



## Research paper

## The learning and mentoring experiences of Paralympic coaches

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## ABSTRACT

**Background:** Participation in the Paralympic Games has grown substantially, yet the same growth and development has not occurred with empirical literature for coaching in disability sport.

**Objective:** The purpose of the current study was to explore Paralympic coaches' perceptions of their learning and educational experiences, including their formal and informal mentoring opportunities.

**Methods:** Six highly successful and experienced Paralympic coaches were individually interviewed in this qualitative study. The interview data were analyzed following Braun and Clarke's guidelines for thematic analysis.

**Results:** Results demonstrated that Paralympic coaches faced several challenges to acquire disability specific coaching knowledge and skills. These challenges led the participants to utilize an array of informal learning situations, such as actively seeking mentoring relationships when they first entered the field. After becoming expert coaches, they gave back to their sport by making mentoring opportunities available for aspiring coaches.

**Conclusion:** The results of the current study address the value and importance of mentoring as a structured source of education and career development for aspiring Paralympic coaches.

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Despite the rapid increase of participants in the Paralympic Games,<sup>1</sup> the same growth and development has not occurred with empirical literature for coaching in disability sport.<sup>2–5</sup> A major consequence of limited research in disability sport is the lack of available coaching resources. Disability sport coaches have noted there is a lack of specificity in coach education programs for disability sport, resulting in decontextualized sources of information.<sup>6</sup> Thus, there are only a few current empirical sources on the knowledge of disability sport coaches.<sup>6–10</sup> For example, McMaster and colleagues found that disability sport coaches developed a highly personal relationship with their athletes that, in turn, assisted in the acquisition of knowledge and effective coaching practices. Similarly, Duarte and Culver<sup>8</sup> used a life-story methodology to explore the life and career progression of a single sailing coach becoming an adapted sailing coach. Relationships with colleagues, athletes, and mentors throughout her career helped her advance from a recreational para-swimming instructor to a developmental adapted sailing coach. Cregan and colleagues<sup>7</sup> investigated the career evolution and knowledge of elite coaches of

swimmers with a disability. All of the study's participants started by coaching able-bodied swimmers. They began coaching swimmers with a disability when these swimmers arrived at their facility, forcing them to independently acquire disability-specific knowledge because no formal training was available. In summary, there does not appear to be clear learning paths for coaches of athletes with a disability. Furthermore, there appears to be few formal coach learning resources readily available for this specialized group of sport coaches.

Reviews investigating disability sport research over the last 20 years<sup>3,4</sup> have established a need for empirical research that studies coaches of athletes with a disability. From psychological and pedagogical perspectives, coaching athletes with a disability requires many of the same skills as coaching able-bodied athletes, such as helping athletes to set realistic goals, develop realistic skill progression, provide consistent and appropriate feedback, and build team cohesion.<sup>2,7,9</sup> Despite these similarities, the athletes' physical disabilities often place different demands on their coaches and require coaches to acquire disability-specific knowledge.<sup>10</sup> Coaches require both knowledge of contextual factors, such as understanding the nature of the athlete's disability, and knowledge of necessary biomechanical adaptations.<sup>7</sup> They must also be aware of their athletes' living accommodations, transportation needs, and

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medical conditions.<sup>10</sup> Additionally, Falcão and colleagues<sup>9</sup> found that Paralympic athletes relied extensively on their teammates to accomplish daily tasks. These findings suggest there are context-specific factors to coaching athletes with a disability that require courses and learning opportunities specific to this domain. An understanding of the additional duties and responsibilities of disability sport coaches, as well as how they learn this specialized knowledge, is timely and necessary.

The majority of research on coach learning has focused on elite coaches of able-bodied athletes.<sup>11,12</sup> Coach learning is typically defined by either formal or informal learning pathways.<sup>13</sup> Formal learning resources include large-scale coach education programs that are provided by national sport governing bodies. Formal education programs provide novice coaches with essential technical and tactical knowledge but fall short in preparing coaches to deal with social and personal aspects when managing their athletes.<sup>14</sup> Informal learning opportunities include coaching clinics, workshops, mentoring, interacting with other coaches, and self-directed learning such as reading coaching manuals or using the internet. Coaches typically value informal sources of knowledge acquisition more than formal education resources.<sup>15</sup> However, in the context of Paralympic sport, most coach certification programs are developed for able-bodied sport coaches and are not tailored to the needs of aspiring Paralympic coaches.<sup>6,7</sup> Therefore, coaches of athletes with disabilities are often forced to acquire knowledge through informal learning situations such as hands-on experience and the observation of other coaches.<sup>6</sup> In some instances, coaches formed communities in which they shared techniques and expanded their knowledge with other like-minded individuals in able-bodied sport.<sup>16</sup> These groups are called Communities of Practice<sup>17</sup> and are prominent as informal coach learning resources, although they have yet to be investigated in disability sport. These communities of practice are often viewed as prime environments for coaches to seek out mentors and advisors as well as collaborate with peers.<sup>16</sup>

Many aspiring coaches will seek guidance from a mentor coach at some point in their career.<sup>18,19</sup> The main function of mentoring is to foster a learning environment where a coach mentor oversees the developmental progression of a mentee with the purpose of helping the individual to recognize career potential, develop skills, and work towards professional goals.<sup>20</sup> In the business setting, mentoring has been used as a process that supports and facilitates learning<sup>21</sup> and improves career and psychosocial functions,<sup>22</sup> with mentored employees reporting higher job satisfaction, organizational socialization, career commitment, opportunity, recognition, career mobility, and self-esteem.<sup>23–25</sup> Not only do individuals benefit from formalized mentoring programs, but organizations that implement formalized mentoring programs as a form of career development also experienced benefits that included improved employee motivation and communication and management of corporate culture.<sup>26,27</sup>

Specific to sport, mentoring has been described as a highly effective way for coaches to acquire valuable information, learn roles and responsibilities, and improve individual coaching styles and behaviors.<sup>18,20</sup> Despite this, empirical research on mentoring in sport is limited.<sup>18,19,28</sup> This point is especially concerning in the coaching literature where scholars from around the world have emphasized the need for structured mentoring programs.<sup>16,18,19,29–33</sup> One recent example came from Koh and colleagues<sup>28</sup> who implemented a formalized mentoring program for novice basketball coaches in Singapore. An eight-hour mentoring program was created that consisted of observation and hands-on sessions between experienced mentor coaches and mentees. Separate focus group interviews were conducted with the mentors and mentees after completion of the mentoring program. The

results indicated that both the mentees and mentors benefitted from participation in the program. The mentees learned technical knowledge of basketball, athlete psychology, innovative thinking, and time management skills from their mentors. The mentees stressed the importance of matching mentors and mentees based on personality and level and style of coaching to maximize the benefits of the program. The mentors engaged in self-reflection and improved their communication skills and coaching styles.

Despite the many advantages of mentoring, the mentor-mentee relationship does not follow a set path and acquiring a mentor coach is usually a case of being in the right place at the right time.<sup>18,20</sup> Furthermore, Bloom<sup>20</sup> outlined several barriers that contributed to the lack of formalized mentoring programs in sport coaching: lack of funding to professionalize the process, lack of consistency in the types of mentoring, and no clear indicators to define the effectiveness of formalized coach mentoring programs. The need to understand and incorporate mentoring experiences into the Paralympic sport context is timely to support and enhance the training of new coaches in this domain. Also, incorporating mentoring experiences for Paralympic coaches will undoubtedly improve their skill sets, which will lead to enhanced training and competition experiences for Paralympic athletes. The purpose of this study was to explore Paralympic coaches' perceptions of their learning and educational experiences, including formal and informal mentoring opportunities. This focus guided the following research questions: What are the formal and informal learning experiences of current Paralympic coaches? How can a formalized mentoring program be developed to accommodate the learning and educational needs of aspiring Paralympic coaches?

## Method

### Participants

Criterion-based sampling<sup>34</sup> was used to select participants who were identified as among the best Paralympic head coaches in our country by a panel of experts that included current and former members of the Canadian Paralympic Coach Council advisory board. The sample consisted of six coaches who agreed to participate in the study after eight coaches were sent letters from a total known pool of 12 experts in our region. The six participants represent a homogeneous sample of men from a small total population, and the study contained questions related to a very circumscribed area, which helps to explain why saturation was reached with six people. Moreover, the list of participants was all male, which may be indicative of the Paralympic coaching context in Canada. Following institutional ethics approval, Paralympic head coaches were contacted by e-mail, provided with a description of the study, and invited to participate in the study. Coaches who agreed to participate identified a time and location for an interview to take place. Six high-level male Paralympic coaches of various individual, team, and coaching sports participated in this study. Participants averaged 53 years of age and were involved in Canadian Paralympic sport for approximately 12.5 years.

### Interviews

Research in the Paralympic sport context is in its early stages of development. Thus, qualitative interviews were used to highlight the participants' experiences and enable them to tell their unique stories.<sup>35,36</sup> Members of the research team with extensive knowledge on coach learning, mentoring, and disability sport created a 10-question semi-structured interview guide. Opening questions introduced the topic and focused the conversation on the participants' personal experiences (e.g., Describe your evolution into coaching, both able-bodied and Paraspport.). These questions served

as a warm-up to have each coach speak comfortably during the rest of the interview. Central questions addressed the key elements of the study which included the coaches' descriptions of their formal education, informal learning opportunities, and mentoring experiences (e.g., How have you acquired knowledge specific to Paraspport and Paralympic sport? Who has had the largest impact on your development as a Paralympic coach? Have you ever mentored other coaches? If yes, what lessons did you pass on to this individual?). Finally, closing questions summarized the topic of the study and allowed participants to provide suggestions for future mentoring opportunities and add any additional information (e.g., What factors would be essential to include if you had the opportunity to develop a coach mentoring program for aspiring Paralympic coaches?). All of the interviews were conducted in person. The primary researcher traveled to the location of each participant and conducted the interviews in a setting that was recommended by the participant (i.e., where there would be minimal interruptions). Four of the six interviews were conducted in office settings which were located in the sports facilities where the participants worked, while the two remaining interviews were conducted in an empty gymnasium and empty cafeteria, respectively. The interviews lasted between 60 and 120 min. New data failed to emerge during interviews five and six, allowing the research team to conclude that data saturation had been reached.

#### Data analysis

We employed Braun and Clarke's<sup>37,38</sup> thematic analysis to identify themes in our data. First, audio recordings of the interviews were transcribed and each participant was assigned a code (e.g., C1, C4) to ensure confidentiality. The first author became familiarized with the data by reading the transcripts several times. Next, she engaged in an iterative and reflective practice to generate initial codes in order to identify meaningful words, phrases and passages. The six interviews of the study resulted in a total of 491 data extracts from which 51 initial codes emerged. The number of data extracts discussed by each participant varied from 58 (C6) to 140 (C1). Third, she searched for and identified subthemes that emerged from the initial coding process. The 51 initial codes were organized into nine subthemes based on their similarities of content. A critical friend approach was used to question the emergent subthemes in order to (a) review the subthemes and (b) define and name the final themes. The PI produced notes, memos, and diagrams so that she could engage in the reflection necessary to capture and convey the participants' experiences. The nine subthemes were organized into the three themes.

#### Validity

Three main techniques were used in this study to maximize the validity of the research: comparing researchers' perspectives, participant feedback, and commitment and rigor.<sup>34,39</sup> A critical friend approach<sup>34</sup> was adopted to question the PI's coding to discuss the emerging themes over repeated meetings throughout each step of the analysis. The purpose of these discussions was to identify potential themes, highlight clarifications and allow for any necessary modifications to be made. These discussions also helped to minimize researcher bias by providing an alternative perspective on the data. Yardley<sup>39</sup> also outlined the comparison of researcher coding as a core principle to ensuring validity in qualitative research which involves triangulation of data between two coders. Also known as respondent validation, participant feedback was used at several time points throughout the study.<sup>39</sup> Immediately following the interviews coaches were given the opportunity to edit, add, clarify, or delete any statements they made. Three of the six participants

read their respective transcripts and provided clarification on specific details such as names, places, and time points. Once the analysis was complete, coaches were sent the findings and conclusions of the study to ensure that their views were not misrepresented and to confirm the researcher's transparency.<sup>39</sup> Finally, the research team demonstrated commitment and rigor throughout the research process by showing that the data collection and analysis were carried out in depth.<sup>39</sup> Participants were initially selected through criterion-based sampling,<sup>34</sup> ensuring that they were directly relevant to the central research questions. Moreover, the research team included an individual with previous research and training in Paraspport, thus providing familiarity concerning the nature of this environment.

#### Results

The qualitative interview data are presented in three parts. First, a summary of the participants' career progression is presented. Following this, information related to their educational and learning experiences within the Canadian Paralympic sport context are included. Finally, information related to the participants' experiences of mentoring are provided.

##### Career progression

The first part of the interview provided information on the career progression of the participants. All of the coaches participated in a variety of able-bodied sports, ranging from club participation to National team level. Five of the participants were able-bodied. One participant began his athletic career in able-bodied sport but switched to disability sport after an accident impacted his mobility. Five of the participants began coaching in able-bodied sport contexts, including the participant with a disability, after the completion of their athletic career. All of the participants pursued their formal education in physical education, and two participants attended graduate school and conducted disability-specific research. The participants' initiation into disability sport varied. Two gained experience through formal university education that involved exposure to adapted physical activity populations. The remaining four were introduced to disability sport by athletes with disabilities who had been seeking coaching assistance. The participants acknowledged that several individuals guided their development, including professors who provided valuable foundational information about biomechanics and physiology related to disability sport throughout their athletic careers and early coaching experiences.

Once they reached their current Paralympic coaching positions, the participants began to purposefully connect with other coaches across regional and national training centers as a way to promote a high performance disability sport environment. All of the participants also had numerous administrative responsibilities because most Paralympic programs did not have full-time staff for these tasks. All of the participants emphasized the importance of building a strong coach-athlete relationship in which the athlete had substantial influence on their training practices. Further, two participants discussed having important relationships with the athlete's caregivers who provided the participants with support, feedback, and insight into the athletes' home practices.

The second and larger part of the interviews provided information that was more central to the purpose of this study. This information is presented in two themes called *becoming an expert Paralympic coach* and *mentoring in Paralympic sport*. The participants also spoke about their formal education and informal learning experiences that helped the participants acquire disability specific knowledge in the Canadian Paralympic sport context.

Furthermore, these themes addressed the participants' perceptions of mentoring relationships as well as the impact these relationships had as an informal learning resource within Paralympic sport. These results are explained using interview quotations followed by a coach label (e.g., C1-C6) to identify the participant who provided the quotation.

#### *Becoming an expert Paralympic coach*

The participants experienced many challenges and barriers to acquiring disability specific coaching information early in their coaching careers. These challenges and barriers are discussed, as well as how they sought out and acquired the necessary disability specific information to effectively learn to coach in this domain.

#### *Challenges of Paralympic sport*

The lack of empirical research on elite disability sport was seen as a major barrier to learning about disability sport:

Getting access to information specific to disability sport is a problem. There are not a lot of things published or available that would enhance my own learning. I found that challenging because education is important for me (C2).

Research can help you save time but very often research is lagging behind the athletes and coaches. We want some scientific background instead of “we tried that, it didn't work”. There has been a lot more trial and error in the past than research (C1).

Participants noted that a lack of formal coach education on disability sport increases the challenges to acquiring disability specific knowledge. They professed the need for more formal coach education programs designed for disability sport contexts:

I was involved with developing and instructing coaching courses for our sport. I'm still following their evolution as a coach and we are sharing lots of ideas. There's not that much information or education about our sport. Obviously I needed to work on developing those courses (C2).

#### *Acquiring coaching knowledge*

Early in their careers, the participants felt that information on how to effectively coach athletes with disabilities was scarce. The lack of available resources required the participants to acquire knowledge through trial and error: “I answered my own questions because even at that time there was no way of doing it (C3)”:

Coaches have to find the right fit for every athlete. You couldn't find that in the studies before the 1980s. We had to use our imagination. We learned that way. I learned a lot through trial and error. That was one of my strengths at the time (C1).

The participants also learned much of their disability specific knowledge from the athletes:

There was not a whole lot of knowledge about athletes with wheelchairs when I began to coach them. I built my knowledge with them. They taught me because they were the best in the world and they knew a lot more than anybody else (C1).

The participants expressed the importance of collaborating with assistant coaches and/or other expert coaches. Interestingly, some of these collaborations extended to the international stage since specialized information was difficult to acquire in Canada:

I've expanded my personal knowledge in the last couple of years and look forward to linking with coaches from other countries. I know coaches in other countries that are strong competitors in our sport and they are more experienced than us. I think they have very good coaches and very good athletes and I'm curious about what they are doing over there. So I go internationally for my own education (C2).

#### *Mentoring in Paralympic sport*

This theme described the participants' mentoring experiences throughout their coaching careers, beginning with lessons learned from their mentor coaches. Once they became expert coaches, they began acting as a mentor coach. The participants also provided suggestions for future coach mentoring practices.

#### *Lessons from mentors*

The participants discussed the knowledge they acquired from working closely with a mentor coach during the developmental phases of their career. Four of six participants worked with a mentor coach while the other two participants did not have mentor at any point in their career. Of the four participants who had mentors, one was an informal relationship which developed at a coaching conference, one participated in a formally-planned mentorship program, and two were hired as assistant coaches through which their mentoring relationship developed:

I was lucky because when I first started working with the national team, Sport Canada wanted someone to work with the head coach as an assistant because he didn't speak English that well. I worked with him for five years and it was great. He was my mentor coach (C4).

The two participants who did not have a mentor said that it was mainly due to the infancy of their sports at that time. Instead, they reached out to a variety of individuals such as coaches, teachers, and parents to answer their questions, seek guidance, and obtain advice:

I didn't have a mentor at any point in my career. A lot of coaches have that person that they can pick up the phone and call. I call different people for different things. I'll call my dad if I'm having leadership issues. I'll call young coaches for fresh, new ideas. What I need determines who I speak to (C5).

The participants with mentors discussed the sustainability of the lessons they learned from their mentors: “I still use the stuff today that I did with my mentor in the late 80's. It comes to me during practices all the time” (C4). The participants discussed the coaching skills they learned from their mentors. All of the participants gained extensive knowledge on being an elite coach, including planning and communication:

My mentor showed me all of his planning papers: the full year plan, the weekly plan, etc. He gave everything to me! If you were going to tell me I was going to learn that in a classroom, I would have told you, ‘not in a million years’ (C4).

The participants learned highly specialized technical skills for coaching disability sport from their mentors, such as the physiological aspects of working with athletes with a disability and the details of building a successful training plan:

I asked my mentor if I could go for runs with him every morning. Every morning I had a thirty minute window of opportunity to ask him questions. I would ask him things about tempo training. He would tell me what it was, how it worked, and what changes he thought there should be. After the sessions I went to my room and wrote down all the information he gave me. That was gold to me! The next day I asked him about strength training, and then I asked him about sprint training, distance training, etc ... every day for thirty minutes. That's what kicked everything up for me (C3).

#### *Being a mentor*

All six participants acted as a mentor to at least one developing Paralympic coach during their career. It was crucial to set clear guidelines in terms of the role, expectations, and goals of both the mentor and mentee at the beginning of this relationship:

The first thing I do is clearly define the nature of the relationship. For example, "I'm here to be your mentor and you're my mentee. This is how we are going to go about it. These are the things we are going to talk about". Having a clear description of the relationship really helps (C5).

Once the relationship began, the participants created a mentee-centered learning environment that encouraged the mentee coach to drive their own learning process:

When I mentored coaches I set up the plan for them and explained why we were doing certain things before they had to explain it to their athletes. I had a session telling them what we were going to do and why we were going to do it. Then I would leave them and let them work with the athletes. I would tell them I wanted the athletes to do a tactical training session and then they would have to set it up themselves (C3).

The participants also discussed the importance of providing mentees with practical, hands-on coaching experience that was specific to their mentee-centered learning environment:

Anybody can read anything, but it's kind of intimidating for someone to walk in and be in front of the athletes. Last summer, I used a couple of weekends to have some coaches come to our facility to get their certification and coach my kids. I purposely made my kids open and respectful to the new coaches. It can be very intimidating and you just freeze. Giving them the opportunity to stumble and get over those nerves is extremely important as a coach (C6).

#### *Mentoring in the future*

Participant suggestions for the development and/or improvement of mentoring in Paralympic sport were discussed in detail. These suggestions included long-term mentoring placements where mentees are matched with multiple mentors to incorporate extensive hands-on learning opportunities.

An important step towards building a successful mentoring relationship is the pairing of mentor and mentee over a long period of time to allow a personal relationship to develop:

The best mentoring would be to have the new coaches working with me all the time for the whole season. We are talking in ideals here. It's not specific lessons they are going to learn but

the general day-to-day stuff. And that needs to happen over a long time (C4).

Interestingly, four of the participants suggested pairing mentee coaches with multiple mentors:

Coaches need to learn from several of the best coaches and then create their own style. If you only follow that one person all the time, you come to a point where you can't solve problems that are outside your comfort zone. So you need to learn from several different coaches. I think you box new coaches in by giving them only one mentor. They need to listen to what other people have to say and at the end they might come out with a mish mash of things that help them to be better (C3).

Two participants also suggested recruiting disability specialists such as physiotherapists and occupational therapists as mentors to provide mentees with an in-depth medical perspective of coaching athletes with a disability:

Coaches in a mentoring program should be in touch with physiotherapists or occupational therapists that can explain the complexities of an athlete's disability. I would actually do a course taught by these specialists about the effects of disabilities on the brain and body. Having specialists like neuropsychologists, physiotherapists, and occupational therapists involved in courses to explain specifically how coaches should react to such demands would be really great. However, every athlete's disability is different so providing this information wouldn't give coaches a universal solution but it would give them more tools to know what to expect or how to deal with certain situations in the future (C2).

Finally, three of the participants highlighted that practical experience should be a core function of a mentoring program:

Mentors have to give mentees the volume of time in practice. The way we interact with athletes continuously, we need to interact with new coaches with the same intensity. If we think about how many times we go up to our athletes during a practice and give them feedback and corrections, we should be doing that just as much with coaches in some way to improve their performance (C5).

## **Discussion**

The purpose of this study was to explore Paralympic coaches' perceptions of their learning and educational experiences, and more specifically, to examine formal and informal mentoring opportunities. The previous section described the participants' learning experiences in Paralympic sport including the impact of mentoring relationships at various points during their coaching careers. This section will discuss these topics in relation to pertinent literature.

#### *Formal and informal learning opportunities*

The participants needed to acquire disability specific coaching knowledge once they began coaching elite athletes with a disability. This information included the physiological aspects and classification system of disability sport, as well as equipment modifications for their athletes. According to research in able-bodied sport,<sup>40,41</sup> coaches typically acquire this fundamental

knowledge from formal coach education programs such as coach certifications and post-secondary degrees in sport-related fields. The current participants noted that formal education specific to elite disability sport was not available, a finding consistent with prior research.<sup>2,6,7</sup>

In fact, the current participants sought informal learning opportunities to compensate for the lack of formal coach education in disability sport. For instance, they learned from other coaches, their athletes, athletes' caregivers, and trial-and-error practices. For example, five of the participants were able-bodied with no previous experiential knowledge of elite disability sport. They discussed how interactions with other expert coaches taught them detailed information about how to (a) transfer their athletes, (b) modify an athlete's equipment, and (c) assist with individual daily functioning. This sharing of knowledge was in accordance with previous research in disability sport.<sup>6,8,10,42</sup> Perhaps unique to the current study, these interactions with other coaches often extended internationally and sometimes even to different sports within the disability sport community. The participants explained that the Paralympic community in Canada was quite small, which resulted in a limited number of expert coaches from whom to learn. These preliminary findings suggest that there is a collegial culture of knowledge sharing that extends to the international stage and highlights the importance of this collaboration as an informal learning resource for aspiring Paralympic coaches.

The current participants in Paralympic sport acquired knowledge from their athletes to learn the limits of an individual's physical capabilities, mobility capacity, and preferred training practices, a finding that is consistent with prior research in disability sport at different levels of coaching.<sup>6,7,9,10</sup> For example, Cregan and colleagues<sup>7</sup> revealed that Paralympic coaches experienced a shared relationship with the athlete that contributed to the coaching process since the athlete often had intimate knowledge of his or her disability. Likewise, McMaster and colleagues<sup>6</sup> found that coaches of athletes with a physical disability, ranging from recreational to national level competition, developed highly personal relationships with their athletes in order to better understand (dis)abilities. Research in able-bodied sport coaching indicated that building a coach-athlete relationship was vital to the successful performance of the athlete.<sup>43,44</sup> The results of this study indicate that a strong coach-athlete relationship in Paralympic sport - in which equal contribution to the coaching process is experienced - is not only vital to the athlete's success, but is also crucial for the successful acquisition of Paralympic specific coaching knowledge.

#### *Mentoring as an informal learning environment*

Four of the current participants worked with a mentor coach during the early stages of their Paralympic coach development. They described this mentorship as a significant learning experience. The participants who had a mentor coach learned highly specialized skills specific to Paralympic sport such as how to build a successful training program, communicate and provide feedback, and understand the bigger picture of building and managing a national program. These results are consistent with previous research on mentoring in business<sup>25</sup> and able-bodied sport coaching.<sup>18,28</sup> Despite the benefits of having a mentor coach, Bloom and colleagues showed that finding a mentor coach among able-bodied sport coaches was a happenstance occurrence, a case of being in the right place at the right time. However, three of the four current study participants who had a mentor actively sought out a mentor coach from whom to learn. Perhaps unique to the Paralympic coaching context, these coaches consciously decided that they needed the guidance of an expert coach. Taylor and colleagues<sup>42</sup> also found that a disability sport coach actively sought a

mentor to learn from early in his disability coaching career due to the limited availability of more formal learning resources. The current results provide support for the benefits of this informal source of knowledge acquisition. These results also suggest there is a demand for the development of mentoring opportunities in Paralympic sport coach education.

All six of the participants, including the two participants who did not have mentoring opportunities during the early stages, acted as a mentor to aspiring Paralympic coaches. These results are consistent with research in able-bodied sport coaching.<sup>18,28,41</sup> For example, Bloom and colleagues<sup>18</sup> found that once elite able-bodied coaches reached a higher level of expertise, they were honored and willing to serve as mentor coaches due to the positive mentoring experiences they lived early in their careers. These results are also consistent with recent research in elite disability sport coaching.<sup>6,8,42</sup> For example, Duarte and Culver<sup>8</sup> found that after an adapted sailing coach had been a head coach for eight years and involved in disability sport for 16 years, she began acting as a mentor for developing disability sport coaches. Research on mentoring has indicated that the structure of the relationship should be framed in a formal, reflective structure.<sup>45</sup> Contrary to Grant and colleagues,<sup>45</sup> the participants in the current study preferred to maintain an informal structure when mentoring aspiring coaches in disability sport. These findings suggest that the development of the mentoring relationship may require formal introductions between mentees and mentor coaches but once the relationship has been established, the structure and content of the relationship should remain informal. Therefore, the results of the current study extend the literature, which has shown that expert coaches are actively seeking aspiring coaches to mentor them, and further highlights the value of an informal structure for mentoring relationships in the disability sport context.

However, there was a demand for formalized mentoring opportunities as evidenced by recent research findings that investigated the learning experiences and educational needs of disability sport coaches.<sup>6,42</sup> The current participants suggested that developing mentoring opportunities was important at this time of the Paralympic movement. Based on their life mentoring experiences, the participants suggested that formalized mentoring opportunities should provide in-depth fundamental knowledge about coaching elite athletes with a physical disability. Furthermore, this fundamental knowledge should be communicated in an interactive learning environment which provides extensive hands-on, practical coaching experience. Most notably, the lack of formal coach education expressed by the participants is consistent with prior research.<sup>6</sup> The current participants sought an informal learning environment to compensate for the lack of formal coach education in Paralympic sport coaching. The current results provide one of the first accounts that detail mentoring relationships in elite disability sport.

#### *Limitations and conclusions*

Although the study enhanced the understanding of how Paralympic coaches acquired disability specific knowledge, some limitations need to be addressed. The interviews focused solely on the perspectives of the coaches. Acquiring insights of other members who are personally involved in a Paralympic coach's environment could provide a more comprehensive understanding of their career evolution and learning practices. Second, the participants were already provincial and national level coaches and had acquired coaching knowledge before they began coaching disability sport. Future research may want to investigate the educational, learning, and mentoring experiences of coaches beginning their coaching careers in disability sport. Third, this study examined some of the

most expert coaches in the country. Therefore, the current results are limited in their ability to provide insight into whether recreational, regional, and state/provincial level disability sport coaches experience the same challenges and resources. Finally, all participants in this study were male. It would be interesting to research the small number of female Paralympic coaches to see if they have similar or different responses to their male counterparts.

Much remains to be explored to fully understand the career development and learning practices of Paralympic coaches. Specifically, the importance of mentoring for Paralympic coaches' development is clearly observable through this study's findings. More precisely, the results suggest that mentoring opportunities are currently highly unstructured, with information trickling down to coaches in a variety of ways. Our study demonstrates that mentoring should begin with formalized introductions that carefully match mentors with mentees. While the current nature of disability sport may support an informal structure to the mentoring relationship, the creation of formal disability sport coach education programs are recommended as a way to increase and enhance the quality and quantity of sport participation for all people with disabilities. Hence, exciting opportunities to develop disability sport mentorship programs in coach education and coaching practice would benefit the participation, health, and wellness of all athletes with physical disabilities which, in turn, would continue to increase the growth of Paralympic sport worldwide.

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