed reported that they have at least bachelor degree or higher educational qualification. Education level of the coaches seems to be a key factor in dissociation of the coaches' perceptions. Generally speaking, the coaches' educational levels show parallelism with their degree of possibility of benefiting from scientific knowledge sources. More educated coaches were found more enthusiastic to be active knowledge seekers having connections with sport scientists and also probably with sport science academic departments. It also brings about and increases the awareness of the presence of scientific knowledge, which lead the coaches to appreciate and benefit from sport science research.

5.2 Research Question 2

Which sources do coaches utilize when obtaining the knowledge they need?

The coaches who participated to this present study indicated their two main knowledge sources for gaining new information as 'other coaches' and 'seminars'. This finding shows parallelism with the earlier coaching literature to a large extent (Gould et al., 1990; Irwin et al., 2004; Reade et al., 2008a; 2008b; Mesquita et al., 2010; Wright et al., 2007). Except for Mesquita et al.'s (2010) study, the other above mentioned studies investigated either only elite or developmental coaching contexts. Be that as it may, all of the studies mentioned indicated that coaches obtain their coaching knowledge mostly from other coaches. Reade et al. (2008a) also found these two knowledge sources as the most preferred ones with putting 'other coaches' in the first place.

In line with the related coaching literature (Reade et al., 2008a, Wright et al., 2007), the coaches were found to prefer to use seminars as a knowledge source. Focusing on the preferences of the coaches from different coaching contexts, the results of the study revealed that the coaches also ideally prefer to obtain coaching information from the other coaches. More importantly, however, they indicated that they would ideally use "sport science researchers" as a knowledge source if they could. There is congruence between the coaches' ideal choices of knowledge obtaining and their real ways of obtaining knowledge in the coaching literature, which has been predominantly "other coaches". The importance of this knowledge source was also emphasized widely in the earlier research in different forms such as mentoring (Gould et al., 1990; Bloom et al., 1998; Irwin et al., 2004), which have a strong effect on the development of novice coaches; and previous playing experiences (Abraham et al., 2006), which allows coaches to reflect on their coaching situations when they were athletes formerly. As Reade et al. (2008a) also suggests, one way or another, the coaches' contact with other head coaches or assistant coaches in their own environments and this might be a proof of their use of coach-to-coach communication to get both coaching knowledge and new ideas. In coaching literature, the crucial importance of coaching experience was also emphasized in developing coaching knowledge while formal coach education were generally seen inadequate, for their decontextualized characteristic (Gould et al.,

1990; Lyle, 2002). However, there is also a concern about the knowledge transfer occurring between coaches in that Cushion et al. (2003) suggested that this coach-to-coach knowledge transmission could serve to 'reproduce the existing culture, power relations, and importantly, existing coaching practice'. Therefore coach-to-coach communication to transfer knowledge could obstruct critical thinking and searching for new ways to improve coaching practices. Irwin et al. (2004) also mentioned about the unproductivity of a restricted mentoring environment, without a high level of interaction and critical thinking.

The results of this present study indicated that the most experienced coaches in the study were more likely to consider university academic departments as poorer compared with their less experienced counterparts although they acknowledge their contribution to coaching. Conversely, team sport coaches were more likely to regard them as better knowledge obtaining sources. These results might reinforce the ideas that bring into our mind: firstly, it is likely that the more Turkish coaches get experienced, the more they are alienated to universities' academic departments, mostly depending on their experiences in the field and not updating their knowledge with up-to-date scientific developments in the coaching area. Indeed, the results of the study indicated that amateur coaches, who are expectedly closer to academic environments as a new generation, regarded peer reviewed academic journals as a knowledge source more than their professional counterparts. Secondly, it reminds us of the coaches' educational level, which affects their preferences in that more educated coaches seem to be somehow connected to academic environment more and therefore, they probably have more chance to interact with sport science academics. It is probably one of the reasons why they appreciate sport science researchers and their written works more than their less educated counterparts. The positive effect of having high educational background on coaches' knowledge levels and their perceived coaching competence has also been shown in the earlier coaching literature (Gilbert and Trudel, 2001; Irwin et al., 2004; Jones et al., 2003). Although they have less responsibility or limited monetary budget, contrary to Reade et al.'s (2008a) finding, amateur coaches' perceptions about written scientific research were found to be more positive. The result of Reade et al.'s (2008a) study can be contributed to the context

the researchers studied considering the fact that the study conducted with interuniversity sport coaches.

Among the coaches participated to this present study, several team sport coaches were more likely to regard their own sport associations as knowledge obtaining source better. The federations of team sport coaches (i.e. basketball, football, and volleyball) are structurally self-governing and comparably well-off, therefore the coaches' needs must have been met to an extent. Indeed, the field notes of the study also support this idea that coaches of these above mentioned sports were seemed fairly satisfied with their federations in terms of finding what they ask for (e.g. providing written sources, supporting coaches financially for them to attend scientific conferences). However, this tendency decreases with the decrease in the coaches' coaching level. This decrease can be contributed to the competitive coaching environment and it exemplifies the Lave and Wenger's (1991) "Legitimate Peripheral Participation" which suggests that the coach originally starts from periphery as a newcomer and in time he or she get more competent and settle himself or herself at the center of the community. Overall, these team sport coaches' perceptions were more positive when compared with the other coaches with having public federations. As a governmental institution "Spor Genel Müdürlüğü" was regarded as a poor potential knowledge source by the coaches; however, this tendency in the coaches' preference showed a changing fashion positively as the coaches' educational levels decreased.

In the related literature, it was found that the ways coaches with broader experience access knowledge are different than their less experienced colleagues (Gould et al., 1990; Irwin et al., 2004; Werthner and Trudel, 2006). Werthner and Trudel (2006) suggested that more experienced coaches might create their own learning environment actively, and they can be regarded as proactive unmediated learners. Therefore, they are expected to look for relevant information for their own situations and are expected to access to sport scientists more. In Reade et al.'s (2008a) study, the more experienced coaches were found to be more likely to believe that coaches in their sport have access to sport scientists. For the researchers, their result might indicate that these coaches have personal connections with sport science researchers. However, in this present study, it seems that as the coaches get

more experienced, so they get more alienated to the academic environment and consequently to the products of sport science researchers. This result proves the fact that the coaches from this present study probably tend to rely heavily on their coaching experiences and other coaches in their environment.

When asked to the coaches, the coaches obviously welcomed and ideally prefer the presence of sport science researcher's valuable contributions in their practices. However, in line with the findings of Reade et al.'s (2008a; 2008b) studies, this present study illustrated that the coaches ranked sport scientists and peer reviewed scientific journal articles very low, compared with other sources they preferred. Based on the findings of the study, the gap between the sport scientists and the coaches in terms of knowledge transfer seems in evidence.

5.3 Research Question 3

What barriers do sport coaches encounter when trying to access new information?

Coaches' barriers that they have been encountering on their ways to obtain new scientific coaching knowledge were investigated to comprehend the general points which bring about the knowledge gap. Similar to Reade et al.'s findings, the more important barriers that the coaches have been encountering were found as finding out the source of the knowledge when needed, transforming the knowledge gained from sport science into applied coaching contexts, and being able to get financial support to cover the expenses of obtaining new knowledge. Being slightly different from the findings of earlier literature, however, the coaches were found to regard finding out the source of knowledge as the most difficult barrier.

The results of the study indicated that the high level coaches found transforming the information they obtained from sport science into their field more likely to be a more difficult barrier. As Reade et al. (2008b) suggests, it is a strong possibility that the coaches would like to work with sport science researchers directly to apply scientific solutions to the coaching setting and they ask for instant solutions to their problems. However, for sport scientists, finding answers to coaches' questions is a long process which means firstly finding a funding for their research, then being busy with producing sound, publishable works. Besides, the

findings of their study or a bunch of studies they produced would not be as generalizable as expected. The results indicate that the coaches do not read the scientific works, let alone browsing sport science knowledge databases such as Ulakbim, SIRC, or SportDiscuss. Reade et al. (2008b) found that limited time was a serious issue for the coaches to obtain new knowledge. Needless to say, when an unpredictable problem occurs in the coaching setting, the coaches will have limited time to solve it. It may be the reason why they ask other coaches in their sport or feel the need of a sport scientist to consult directly when an urgent problem arises in their setting.

In this present study, another reason for not utilizing from sport scientists' written work is 'language barrier', which coaches reported as an additional important barrier to obtaining new knowledge in this present study. Irwin et al. (2004) had also found that the coaches could not utilize from the foreign coaches' knowledge since they could not interact with each other. In written works, the dominant scientific language is English and this result might indicate that most of the coaches cannot follow the latest developments in coaching science even when they want to. Another point to touch on in the issue of language barrier is that the coaches were found not to read written scientific publications and, therefore, may have difficulty with accessing knowledge. The results showed that the coaches believe the research is not offered to them in the ways that they can comprehend easily. These findings is in line with the previous findings in coaching literature (Irwin et al., 2004; Reade et al., 2008; Reade et al., 2008b; Williams and Kendall, 2007) in that the coaches generally expect scientific research articles to have more plain language instead of being too specialized.

According to their answers, the coaches seem to be sharing their knowledge with other coaches. This finding is in line with Reade et al.'s (2008a) that they also found no reluctance to knowledge sharing between the coaches they investigated. The results indicated that some of the coaches did regard the distance to the knowledge sources as a barrier, but the majority of them did not. This finding also supports Reade et al.'s (2008a) findings of their study to an extent. It seems that the coaches with a connection to university departments or sport scientists did not see distance as a barrier; however, when it comes to the coaches without this

connection, especially the high school degree coaches, it would be expected that they feel physical distance to the sources that they could obtain new scientific knowledge (e.g. universities' physical education and sport departments and their libraries).

High-level coaches in this present study found finding financial sources to cover expenses of obtaining knowledge less difficult as a barrier indicating that these coaches are already likely to be at the center of their community with having no problem with monetary issues. However, amateur coaches in the study seemed to be encountering this barrier more. This can be contributed to the role they are being given that is more peripheral and regarded as less significant. Understandably, their position probably will not be profitable, either. Reade et al. (2008b) also found a similar result in that the coaches with part-time jobs also rated accessing funding to cover costs of obtaining new knowledge as a more difficult barrier. The authors claimed that the reason for this viewpoint was because of their peripheral positions which pose them to provide limited contributions with limited sources and comparably narrower network.

CHAPTER 6

CONCLUSION AND RECOMMENDATION

This study proved that there is a knowledge gap between the coaches' expectancies of research and their ideas about the scientific research being done. The results illustrated that the gap was mostly in the area of "mental training and preparation". In attempting to bridge this gap in this area of content, the research can be bolstered to meet the coaches' needs, or more likely, the coaches can be informed about the source of research that they need.

The coaches comprised from different coaching contexts and most of whom believed that sport science could contribute to their practices. Some of them were also mostly aware of the fact that they were able to communicate with sport scientists to ask for advice. However, they mostly opt for learning new ideas from other coaches instead of using sport scientists. They do not seem to utilize their written works, either. Reade et al. (2008b) suggest that sport scientists do not go into the coaching context or write informal letters to share their knowledge. Instead, they would prefer to share their scientific findings at academic conferences when they would like to disseminate their works.

When looked at the issue from the coaches' side, it seems self-evident that coaches generally do not read the scientific articles produced by the sport scientists. Additionally, as they get matured in their profession, they most probably get alienated to universities' academic environment which deteriorates the knowledge transfer channels they could have used. As in Irwin et al.'s (2004), Reade et al.'s (2008a; 2008b) and Williams and Kendall's (2007) findings, this present study also implies that although there is a possibility that the coaches reach the written sport science information, they would not read those sources since these are found too complicated and impractical by coaches. Especially when we also consider the foreign language barrier, there is also no need to expect from Turkish coaches to

read scientific articles written in Turkish or to use the international coaching databases such as “SportDiscuss” in order to keep up with the developments in coaching. This present study supports the earlier coaching literature (Erickson et al., 2008; Reade et al., 2008a; 2008b; Wright et al., 2007) that coaches mostly prefer to get information via face-to-face communication. Obviously, coaches need an expert who can produce, interpret and transfer scientific information to coaches. Therefore, the coaches also need largely to draw upon mediated learning situations. Gould et al. (1990) suggested mentorship for coaches for their overall development, and Cushion et al. (2003) advised supervised field experiences for them in line with the same purpose. In addition to mentor coaches, the present study shows that the supervision by sport scientists would also be critical. Reade et al. (2008a) mentioned about the importance of motivation in bridging the knowledge gap between the two parts. Surely both coaches and sport scientists will need a motivation and a reasonable reward system. Coaches’ reward could be by reaching the most relevant knowledge to solve their problems or going ahead in their coaching praxis, while sport science researchers could be funded for their services.

The lack of alignment between the expectations and production, and subsequent alienation which is seen in all of the contexts examined in this study, would exacerbate the knowledge transfer between the two parties. Coaches can be encouraged to approximate universities’ academic departments by being provided with further continuing education opportunities. It would have numerous positive effects on enhancing knowledge transfer between the two parties. For instance, when we take the issue from the coaches’ side, in this way firstly, the coaches will have been able to understand and appreciate more the value of scientific environment and begin to build a network with sport scientists, which could help them to obtain scientific knowledge in a personal and oral way; secondly, the high school degree coaches will have found an invaluable chance to develop their professional coaching knowledge independent of their coaching level; thirdly, they will have been aware of the vast research which is also written in English as well as in Turkish, and can easily ask for help related to their interest areas from the network they built, while getting familiar with scientific language with this interaction, which will subsequently help them to become more active knowledge seekers. In this way, the

coaches will have been more knowledgeable about the coaching literature and subsequently may realize that most of their needs had already been investigated. As for the sport science researchers, they will be able to align their research focus depending on the coaches' needs more by figuring out their problems and interests with face to face communication just as this present study found as "mental training and preparation".

The results of this present study obtained from different coaching contexts, therefore, revealing the tendencies and knowledge gap of the coaches from different paths. It was generally seen that, even some changes seen in the tendencies of the coaches, the general picture of the study illustrates that there is indeed a knowledge gap between the coaches and the sport scientists in Turkey. The study also allows us to notice the important role of education on the coaches' approaches to sport science research. Active knowledge seeking can be correlated with being aware of the possibilities around the coaches, and it seems that more educated coaches were more likely to be active knowledge seekers even if they also face knowledge transfer problem to an extent.

This present study advocate that coaches participated from different coaching contexts (e.g. elite, developmental, and participation coaching context) look for new ideas in their sports, supporting the evidence in the earlier coaching literature (Williams and Kendall, 2007; Reade et al., 2008a; 2008b). However, even if they stated that they are always active in searching for new coaching knowledge, the presence of sport science knowledge in this traffic of knowledge transfer is vague. The coaches' preferences of obtaining new knowledge and their opinions vary. Most of the coaches preferably would like to work with sport scientists and some of the coaches were in touch with them. Coaches indicated the most important barriers in the way of reaching sport science were finding out the source of information, contacting with a sport scientist, and language barrier. Sport scientists need to be encouraged to impart their knowledge face-to-face with coaches, while there is also a need for a platform which sport scientist can be rewarded for their work while coaches are gaining scientific knowledge in line with their preferences to eliminate the barriers in front of knowledge transfer.

6.1 Implications

The findings of the study are limited to one part of Turkey; therefore, there are other aspects which we need to consider. The coaches were seen to be enthusiastic to develop themselves by showing a belief towards sport science knowledge in terms of obtaining relevant knowledge. However, their needs vary widely, depending on their demographic factors (i.e. being a team sport coach, being a coach with low-level education). In line with Reade et al.'s (2008b) findings, in this present study, it is seen that although the coaches use written or visual sources to an extent when trying to obtain new knowledge, they often preferred to obtain new ideas by asking and listening to other coaches about any issue that they need elaboration, or observing their more experienced colleagues to learn important hints that would serve as a solution to their problem, or as a knowledge development. Reade et al. (2008b) also found that written sources did not provide an adequate solution to coaches' knowledge needs and recommended straighter and well-organized knowledge transfer. On the other hand, to what extent sport science knowledge take place in the coaches' environment which they transfer their knowledge each other is an unanswered issue for Turkish coaching context.

It is suggested that coaches be given further learning opportunities at universities' physical education and sports departments to bridge this knowledge gap by meeting them with scientific knowledge. Reade et al. (2008b) had also suggested an ongoing education opportunity for coaches by utilizing coaching clinics etc. Lyle (2002) suggests that coaches' education is possible only with the provision of both formal and informal ways of learning (p. 275-276). Therefore, the effect of such process would also be investigated to understand to what extent this kind of mediated, formal learning contributes to knowledge transfer. It is also recommended that sport scientists enter into coach mentoring process to diversify and enhance the coach-to-coach knowledge transfer which goes around in circles (Cushion et al., 2003). Indeed, in the present study, the coaches' beliefs and preferences, and requests show that they would like to learn how to apply the scientific results in their field. It is also regarded as a critical issue to be investigated in Turkish coaching context.

This study provides evidence that the diverse group of coaches has different points in the knowledge gap. However, the general contradiction between the coaches was mostly due to their different educational backgrounds. In the light of these findings, it can be suggested that it is crucial to devise research to make scientific knowledge transfer easier for coaches.

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APPENDICES

APPENDIX A. THE SURVEY OF NEW IDEAS FOR COACHES

Antrenörlerin Spor Araştırmalarından Yararlanma Durumları Anketi

1. Antrenör olarak branşınız ile ilgili aşağıdaki hangi alanlarda yeni fikir araştırması içerisindesiniz? **Aşağıdaki alanları önem sırasına göre numaralandırınız. Her bir numarayı bir kez kullanınız. 8'den geriye doğru numaralandırma yapınız. (En Çok = 8, En Az = 1)**

Zihinsel antrenman ve Hazırlanma (psikolojik)	Takım Olma/Uyumu	Branşa özgü özel alıştırmalar (driller)	Bireysel beceri gelişimi (teknik)	Taktik/Strateji	Beslenme	Fiziksel Uygunluk/Kondisyon	Sakatlık Önleme/ Toparlanma
⇩	⇩	⇩	⇩	⇩	⇩	⇩	⇩
(_____)	(_____)	(_____)	(_____)	(_____)	(_____)	(_____)	(_____)

2. Diğer alanlar? (Yukarıda verilen alanlar dışında yeni fikirler araştırması içinde olduğunuz bir konu varsa, lütfen aşağıdaki alana yazınız)

_____

_____

Bilgi Edinme Kaynakları

3. Yeni fikirler araştırırken branşınız ile ilgili aşağıdaki kaynakları kullanma, tercih etme **olasılığınız** nedir? **Kaynakları size uygun olan önem sırasına göre 11'den geriye doğru numaralandırınız. Her bir numarayı bir kez kullanınız. (11=En çok olasılıkla, 1=En az olasılıkla)**

Spor bilimi araştırmacıları / Akademisyenler	(_____)
Akademik hakemli dergilerde yayınlanmış makaleler	(_____)
Kitaplar	(_____)
Popüler dergiler	(_____)
Diğer antrenörler - (seminerler yoluyla değil)	(_____)
Kondisyonerler	(_____)
Videolar	(_____)
Elit müsabakayı canlı yayında veya Tv'de izleme	(_____)
Seminerler ve konferanslar	(_____)
Çevrim içi (on-line) tartışmalar	(_____)
Branşa özgü internet siteleri	(_____)

4. Diğer kaynaklar? (Yukarıda verilen kaynaklar dışında kullanma olasılığınız olan kaynaklar varsa, lütfen aşağıdaki alana yazınız)

_____

1

Antrenörlerin Spor Araştırmalarından Yararlanma Durumları Anketi

Spor Araştırmaları

5. Spor araştırmalarının (bilimsel çalışmalar) branşınız ile ilgili size yeni fikirler verme konusunda katkı sağladığına katılıyor musunuz?

◯ Evet ◯ Hayır ◯ Emin değilim

6. Aşağıdakilerden, branşınız ile ilgili hangi alanlarda **spor araştırmalarının yeni fikirlere katkıda bulunduğuna** inanıyorsunuz?

	Tamamen katılıyorum	Katılıyorum	Kısmen katılıyorum	Katılmıyorum	Hiç katılmıyorum
Zihinsel antrenman ve Hazırlık (Psikolojik)	◯	◯	◯	◯	◯
Takım olma/Uyumu (Psikolojik)	◯	◯	◯	◯	◯
Teknik	◯	◯	◯	◯	◯
Branşa özgü özel alıştırmalar (driller)	◯	◯	◯	◯	◯
Bireysel beceri gelişimi teknikleri	◯	◯	◯	◯	◯
Taktik / Strateji	◯	◯	◯	◯	◯
Beslenme	◯	◯	◯	◯	◯
Fiziksel uygunluk / Kondisyon (kuvvet, sürat,dayanıklılık vb.)	◯	◯	◯	◯	◯
Sakatlık önleme ve toparlanma	◯	◯	◯	◯	◯
Günümüz sporcularını anlama	◯	◯	◯	◯	◯

7. Sizce bir spor araştırması spor branşına özel mi olmalı, yoksa herhangi bir branşta yapılan bir araştırmayı kendi durumunuza rahatça uyarlayabilir misiniz?

◯ Spor araştırmaları spor branşına özgü olmalı.

◯ Başka genel bir bilgiyi veya başka spor branşındaki bir bilgiyi kendi durumuma uyarlayabilirim.

◯ Varsa yorumlarınız? _____

Antrenörlerin Spor Araştırmalarından Yararlanma Durumları Anketi

Bilgi Edinme Biçimleri

"Aşağıdaki sorulardan size uygun olan **yalnızca bir seçeneği işaretleyiniz**."

8. Sizce antrenörler **"spor ile ilgili yeni bilimsel yaklaşımları, uygulamaları ve fikirleri"** genellikle hangi biçimde edinmektedirler?

- ◯ Hakemli dergilerden alınan orjinal tam metin makaleler
- ◯ Bülten, dergi veya gazetelerde yayınlanan önemli araştırma bulgularının özet makalesi
- ◯ Spor araştırmacıları ile kişisel görüşme
- ◯ Seminerler veya spor araştırmacısının sunumu
- ◯ Diğer antrenörler ile kişisel görüşme
- ◯ Kondisyoner ile kişisel görüşme
- ◯ Diğer (lütfen belirtiniz)_____

9. Kendi spor branşınızdaki antrenörlerin **kendi fikirlerini** sizinle paylaşmada istekli olduklarına inanıyor musunuz?

- ◯ Evet, paylaşım yaygındır.
- ◯ Hayır, paylaşım nadirdir.
- ◯ Fikrim yok.

10. Aşağıdaki ifadelerden sizin için en uygun olanı seçiniz.

- ◯ Branşım ile ilgili daima yeni fikir arayışındayımdır.
- ◯ Branşım ile ilgili çoğunlukla sporcularım iyi performans göstermedikleri zaman yeni fikir arayışına girerim.

11. **SPOR ARAŞTIRMALARI'ndan** ortaya çıkan yeni fikirleri **"kendi branşınızdaki"** diğer antrenörler ile paylaşır mısınız?

- ◯ Sıklıkla paylaşırım
- ◯ Nadiren paylaşırım
- ◯ Asla paylaşmam

12. **SPOR ARAŞTIRMALARI'ndan** ortaya çıkan yeni fikirleri **"diğer branştaki"** antrenörler ile paylaşır mısınız?

◯ Sıklıkla paylaşırım

◯ Nadiren paylaşırım

◯ Asla paymaşmam

13. **Kendi** fikirlerinizi **"kendi branşınızdaki"** antrenörler ile paylaşır mısınız?

◯ Sıklıkla paylaşırım

◯ Nadiren paylaşırım

◯ Asla paylaşmam

14. **Kendi** fikirlerinizi **"diğer branştaki"** antrenörler ile paylaşır mısınız?

◯ Sıklıkla paylaşırım

◯ Nadiren Paylaşırım

◯ Asla paylaşmam

15. Aşağıdaki her bir **birim/kurum/etkinlik** kendi sporunuz ile ilgili size yeni fikirler edinme açısından olası bir kaynaktır. Lütfen seçenekleri antrenörler için **spor araştırmaları bilgi edinim kaynakları** olarak değerlendiriniz.

	Çok iyi	İyi	Orta	Zayıf	Fikrim yok
Gençlik ve Spor Bakanlığı Spor Genel Müdürlüğü (Eski adıyla GSGM)	◯	◯	◯	◯	◯
Kendi antrenörlük kuruluşunuz (Federasyon, kulüp vb.)	◯	◯	◯	◯	◯
Ulusal Spor Organizasyonları	◯	◯	◯	◯	◯
Bölgesel Spor Organizasyonları	◯	◯	◯	◯	◯
Üniversite Akademik Birimleri	◯	◯	◯	◯	◯
Performans Değerlendirme/Araştırma Merkezleri (SESAM vb)	◯	◯	◯	◯	◯
Spor Bilimleri / Araştırma Kongreleri, Sempozyumları	◯	◯	◯	◯	◯

16. Bağlı bulunduğunuz spor organizasyonu (federasyon, dernek) size spor araştırma fikirleri bulabileceğiniz konferanslara, seminerlere katılmanızı sağlayacak maddi destek sağlıyor mu?

◯ Evet

◯ Hayır

◯ Emin değilim

17. Bağlı bulunduğunuz spor organizasyonu (federasyon, dernek, spor kulübü) akademik dergi, popüler dergi, kitap veya online kaynaklara ulaşabilmeniz için size maddi destek ayırıyor mu?

◯ Evet

◯ Hayır

◯ Emin değilim

18. Tavsiye almak için danışabileceğiniz ve bireysel olarak tanıdığınız bir spor bilimci var mı?

◯ Evet

◯ Hayır

19. Sizin ya da sporcularınızın şimdiye kadar bir SPOR BİLİMCİSİ ile bir araştırma projesinde birlikte çalışma imkanınız oldu mu?

◯ Evet

◯ Hayır

20. Daha önce kendi fikriniz olan ve sonradan bir spor bilimcinin araştırma projesinde kullandığı bir sorunuz oldu mu?

◯ Evet

◯ Hayır

21. a. Şu an bir spor bilimcisine yöneltmek isteyebileceğiniz bir araştırma sorusu var mı?

◯ Evet

◯ Hayır

21. b. Cevabınız evet ise ve bu soruyu bizimle paylaşmak istiyorsanız lütfen sorunuzu aşağıya yazınız.

_____

_____

_____

_____

22. Eğer antrenörlük ile ilgili acil bir soru ya da probleminiz olsaydı, ilk önce ne yapardınız?

Seçenekleri size uygun olan önem sırasına göre 6'dan geriye doğru numaralandırınız. Her bir numarayı bir kez kullanınız. (6=En önemli, 1=En önemsiz)

Konu ile ilgili okunabilecek bir şey aramak	(_____)
Benimle aynı branştaki başka bir antrenöre sormak	(_____)
Bir spor menajerine veya yöneticisine sormak	(_____)
Başka bir branştaki antrenöre sormak	(_____)
Seminer veya kongre araştırmak	(_____)
Bir spor bilimciye sormak	(_____)

Diğer (lütfen belirtiniz)

_____

_____

6

Antrenörlerin Spor Araştırmalarından Yararlanma Durumları Anketi

23. Aşağıdaki her bir ifade hakkındaki **fikrinizi** belirtmek için değerlendirme ölçeğini işaretleyiniz.

	Tamamen katılıyorum	Kısmen katılıyorum	Kısmen katılmıyorum	Kesinlikle katılmıyorum	Fikrim yok
Benim spor branşımda özel olarak yapılan spor araştırması yoktur.	○	○	○	○	○
Araştırmalar antrenörlerin kolayca anlayabileceği şekilde sunulmamaktadır.	○	○	○	○	○
Yapılan araştırmalar branşımdaki antrenörlerin ve sporcuların sorunları ile ilgili değildir.	○	○	○	○	○
Yapılan araştırmalar antrenörler tarafından kolayca erişilebilir değildir.	○	○	○	○	○
Branşımdaki antrenörler antrenörlük problemlerini çözmeye çalıştıkları zamanlarda spor araştırmacılarına ve spor bilimcilere ulaşabilmektedirler.	○	○	○	○	○
Antrenörler ve sporcuları düzenli olarak spor bilimi araştırmacılarının ve bilim adamlarının hizmetlerinden faydalanırlar.	○	○	○	○	○

24. Antrenörlerin kendi branşları ile ilgili spor bilimi bilgisine ulaşmada karşılaşabilecekleri engeller aşağıda listelenmiştir. **Lütfen aşağıdaki seçenekleri engellerin büyüklüğüne göre 3'ten geriye doğru numaralandırınız. (En büyük = 3, En küçük = 1)**

Bilgi edinmekle ilgili harcamalar için maddi destek alamamak	(_____)
Bilginin kaynağını bulamamak	(_____)
Spor bilimlerinden alınan bilgiyi antrenörlük uygulamasına dönüştürememek	(_____)

Diğer engeller? (Varsa ekleyiniz) _____

_____

_____

7

25. Yeni spor bilimi araştırma bilgilerini antrenörlere ulaştırmak için sizce en iyi yol nedir?

26. Şimdiye kadarki sorular hakkında anketin ayrıntılarına girme konusunda yardımı olacağını düşündüğünüz yorumlarınızı bizimle paylaşınız.

Antrenörlük Profili

Lütfen branşınızdaki kişisel geçmişiniz ile ilgili aşağıdaki soruları yanıtlayınız.

27. Şu an antrenörlük yaptığınız branşı/branşları işaretleyiniz.

- ◯ Basketbol
- ◯ Voleybol
- ◯ Hentbol
- ◯ Futbol
- ◯ Atletizm
- ◯ Yüzme
- ◯ Cimnastik ( )
- ◯ Buz Pateni
- ◯ Güreş
- ◯ Halter
- ◯ Vücut Geliştirme
- ◯ Boks
- ◯ Tekvando
- ◯ Judo
- ◯ Aikido
- ◯ Karate
- ◯ Tenis
- ◯ Badminton
- ◯ Masa Tenisi
- ◯ Eskrim
- ◯ Okçuluk
- ◯ Buz Hokeyi
- ◯ Dans
- ◯ Triatlon
- ◯ Ragbi
- ◯ Bocce
- ◯ Korfbol
- ◯ Kendo
- ◯ Kick Box
- ◯ Diğer (Lütfen belirtiniz)_____

28. Antrenörlüğünü yaptığınız takımın/takımların sporcularının cinsiyetini/cinsiyetlerini belirtiniz

- ◯ Erkek
- ◯ Kadın
- ◯ Erkek ve kadın karma

29. Cinsiyetinizi belirtiniz.

- ◯ Kadın
- ◯ Erkek

30. Yaşınızı belirtiniz.

(_____)

31. Branşınızdaki şimdiki antrenörlük rolünüzü belirtiniz.

◯ Tam zamanlı Baş Antrenör

◯ Tam zamanlı Yardımcı Antrenör

◯ Yarı zamanlı ücretli Baş Antrenör

◯ Yarı zamanlı ücretli Yardımcı Antrenör

◯ Ücretsiz çalışan Antrenör

◯ Diğer _____

32. Antrenörlük deneyiminizi yıl olarak belirtiniz.

◯ 0-5 yıl

◯ 5-10 yıl

◯ 10-15 yıl

◯ 15-20 yıl

◯ 20 yıl ve üzeri

33. a. Bitirdiğiniz son eğitim seviyesini belirtiniz. b. **Devam ettiğiniz** eğitim seviyesini belirtiniz

◯ İlköğretim _____

◯ Lise

◯ Üniversite önlisans derecesi (2 yıl)

◯ Üniversite lisans derecesi (4 yıl)

◯ Üniversite master derecesi

◯ Ünivesite doktora derecesi

34. TC Gençlik ve Spor Bakanlığı Spor Genel Müdürlüğü Spor Eğitimi Dairesi Başkanlığı tarafından verilen en son tamamladığınız antrenörlük kademesini belirtiniz.

◯ I. Kademe

◯ II. Kademe

◯ III. Kademe

◯ IV. Kademe

◯ V. Kademe

◯ Diğer (Branşınıza özel kademenizi belirtiniz) _____

35.Şu an antrenörlüğünü yaptığınız sporcu düzeyini/düzeylerini belirtiniz. (Yıldız, Genç, Yetişkin vb.)

_____

36. Şu an antrenörlüğünü yaptığınız sporcu sayısını belirtiniz.

_____

Not: Çalışmaya katıldığınız için teşekkür ederiz. Ankette bilginize başvurulan konularda sizinle görüşme yapmamıza gönüllü olmak isterseniz lütfen aşağıdaki alana adınızı, e-mail adresinizi ve telefonunuzu yazınız.

Ortalama 15 dakika sürecek olan bu görüşme, konu ile ilgili fikirlerinizi açıklığa kavuşturmak ve ayrıca öneri ve yorumlarınız için imkan oluşturmayı amaçlamaktadır. Görüşme yapmayı kabul ediyor musunuz?

◯ Evet ◯ Hayır

Görüşme yapmaya izin verdiğiniz için teşekkür ederiz. Lütfen isminizi, email adresinizi ve telefonunuzu aşağıdaki alana yazınız.

Ad:

Soyad:

E-mail:

Telefon:

- **Anket sona ermiştir**. Bu araştırma projesine zaman ayırdığınız için teşekkür ederiz.
- Sorularınız için lütfen aşağıdaki e-posta'dan veya telefondan iletişime geçiniz.
- Koray Kılıç, kkilic@metu.edu.tr
- Tel: 0312 210 40 22

APPENDIX B. TEZ FOTOKOPİ İZİN FORMU

ENSTİTÜ

Fen Bilimleri Enstitüsü ☐

Sosyal Bilimler Enstitüsü ☐

Uygulamalı Matematik Enstitüsü ☐

Enformatik Enstitüsü ☐

Deniz Bilimleri Enstitüsü ☐

YAZARIN

Soyadı : .....
Adı : .....
Bölümü : .....

TEZİN ADI (İngilizce) :
.....
.....
.....
.....
.....

TEZİN TÜRÜ: Yüksek Lisans ☐ Doktora ☐

1. Tezimin tamamı dünya çapında erişime açılsın ve kaynak gösterilmek şartıyla tezimin bir kısmı veya tamamının fotokopisi alınsın. ☐
2. Tezimin tamamı yalnızca Orta Doğu Teknik Üniversitesi kullanıcılarının erişimine açılsın. (Bu seçenekle tezinizin fotokopisi ya da elektronik kopyası Kütüphane aracılığı ile ODTÜ dışına dağıtılmayacaktır.) ☐
3. Tezim bir (1) yıl süreyle erişime kapalı olsun. (Bu seçenekle tezinizin fotokopisi ya da elektronik kopyası Kütüphane aracılığı ile ODTÜ dışına dağıtılmayacaktır.) ☐

Yazarın imzası ..... Tarih .....