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Expertise development of elite Taekwondo coaches

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Abstract

Objective: While numerous studies on the expertise of elite sports coaches have been conducted, few studies have been conducted on coaching Taekwondo, an Olympic sport rapidly gaining worldwide popularity. Yet, as a combat sport with Asian martial arts roots, elite Taekwondo coaches may have different needs than their peers in other sports. The present study thus explored elite Taekwondo coaches during the course of their careers. *Methods:* Qualitative data were gathered through semi-structured interviews. Coaches (n=9) were selected via purposeful sampling and were all elite Taekwondo coaches with more than 10 years' experience in elite Taekwondo coaching. Focused questions examined the transition of expert elite Taekwondo coaches through various stages in their careers to explore their expertise development process. *Results:* Five key variables emerged from the analysis of the expert coaches' growth toward expertise. These variables correlate with what other coaches of elite coaches experienced during their development, thus evidencing that coaching Olympic Taekwondo is not unlike coaching other elite sports.

Keywords: life-long learner, organization skills, short- and long-term memory, self-reflection, learning communities

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INTRODUCTION

Taekwondo as a sport was born from a Korean martial art of the same name and is as such steeped in Korean culture, thus necessitating and thereby creating a mindset unique in sports for Taekwondo's coaches, athletes, and governing officials. Like baseball [1], Taekwondo has been a symbol of South Korea, just as baseball has been for the United States, important to the globalization of that country, a source of national pride for both the South and North Korean peoples, and an important soft diplomacy tool between the two Koreas [2]. Because it was the South Korean government and citizens who pushed for Taekwondo to be developed into an Olympic sport and the North Koreans continued developing their version of Taekwondo as a martial art, there exists a radical difference in how Taekwondo is practiced in these two countries.

Nevertheless, the South Korean government promoted Taekwondo aggressively over the following decades as an internationally recognized sport, to be first included at the 1986 Asian Games, which were held in Seoul. Two years later, the sport earned its debut as a demonstration sport at the 1988 Summer Olympics, which were likewise held in Seoul. It was included again as a demonstration sport at the 1992 Games in Barcelona and, at last, Taekwondo gained the status of an official, medal event at the 2000 Sydney Olympics. It was therefore only with the support of the South Korean government that it became an official Olympic combat sport [3]. Due to the South Koreans' emphasis on international sport competition, the popularity of the growth of sport in general, and the ease of travel of its competitors around the economically developed Western world, the development of Taekwondo coaching and sport management programs developed more there than through similar efforts made by the North Koreans who focused on personal and social improvement through Taekwondo practice. The Taekwondo style that eventually emerged out of South Korea has been named 'Olympic Taekwondo,' since the International Olympic Committee (IOC) adopted that style as an official Olympic event.

As Olympic Taekwondo spread rapidly around the world, the number of its athletes and competitions around the world increased dramatically. The Kukkiwon, the South Korean testing and education center for Taekwondo in South Korea responsible for testing and issuing 'Olympic Taekwondo' black belt, reports that about 100 million people practice Taekwondo in 20,000 schools or clubs around the world. That organization also boasts nearly 11 million black belt holders around the world [4]; however, those numbers have not been independently verified, and it is unknown as to how the Kukkiwon configured them. Nevertheless, the numbers of elite Taekwondo players and coaches required to train them for national and international level competitions are continually increasing. This statement is more reasonable considering the large number of national and international competitions World Taekwondo (WT, formerly the World Taekwondo Federation [WTF]) oversees annually. WT is the IOC's international federation (IF), or governing body, for the Olympic sport of Taekwondo.

In Taekwondo or any other sport, the qualified and skilled sports coaches are vital to the development of sport in general and elite sport in particular [5]. Coaching high-performance athletes is a multifaceted job calling for a variety of competencies. For this reason, many studies have focused on elite sport coaching and their development of expertise. To date, most international Taekwondo studies have explored Taekwondo within a philosophical [6], historical [7], political [8], biomechanics [9], and/or technical evolution [10] lenses.

One the other hand, research on elite Taekwondo coaching in general and the expertise of elite Taekwondo coaches in specific is still very limited and published mostly within Korean-language journals. For instance, researchers have investigated the work environment of elite Taekwondo coaches and the relationship between their grit and passion for coaching [11], while others have studied the working conditions and roles assumed by Taekwondo coaches in today's era, where his study attempted to help change the map of domestic Taekwondo coaches by presenting a new worldview of Taekwondo coaches [12]. Another researcher studied the effect of self-efficacy and job satisfaction on Taekwondo coaches' professionalism, the purpose of which was to assist them in becoming more aware of the significance of their professional recognition [13]. Nevertheless, no

study–international or otherwise–has to date focused on the characteristics of expert elite Taekwondo coaches or clarified how the expertise of elite Taekwondo coaches develops.

On the other hand, over the past four decades, sports researchers in general have done much to develop the burgeoning field of human expertise to the point where it has become a legitimate field of specialization. Early texts [14,15,16] were important foundational texts in the field of expertise in general and sports expertise in particular. Since then, several other influential texts have been published [17,18]. In addition, more recent scholars of coaching science have paid increasing attention to notions of expertise and the development of expert coaches [19,20].

It has been argued that coaching researchers and educators would benefit from a greater conceptual and empirical understanding of 'how' and 'why' some coaches can consistently and purposively improve the knowledge, understanding, and performances of their athletes, while other coaches cannot [21]. Other studies, however, focused on learning processes and on the development of expertise in elite sport coaches specifically [21,22]. The development of coaching expertise is a complex matter involving both formal and informal methods of learning [19,20], qualitatively different learning situations [23], and a wide range of learning contexts [24]. Elite coaches' life stories and pathways to expertise are described as "messy, fragmented and endlessly fascinating," and coaches "demonstrate a need to understand the interconnections between coaches' lives and their professional practice" [25].

In addition, elite sport coaches must have the expertise needed for completing their duties toward their players including 1) establishing training regimes grounded in deliberate practice; 2) ensuring athletes receive appropriate mental and physical rest; 3) preparing athletes for consistent high-level competitive performance; 4) teaching and assessing physical, technical, perceptual and mental skills in a safe environment, and 5) providing opportunities for athletes to prepare for "life after sport" [26]. These key competencies and areas of expertise all relate to the coach-athlete relationship, in which the coach is often regarded as the expert; i.e., they are the owners of adequate knowledge, power, and sport-specific expertise.

Even if an elite sport has become increasingly professionalized, the developmental pathways of the coach differ widely both in the breadth of areas covered and in the extent of their experience [26] and may therefore be characterized as "idiosyncratic learning paths" [23]. To this end, the purpose of the present study is to clarify how the expertise of elite Taekwondo coaches develops. Due to the unique cultural importance and historical development of Taekwondo explained above, it was presupposed that elite Taekwondo coaches may need to take development paths unlike their counterparts in other elite sports.

This study targets novice elite Taekwondo coaches wishing to develop their coaching expertise for the highest levels of competition (e.g., the Taekwondo World Championship and Olympics). A lack of current research in this area as well as the numerous Taekwondo graduate students and Taekwondo masters wishing to become elite Taekwondo coaches warrants this research both practically and theoretically. To provide this, the present study provides useful basic data and comprehensive resources about the expertise of elite Taekwondo coaching for researchers, practitioners, and students working in this field today.

MATERIALS AND METHODS

Participants

Nine (male=7; female=2) elite Taekwondo coaches were selected to be interviewed for this study. As recommended by Patton (2002), purposeful sampling was employed to ensure high-level credibility of the qualitative data. To be considered an elite Taekwondo coach, multiple inclusion criteria were established. First, participants needed to be actively involved in coaching Taekwondo at the international level. Second, they were required to have at least ten years of coaching experience and had produced at least one international athlete. Finally, they needed to have been promoted to 4th *dan* (black belt) by the Kukkiwon. The selected participants were initially contacted by telephone or email and informed of the purpose of the study. All participants approached agreed to be interviewed

Table 1. Participant demographic data.

Participants	Gender	Age	Nationality	Coaching elite Taekwondo experience (yrs)	University education	Kukkiwon rank (*dan*)
Coach 1	M	40	India	16	Private Law	5th
Coach 2	F	35	Ethiopia	10	Physical Education	4th
Coach 3	M	66	Tunisia	30	Business and Management	8th
Coach 4	M	35	Korea	10	Taekwondo	6th
Coach 5	F	38	Korea	10	Taekwondo	5th
Coach 6	M	55	Canada	20	Sport Management	6th
Coach 7	M	45	Sweden	20	Electrical Engineering	7th
Coach 8	M	58	Jordan	25	Business Management	7th
Coach 9	M	39	Estonia	15	Sport Science	4th

dan: black belt degree

and signed a consent form. All participants were informed of their right to withdraw from the study at any time.

At the time of the interview, participants were aged 35 to 66 years (mean: 45 yr.) and had between 15 and 30 years of experience (mean 15 years) in coaching high-performance athletes in elite Taekwondo. Participants' demographic data is presented in Table 1. One aspect unique to coaching Asian martial arts turned combat sports like Taekwondo and Judo is the players or coach's rank, which indicates a person's expertise in the martial art/combat sport. Table 1 lists the participants' Kukkiwon ranks in accordance with other Taekwondo studies [9].

Procedure

To explore the developmental methods for the expertise of elite Taekwondo coaches, we interviewed nine elite Taekwondo coaches. We incorporated the qualitative approach, the main goal of which was "to reduce the amount of data and obtain a unified picture of the phenomena under study" [27]. Qualitative research allows the investigator to explore how social experiences are created and given meaning. In this study, the empirical basis was a micro-sociological and constructivist analysis of qualitative research interviews [28] focusing on coaches' stories about their learning and development of expertise. We chose this approach because of its sensitivity to narratives and to descriptions of the categories and individual preferences the coaches adopted in their learning processes. The examination of how expert elite coaches develop their expertise occurred in their real-life context. In fact, the nature of professional knowledge is context specific [29]. Therefore, this study allowed expert elite coaches to describe the processes of learning and developing expertise.

Interview guide

Data were obtained through semi-structured, detailed interviews, the type of which is used commonly in qualitative analyses [30]. The scientific theory for this qualitative study thus follows standard sports coaching sciences theory and practices [31, 32]. Sparkes and Smith (2014) define interviews as "a social activity where two or more persons actively engage in embodied talk, jointly constructing knowledge about themselves and the social world as they interact with each other over time, in a certain place, and through a range of senses" [33]. The purpose of conducting interviews in sports science studies is to "is to create a conversation that invites the participant(s) to tell stories, accounts, reports and/or descriptions about their perspectives, insights, experiences, feelings, emotions and/or behaviors in relation to the research question(s)" [34]. Since interviews in sports psychology "reveal interesting biographical facts, personality traits, the installation of an athlete, [and] reflect his inner world" [35], our interviews were designed to investigate the processes the coaches underwent to become expert elite coaches. Interview questions focused on the participants' coaching backgrounds, their coaching education, and their career pathway. Rather than asking direct questions,

interviews resembled an ordinary–but guided–conversation with participants doing most of the talking.

Interview questions were designed by the lead researcher in line with the main purpose and gathered from expertise literature [36,37]. A first draft of the interview was then prepared, and a pilot interview was conducted, which resulted in the development of four main areas of questioning: life experiences, educational experiences, coaching experiences, and development of expertise. The questions associated with each area were then given to other researchers for discussion. All researchers agreed that the questions were appropriate in terms of their potential to elicit responses to the topic under investigation. The five questions employed to garner information about the participants' life experience, education experience, coaching experience, and development of expertise were:

1. How did you enter the elite Taekwondo field, and why did you decide to be an elite Taekwondo coach?
2. How did you improve your coaching skills?
3. What do you think is the importance of expertise to be an elite Taekwondo coach?
4. What do you think is the process that an elite Taekwondo coach has to go through to become an expert?
5. What do you think are the most important methods to develop your expertise as an elite Taekwondo coach?

As described below, the interview process was conducted from July 2020 to September 2020. Since the participants were from different countries, the interviews were conducted online through Zoom and were scheduled on dates and times most convenient to the participants. Interviews began with a short self-introduction to establish rapport and trust between the interviewer and the participant. With the participants' permission, the interviews were recorded. Interviews lasted between 90 and 120 minutes. It was determined that placing a time limit on the interviews would prevent participants from discussing their insights freely and exhaustively. It also gave flexibility for the direction and order of the interview as the researcher deemed necessary.

Interviews were conducted in English, Korean, and Arabic. The first author translated the interviews conducted in Arabic to English and were proofread and confirmed by an Algerian with a PhD in Sport and Recreation Studies. The interviews conducted in Korean were also translated into English by the first author with the assistance of a Korean post-doctoral student, but these were proofread by a Korean language instructor at Sunmoon University (Asan, Korea). The second author then doublechecked the English transcriptions of the interviews for grammatical accuracy.

After each interview, a summary of the participant's responses was prepared after reviewing the video. The summary was then emailed to the participant to verify understanding and accuracy [38]. Thematic analysis was utilized to organize data into codes, and themes were then identified. Through this process, we were able to highlight the most salient points raised by each participant and to ensure congruence between our interpretation and the participant's intention.

Data interpretation

The objective of our analysis was to build and organize a system of categories that could explain the developmental methods that established expertise in elite Taekwondo coaches. These interviews were inductively analyzed by first reducing the data and next by clustering it. The analysis units were selected according to the purpose of the research and research questions. At the first phase of analysis, statements that described the development of expertise were selected from the participants' stories. During the second phase of analysis, we clustered the statements by common nominators [39].

The first step in our qualitative analysis was to divide the entire text into pieces of information known as meaning units [27]. The analysis units chosen in the present study were selected according to the purpose of the research and research questions. At the first phase of analysis, quotations that described the development of expertise were selected from the participants' stories. A meaning unit is defined as a segment of text that expresses the same idea and is related to the same topic [40]. Each meaning unit was then named or 'tagged' based on its content.



Figure 1. Key variables in the process of growth toward expertise.

In the second step of the data interpretation, similar tags were grouped to give a series of properties [40]. We used an inductive approach to establish these properties, continuously revising the data until there was consensus in the properties identified. The final level of classification consists of grouping similar properties into categories to give a lower number of higher-order categories. This step is similar to the previous stage of creating properties, except it is now done at a higher and more abstract level of analysis [41]. Thus, all properties established were assigned to the single 'development of expertise' category. Figure 1 provides the six components of this category.

To ensure the credibility and reliability of this study, we used member checks and peer examination [42]. Member checks involved reviews of and feedback on the transcripts from the interviewees. All 9 Taekwondo coaches interviewed for this study responded to this phase of the project and agreed with the findings. Peer reviews were conducted by two doctoral students and one PhD expert familiar with the use of qualitative methods. All three of these individuals reviewed and discussed the interpretation of data and emergent themes with the lead author in accordance to ensure credibility [43].

RESULTS

All participants (n=9) reported that their expertise had developed during their careers. Some of the elite Taekwondo coaches interviewed described their developmental process as steady, while others named singular happenings or experiences that had affected their expertise greatly. While all of the coaches described their development toward expertise as a long-life, continuous learning process, they also described it as resulting from the development of specific skills as well. As a result, five key variables in the process of growth toward the expertise of elite Taekwondo coaches were revealed: the

lifelong process of learning, organizational skills, increased short- and long-term memory, self-reflection on experiences, and learning community.

1. A lifelong process of learning

According to this study's participants (n=9), continuous learning and education about their professional field were considered the most important variable for the development of expertise. In fact, they embodied the concept of professional development by describing their expertise as a result from a lifelong process of learning. The research participants added that this process of continuous learning required passion, curiosity, additional experiences outside of coaching, and motivation for self-development in addition to an inexhaustible desire to expand their coaching knowledge and skills. To this point, Participant 2 stated:

> *Studying the techniques and strategies of successful international elite Taekwondo coaches, whether in Taekwondo or another sport, can also prove invaluable. In addition, by observing, discussing, and corresponding with other international elite Taekwondo coaches, you can gain tremendous practical knowledge and useful information.* (Participant 2)

Participants 4 added:

> *Finding a source of knowledge these days is not as difficult as it used to be, and you can find everything you want on the Internet. Elite Taekwondo coaches must have the motivation for self-development. I used to attend a variety of courses and seminars which helps me gain a wealth of useful information, get new ideas and keep up with all news related to the elite Taekwondo field.* (Participant 4)

A majority of the participants (n=6) mentioned that additional new experiences are always a source of new knowledge and a chance to discover new skills. To this point, Participant 9 claimed:

> *I strongly believe that gaining new experiences can also help elite Taekwondo coaches learn more. For example, I used to organize training camps with other teams to meet other elite Taekwondo coaches, interact, discuss and learn from each other. Also, attending different programs provided by Kukkiwon, WTF like master course programs or leadership programs helps me discover new skills, drills, training programs, and motivational practice.* (Participant 9)

One participant, a Taekwondo grand master from Tunisia aged 66 years with 30 years of experience teaching and coaching Taekwondo, emphasized the importance of continuity on learning:

> *I have been a* [sic] *elite Taekwondo coach for different national teams. Every journey has taught me a lot. Year by year whenever I thought that I have learn enough and I have completed knowledge about Taekwondo, I find myself front of a new experience where I discover another new thing. You may not need very long time to learn about techniques and rule of Taekwondo but as elite Taekwondo coach seeking expertise in the field, it's not just about techniques and rules, but many other factors* [sic]. *It demands long way of searching and learning.* (Participant 3)

Another participant, who had more than 25 years of experience in the elite Taekwondo field, agreed but also added:

> *I strongly agree that improving your skills as Taekwondo coach is a lifelong process of learning, especially that Taekwondo as an Olympic sport, all countries compete and try their best to be in top. As the head coach of the team, I'm the first responsible for the development of my player's skills, I always try to look for new method of training, new strategies even how to deal with my players. I find myself learning year by year, and I'm still learning until today.* (Participant 8)

2. Organizational/planning skills

Participants stated that organizational skills are very important for the elite Taekwondo coaches to achieve their stated goals for themselves and their team. Indeed, it is very difficult for a coach to manage all his or her tasks and stay focused without careful planning. Out of the nine elite Taekwondo coaches interviewed, Participant 7 may have stated this best. He claimed that the type of organizational skills required for Taekwondo coaching at the elite level is not extraordinarily difficult to develop:

> *Organizational skills are very important for effective elite Taekwondo coaches and developing them is not as difficult as you might think. Setting up daily, weekly, monthly, and yearly plans and individual plans make it easy to prioritize your goals. In addition, I used to make short-term and long-term goals for myself as well as for my team which helped me to keep more focused and effective.* (Participant 7)

Participant 1 agreed with Participant 7 in the planification of goals. Participant 1 added to the idea that management of time was an essential skill for all Taekwondo coaches. He further claimed that "the organized Taekwondo coach is the more likely to accomplish his set up goals." Participant 1 also stated that time management "involves allowing yourself enough time to finish tasks" and "not spending too much time on one thing."

Participant 3 added that the key to planning is to know how to set priorities:

> *As a global elite Taekwondo coach, you will have several missions towards yourself and your athletes. With multiple tasks and a variety of mission that must be completed organizational skills with the principle of prioritization is needed. Identifying the priority tasks among others helps you arrange your tasks and make an efficient plan.* (Participant 1)

While Participant 9 also agreed with this idea, he also made the following point:

> *I remember when I moved abroad in my first job as Taekwondo coach in different country. My English language wasn't good, so I had to learn the language, to focus on the training of my team, preparing the classes…etc. So, I was very stressful and unable to do everything. Little by little I learned to make strategic planning where I manage my time and set my golds depends on priorities.* (Participant 9)

3. Improved short- and long-term memory

All participants (n=9) revealed that experts use long- and short-term memory to reproduce important information about their field of expertise. They said that one of the factors differentiating novice from expert Taekwondo coaches is an expedited decision-making process. Expert Taekwondo coaches can take fast decisions in any situation due to an increased ability to recall and reflect upon the past. By improving their short- and long-term memories, expert coaches can store, retain, and later recall the acquired information quickly whenever needed. In addition, all participants (n=9) agreed that increasing their short- and long-term memories led to developing their expertise skills of elite Taekwondo coaches.

Participant 2 shared her opinion about the pathway to improve the short- and long-term memory from her own experience. She stated:

> *Memory strategies and planning are not the same as intelligence. You can increase your memory regardless of your intelligence. Keeping a record or keeping a journal makes it much easier to analyze match preparations or an entire season of players. Increasing your memory can save a lot of time by speeding up your work.* (Participant 2)

Participant 6 added to this point by stating:

> *I think the biggest characteristic of both professional and unprofessional Taekwondo coaches is the ability to acquire, maintain, and apply knowledge. Elite Taekwondo coaches need to develop memory. Whenever I learned something new or attended a seminar, I took notes, records, or kept those materials in my library.* (Participant 6)

Participant 7 also shared his opinion about the importance for Taekwondo coaches to improve their short- and long-term memories:

> *I know that the ability to improve short- and long-term memory varies from person to another. Talking about my case, I wasn't able to remember things easily due to pressure and many tasks. But, sometimes I had to make a decision in a similar situation I had been before especially in some games of my players, and I really wished if I could remember so I don't do the same mistake. For that reason, I started keeping records and review them time to time in order to improve my memory for both short- and long-term memory.* (Participant 7)

Participant 4 also shared his thoughts regarding this point:

> *I didn't have problem remembering details about recent games for my players, and I usually change the training style after analyzing the past games. But after a while,* [I] *wasn't able to remember a details on an old game. I realize that I must improve my long-term memory, and once you find a way how to improve, you will see the benefit of it. Long-term memory endures for years or even a lifetime. That will help you make a fast decision and has more confidence in any situation. (*Participant 4)

4. Self-reflection on experiences

Our participants mentioned that elite Taekwondo coaches can develop their expertise through self-reflection on their own experiences. Introspection is the process of looking back on a past experience and reflecting on how one handled the situation. Participants in the study noted that self-reflection about Taekwondo experiences improved their coaching ability since they evaluated themselves and their athletes with a focus on better results in the future. Related to self-reflection, Participant 5 emphasized the importance of experiences and their reflection on the process of developing expertise:

> *International elite Taekwondo coaches can develop their expertise through self-reflection on their experiences. Elite Taekwondo coaches should look back on past events and think about how they could have been better dealt with. I consider the practice of reflection to be a powerful source of knowledge. I never let an experience end up without taking time to look back at it, analyze it and conclude lessons from it. I do the same thing concerning my players. After every competition, I review all the matches of each player and try to get the feedback I need to set a better plan for the next step.* (Participant 5)

Participant 4 added to this point. He said reflection on previous experiences with the players improves the relationship between the players and the coach:

> *Reflecting on previous interactions can improve self-awareness and consider the impact of the values of a Taekwondo coach on player development. In addition, reflecting on your interactions with players can lead to positive growth in coach-player relationships. I used to sit by myself and think about previous interactions that happened with the players to understand their character or intention, and that's helped me a lot to understand teach one better with time.* (Participant 4)

Additionally, Participant 8 mentioned how self-reflection has a strong influence on self-development:

> *Through reflection on prior experiences, you can develop your skills and examine where your strengths and weaknesses are. What did you do well? What was difficult? What should I do? In general, you can decide what you need to develop for yourself after looking back on previous experiences. I think that self-reflection is very important for the self-development of elite Taekwondo coaches professionally as well as personally.* (Participant 8)

Lastly, Participant 1 added that through reflection Taekwondo coaches can use themselves as a source of information:

> *I now use myself as a resource, my own source of knowledge. I've been a player, then a coach. I've seen the game from several perspectives over the years. I question myself but not through lack of confidence but to improve my coaching and ultimately my players.* (Participant 1)

5. Learning community

All participants stated that being part of learning communities help elite Taekwondo coaches to develop their expertise. Those learning communities provide spaces and structures where people can orchestrate shared goals. Research participants said that through these communities, elite Taekwondo coaches can share ideas and learn from each other, enhancing their ability to achieve fast and important developments.

Participant 3 stated making an international learning community among the elite international Taekwondo coaches is arduous, but it remains possible:

> *I believe that a learning community that's made up of several international elite Taekwondo coaches with similar levels is very important to the expertise development of elite Taekwondo coaches. With fierce competition between countries, creating an international learning community within elite Taekwondo coaches is challenging. However, coaches must have their own group to work with and share ideas and information for the benefit of all groups.* (Participant 3)

Participant 1 supported Participant 3 by stating the following:

> *Interacting with experienced elite Taekwondo coaches can help you learn and develop your skills based on their experience. Even when I was at the level of [a] national elite Taekwondo [coach], I was in touch with some international elite coaches, and I had learned from meeting them and chatting with them. In the beginning, it might be difficult to be part of those learning communities that have expert elite Taekwondo coaches but trying always to make a new contact on each occasion like competitions or seminars, the more your connections grow the more you find yourself part of communities where you can share your knowledge and learn from them.* (Participant 1)

Participant 7 contributed a different point that supported the idea that Taekwondo coaches needed to join learning communities. In order to be part of a learning community where you can find information and improve your skills, he claimed you must also have something to share in return with that community:

> *I have noticed with time and by being part of different learning communities that people will not share with you information if you don't have anything to share in return. When I was a beginner, I used to just sit and listen even when I meet other coaches was same. I noticed that other coaches were not interested to talk to me but when I started working on myself and developing my skills*

> *and knowledge, things were different. What I want to say is you must have what to share with people if you want them to share with you their knowledge and skills. Once you are part of those learning communities many ideas and strategies can be obtained through discussions and exchange of information.* (Participant 7)

Participant 4's background included studying Taekwondo in university, but he stated that learning from other coaches' experiences and by discussion with expert coaches he obtained knowledge he did not learn in college:

> *I learned about Taekwondo theory, practical, coaching and others when I was at college. But I did also develop and expend my knowledge by joining different learning communities and exchange with different coaches. Strategies of thinking, training methods, creativity all those have learned from interacting with other expert Taekwondo coaches.* (Participant 4)

DISCUSSION

This study interviewed nine elite Taekwondo coaches to identify the key traits required for expertise in their field. Contrary to our expectations, despite the research participants hailing from different countries and possessing varying lengths of time as elite Taekwondo coaches, they shared almost identical concepts on how to develop professional proficiency and expertise. The present research showed that the development of expertise should be based on a lifelong learning process, developing strong organizational skills, increasing short- and long-term memories, self-reflection, and joining larger communities dedicated to learning and professional development. Several connections may be made between the findings of this study and existing literature.

Participants emphasized the significance of continuous education as the key variable to developing their coaching expertise. They mentioned that obtaining expertise requires a lengthy process of learning, practice, and training in Taekwondo, or, as they called it, a lifelong learning process. Similar to what has been mentioned previously, the development of expertise is not a finite process with a definable endpoint, but rather "a fluid, cyclical process founded on continuous exploration, experimentation, and learning" [44]. Additionally, Baker et al. (2003) stated "in the training, factors is not surprising that high levels of training or practice are required to attain expertise" [45]. Another study supported and built on this concept: "It is perhaps not surprising that high levels of training or practice are required to attain expertise" [46]. The research on expertise, with specialization on skill development, supports the connection between training/practice and skill acquisition, and this sustentation might include the 10-year rule and the power law of practice [47,48]. The power law of practice states that learning occurs at a rapid rate after the onset of practice but that the rate of learning decreases over time as the practice continues [47]. One researcher who spent his lifetime studying great performers in sciences, arts, and sports, stated it takes approximately a decade of deliberate practice and experience to reach excellence – a revolutionary theory often referred to by psychologists as "the 10-year rule" [17]. Others also claim it is necessary to strive for continuous professional development with an intentional, systematic plan and concrete practice [48].

Another key variable of expertise for elite Taekwondo coaches was establishing excellent organizational skills. More specifically, our participants claimed short- and long-term planning makes it easy to prioritize coaching goals. This finding aligns with another study that found expert gymnastic coaches employed a type of cognitive model to determine and plan for their athletes' potential [49]. From this model, short- and long-term goals were set and periodically adjusted according to the athletes' progress. Another study compared the practice planning skills of ten expert high school and ten novice middle school basketball coaches [50]. Their results indicated that experts had more in-depth and detailed planning protocols, with more argumentation, subgoals, and anticipated problem statements than novices.

The third factor that influences Taekwondo coaches' expertise is self-reflection. As expected, our research participants noted that their ability to review and evaluate previous experiences improved their expertise indelibly. It is, they felt, a skill that cannot be overlooked. Self-reflection

about past experiences, both positive and negative alike. Learning through experience can be more effective if we extrapolate and annotate the main lessons taught by experience [51]. Their results furthermore show that by reflecting on and articulating the key lessons learned from experience, a person boosts her self-efficacy, which in turn has a positive effect on learning. In addition, experience is a prerequisite for developing expertise, but coaches need to learn from their experience to improve [52].

The participants indicated that increasing short- and long-term memory is another variable for elite Taekwondo coaches. Our participants noted that they needed to retain and recall information particular to their athletes' instantly to assist and guide them. In the same vein, according to De Marco and McCullick (1997), sports leaders must develop memory to improve their expertise skills for the same reason [53]. Indeed, the more experience a coach gains and the more his sport specific knowledge increases, the more he or she will develop memory strategies to retain and then recall the acquired information [50]. In addition, experts must be able to use short- and long-term memory to reproduce significant information about their specialized areas [54]. Certainly, not only events from a long time ago but also recent ones must be recalled and, in some cases, reproduced to help athletes perform at the highest levels of their sport.

Finally, our participants emphasized joining learning communities was another key variable in developing their expertise, since they could interact and learn from other expert coaches. Aligned with this finding, another study found that when coaches have the opportunity to discuss issues experienced in their work [55], those conversations or discussions were highly significant to them. Another study also reported that coaches perceive conversations with other coaches as very valuable for their professional development, even more so than formal training [56].

CONCLUSION

Expertise consists of different levels. Development into an expert is an individual process, and each professional must find their own method of development [57]. In addition, the process of becoming a coach is complex, dynamic, and contextually dependent [58]. As such, this process requires a multidimensional approach to fully capture the essence of coaching and provide useful information to facilitate it.

On the basis of nine qualitative research interviews with elite taekwondo coaches, this article aimed to explore the learning paths of elite taekwondo coaches in their development of a sense of expertise. The study revealed five key variables required in the process of growth toward the expertise of elite Taekwondo coaches. Correspondingly, it is not our intent to imply that if the above suggestions are heeded, Taekwondo coaches obtain a high level of expertise or even a definitive type of expertise. Nevertheless, it is undoubtedly certain that many other factors play a role in the development and emergence of expertise with ambition, motivation, and opportunity at the top of that list.

Thus, expertise in Taekwondo is not something that everyone is born with, nor does it happen in an instant; rather, it is a lifelong journey of the development process. Our study revealed that the development of expertise in Taekwondo coaches goes hand in hand with experience, dedication, study and reflection, along with interactions among these factors. The above-suggested variables, which correlate to the development of coaches in other elite sports, can therefore be used as strategies for developing expertise by those wishing to join the ranks of elite national and international Taekwondo coaches.

While this study can be a source of help to many novice coaches, it is only with time that each coach will realize their individual pathway to expertise as they develop their own methods for learning and implementing their knowledge into their athletes' training regimens. Despite the origins of Olympic Taekwondo being in Asia and it being a Western-styled combat sport, the present study indicates the process of learning how to coach this sport at the elite level has little difference with the process of learning to coach any sport at that level. The majority (n=7) of the nine coaches interviewed for this study were unconcerned with passing on Korean cultural and historical matters to their athletes. In fact, all participants were focused primarily on competition and helping their athletes succeed at the highest levels of Taekwondo competition (e.g., the Taekwondo World Championships

and the Olympics). To this, Participant 9 claimed that the WT/WTF and Kukkiwon seminars he attended were focused learning "new skills, drills, training programs, and motivational practice" for athletes. As such, none of the participants stated a desire or need to propagate a martial arts tradition or culture in their athletes. As a consequence, this study should provide confidence to elite taekwondo coaches that their career development is akin to those of coaches in other sports, and they do not need to preoccupy themselves with concerns of preserving culture or Korean national interests, which are hallmarks of Taekwondo as a martial art [2,6,7,8]. Accordingly, the lack of differences in career development indicates that Taekwondo coaches can, and probably should, follow the guidelines and trends for coaches in other elite sports.

To the best of our knowledge, this is the first study focusing on the expertise of elite Taekwondo coaches. Much research has been performed on coaching expertise, but this is the first study to explore the concept that coaching Taekwondo, with its unique cultural importance and historical development, may require elite coaches to consider other aspects outside of competition. However, our interviews revealed little to no gap between the development of elite Taekwondo coaches and their counterparts in other sports. This paper consequently provided further evidence that Taekwondo as a martial art and Taekwondo as a sport are unique physical pursuits. Furthermore, this study indicates that different skill sets may be required for martial arts instruction and elite competition, a notion supported by social science researchers [59].

LIMITATIONS

Despite an extensive literature review on coaching in general, a major limitation of the present study was only interviewing nine elite Taekwondo coaches. Future researchers should therefore perform comparative studies on coaching Taekwondo versus coaching other elite sports as well as increasing the study population. Additionally, a minor limitation of this study was its focus on elite Taekwondo, which warrants future comparative studies on the differences between national and international Taekwondo coaches as well as between coaches and martial arts instructors.

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REFERENCES

1. Elias R. The Empire Strikes Out: How baseball sold U.S. foreign policy and promoted the American way abroad. New York, NY: The New Press; 2010
2. Johnson JA., Vitale, G. Taekwondo diplomacy: New possibilities for peace on the Korean Peninsula. Phys Act Rev 2018; 6: 237-250. doi:10.16926/par.2018.06.28
3. Bennington ST. Book Review: Udo Moenig. 2016. Taekwondo: From a martial art to a martial sport. London and New York: Routledge. 230 pages. $40 USD (paperback). Martial Arts Stud 2019; 7: 73-76. doi: 10.18573/mas.74
4. Kukkiwon. (2021). *Statistics and policy data*. http://www.kukkiwon.or.kr. (accessed 2021 Nov 07)
5. Côté J, Young BW, North J, Duffy, P. Towards a definition of excellence in sport coaching. Int J Coach Sci 2007; 1(1): 3-17
6. Capener SD. Problems in the identity and philosophy of T'aegwondo and their historical causes. Korea J 1995; 35(4): 80-94. doi: https://doi.org/10.1080/09523367.2021.1984232
7. Moenig U, Kim M. The origins of World Taekwondo (WT) forms or p'umsae. Ido Mov Culture. J Martial Arts Anthrop 2019; 19(3): 1-10. doi: 10.14589/ido.19.3.1
8. Johnson JA. Transcending Taekwondo competition to sustain inter-Korean sports diplomacy. Int J Hist Sport 2020; 37(12): 1187-1204. doi: 10.1080/09523367.2020.1826440
9. Kang J, Park J, Johnson JA. Comparison of isokinetic muscle function and anaerobic exercise capacity in the knee according to Kukki Taekwondo training type. Phys Act Rev 2021; 9(2): 40-55. doi: 10.16926/par.2021.09.20

10. Moenig U. The evolution of kicking techniques in Taekwondo. J Asian Martial Arts 2011; 20(1): 8-31. doi: 10.18002/rama.v6i1.87
11. Sim YK, Kim SY, Seo E. 엘리트 태권도지도자의 직무환경과 그릿 및 코칭열의 관계 [Relationship among job environment, grit and coaching engagement of elite Taekwondo instructor]. Korea Soc Martial Arts: J Martial Art 2020; 14(3): 125-142.
12. Jin IN. 글로벌시대 태권도 코치의 조건과 역할 [The condition and role of Taekwondo coach in the age of globalization] [master's thesis]. [Seoul, Korea]: Korea National Sport University; 2010. 70 p. [in Korean]
13. Bae SH. 태권도 사범의 전문성 인식이 자기효능감 및 직무만족도에 미치는 영향 [Effect of professional recognition of Taekwondo instructors on self-efficacy and job satisfaction] [master's thesis]. [Yongin, Korea]: Kyung Hee University; 2018. 73 p. [in Korean]
14. Bloom GA, Salmela JH, Schinke RJ. Expert coaches' views on the training of developing coaches. Vanfraechem-Raway R, Vanden Auweele Y, editors. Proceedings of the 9th European Congress on Sport Psychology; 1995 4-9 July; Brussels, Belgium. Brussels: Free University of Brussels; 1995
15. Ericsson KA, Smith J, editors. Toward a general theory of expertise: Prospects and limits. Cambridge, England: Cambridge University Press; 1991
16. Starkes JL. Motor experts: Opening thoughts. Advances in Psychol 1993; 102: 3-16. North-Holland. doi: 10.1016/S0166-4115(08)61462-4
17. Ericsson KA. The road to excellence: The acquisition of expert performance in the arts and sciences sports, and games. 1st ed. London: Psychology Press; 1996
18. Starkes JL, Ericsson KA. Expert performance in sports: Advances in research on sport expertise. Champaign, IL: Human Kinetics; 2003
19. Nash C, Collins D. Tacit knowledge in expert coaching: Science or art? Quest 2006; 58(4): 465-477. doi: 10.1080/00336297.2006.10491894
20. Nash CS, Sproule J. Career development of expert coaches. Int J Sports Sci Coach 2009; 4(1): 121-138. doi: 10.1260%2F1747-9541.4.1.121
21. Jenkins S. Book Review: Sports coaching: Professionalisation and practice. Int J Sports Sci Coach 2010; 5(3): 435-438. doi: 10.1260/1747-9541.5.3.435
22. Jones RL, Armour KM, Potrac P. Constructing expert knowledge: A case study of a top-level professional soccer coach. Sport Educ Soc 2003; 8(2): 213-229. doi: 10.1080/13573320309254
23. Werthner P, Trudel P. Investigating the idiosyncratic learning paths of elite Canadian coaches. Int J Sports Sci 2009; 4(3): 433-449. doi: 10.1260%2F174795409789623946
24. Rynne SB, Mallett CJ, Tinning R. Workplace learning of high performance sports coaches. Sport Educ Soc 2010; 15(3): 315-330. doi: 10.1080/13573322.2010.493312
25. Jones RL, Armour KM, Potrac P. Sports coaching cultures: From practice to theory. London: Psychology Press; 2004
26. Côté J, Gilbert W. An integrative definition of coaching effectiveness and expertise. Int J Sports Sci 2009; 4(3): 307-323. doi: 10.1260%2F174795409789623892
27. Côté J, Salmela JH, Baria A, Russell SJ. Organizing and interpreting unstructured qualitative data. Sport Psychol 1993; 7(2): 127-137. doi: 10.1123/tsp.7.2.127
28. Kvale S, Brinkmann S. InterViews: Learning the craft of qualitative research interviewing. 2nd ed. Thousand Oaks (CA): Sage Publications; 2009
29. Eraut M. Developing professional knowledge and competence. London: Routledge; 1994. doi: 10.4324/9780203486016
30. Patton MQ. Qualitative evaluation and research methods. 3rd ed. Thousand Oaks (CA): Sage Publications; 2002
31. Jones RL, Huges M, Kingston K, editors. An introduction to sports coaching: From science and theory to practice. London: Routledge; 2007. doi: 10.4324/9780203934265
32. Jachyra P, Atkinson M, Gibson, B. Gender performativity during interviews with adolescent boys. Qual Res Sport Exerc Health 2014; 6: 568-582
33. Sparkes AC, Smith B. Qualitative research methods in sport, exercise and health. From process to product. London: Routledge; 2014
34. Smith B, Sparkes AC, editors. Interviews: Qualitative interviewing in the sport and exercise sciences. Routledge Handbook of Qualitative Research in Sport and Exercise; 2017
35. Bochaver KA, Bondarev DV, Savinkina AO, Dovzhik LM. Интервью в спортивной психологии: метод исследования и подготовка интервенции [Interview in Sport Psychology: Method of study and preparing an intervention]. Clin Psych Spec Educ 2017; 6(4): 148-167. doi: 10.17759/psyclin .2017060410

36. Bloom GA, Salmela JH. Personal characteristics of expert team sport coaches. J Sports Pedagog 2000; 6: 56-76
37. Schinke RJ, Bloom GA, Salmela JH. The career stages of elite Canadian basketball coaches. Avante 1995: 1(1): 48-62
38. Bench S. Recognition and management of critical illness by midwives: Implications for service provision. J Nurs Manag 2007; 15(3): 348-356. doi: 10.1111/j.1365-2834.2007.00759.x
39. Patton MQ. Qualitative evaluation and research methods. 2nd ed. Thousand Oaks (CA): Sage Publications; 1990
40. Tesch R. Qualitative research: Analysis types and software tools. Brighton, England: Falmer Press; 1990
41. Coté J, Salmela J, Trudel P, Baria A, Russell S. The coaching model: A grounded assessment of expert gymnastic coaches' knowledge. J Sport Exerc Psychol 1995; 17(1): 1-17. doi: 10.1123/jsep.17.1.1
42. Merriam SB. Qualitative research and case study applications in education. San Francisco (CA): Jossey-Bass; 1998
43. Sparkes AC. Validity in qualitative inquiry and the problem of criteria: Implications for sport psychology. Sport Psychol 1998; 12(4): 363-386. doi: 10.1123/tsp.12.4.363
44. Grenier RS, Kehrhahn M. Toward an integrated model of expertise redevelopment and its implications for HRD. Hum Resour Dev Rev 2008; 7(2): 198-217. doi: 10.1177%2F1534484308316653
45. Baker J. Early specialization in youth sport: A requirement for adult expertise? High Abil Stud 2003; 14(1): 85-94. doi: 10.1080/13598130304091
46. Baker J, Horton S, Robertson-Wilson J, Wall M. Nurturing sport expertise: factors influencing the development of elite athlete. J Sports Sci Med 2003; 2(1): 1
47. Newell A, Rosenbloom P. Mechanisms of skill acquisition. In: Anderson JR, editor. Cognitive skills and their acquisition. Mahwah (NJ): Erlbaum; 1981: 1-55
48. Moon YK, Kim EJ, You YM. Study on expertise development process based on Arête. Int J Inf Educ Technol 2013; 3(2): 226-230. doi: 10.7763/ijiet.2013.v3.269
49. Côté J, Salmela JH, Russell S. The knowledge of high-performance gymnastic coaches: Methodological framework. Sport Psychol 1995; 9(1): 65-75. doi: 10.1123/tsp.9.1.65
50. Jones DF, Housner LD, Kornspan AS. Interactive decision making and behavior of experienced and inexperienced basketball coaches during practice. J Teach Phys Educ 1997; 16(4): 454-468. doi: 10.1123/jtpe.16.4.454
51. Di Stefano G, Gino F, Pisano GP, Staats B. Making experience count: The role of reflection in individual learning. Harvard Business School NOM Unit Working Paper No. 14-093, Harvard Business School Technology & Operations Mgt. Unit Working Paper No. 14-093, HEC Paris Research Paper No. SPE-2016-1181; 2016.
52. Bell M. The development of expertise. J Phys Educ Recreat 1997; 68(2): 34-38. doi: 10.1080/07303084.1997.10604893
53. De Marco Jr GM, McCullick BA. Developing expertise in coaching: Learning from the legends. J Phys Educ Recreat 1997; 68(3): 37-41. doi: 10.1080/07303084.1997.10604909
54. You JA. 교사 전문성 연구 [Research on expertise in teaching]. Korean J Sport Psychol 2000; 7(2): 41-59. http://www.dbpia.co.kr/journal/articleDetail?nodeId=NODE06668211 [in Korean]
55. Gilbert WD, Trudel P. Learning to coach through experience: Reflection in model youth sport coaches. J Teach Phys Educ 2001; 21(1): 16-34. doi: 10.1123/jtpe.21.1.16
56. Cassidy T, Rossi T. Situating learning: (Re)examining the notion of apprenticeship in coach education. Int J Sports Sci 2006; 1(3): 235-246. doi: 10.1260/174795406778604591
57. Inkson K, Amundson NE. Career metaphors and their application in theory and counseling practice. J Employ Couns 2002; 39(3): 98-108. doi: 10.1002/j.2161-1920.2002.tb00841.x
58. Lyle J. Sports coaching concepts: A framework for coaches' behaviour. 1st ed. Routledge; 2005
59. Kim DS, Bäck A. Foundations of Taekwondo: History, theory, academics. Johnson JA, editor. Salisbury (MD): iACT Publishing; 2020