KNOWLEDGE AND ROUTINES OF NCAA HOCKEY COACHES DURING INTERMISSIONS

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Abstract

Intermissions are a short period of time in the middle of competition where coaches have the opportunity to interact with their assistant coaches, adjust their game plan, and address their team as a whole. According to expert coaches, proper use of this critical time in competition is a learning process that improves with experience and relies on multiple contextual factors (Bloom, 1996). While research has demonstrated significant planning and thought behind the behaviors of coaches in competition (Bloom, Durand-Bush, & Salmela, 1997; Debanne & Fontayne, 2009; Smith & Cushion, 2006), coach knowledge and routines during intermissions have yet to be the main focus of a study. The purpose of this study was to examine the knowledge and routines of coaches during intermissions, as well as the factors that influenced their individual and team interactions. Six highly experienced and successful NCAA Division I hockey coaches were purposely sampled and completed a two-part interview process that included both a semi-structured and stimulated recall interview. The purpose of the interviews was to discover what coaches do during intermissions and why they do it. A thematic analysis (Braun & Clarke, 2013) of the semi-structured interviews revealed their specific coaching routines during intermissions as well as the factors that affected what they said during their team address. In addition, different situational factors such as the time of season, the score of the game, and the team performance influenced certain coaching behaviors, such as what technical and tactical adjustments the coaches made and how they communicated those adjustments to the team. The results from the thematic analysis were then used to deductively analyze (McCarthy & Jones, 2007) the stimulated recall interviews. The stimulated recall data provided deeper insight to the decision-making process of coaches within the context of a specific intermission. In particular, the results revealed that intermissions are an emotional time for both the coaches and the athletes and that these emotions played a significant role in the decision-making process for coaches. The stimulated recall interviews allowed the coaches to identify specific emotions, such as frustration or excitement, experienced by themselves and their athletes as well as the strategies they used to manage these emotions in the given context. Furthermore, due to the extensive amount of experience in our sample of coaches, they all relied on their past experiences to guide their behaviors and decisions during the intermissions. Overall, this study adds to coaching literature by revealing both the behaviors and thought processes of experienced coaches during this somewhat overlooked but important time period during competition. Finally, the findings may benefit head coaches by offering insight to intermission knowledge and strategies of successful elite coaches.

Résumé

Les entractes sont de courtes périodes de temps dans le milieu de la compétition où les entraîneurs ont la possibilité d'interagir avec leurs entraîneurs adjoints, d'ajuster leur plan de jeu et d'adresser leur équipe dans son ensemble. Selon des entraîneurs experts, l'utilisation de ce temps critique en compétition est un processus d'apprentissage qui s'améliore avec expérience et qui repose sur plusieurs facteurs contextuels (Bloom, 1996). Bien que la recherche a démontré beaucoup de planification et de réflexion derrière les comportements des entraîneurs en compétition (Bloom, Durand-Bush, & Salmela, 1997; Debanne & Fontayne, 2009; Smith & Cushion, 2006), les connaissances et les routines des entraîneurs pendant les entractes n'ont pas encore été l'objet principal d'une étude. Cette étude visait à examiner les connaissances et les routines des entraîneurs durant les entractes ainsi que les facteurs qui ont influencé leurs interactions individuelles et d'équipe. Six entraîneurs de hockey très expérimentés et couronnés de la NCAA Division I ont été délibérément échantillonnés et ont complété un processus d'entretiens de deux parties qui comprenaient à la fois une entrevue semi-structurée et une entrevue de rappel stimulé. L'objectif de ces entretiens était de découvrir ce que les entraîneurs font pendant les entractes et les raisons pour lesquelles ils le font. Une analyse thématique (Braun & Clarke, 2013) des entretiens semi-structurés a révélé des routines d'entraînements spécifiques pendant les entractes qui ont guidés les comportements des entraîneurs, tel que la façon dont ils recueillent des informations et les facteurs qui influencent ce qu'ils disent lorsqu'ils adressent leur équipe. En outre, différents facteurs situationnels tels que le temps de la saison, le pointage du jeu et la performance de l'équipe ont influencé quelques comportements des entraîneurs tout comme leurs ajustements techniques et tactiques ainsi que la façon dont ils communiquaient ces ajustements avec leur équipe. Les résultats de l'analyse thématique ont ensuite été utilisés pour analyser l'entrevue de rappel stimulé de façon déductive. Les données de l'entrevue de rappel stimulé ont donné un meilleur aperçu du processus de prise de décision dans le cadre d'un entracte précis. En particulier, les résultats ont révélé que les entractes sont un moment émouvant pour les entraîneurs et leurs athlètes et que ces émotions ont joué un rôle primordial dans le processus de prise de décision pour les entraîneurs. Les entrevues de rappel stimulé ont permis aux entraîneurs de déterminer des émotions spécifiques, comme la frustration ou l'excitation, vécues par eux-mêmes et leurs athlètes, ainsi que les stratégies utilisées pour gérer ces émotions dans le contexte donné. De plus, en raison des nombreuses années d'expérience dans notre échantillon d'entraîneurs, ils comptaient tous sur leurs expériences passées pour guider leurs comportements et leurs décisions pendant les entractes. En somme, cette étude ajoute à la littérature d'entraînement en révélant à la fois les comportements et le processus de réflexion des entraîneurs expérimentés au cours de cette période de temps un peu négligée, mais aussi importante au cours de la compétition. Enfin, les résultats de cette étude bénéficient les entraîneurs-chefs en offrant un aperçu des connaissances et des stratégies d'entraîneurs élites et couronnés.

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Table of Contents

List of Tables

List of Figures

Chapter 1

Introduction

Inspired by true stories, Hollywood films have recounted some of the most memorable stories in sports. Many of the unforgettable moments in these movies have highlighted the role of the coach during the intermissions of competition. For instance, *Friday Night Lights* shared the story of a high school football team in Odessa, Texas that was coached by Gary Gaines. In this movie, Gaines delivered an inspirational speech to his football team during half time of the championship game. Another example came from the movie *Miracle,* which followed the improbable success of the 1980 United States men's Olympic hockey team. Coach Herb Brooks was shown flipping over a table as he tried to inspire and motivate his players during the intermission of an important Olympic game. Interestingly, both of these emotional locker room speeches given by the coaches seemed to elevate the performance of the players on these teams. In an academic setting, the influence of coaching behaviors on athlete performance has been one of the most investigated topics in coaching science research (Côté & Gilbert, 2009). Although research has shown that coaches are influential in helping athletes achieve a high level of success (Bloom, Falcão, & Caron, 2014), examining coaching behaviors during competitions has received limited empirical attention.

To date, research has primarily investigated coaching behaviors both before and during competitions from the athlete's perspective (e.g., Baker, Côté, & Hawes, 2000; Breakey, Jones, Cunningham, & Holt, 2009; Vargas & Short, 2011). Before the game starts, athletes look to their coach to help them physically and mentally prepare. For instance, a coach's pregame speech can affect the athletes' efficacy and performance (Vargas & Short, 2011; Vargas-Tonsing & Guan, 2007) through the use of both informational content (Vargas-Tonsing, 2009) and emotionally

persuasive speech (Vargas-Tonsing & Bartholomew, 2006). During the game, research from athletes has indicated that coaches helped them succeed by providing instruction and feedback (Becker, 2009). Quality feedback from the coach has shown to increase athlete's motivation, self-esteem, and performance (Carpentier & Mageau, 2013). In addition, athletes highlighted the importance of a coach staying calm in the stressful competition environment (Becker, 2009; Gould & Maynard, 2009).

According to coaches, maintaining routines throughout competition has helped them successfully maintain composure while under extreme amounts of pressure (Bloom, Durand-Bush, & Salmela, 1997; Olusoga, Maynard, Hays, & Butt, 2012). For instance, as a part of their pregame routine coaches arrived to the competition site early to mentally review the game plans and rehearse potential scenarios (Bloom et al., 1997). These routines are not just limited to before the game, as research has shown coaches behaviors were guided by pre-determined procedures throughout the game as well (Debanne & Fontayne, 2009; Mouchet, Harvey, & Light, 2014). These routines are an important aspect of coaching within competition because when coaches are unable to successfully cope with stress and focus too much on the pressures to produce results their interactions with their athletes suffer (Mageau & Vallerand, 2003; Olusoga et al., 2012).

Coaches interact continuously with their athletes throughout competition by providing feedback (Becker, 2009), implementing strategies taught in practice (Bloom, 1996), and making key tactical decisions and adjustments (Debanne & Fontayne, 2009; Gould, Guinan, Greenleaf, & Chung, 2002). When making decisions during competition coaches considered both the contextual information from the game and their personal knowledge of the athletes (Gilbert, Trudel, & Haughian, 1999). More specifically, successful coaches analyzed and considered the

game and player performance (Smith & Cushion, 2006), in addition to their athletes' physical and psychological readiness when making decisions (Gould & Maynard, 2009). While research on coaching in competition has primarily focused on their interactions with athletes during the play (e.g., Debanne & Fontayne, 2009; Mouchet et al., 2014; Smith & Cushion, 2006), intermissions are another time in competition where coaches interact with their team.

Intermissions are a short period of time in the middle of competition where the coach has the opportunity to interact with their assistant coaches, adjust their game plan, and address their team as a whole (Bloom, 1996). According to expert coaches, proper use of this critical time in competition is a learning process that improves with experience and relies on multiple contextual factors (Bloom, 1996). Sir Alex Ferguson, the most successful manager (coach) in British football history, revealed that he spends the last few minutes in the first half of the game preparing for the intermission and contemplating what to say to his players (Elberse & Dye, 2012). While research has demonstrated significant planning and thought behind the behaviors of coaches in competition (Bloom et al., 1997; Debanne & Fontayne, 2009; Smith & Cushion, 2006), coach knowledge and routines during intermissions have yet to be the main focus of a study.

The naturalistic decision making (NDM) framework can be used to gain insight to coaches during intermissions. Coaching has been referred to as a decision-making process (Abraham, Collins, & Martindale, 2006), and NDM explains how people use previous experiences to make decisions under difficult conditions (limited time, uncertainty, high stakes, vague goals, and unstable conditions) (Klein, 2008), like those within competition. In sports, NDM has been used to show how athletes used past experiences to guide their actions in game situations (Kermarrec & Bossard, 2013; Macquet, 2009; Macquet & Fleurance, 2007). Given that

research has shown coaches build their knowledge from their experiences (Abraham et al., 2006; Gilbert & Trudel, 2001), and intermissions are a time-pressured period within the dynamic environment of competition, NDM could provide insight into the decision making of coaches during this time (Lyle & Vergeer, 2013).

A qualitative approach was utilized in this study. Qualitative research is based on better understanding the experiences of each participant (Creswell, 2013), and highlights the importance of external factors such as time, place, and context (Sparkes & Smith, 2014), which can lend to a greater understanding of the many factors at play during intermissions. Conducting interviews is a common method of data collection in qualitative research (Culver, Gilbert, & Sparkes, 2012) that can help researchers gather in depth descriptions and gain a deeper understanding of the experiences of multiple participants (Rubin & Rubin, 2012). In particular, this study utilized two types of interviews: a semi-structured interview and a stimulated recall interview. The semi-structured interview allowed the participants to include personal opinions, experiences, feelings, and attitudes to gain greater insight in to their intermission knowledge and routines (Sparkes & Smith, 2014). Stimulated recall has been considered a valuable tool when examining cognitive processes (Lyle, 2003), such as a coach's decision making. While the semi-structured interview provided the participants with the opportunity to share their general routines and knowledge during intermissions, the stimulated recall interview gained insight into their decision making within the varying contexts of real intermission situations.

Purpose of the Study

The purpose of this study was to investigate the coaches' routines and decisions during intermissions from the perspectives of NCAA ice hockey coaches. The study attempted to answer the following questions:

1. What are hockey coaches' primary roles and routines during intermissions?
2. What types of decisions do coaches make during intermissions and what goes into the decision-making process?
3. How do coaches' interactions and behaviors during intermissions vary depending on the context (i.e., score, team performance, first or second intermission, regular season or playoffs)?

Significance of the Study

Although research has shown that coaches' behaviors can influence their athletes' performances during competition, there is very little knowledge on the behaviors that occur during intermissions and the reasoning behind those behaviors. While intermissions give the coach an opportunity to provide knowledge and inspiration to their team, there are many unique factors that can play a role in their approach. A coach has days and sometimes weeks to prepare an initial game plan and pre-game speech. The intermission, however, relies on immediate contextual factors and the coach may only have a few minutes to analyze the current game and decide how to address the players. Better understanding experienced hockey coaches' routines during intermissions and their decision-making process prior to speaking with the team will provide insight into this specific aspect of competition. Furthermore, hockey is the only NCAA sport that has two intermission periods, which provides a unique opportunity to study this critical coaching moment. Coaches in hockey have two chances to make adjustments, interact with other members of their staff, and communicate directly to their players.

Delimitations

The following delimitations have been identified for the current study:

1. Participants were all males who were currently coaching males.

2. Participants were all a current head coach in the NCAA.

Limitations

The following limitations have been identified for the current study:

1. Results may only apply to hockey.
2. Results may only be relevant to NCAA coaches.
3. Results are only representative of the head coach's perceptions of intermissions.
4. Results may be influenced by the coaches' perceptions of themselves and their own experiences.
5. Results may be limited by the coaches' recall ability.
6. Results may only be relevant to male coaches who coach male athletes.

Operational Definitions

The following operational definitions will be used in this study:

Experience/successful coaches: Coaches who have a minimum of fifteen years experience, with at least ten or more as a head coach at the NCAA level or higher, in addition to a record of at least .500 as a head coach in the NCAA.

Intermissions: The fifteen minutes between the periods of a hockey game when the teams return to their respective locker rooms.

NCAA: The National Collegiate Athletic Association (NCAA) is the organization that governs over 460,000 student-athletes in 23 different sports at over 1,200 colleges and universities in the United States. It consists of three divisions: division I, division II, and division III. Athletes playing at a division I or division II schools are eligible to receive athletic scholarships.

NCAA division I hockey: Representing the highest level of college hockey, there are 59 division I men's hockey teams in the NCAA separated in to 6 conferences at the time of these interviews.

Chapter 2

Literature Review

The Role of the Coach

Coaching is a challenging job that has been extensively investigated in sport science research (Becker, 2009; Bloom, Falcão, & Caron, 2014; Bloom & Salmela, 2000; Côté & Gilbert, 2009; Côté, Salmela, Trudel, Baria, & Russell, 1995). Studies have revealed that a coach's job includes developing athletes' mental, physical, technical, and tactical skills and abilities (Bloom, 2002), instilling life skills and personal values (Vallée & Bloom, 2005), preparing athletes for life outside of sport (Tawse, Bloom, Sabiston, & Reid, 2012), and handling the pressures to consistently win (Frey, 2007). Effective coaches are able to achieve these desired results through the application of their professional, intrapersonal, and interpersonal knowledge (Côté & Gilbert, 2009). Professional knowledge refers to their sport specific knowledge. Interpersonal knowledge involves understanding human interactions and the ability to build relationships. Intrapersonal knowledge includes personal reflection and an understanding of oneself. The integration of these categories of knowledge influences a coach's actions throughout the coaching process, which have a direct impact on achieving success in their job (Côté & Gilbert, 2009).

Côté, Salmela, Trudel and colleagues (1995) created a coaching model that defines the coaching process and it includes the central components of organization, training, and competition. The model was created through interviews with high performance coaches in order to understand and describe a coach's job. The three primary components of the model are directed by the coach's mental model of the athletes' potential, which determines what the coach believes can be achieved and how they can achieve it. The organization component of the

coaching process involves structuring and planning the season, including creating a coaching philosophy or working with assistant coaches. Moreover, Vallée and Bloom (2005) revealed that organizational skills extend to tasks such as recruiting and fundraising. In the training component, coaches focus on instilling their professional knowledge to their athletes by teaching them different technical and tactical skills.

The competition component of the coaching model includes all elements immediately before, during, and after competition (Bloom, Durand-Bush, & Salmela, 1997; Côté, Salmela, Trudel, et al., 1995). Central to competition is the amount and type of feedback and instruction that is provided to the athletes by the coach (Gilbert & Trudel, 2000). For instance, effective coach feedback has increased an athlete's motivation, self-esteem, and performance (Carpentier & Mageau, 2013), and can be direct or indirect (Becker, 2009), and positive or negative (Sagar & Jowett, 2012). When examining coach knowledge during competition, it is important to recognize the preparation time of coaches immediately before the game, during the game itself, and post game (Bloom, 1996). Coaches' knowledge and behaviors during a game can include team talks in huddles or on the bench, half time routines, time outs, and other stoppages that provide coaches with an opportunity to interact with their athletes (Bloom, 1996; Smith & Cushion, 2006). Throughout competition, coaches have a variety of duties that include implementing the strategies they have taught their athletes during practice (Bloom, 1996), dealing with crisis situations (Gould & Maynard, 2009), making tactical decisions (Debanne & Fontayne, 2009; Gould, Guinan, Greenleaf, & Chung, 2002), and interacting with officials (Debanne & Fontayne, 2009; Gould et al., 2002). Studies done with Olympic athletes showed that a coach's ability to perform these tasks in competition had a significant impact on the athlete's performance (Gould & Maynard, 2009; Greenleaf, Gould, & Dieffenbach, 2001). More

specifically, successful teams in the Olympics had coaches that stayed focused, handled crises, remained composed under pressure, and were able to read their athletes' physical and psychological readiness (Gould & Maynard, 2009).

Despite the evidence to support the importance of the coach's role in competition, coaching behaviors are more frequently observed in a practice setting and few studies have examined coaches during actual competitions (Debanne & Fontayne, 2009). However, examining practice time alone ignores how coaches perform their duties in the highly pressurized environment of competition (Gould et al., 2002), and coaches' behaviors have been found to differ during competition and practices (Cushion & Jones, 2001; Smith & Cushion, 2006). For example, coaches provided less instruction and interacted less with their athletes during games compared to practices (Cushion & Jones, 2001). This change in behavior supports the notion that situational context plays a significant role in determining the manner in which people interact (Sagar & Jowett, 2012). More coaching research is needed to expand the depth of knowledge of coaching behaviors past the context of practice, and to gain more insight into the competition context.

Athletes' perceptions of coaching in competition. Research on coaches' behaviors has primarily been investigated from the athletes' perspectives (e.g., Amorose & Anderson-Butcher, 2007; Amorose & Horn, 2000; Baker, Yardley, & Côté, 2003; Banack, Sabiston, & Bloom, 2011; Matosic & Cox, 2014; Pensgaard & Roberts, 2002). Moreover, athletes have perceived their coaches' behaviors to differ between games and practices (Horn, 1985). Specific to competition, research has found that athletes felt that coaching behaviors influenced their anxiety (Baker, Côté, & Hawes, 2000), motivation (Vargas & Short, 2011), and performance (Vargas-Tonsing & Guan, 2007).

A coach's influence on their athletes begins before the game starts with an effective pre-game speech (Bloom, 1996; Vargas-Tonsing, 2009). Although a critical moment in competition, the pre-game speech is often overlooked by researchers. Some may debate that an emotionally charged speech would be more effective than a quick instructional talk, but research on athletes revealed that both the informational content (Vargas-Tonsing, 2009) and the emotional content (Vargas-Tonsing & Bartholomew, 2006) of their coaches' speeches were perceived as beneficial and informative. For instance, athletes relied on the instructional information provided by the coach in a pre-game speech to improve their performance (Vargas-Tonsing & Guan, 2007) and the emotional content to enhance their arousal regulation (Vargas & Short, 2011). A study of a university women's hockey team found that consistency was the most important element the athletes looked for in a pre-game speech from their coach (Breakey, Jones, Cunningham, & Holt, 2009). More precisely, these athletes were unhappy when their coach delivered a pre-game speech that was longer than normal or went against their expectations, demonstrating that coaches can influence their athletes either positively or negatively prior to competition.

Becker (2009) interviewed 18 elite level athletes (NCAA Division I, national, and/or international) from various sports to gain a better understanding of athletes' perspectives of great coaching practices. Specific to the competition context, the athletes noted that great coaches had the ability to read situations and place their athletes in positions that helped them succeed. This concept is in line with Bloom (1996), who found that using players at the right time and place was a key component of coaching success during competition. In addition, Becker discovered that athletes identified great coaches as ones who responded appropriately to athletes' performances. Although, hostile reactions by the coach after a loss or poor performance can evoke negative emotions in the athletes (Sagar & Jowett, 2012), athletes appreciated post-game

feedback from their coach, regardless if it was positive or negative (Becker, 2009). Furthermore, Stein, Bloom, and Sabiston (2012) found that a lack of positive reinforcement of good performances negatively affected the motivational climate of a team. Finally, research found that athletes desired coaches who remained composed in high-pressure situations (e.g., Baker et al., 2000; Becker, 2009; Gould & Maynard, 2009; Vargas-Tonsing & Bartholomew, 2006; Vargas-Tonsing, Myers, & Feltz, 2004).

Coaches' perceptions of coaching in competition. Coaching in competition has both a public and private aspect (Mouchet, Harvey, & Light, 2014). Public aspects are those observable behaviors, while private aspects are the invisible cognitive elements. Although systematic observation of behaviors in competition is important when examining coaches, it fails to provide insight into the cognitive processes underlying those behaviors (Côté, Salmela, & Russell, 1995). Research from the coach's perspective that goes beyond simple observation has provided insight to the more private aspects of coaching, gaining a deeper understanding of specific coaching behaviors and decisions in the competition context (e.g., Bloom et al., 1997; Debanne & Fontayne, 2009; Elberse & Dye, 2012; Gilbert, Trudel, & Haughian, 1999; Potrac, Jones, & Armour, 2002; Smith & Cushion, 2006).

Coaching in competition starts well before the scoreboard clock begins and continues long after the buzzer sounds, and the amount of work that is required of coaches in these aspects of competition is often overlooked (Bloom, 1996). Through interviews with expert team sport coaches, Bloom and colleagues (1997) went beyond the immediate context of the game and examined coaches' pre and post-competition routines. The coaches revealed that prior to the game they focused on preparing their athletes for competition in addition to preparing themselves. For the athletes, it meant activities such as a team meal, video session, and a warm

up. For the coaches, focusing on the outcome of the game can be a source of stress prior to competition (Frey, 2007). Therefore, to help themselves prepare the coaches arrived to the competition site early to mentally review game plans, rehearse potential scenarios in the upcoming game, and to stay relaxed. Failing to successfully cope with the pressures of competition can limit a coach's ability to effectively evaluate their athletes' mental and physical states (Mageau & Vallerand, 2003).

Coaches also stressed the importance of maintaining a routine to help their athletes mentally and physically prepare for competition (Bloom et al., 1997; Gallmeier, 1987). Central to this routine was the pre-game talk or speech. Although there are many different approaches to a pre-game speech, a few studies have found that coaches successfully manipulated their athletes' effort through the content of their speech (Turman, 2005; Turman, 2007). For example, in his study of high school football coaches Turman (2005) found that when a team faced possible elimination in a playoff game the coach emphasized that their team's season would be over if they lost. Although this may provide the emotional rise that athletes look for in their coach's pre-game speech (Vargas-Tonsing & Bartholomew, 2006), most coaches preferred to keep the content of their pre-game speech simple and review some key tactical and technical elements that were practiced that week in preparation for the game (Bloom, 1996; Bloom et al., 1997). After the game, coaches' routines varied depending on their team's performance and the result of the game. Regardless of the outcome, coaches emphasized the importance of controlling their own emotions and saving any detailed analysis until the next day after they had carefully consulted with their assistant coaches and reviewed the statistics and game tape (Bloom, 1996; Bloom et al., 1997).

Coaches continue to play an active role during the game as well (Bloom, 1996). Smith and Cushion (2006) found that professional youth soccer coaches provided direction or instruction to their athletes with verbal cues throughout competition, but for almost half the game they did not communicate at all. According to Smith and Cushion, coaches' silence meant they were analyzing individual player performances and their team's tactical performance. Similarly, Hagemann, Strauss, and Büsch (2008) found that top league coaches (first or second German national league in handball or basketball) made fewer utterances throughout competition than lower-league coaches, but gave their players more concrete instruction. In their discussion, the authors suggested top league coaches were more effective through nonverbal actions (such as substitutions or repositioning players) than their counterparts, relying less on verbal intervention. Also, effective communication is a refined skill and coaches at higher levels of expertise have had more practice and a better understanding of the communication process (Bloom, Schinke, & Salmela, 1997).

Deciding when and how to intervene during competition can be challenging for a coach and a coach's decision-making process during games relies on many different factors (Gilbert et al., 1999). Specifically, Gilbert and colleagues found that coaches relied on two main factors when making decisions during competition: the field information (contextual information from the game) and their personal knowledge (including knowledge of the players and the sport). Studies further exploring the cognitive processes of coaches and their communication and intervention strategies within competition found that coaches behaved according to pre-established procedures or routines (Debanne & Fontayne, 2009; Mouchet et al., 2014). These pre-determined routines seemed to vary depending on the phase of the game (Debanne & Fontayne, 2009). Supporting this notion, Debanne, Angel, and Fontayne (2014) found that

coaches became more motivated by winning and their decisions became more offensive-minded later in the game.

Throughout the different phases of competition coaches are required to perform their roles while under tremendous amounts of pressure, and the expectation to produce results is a source of stress for many of them (Frey, 2007). Recent investigations have examined the impact of and how coaches dealt with competitive pressures and demands (e.g., Frey, 2007; Olusoga, Butt, Hays, & Maynard, 2009; Olusoga, Butt, Maynard, & Hays, 2010; Olusoga, Maynard, Hays, & Butt, 2012). For instance, coaches highlighted how their stress negatively influenced their interactions with their athletes by causing them to direct their anger towards the athletes and limiting their time for quality feedback (Olusoga et al., 2010). As a result, their athletes' confidence and performance decreased. In addition, a study with Olympic coaches from Great Britain identified three main factors that influenced successful coaching performances in these high-pressure environments: psychological attributes, preparation, and coping strategies (Olusoga et al., 2012). Psychological attributes included emotional control, confidence, consistency (maintaining routines), and communication (knowing what to say and when). Preparation referred to the coaching decisions and strategies employed leading up to the Olympics, and coping strategies included psychological skills, team support, and having down time. Utilizing these three factors and being able to effectively manage stress and pressure while maintaining a certain amount of emotional control and confidence, especially in front of the athletes, is one of the major challenges that influences coaching effectiveness in competition (Gould et al., 2002; Olusoga et al., 2010; Olusoga et al., 2012).

Intermissions. An intermission is a short period of time in the middle of competition, and is the only sustained period where coaches are able to interact with their assistants, analyze

and adjust game plans, as well as address their team (Bloom, 1996). Additionally, this time period allows the players to rest and refocus. While coaches have highlighted the importance of communicating with athletes in stressful situations (Olusoga et al., 2012), the intermissions provide them with an opportunity to communicate more effectively than during the game. For instance, in their study analyzing a national team handball coach during competition, Debanne and Fontayne (2009) found that the coach sometimes utilized intermissions to talk to his players in order to gain a better understanding of what is happening on the field. However, as valuable as this short time period is, using it effectively is a challenge. In particular, expert team sport coaches claimed that proper use of intermission time was a learning process that improved with experience (Bloom, 1996).

One of the most experienced and successful managers (coach) in British football history, Sir Alex Ferguson, overcame many challenges to guide his team to success (Elberse & Dye, 2012). A case study that examined Ferguson's management strategies provided great insight to crucial elements of his approach on and off the field (Elberse & Dye, 2012). More specifically, Ferguson acknowledged the challenge of intermissions as he explained, "there are maybe eight minutes between you coming up through the tunnel and the referees calling you up on the pitch again, so it is vital to use the time well…the last few minutes of the first half I'm always thinking of what I'm going to say." (Elberse & Dye, 2012, p. 9). Despite how critical the intermissions are for coaches in competition, it has yet to be the central focus of research in elite team sport contexts, although some aspects of intermission have received attention.

For example, researchers have examined the communication strategies of coaches during intermissions (e.g., Breakey et al., 2009; Turman, 2005). In particular, Turman (2005) explored the messages high school football coaches utilized both before the game and during halftime.

Through the analysis of video footage and field observations, Turman discovered that coaches who were losing at halftime held their athletes accountable for the score in their speech and focused on highlighting what they needed to change in the second half. However, those results only provided a descriptive representation of communication strategies employed by coaches during this time. In addition to Turman's study, through interviews with University women hockey players, Breakey and colleagues (2009) discovered what specific information and type of delivery athletes preferred from their coaches' speeches. For example, athletes reported positive reactions to speeches that were short and meaningful. When the coach's speech was poorly timed and too close to the end of the intermission the athletes felt rushed to get back on the ice and were not able to process what the coach said. Although research has begun to examine the speeches coaches deliver during intermissions, they have not examined it from the coach's perspective. Additionally, while these studies have begun to examine intermissions, they have focused solely on the speech coaches deliver to their team disregarding other aspects of the coach's role during this time.

Coaching as orchestration. To better understand the challenging role of the coach, Jones and Wallace (2005) developed the notion of coaching as orchestration. Stemming from research that looked at managing complex organizational systems, orchestration implies guiding change from a distance and assigning tasks to others, usually within conditions out of their control (Wallace, 2003, 2004). Within coaching, orchestration has been defined as "a coordinated activity within set parameters expressed by coaches to instigate, plan, organize, monitor, and respond to evolving circumstances in order to bring out improvements in the individual and collective performance of those being coached" (Jones & Wallace, 2005, p. 128). This suggests that a coach guides and steers his team rather than smoothly directing (Santos, Jones, &

Mesquita, 2013). Although a relatively new concept, coaching as orchestration has found some support in research (Santos et al., 2013). In addition, coaching research has reflected some of the components of orchestration. For instance, coaches pay close attention to detail and have strong organizational skills (Vallée & Bloom, 2005), constantly respond to evolving circumstances (Smith & Cushion, 2006), and guide their team to success (Olusoga et al., 2012).

Naturalistic Decision Making

Early research in cognitive psychology described decision making as an analytical process that requires the comparison of multiple courses of action or options (e.g., Fishburn, 1970; Toda, 1976; Tversky & Kahneman, 1981). According to this research, a decision maker must select one course of action from a recognized set of alternatives by comparing the benefits of each option and their potential outcomes (Fishburn, 1970). Despite research showing that training people in this decision-making strategy has led to effective decision making (Lichtenstein & Fischhoff, 1980), recent research has focused on a more instinctive approach (Klein, 1993). Termed naturalistic decision making (NDM), this field of research describes how people make decisions in field settings using their past experiences to guide them (Klein, 1997; Lipshitz, Klein, Orasanu, & Salas, 2001).

Initially, NDM began without a formal model of decision making (Klein, 2008). Instead, NDM researchers set out and conducted field research to describe and better understand how experienced decision makers made decisions in field settings (Klein, 2008). This approach was driven by the belief that the analytical models of decision making in cognitive psychology would not be applicable in the time-pressured conditions of most real world settings (Klein, 1997). To accomplish this, the researchers utilized research methods such as field observations and interview techniques (Elliot, Welsh, & Nettelbeck, 2007). Researchers conducted their studies in

domains that were uncontrolled, complex, and challenging (Klein, 1993). They focused on decision making under difficult conditions that included limited time, uncertainty, high stakes, vague goals, inadequate information, team coordination, and unstable/dynamic conditions (Klein, 1993; Klein, 2008; Lipshitz et al., 2001). Fitting these criteria, some of the initial NDM studies took place in military settings, firefighting, intensive care units, and nuclear power plant operations (Klein, 1997).

Focusing on the environment in which the decision making takes place, NDM suggests decisions are context specific and therefore rely heavily on the situation (Klein, 1993). Furthermore, NDM believes that it is not how people think that is important when making a decision but what they think about (Klein, 1997), and their research revealed that experienced decision makers thought primarily about the situation (Klein, 1993). During real life scenarios they found that people rarely thought about and compared potential courses of action, but rather they focused on assessing the situation and responded in a typical way based off of their past experience (Klein, 1993, 2008). For instance, proficient decision makers rapidly categorized situations based off of previous experiences and then responded accordingly without having to consider every possible option available (Klein, 1997). More recent studies in NDM have shown that increased content knowledge allows for better situational awareness, and that leads to informed decisions relating to speed, accuracy, and efficiency (Elliot et al., 2007).

Recognition-primed decision model. To better describe this decision-making process, NDM researchers proposed the recognition-primed decision (RPD) model (see Appendix A). One of nine NDM models (Klein, 1997), RPD is the most commonly used and has found support when there is reasonable experience to draw upon, as well as time pressures and uncertainty (Lipshitz et al., 2001). Using experience to cope with the challenge of time pressure and

uncertainty, RPD focuses on assessing the situation (Randel, Pugh, & Reed, 1996) and matching the current situation to a prototype from previous experiences (Klein, Calderwood, & Clinton-Cirocco, 1986). This familiarity then generates expectations and potential courses of action that fit the situation, with the most typical option generated first (Klein et al., 1986). Before the first available action is accepted and implemented it must be evaluated for plausibility. If the option is rejected, then the decision maker moves on to evaluate the next available option. This process features the four most important aspects of situation assessment in RPD: identifying plausible goals, highlighting relevant cues, forming expectations, and identifying typical courses of action (Klein, 1993, 2008). In a simple case, the situation is recognized immediately and the course of action is implemented; however sometimes more complex situations require more conscious evaluation (Klein, 1993).

Contrasting typical analytic models of decision making, RPD is referred to as a serial evaluation model that focuses on evaluating one option at a time instead of several options at once (Klein et al., 1986), making it a blend of both intuition and analysis. Given that studies have shown an expert's first generated option is usually the best option available (Klein et al., 1986**;** Klein, Wolf, Militello, & Zsambok, 1995), this eliminates the need to consider and compare multiple courses of action (Klein, 1993, 2008; Macquet, 2009). Therefore, it is an efficient approach for experienced decision-makers in time-pressured situations.

Athlete decision making. Situations in competitive sports present many similarities to the dynamic situations studied using NDM, and expert athletes have the ability to make decisions based on partial information with the added pressure of time and high stakes (Schläppi-Lienhard & Hossner, 2015). Although the research is limited, NDM has already been applied to study athletes' decision making in volleyball (Macquet, 2009), badminton (Macquet & Fleurance,

2007), and football (Kermarrec & Bossard, 2013). All of these studies video recorded matches and then conducted self-confrontation interviews with athletes where the athletes were asked to describe and explain their behavior in the video. This method is aimed at eliciting ongoing cognitions (Macquet & Fleurance, 2007). Results from the study with male professional volleyball players reinforced the RPD model and revealed that athlete decision making consisted of only two simple steps, situation assessment and choice of action (Macquet, 2009). Situation assessment focused mainly on matching the current situation with typical situations contained in memory. For their choice of action most players only reported one decision or option, suggesting that the players used their experiences to guide their action choice rather than a heavy analytical approach. In another study done with ice hockey players during competition, researchers discovered that athletes referred to the decisions they made during the game as familiar to them (Mulligan, McCracken, & Hodges, 2012). Furthermore, expert hockey players were twice as likely to recall previous experiences that helped them make a decision during the game than their less experienced counterparts. According to NDM, experts don't need to spend much effort determining how to respond to a situation because once they assess the situation the reaction is fairly obvious (Randel et al., 1996).

Coach decision making. Decision making is fundamental to coaching (Abraham, Collins, & Martindale, 2006), and it has been suggested that NDM can provide great insight into the decision making of coaches in competition (Lyle & Vergeer, 2013). Reflecting the basis of NDM, Vergeer and Lyle (2009) claimed that coaches have solutions to problems they encounter readily available to them based off of their experience. In addition, coaching decisions made specifically in the competition context of elite sport have to be made under similar conditions as those described in the NDM settings (Lyle, 2003). For example, competition is a dynamic

environment with high stakes, and sometimes the coach does not possess all the important information due to time constraints or inaccessibility of data (Hagemann et al., 2008). Although research into coaches' decision making is still extremely limited (Gilbert & Trudel, 2004), experienced coaches are more efficient decision makers than novice coaches and are able to consider more external factors in their decision-making process (Gilbert et al., 1999; Vergeer & Lyle, 2009). In addition, research has shown that coaches' knowledge, which influences their decisions and actions, stems from their experiences and reflecting on those experiences (Abraham et al., 2006; Gilbert & Trudel, 2001). Applying NDM to the complex decision-making context of competition could provide great insight into coaching, especially during intermissions when a coach is faced with many important decisions.

Chapter 3

Methods

In an examination of research practices in sport psychology, Martens (1987) questioned whether there was a more suitable method to studying human behavior than what he termed orthodox science. Methods of orthodox science attempt to understand the world through an objective lens by focusing on one generalizable truth (Martens, 1987; Sparkes & Smith, 2014). Instead, Martens suggested that learning from an individual's experiences has great value within the field of psychology (Martens, 1987), and many sport psychology researchers have since supported the use of qualitative methods to acquire information (e.g., Crust & Nesti, 2006; Culver, Gilbert, & Trudel, 2003; Strean, 1998). For example, Culver, Gilbert, and Sparkes (2012) reviewed sport psychology research between 2000 and 2009 and found a 68% increase in the percentage of qualitative studies published since the 1990s. Unlike quantitative research, qualitative research believes that multiple subjective realities exist (Sparkes & Smith, 2014) and focuses on the perspectives and actions of the people who experience it (Charmaz, 2004). Researchers conducting qualitative research collect data in the participants' natural settings and try to gain a better understanding of the world in which they live (Creswell, 2013; Sparkes & Smith, 2014). Qualitative research also has the potential to provide a greater understanding of the complex processes by which events and actions occur (Strean, 1998).

Design/Approach

There are five main approaches in qualitative research: narrative research, phenomenology, grounded theory, ethnography, and case study (Creswell, 2013). While the general processes of research are similar across the five approaches (Creswell, 2013), the differences lie in how the researcher collects and analyzes the data (Sparkes & Smith, 2014). A

case study is one of the most commonly used approaches to qualitative research (Stake, 2000). Case studies have the potential to bring out details from the viewpoint of the participants that may be missed through other means of data collection (Tellis, 1997). Rather than focusing on questions that answer how or what participants experience, which can be answered through a phenomenological study (Creswell, 2013), case studies seek to answer the 'how' and 'why' questions (Baxter & Jack, 2008; Sparkes & Smith, 2014). The current study used a case study approach to determine how NCAA hockey coaches approached intermissions, as well as how and why they made their decisions during this time.

There are three types of case studies that are called intrinsic, instrumental, and collective (Creswell, 2013; Stake, 2000). An intrinsic case study is used when a researcher wants to better understand one specific case. An instrumental case study is used when the researcher is trying to gain insight into a specific issue or concern through the lens of a case. Different types of intrinsic and instrumental single case studies have been used to study sports teams (e.g., Hodge, Henry, & Smith, 2014; Morgan, Fletcher, & Sarkar, 2015), athletes (e.g., Rathwell & Young, 2014), and coaches (e.g., Collins & Durand-Bush, 2014; Elberse & Dye, 2012; Jones, Armour, & Potrac, 2003). A collective case study, sometimes referred to as a multiple-case study (Baxter & Jack, 2008), utilizes multiple cases to illustrate a particular issue of interest (Creswell, 2013; Stake, 2000). Similar to an instrumental case study, researchers using collective case studies try to gain insight to one main issue. However, collective case studies are given the perspective of more than one case. The use of multiple cases allows the researcher to gain knowledge on the primary topic of interest throughout the different contexts presented by each individual case (Baxter & Jack, 2008). Collective case studies have been utilized to study coaches (Compton & Compton, 2014; Gilbert & Trudel, 2001, 2004; Gilbert, Trudel, & Haughian, 1999; Seaborn, Trudel, &

Gilbert, 1998), exercise program participants (Hudson, Day, & Oliver, 2015), NCAA schools (Hutchinson & Bouchet, 2014), and families involved in sports (Dorsch, Smith, & McDonough, 2015). For example, Gilbert and Trudel (2001) conducted semi-structured interviews, collected documents (from sport associations and media publications), and observed six different coaches throughout an entire season in their collective case study analyzing coach learning. In another collective case study, Compton and Compton (2014) examined open letters that different coaches wrote to their fans to determine how they handled crises and repaired their public image during losing seasons. Although the types of data varied between these two studies, they both highlighted how collective cases can utilize multiple cases to provide insight into various aspects of coaching. The current study used a collective case study approach to examine the knowledge and behaviors of coaches during intermissions.

Participants

For case studies, the selection of participants is extremely important (Creswell, 2013; Sparkes & Smith, 2014; Stake, 2000). Collective case studies often involve selecting a variety of cases that provide different perspectives and balance in the data (Creswell, 2013; Stake, 2000). Previously, collective case studies have ranged from eight cases (Hutchinson & Bouchet, 2014) to as little as three cases (Compton & Compton, 2014), with most falling somewhere in between (e.g., Dorsch et al., 2015; Gilbert & Trudel, 2001, 2004; Hudson et al., 2015). This approach helps preserve the individuality of the participants and allows researchers to better understand how events and actions can be shaped by the circumstances in which they occur (Sparkes & Smith, 2014).

It is important for a researcher to identify attributes of interest when selecting cases to study (Stake, 2000). Criterion sampling ensures that all participants or cases meet the same

criteria (Creswell, 2013), and can highlight the attributes of interest within the cases. Given the variety of coaching resumes that exist among the coaches in the NCAA, the current participants were required to meet the following criteria: coaching for a total of fifteen or more years, ten or more years experience as a head coach at the NCAA level or higher (professional hockey), and a career winning percentage over .500 as a head coach in the NCAA. In addition, all participants were current head coaches at a NCAA Division I school. The participants in this study exceeded the selection criteria. The six coaches had a combined total of 184 years of coaching experience, ranging from 17 to 45, with an average of 31 years of experience. All six coaches combined for a total of 2833 wins, with an average winning percentage of .572. The participants have a combined 57 NCAA tournament appearances, 16 Frozen Four appearances, 51 conference championships, and 6 national titles. In addition, their success on the ice has resulted in five Division I Coach of the Year awards, fifteen coach of the year awards for their respective conferences, and one Division III coach of the year award.

Procedures

After receiving approval from the McGill University Research Ethics Board, the participants who met the specified criteria were contacted by email with a recruitment script (see Appendix C). All six of the coaches contacted agreed to participate and an in-person interview was scheduled for a time and place that was most convenient for them. All of the interviews took place in the participants' offices during the months of September and October prior to the beginning of the hockey season. Before beginning the interview process the participants were given a consent form (see Appendix D). The two-part interview ranged from 56 to 84 minutes long. All the interviews were audio-recorded and then transcribed verbatim. Prior to conducting the interviews with the participants of the study, the interviewer conducted a pilot interview with

a Canadian University hockey coach. This interview was video recorded and then evaluated by an individual who has considerable experience in this domain. This allowed the interviewer to refine their interview skills, in addition to adjust the interview questions as needed.

Data Collection

There are a number of methods to collect data in qualitative research (Creswell, 2013; Sparkes & Smith, 2014; Thomas, Nelson, & Silverman, 2011). After a researcher identifies or defines a problem, determining what methods to use depends on what the researcher wants to know about the problem (Rubin & Rubin, 2012; Thomas et al., 2011). Qualitative research in sport psychology has predominantly used interviewing techniques, specifically semi-structured interviews (Biddle, Markland, Gilbourne, Chatzisarantis, & Sparkes, 2001; Culver et al., 2012; Culver et al., 2003). Interviews are also considered one of the most important sources of information in case studies (Tellis, 1997) because it allows researchers to piece together descriptions from multiple participants in order to create a clearer picture and deeper understanding of complicated processes they have never experienced (Rubin & Rubin, 2012). A two-part interview process was used in the current study that began with a semi-structured interview followed by a stimulated recall interview.

Part one: semi-structured interview. Semi-structured interviews allow the researcher to ask the same questions to all participants, while adjusting the order of the questions depending how the participants respond (Braun & Clarke, 2013; Sparkes & Smith, 2014; Thomas et al., 2011). Semi-structured interviews also give greater control to the participants, allowing them to guide the discussion through their experiences, including their personal opinions, ideas, feelings, and attitudes (Sparkes & Smith, 2014). The first part of the interview in the current study was semi-structured and open-ended, designed to gain insight to the coaches' approach to and

knowledge of intermissions. Specifically, a four-section interview guide was created for this part of the study (see Appendix B). To begin, two opening questions allowed the participants to share the progression of their coaching careers and their coaching style. This provided an easy transition into four key questions, which focused on coaching during competition, specifically during intermissions. These questions sought to uncover the importance of intermissions, the coaches' routines during this time, the decisions they have to make, and the factors that influence their decisions. The third section allowed the participants to reflect on the importance and influence of intermissions and how their experiences have shaped their intermission knowledge and routines over time. Finally, the last section allowed the participants to provide important information or detail they felt was not covered in the questions.

Part two: stimulated recall interview. Prior to the interviews the coaches were asked via email to identify a game from their previous season during which their intermission was particularly memorable or unique. The interviewer then researched this particular game by reading pre and post-game write-ups, examining box scores, and watching any highlights or videos available online. This game then served as the focus of the stimulated recall portion of the interview that was conducted immediately following the semi-structured interview. Focusing on games chosen by the coach for the stimulated recall interview increased the chances of highlighting the factors that are important to the coach during intermissions, in addition to potential for greater recall ability.

Stimulated recall interviews are introspective and use audio recordings, video footage, photographs, or other aids to help participants recall their experiences of a specific event (Mackenzie & Kerr, 2012). Stimulated recall has been considered a useful mechanism in exploring people's cognitions and decision making (Lyle, 2003), and has been used to study both

athletes (Sève, Poizat, Saury, & Durand, 2006; Shapcott, Bloom, & Loughead, 2007) and coaches (Debanne & Fontayne, 2009; Gilbert & Trudel, 2000; Gilbert et al., 1999; Lyle, 2003; Wilcox & Trudel, 1998) in competitions. More specifically, stimulated recall has been considered a valuable tool for linking cognitive processes and naturalistic decision making (Lyle, 2003). Lyle even highlighted the benefits of this retrospective approach for investigating the naturalistic accounts of real-life decisions in coaches. Although the use of video is the most common stimulated recall technique (e.g., Bourbousson, Poizat, Saury, & Seve, 2011; Debanne & Fontayne, 2009; Gilbert et al., 1999; Lyle, 2003; Mackenzie & Kerr, 2012), other techniques have been used such as medical charts to stimulate recall in medical practitioners (Jennett & Affleck, 1998) and verbal cueing for coaches (Wilcox & Trudel, 1998). More specifically, Wilcox and Trudel provided hockey coaches with a brief description of a decision-making moment in a game, such as when a coach reduced his number of forward lines to two. The coaches then elaborated on their decision before they were shown a video of the event. After viewing the video, coaches were able to alter or add any details. In this case, the video was not used to stimulate the recall, but rather to validate the coach's original response (Gilbert & Trudel, 2004). Very rarely did providing the video result in the coaches altering their initial responses (Wilcox & Trudel, 1998).

In the current study, detailed information from the selected hockey games were verbally provided to the participants during the stimulated recall. First, the interviewer began by giving the participant contextual information, such as the time of season, previous results, and current standings. Then the interviewer went through details of the game, stopping at the end of each period to give the coach a brief summary of the period including the score, shots for and against, and penalty minutes. In addition, the coaches were provided with a printed version of the box

score from those games to help them recall the order of events and details. At the end of each period the coaches were asked to recall the intermissions by explaining and describing how they approached the intermissions in these situations. In addition to a description of their behaviors and decisions, coaches were asked to provide the reasoning behind them (Lyle, 2003). To ensure the coaches went beyond simply describing their behaviors, the researcher followed up with probes such as "why did you do/say that" or "what made you decide to respond that way in this specific incident". Also, since the coaches identified these games as memorable, they were asked to explain what made the game important or special and to compare their intermission during this game to other games during the season. Additionally, a diagram of the recognition-primed decision (RPD) model was next to the interviewer to ensure that all aspects of the model were addressed during the interview.

Data Analysis

Some qualitative studies have utilized both inductive and deductive approaches to their data analysis (e.g., Collins & Durand-Bush, 2014; Dorsch et al., 2015; Evans, Hare, & Mullen, 2006; Galli & Vealey, 2008; Mackenzie & Kerr, 2012; McCarthy & Jones, 2007; Ryba, Haapanen, Mosek, & Ng, 2012). The current study employed both approaches, first by inductively analyzing the semi-structured interview portion of the data, and second by using those results to deductively analyze the stimulated recall. Finally, information was then compiled into case narratives for each coach.

Researchers employing a multiple case study approach typically analyze each case independently, referred to as a within-case analysis, before moving to a cross-case analysis (Creswell, 2013). Even though considerable overlap may exist between cases in a collective case study, representing and analyzing cases independently helps the researcher present the realities

and experiences of each individual participant (Dorsch et al., 2015). Each semi-structured, open-ended interview was analyzed using thematic analysis, which is a common method within qualitative research in the social sciences (Braun & Clarke, 2013). Thematic analysis focuses on identifying, analyzing, interpreting, and reporting patterns within data (Sparkes & Smith, 2014). The first step begins by the process of immersion (Braun & Clarke, 2013), which means the researcher becomes intimately familiar with the content of the data. This allows the researcher to focus on information relevant to the research questions (Braun & Clarke, 2013). Following the interview process, the researcher was able to fully immerse herself in the data by transcribing the interviews and re-reading the transcripts. Next the researcher developed codes to help identify aspects of the data that relate to the research questions (Braun & Clarke, 2013; Creswell, 2013). In this study, identifying codes within each particular case, independent of each other, highlighted not only individual differences among the coaches but also universal aspects of intermissions that were consistent in all the cases. One of the strengths of thematic analysis is that it can highlight differences across the data set (Sparkes & Smith, 2014). These codes were then developed into themes, which represent patterned responses and meanings within the data that capture an important aspect of the research questions (Braun & Clarke, 2013; Creswell, 2013). A theme is broader than a code and is seen as a central organizing concept that contains many ideas (Braun & Clarke, 2013). According to Braun and Clarke, codes are the individual bricks that make up a house and the theme is the wall or roof. The themes that emerged from each analysis were then categorized into overarching themes that represent all the participants' data together. Overarching themes capture a main idea that is represented by a number of smaller themes (Braun & Clarke, 2013).

The inductive process used to analyze the semi-structured interviews allowed the researchers to build patterns and themes from the "bottom up" (Creswell, 2013). Deductive analysis, on the other hand, is used to identify specific units associated with previous themes, theories, or research (McCarthy & Jones, 2007). For instance, McCarthy and Jones deductively analyzed focus group interviews to highlight sources of sport enjoyment that were associated with previous findings. In another deductive analysis, Kerr and Males (2010) used predetermined themes and categories of athlete experiences in a content analysis of lacrosse players. The stimulated recall portions of the interviews in the current study were analyzed deductively using the overarching themes established from the inductive analysis of the semi-structured interviews. This process was a within case analysis, independently analyzing each coach. Case by case the data from the stimulated recall interviews was categorized into the higher order themes already determined by the semi-structured analysis.

For the current study, Microsoft Word documents and Excel spreadsheets were used to manage all the data throughout the analysis. The interviews were transcribed in Word and coded using the comment feature. Then an Excel file was used to list and manage the codes. Finally, charts and tables were created to organize the data.

Narratives. Once both interviews were analyzed, the data for each coach was compiled into individual case narratives (see Appendix E). Narratives can be referred to as stories people tell (Sparkes & Smith, 2014), and have been used to represent people's experiences within sports and physical education (e.g., Busanich, McGannon, & Schinke, 2016; Dowling, 2015; Fasting & Sand, 2015). More specifically, case studies have utilized narratives within their methodology to help both present and analyze data (e.g., Dorsch et al., 2015; Hudson et al., 2015; Jones et al., 2003; Morgan et al., 2015). Given that case studies are methods focusing on personal and

particularized experiences (Stake, 2000), telling the stories of the participants can help report the data and highlight the specific context within case studies (Baxter & Jack, 2008). For example, in their collective case study, in which they also analyzed each case individually, Dorsch and colleagues used details from their multiple sources of data (interviews, journals, and observations) to create narratives for each participant that highlighted the themes from their initial thematic analysis. Similarly, Hodge, Henry, and Smith (2014) also used their data and memos made by the researchers during their analysis to create a case study narrative of a rugby team.

In the current study, after the analysis of both interviews, an individual case narrative was written for each participant. The narratives allowed the researcher to present the coach's intermission strategies within the context of a story emphasizing the experiences of each coach. Background information about the coach, his team, or his environment was considered prior to writing the narrative.

Validity

The validity of a study forces the researcher to question whether the findings are sufficiently authentic, or in other words can be regarded as trustworthy and useful (Lincoln & Guba, 2000; Yardley, 2008). Creswell (2013) defines validity or "validation" in qualitative research as an "attempt to assess the accuracy of the findings, as best described by the researcher and the participants" (pp. 249-250). In comparison to quantitative research, which emphasizes verification of the results, validity in qualitative research must emphasize the process of the research (Creswell, 2013), although there are no set validity criteria that can be applied to all qualitative studies (Yardley, 2008). Therefore, it is suggested that researchers use multiple strategies that are best suited for their approach throughout the research process to document the

accuracy of their study (Creswell, 2013). This study utilized principles outlined by Yardley (2008) and Sparkes and Smith (2014) that can be used to guide diverse types of qualitative research to help ensure a study produces valid research.

Sensitivity to context. Context is an important aspect of research, and the context of a study includes the pre-existing theoretical and empirical literature relevant to the study. Therefore, familiarity with existing literature is required of the researcher in order to be able to formulate research questions that address gaps within the literature (Yardley, 2008). Through an extensive review of the literature, this study addresses the gaps that remain in sport research examining coaching in competition, specifically looking at intermissions from the coaches' perspective. In addition, the study also demonstrates sensitivity to the context of the participants' perspective by encouraging them to talk freely with the use of open-ended questions in the interview process (Yardley, 2008).

Commitment and rigor. Focusing on the breadth and depth of a study, commitment and rigor examines the participant selection, data collection, and data analysis (Yardley, 2008). First, in a study that aims to focus on a specific phenomenon, researchers must demonstrate how and why their particular participants were selected. The participants in this study fulfilled the criteria regarding the amount of experience and success they have had coaching at a high level, which helped ensure they were able to provide valuable insight to the topic of this study. In addition, an empathic understanding of participants' perspectives resulting from extensive in-depth engagement with the topic can provide depth to the analysis (Yardley, 2008). Reflecting this, the main researcher had extensive experience interacting with and engaging in detailed conversations with coaches at this level, in addition to great knowledge on the league itself. Also,

a pilot interview was conducted prior to data collection in order to refine the questions within the interview and skills of the researcher.

Coherence and transparency. Coherence refers to the extent that a study makes sense as a consistent whole in regards to the theoretical approach, research question, methods, and interpretation of the data (Yardley, 2008). Given that qualitative researchers value being flexible in their methods, an in-depth understanding of the different procedures and approaches available is necessary in order to successfully create a coherent study. Through the course of developing this study the researchers created a solid foundation of knowledge on the methods used and their theoretical backgrounds. In addition, transparency refers to the extent in which the reader can clearly understand the research process in regards to how and why the study was conducted (Yardley, 2008). Providing a detailed description of the methods along with a paper trail, in addition to sharing data, such as quotations, text excerpts, or tables, helped the researchers create a transparent study (Yardley, 2008).

Impact and importance. As Yardley (2008) highlighted, the findings of a study should have the potential to make a difference otherwise there is no point in conducting the research. The current study builds upon what we already know (Yardley, 2008) about coaching in competition, and provides insight to a phenomenon that had yet to be thoroughly explored from the coach's perspective.

Critical friend. It is important to maintain a degree of self-awareness to minimize the effects of personal bias and prejudice in the analysis and presentation of data when conducting qualitative research (Sparkes & Smith, 2014). Sparkes and Smith suggest the use of a critical friend throughout the study in order to promote critical reflection and exploration of alternative

explanations and interpretation of events and data. A critical friend played a key role challenging the key researcher's thinking throughout the research process.

Chapter 4

Results

This chapter presents the results from the individual interviews conducted with six NCAA Division I men's hockey coaches. The interviews ranged from 56 to 84 minutes and combined for a total of 433 minutes. Transcribing the interviews verbatim generated a total of 108 pages of text, with 86 pages of semi-structured interview data and 22 pages of stimulated recall data respectively. The transcripts of the semi-structured interviews resulted in 553 data extracts that were then analyzed and coded. Table 1 provides a breakdown of the codes for each coach. During the analysis 50 different codes emerged that were then used to create 8 themes: *who they are, coach education, out of game setting, non-coaching duties of intermissions, in game setting, other people's roles, coaching duties of intermissions,* and *team talk*. These themes were then categorized into four overarching themes: *coaching foundation, intermission blueprint, intermission situational factors,* and *intermission coaching behaviors.* Figure 1 provides a visual depiction of all the codes, themes, and overarching themes. Following the inductive analysis of the semi-structured interviews, these overarching themes were then used to deductively analyze the stimulated recall data. This deductive analysis resulted in an additional 109 data extracts within the overarching themes. Table 2 provides a breakdown of the data extracts per coach and per overarching theme. The following sections will provide descriptions of each of the four overarching themes, including quotes from the coaches that will help exemplify the central tenets of each theme.

Coaching Foundation

This theme describes the coaches' history, learning experiences, and personal characteristics that influenced all aspects of their career, including coaching during

intermissions. All six coaches played collegiate hockey in the NCAA. Following graduation, four of the coaches went to graduate school where they were involved with the hockey programs while they were studying topics that ranged from guidance counseling and education, to biology. The two coaches who did not attend graduate school took different paths to coaching. One coach began his career as a high school biology teacher where he coached three different sports. The other coach was offered the assistant coaching job at his alma mater immediately after graduating. All six coaches were assistant coaches in the NCAA before becoming a head coach. The learning experiences that these coaches had as both collegiate athletes and as assistant coaches helped form the basis of their coaching knowledge. Many of the coaches reflected back on those experiences as early lessons in coaching, including what to do and what to avoid in their own coaching careers:

> The first coach I worked under was a big influence for me because we won a national championship together. That being my first coaching experience I look back at that as the gold standard. I think you pick up things from every coach that you have been with. But you also learn why things don't work sometimes too, and that can be just as valuable. (C2)

> I think you learn your strategies from having been through it as a player and having different coaches. And it's not just hockey, one of my role models in my life was my football coach. I probably have a fair amount of football mentality in my coaching philosophy – how I hold people accountable and how I coach in the locker room. That's how he coached and I liked it and my teammates liked it. I think that's just the kind of person I want to play for and that's who I became. (C5)

Additionally, one coach discussed how he was inspired by one of his coaches during his stimulated recall interview (SRI):

> Honestly, the speech I gave during this intermission is very similar to a speech I heard from a previous coach that I had and I thought it was really effective. I've remembered it after all this time and I've used it at different times when I see our team play a certain way. You talk about where you get this stuff, well I got that from my coach. (C4)

In addition to their early experiences as assistant coaches and athletes, the participants' years of experience as head coaches have built a strong foundation, which they have relied on during intermissions. As one coach (C3) explained, "I think the longer you're in the business coaching during intermissions gets easier. You know what to filter out, you don't have to address that, and you know what you have to address." Additionally, another coach said:

> The situations during intermissions are familiar to me now. There's nothing that's new. I mean this is my thirteenth year as a head coach. You've gone through it all…you pretty much know in your head these are the things I'm going to have to bang on to get the right message across. (C2)

Despite all their experience, all six coaches acknowledged the never-ending learning process that is required in coaching and the valuable lessons they continue to learn, sometimes as a result of making mistakes. They all spoke of their continuous learning process, which included self-reflection, experiences, and input from the people around them:

> You always make mistakes. No one is perfect and that's the thing. I think the best coaches are the guys that are able to sit back and analyze themselves too and say that doesn't work. You are able to learn from your mistakes. (C2)

> I am continually self-evaluating myself as a coach to be better. What do I do well, what do I do wrong, and I try to have a very open mindset. I always want to improve as a coach…I think with intermissions you have to have an open mindset. You have to ask, am I doing this right. (C6)

In addition to their knowledge and learning experiences, four of the coaches discussed the important role of individual personality in coaching during intermissions and how critical it is to be yourself and to be authentic. Ultimately, their personality combined with their history, experiences, and emotions created their coaching styles and influenced how they approach intermissions:

> I think coach's individual personalities play a role in intermissions. Especially you see as a younger coach, you can't come over with a fatherly approach…It's just an approach I can't take…Hopefully I can take it later in my career if I am lucky enough to have a long career. When you are the younger coach it is more about energy, it's more about showing them you care…My approach has become just honesty, I think that's the big thing. I think the guys know they are always going to get the truth from me. (C2)
>
> I think one thing I may do during intermissions, which I don't mind saying is a fault, is that I sometimes use sarcasm. I try not to but I do it. I don't think is a good way to do things, but that's maybe my personality coming through. (C1)

Similarly, other coaches echoed these statements. One coach (C3) explained, "You have to be yourself as a coach – you can't be [name of head coach]. You can learn from different coaches but you basically have to be yourself and address situations that come up." Another coach (C5) said, "I think you have to be real. You can't make up who you are. You learn from everybody and you steal a little bit from everybody but it's all within."

Intermission Blueprint

This theme describes stable factors that guided the coaches' strategies and behaviors during intermission, and helped shape their intermission plans. It includes the coaches' preparations, the time of season, and the coaches' routines. To begin, the coaches discussed the importance of preparation in regards to coaching during intermissions. This included formulating a game plan, creating habits in practice, and building trust with their players throughout the season:

> I think what you do Monday through Thursday sets everything up for the intermissions…What you do in October and November sets you up for intermissions in February. The little things that you preach, the things that you teach, and the identity that you are trying to establish throughout the year sets you up for those intermissions…There might be things that I say all week long in preparation for the game that I might need to say again between periods. It's not just coming out of the blue. (C6)

> Intermissions are influential but I think preparation during the week is the most important – getting the players in shape, and preparing a good game plan. In addition, the fact that you have created a trust with the players throughout the course of the week, or course of the season is also very important. (C3)

This preparation for intermissions prior to the game was evident in the SRI as well. For example, one coach believed his weekly practice time helped prepare his team for the adversity they were about to face when they were trailing 2-0 after the first period:

> I picked this game because our staff did a great job preparing the team the week leading up to the game. Our big message all week was that we are going to face adversity this weekend – I didn't say we were going to be down 2-0 after the first period, but multiple

> times we brought up that we were playing a great team and we need to be prepared to face adversity. I told them we have to be positive in how we deal with it and how we are going to attack it. So when we were down 2-0 after the first there was no panic during the intermission and I think a lot of that had to do with how they were prepared. (C6)

One other coach discussed the culture and mental toughness he had built throughout the season with his team as a key factor in his second period intermission speech during a playoff game:

> Our culture helped us win this game. When we went in to the locker room between the second and third period throughout the year it was always 'we want to win the third period – this is what we are going to do, this is mental toughness to us, and this is what great teams do.' The guys knew what I was going to talk about a little bit and they were ready for it. (C2)

In addition to the things they have prepared and practiced throughout the season, the coaches also considered factors such as the time of season in their intermission approaches. More specifically, the interviews with the coaches revealed a significant difference between the intermission strategies at the beginning of the season compared to the playoffs:

> I think the context plays a big role in a variety of ways. You know it is early in the season right now. Because everything is new and the freshmen don't have a clue we have to identify our focal point. We are trying to tackle things incrementally…you have to factor that in early in the season. I think you have to always have everything in a context. (C6)

> In playoffs we go over everything. I mean we are very detail oriented come play-off time. We know everything about their players, their systems, and we've watched five of their games…So our intermissions may change that way, just more information and a lot more thorough. (C1)

All the coaches had a consistent routine they followed during the fifteen-minute intermissions. First, immediately following the end of the period the coaches met with their coaching staff to discuss the current game:

> When the intermission starts I'll talk to my coaching staff and we will discuss anything that's going on. I'll go through the adjustments I think we need to make or where we're struggling and I'll ask our assistants what they see. (C2)
>
> There has to be a meeting with your assistant coaches before you go talk to the team in intermissions. One assistant is generally in the press box so he has to come down. We exchange thoughts, "Here's what I have, what do you guys have". We can wait until Monday for some things and then we identify what we need to do right now. (C3)

The coaches all valued the input their assistant coaches gave them during these short meetings and revealed that the assistants played a crucial role during intermissions:

> If I'm weighing two options during intermissions I lean a lot on the assistants. I'll ask those two guys their opinion. Sometimes they understand what the team needs. Usually we have an assistant watch the game up top in the press box and sometimes when they come down they have a better feel. (C2)
>
> Trust your assistant coaches, listen to your assistants, and pay attention to the suggestions of what they see. There are lots of different eyes and you obviously involve your staff to develop that kind of mini game plan between periods. (C4)

On average, the coaches met with their coaching staff for roughly five minutes before going in to the locker room to address the team. In addition to helping them analyze the game and create an intermission game plan, this time period also provided the head coaches with the opportunity to mentally and emotionally prepare themselves before they talked to the team:

> We talk about the players having seven minutes before I address them. I also have seven minutes to manage my emotions. I have to get organized. I have to know what my mood is and what I want to accomplish. (C6)
>
> Waiting 5 minutes before addressing the team during intermission is not only good for the players, but it is good for the coaches as well…Once you start talking about the game with your staff it kind of evens out your emotions…That 5-minute cooling off is good for us to make sure we do not say something that we are going to regret later, or even make a mistake. (C1)

An example of this cooling off period emerged in the SRI. Trailing 2-0 after the first period one coach recalled needing to refocus himself before heading into the locker room to talk to the players:

> At the end of the first period we were down 2-0 and I'm like 'oh god here we go.'
>
> As a coach I'm thinking one thing, but I don't want to say that to the players. I needed time to refocus before speaking to my team. (C6)

Four of the coaches provided an exact time when they entered the locker room for their team talk. The other two coaches provided a small two to three-minute time frame. On average, the coaches addressed their team with 8:42 left in the intermission. The amount of time the coaches spent talking to the team ranged from 1.5 minutes to 6 minutes, and their team talk lasted approximately 3.5 minutes:

> I want to talk to the players with approximately ten minutes left in the intermission. I want that to be consistent so the players know exactly when I'm coming in…I try to stay to that blueprint at all times in all games no matter what. Then I spend about five minutes talking to the team – no more, no less. (C4)

> I like the routine during intermissions to be fairly similar. You know the pre-game warm up, the talk before the game, and the intermissions all have the same basic: here is what's going to happen. So the players are used to it. (C3)
>
> There is definitely a routine. I think there is a time routine and I think the players need to feel comfortable with that. I like to go in and talk to my team at about the eight-minute mark in intermissions…the players have rituals so they know we get off at fifteen minutes and they know I'm coming in around eight…They know from roughly the eight-minute mark to about the two or three minute mark they're mine. (C6)

After they addressed the team, the coaches left the locker room and allowed the players to get ready to return to the ice for the next period. During these final minutes, the coaches may have gone over a few final points with their assistants or reviewed some statistics from the previous period. Sometimes they said a quick word to the team right before they returned to the ice.

> After I address the team that gives the players four and a half minutes left to get themselves ready to go back on the ice, or for them to talk as a team…the last two or three minutes before we hit the ice I just kind of refresh and talk to the assistant coaches. The coaching staff will discuss who seems to not be playing great or who is playing good. So it's more about us as a coaching staff and how we are going to distribute ice time. (C4)
>
> After we talk to the players the other coaches and I will give the players their time again. Then I probably say something very quick to them just as they are getting ready to leave the locker room. So there are different phases I guess. (C1)

Intermission Situational Factors

Following from the previous theme (Intermission Blueprint), this theme focuses on unplanned factors beyond the coaches' control, such as the score of the game, the team's performance, and the athletes' emotions. Analyzing these situational factors in the limited time frame of intermissions was one of the biggest challenges for coaches in conducting an effective intermission. As one coach (C6) explained, "I have to gather a lot of information in a really short period of time." Similarly, other coaches highlighted this challenge:

> I have no idea prior to the game what's going to happen after the first period. I have a framework, but you can't prepare for intermissions like you do for a pregame and if you try to, then you get fooled…you have to stay right into what is happening. (C3)
>
> The game is not going to go how you planned it. The game is too fast and it is too transitional. It is very important during intermissions to use your time wisely to evaluate the game and to be flexible. (C5)

To help them manage the time constraints of intermissions, all the coaches took notes on the bench during the periods. They referred back to these notes in their meetings with the coaching staff during the intermissions:

> I have a notebook on the bench and I take notes during the period. Usually at the end of the period I'll have anywhere from three to ten notes. I write the things I thought we did well and the things going into the next period that we need to do. (C2)
>
> During the period I write down things that are happening that I want to remind myself to bring up between periods. I'll write down the goals for and against, and other things that are happening in the game that I want to remind myself about in between periods. (C1)

Once the period ended, the coaches reflected on the current score of the game as they entered intermission. Whether they were winning or losing, the coaches discussed the importance of not letting the score impact their players' focus between periods. The first quote highlights how the coaches addressed the score during intermissions when their team was winning, and the second quote presents how they approached intermissions when their team was losing:

> The hardest part with guys this age is they can get comfortable when they are winning. They're not professionals. They haven't been through it enough…you try to give the players little goals during intermissions that they have to achieve. That way you are switching the focus from the scoreboard towards the goals you want them to achieve to try to stay on it. (C2)

> There are times when you are losing during an intermission and you maybe need to try to get their confidence up and highlight some positive things…between periods you're telling them to shoot everything, get everything at the net…You'll maybe tinker with your systems to take more chances to try and score goals. (C1)

Regardless of the score, all the coaches focused more on the quality of their team's performance and what the team needed to do to play to their full potential. Sometimes, the score was misleading:

> I think the biggest thing as a coach and for the players is that the scoreboard doesn't dictate how you're playing. There have been a lot of games where we haven't played well and won and have played very well and lost. I think you want to really focus on how your team is playing regardless of the score. (C1)

> You focus more on performance during intermission, because scores are misleading…during intermissions you have to address it if the guys aren't getting

> rewarded for playing well…that's the flip of the coin. You could be winning and playing lousy and you could be losing and playing terrific hockey. (C3)

A good example of this emerged in the SRI when one coach discussed how happy he was with his team's performance, despite being down 2-1:

> We were down 2-1 but I was still positive. I thought we played well both periods, we just happened to be down 2-1. I felt the guys were confident, they were competing, and we were playing a really good team. (C6)

In comparison, another coach highlighted how he was displeased with his team's play even though the score was tied 0-0. The coach was more concerned with his team's lack of effort:

> I just remember it was a lethargic game. Overall, it wasn't a great hockey game. We didn't generate anything on the power play and the guys weren't paying attention to key players on the other team. As a whole they were working ok, but they were not working anywhere near what was going to be required to win a hockey game. (C4)

In addition to the team's performance, their effort, and the score, other situational factors such as the behaviors and emotions of the athletes also influenced what the coaches did and how they did it. For example, the coaches all analyzed the players' mood, body language, and interactions during intermissions so they could adjust their approach accordingly:

> I've addressed the team during intermissions and immediately saw their body language ten seconds after I spoke to them…I see their eyes drop, their shoulders are slumped over. Then I have to re-engage them for another minute and address it. (C4)

> I'm watching the players' body language and interaction with other players during intermissions. I notice during intermissions if the players' heads down, they are upset about something, or they are muttering under their breath because they didn't get a puck

> passed to them correctly. You can watch. There are a lot of signs there if you pay attention. (C3)

Many of the SRI revolved around highly emotional situations. For instance, during the intermission of a sold out away game one coach discussed what happened as the other team scored a questionable goal just as the buzzer sounded, putting the other team ahead 4-3. Frustrated and angry, the coach discussed how the excessive emotion in the locker room during the intermission ultimately fueled their third period comeback to win 7-4:

> We go in for the intermission and there is just unbelievable emotion in the locker room. I'm wound up right now just talking about it…the guys were fired up. They were (expletive). Everybody was 'F this, F them. Let's go.' The fire under their asses was already lit. I didn't have to create any energy. It was all there. As a coach you just managed it and fuel it. (C5)

Another coach's SRI highlighted the importance of composure in an emotional rivalry game, which consisted of 12 penalties in the first period alone:

> It was a sold out building. We were clearly excited about how we were playing. We didn't back down from them and let them push us around in their rink. We withstood that challenge and we felt really good about how we were playing. But we wanted to make sure we kept our composure and played a really solid next period. (C3)

Sometimes the coaches noticed that their team leaders, such as the captains and seniors, had already taken charge of the locker room during intermissions. As C3 said in his SRI, "I could sense some really terrific leadership from our upperclassmen." In these situations the coaches then limited their own role:

> As a coach, there are some times when you just leave it. You see your upper classmen, your seniors, and captains have good control of the room. You just have to go in there and reinforce what they did well and tell them to continue on with that. There is no need to refocus them because they are already focused. (C1)
>
> You know there may be times that I'll walk in to the locker room during intermissions and the leaders on the team may have already taken care what I was going to address. So then you don't need to go there. Which is kind of what you hope happens with your leaders. (C5)

Furthermore, the coaches all received information from various different people, such as their assistant coaches, trainers, and equipment managers, during the intermissions that influenced their thought processes:

> The trainers might be coming at you during intermissions as well, saying number seventeen is not going to play this period or he might be ten minutes late because a doctor needs to see him. So a lot of input from trainers, equipment people, as far as skates being sharpened, or equipment repairs to a helmet. So I think you try and stay calm and listen to everyone. (C3)

During his SRI, this same coach recalled a particular example when his assistant coach provided him with specific information regarding the special teams. Specifically, their team needed to successfully kill a penalty at the start of the third period. "One of my assistants runs the special teams on the penalty kill side," explains the coach. "So he showed us what he thought they were going to be doing and how we could best defend it." (C3)

With so many different situational factors, the coaches all discussed the impact that the intermissions may have on the outcome of the game:

> I think intermissions are a big influence on the outcome of the game because it affects the momentum… It is the critical time to kind of make any adjustments you need, analyze the game to that point, kind of see where you are at, and what you need to do gain momentum and to win the game. (C2)

However, while the coaches all believed intermissions were important, they admitted that the impact of intermissions could vary:

> During intermissions you could either lose or gain momentum depending on the mentality of your team. I think that really good teams understand that the ability to make a couple of adjustments can help them perform even better in the second and third periods. It is also a chance to get a break and refocus…but every intermission, every period, every game, is a little different. (C4)

Intermission Coaching Behaviors

During intermissions the coaches have many important tasks and responsibilities to attend to, some of which were just addressed in the intermission situational factors category. Ultimately, these tasks affect both the content and delivery of what the coach says to their team during intermissions. This theme examines the coaches' approach to these tasks and their thought processes behind them. To begin, coaches had to decide what to say to their team during intermissions. Five out of the six coaches said they tried to limit their talk to only three key points. In addition, the coaches acknowledged the importance of being concise and "using the right words" in their team talk:

> It is important to give your players specific examples during intermissions. A lot of coaches lose their team when all they say is we have to work harder. Well what do you mean work harder? These are the areas we are failing tonight. We are not pursuing pucks,

> that's not who we are. We are not keeping sticks down. We are being physical but we are not being smart. (C4)

During the intermission talk, the coaches had to communicate any adjustments on their current game plan or strategy. These adjustments were made after the coaches carefully reviewed their notes and discussed the game with their coaching staff:

> You need flexibility. Intermission is the time to make adjustments whether it is a special teams situation or style of play. Use that time wisely. It has paid dividends where you have changed your game plan and been able to get back in the game. (C5)

> Your most important job as a coach during intermissions would be helping your players find the answers to whatever the problem is. If the other team is blocking all our shots then you need to have another person find a soft spot or position on the ice that you can give it to, or hit it off the backboard. Just try and find a different way to get it around them to give your guys an opportunity. (C1)

Many specific adjustments were discussed in the SRI. For example, in an important play-off game where his team was down 2-1, one coach made adjustments in order to force his team to adopt a more attacking mentality:

> We were panicking with the puck and playing tentative. So we focused on their mindset and tried to get them to play more of our game…we switched to a neutral zone defense and adjusted our forechecks so that we were skating forward. We wanted to be going forward on everything. We thought these adjustments would get our guys on their toes and get us into a more of an attacking mentality. (C2)

In addition to addressing tactical adjustments and providing the players with clear informative content, the coaches also decided how much emotional content should be included in

their team talk. As one coach (C3) explained, “In college hockey I think you address the emotions the most during intermissions. Especially later in the season our strategies are pretty well set.” In his SRI, C3 also remembered having to tell his players during their rivalry game, “control your emotions and play well.” Furthermore, another coach (C5) elaborated on his use of emotional content, “Sometimes I want to change and balance their emotions with my emotions…maybe sometimes we are too hyper; so instead of being hyper, I try and be very relaxed.” More specifically, the coaches discussed their varying use of positive and negative emotions:

> Depending on how we play I may be positive or I may yell and be very negative…I can’t predetermine it. I do it based on who I am and where I am at the time…but they know that I got their back and if I am flipping out there is probably a reason. (C5)
>
> I don’t think that I am emotional in the locker room during intermissions or that I go off on the players, but I can fluctuate the tone with whether we are playing well or not…And sometimes during intermissions the players need a kick in the butt. If we are playing really poorly and I am angry with the players I may give them my two cents. (C1)

Two of the coaches’ SRI reflected times they were upset with their team and those emotions came through during their intermission speeches. For instance, one coach recalled the second intermission, where his team was behind 1-0:

> I just went in to the locker room and lost my mind because they were fooling themselves about how hard they were working within the game. I remember just walking in and challenging them – really getting into them as a team and questioning their character and questioning their work ethic. (C4)

Another coach found his team tied 2-2 entering the second intermission, but was also disappointed in his team's effort and work ethic throughout the game:

> I was really disappointed in the way we played so I just went on a rant about how I wanted everyone to work harder. I asked them, "aren't you guys embarrassed?"… Then I told them we were just going to sit everyone. They could relax and not worry about the game. My tirade was very sarcastic. (C1)

The coaches also stressed the importance of positive emotions in the locker room during intermissions. As one coach (C4) explained, "Before we go back out on the ice I'll remind our guys what makes us good." This was reflected in the SRI as well, as C6 said, "We were down 2-1 but the message was the same. I was very very positive." C5 also discussed this topic in his SRI when he said, "I was just very positive – good job, you're playing well. Keep it up. Not many adjustments." In addition, one coach highlighted the use of positive emotion, even when he personally was unhappy with their performance:

> There's times you are really upset with them but that's not what they need. They might need to be picked up a little bit. They might need you to be really positive…I have noticed that the more positive I have been during intermissions when we were down the better results I get. (C2)

In addition to the content of their team talk, the coaches discussed the delivery of their message. This included both their tone of voice and their body language:

> There have been times during intermissions where I'll be very quiet when I walk in and address the team. I use my body language or my voice. My voice is very loud but if I am very quiet and really calm and only say two or three things then you know it's for a

> reason. I want them just to hear a different type of message instead of hearing the same thing over and over again. (C4)
>
> When it's really quiet in the locker room then I might go in there and really kind of try and get the energy level up. You know it may be me raising my voice, that sort of thing…your body language is also important as a coach. Your shoulders can't be slumped. You can never walk into the locker room as the leader of a team and be defeatist whatsoever. (C2)

In his SRI, C4 simply described the delivery of his talk during the first intermission when he said, "I was calm and I was really low key." Although he was disappointed with his team's performance, they were tied after the first period and he was patiently trying to help his players find a way to improve their game. Another coach highlighted his coaching staff's composure during an intermission when their team was down 2-0, "As a coaching staff we kept our composure and we didn't do a lot. Maybe that's what we needed to do." (C6)

When discussing the emotion, tone, and delivery of their intermission team talk the coaches all stressed the importance of not turning every intermission speech into a "pep talk". While motivation and emotion were a crucial part of intermissions, simply relying on pep talks during intermissions were not a successful strategy:

> There are motivational coaches and some are very successful, but I would say it would be hard to always say, "come on guys you got to have some pride and you have to work hard". Those are all things you should be doing all the time. Working hard is something that they should be doing all the time; it's not something special. (C1)
>
> I believe in inspirational and emotional speeches but you can't do it all the time. You have to pick your spots. You can't just give an inspirational speech for the sake of doing

> it. You have to do it based on what's going on in the game. I think again that's all part of knowing your team and know what's going on out on the ice. (C5)

Determining when to give a pep talk, what adjustments to make, and how to approach their team talk can be a challenge for coaches. While many of our participants' decisions relied heavily on the situational factors of the game and their intermission blue print, there were some decisions that came down to more of an intuitive aspect of coaching. As one coach (C4) advised, "Follow your gut. Don't have a routine in your mind for intermissions that you know no matter what you're going to do. Trusting your gut is critical during intermissions." Other coaches reiterated this concept:

> I think what you do during intermissions is kind of just coaching. I don't have any preconceived notions what's going to happen in December or January or February. I think it's a read and react thing – kind of a gut feeling. (C3)
>
> I think intermissions all depend on what your team is and different things. So I couldn't give you a concrete answer. I think you always have to feel it out. You have to understand your team, the identity of your team, and then you also have to adapt and adjust with each game. As a coach you just have to kind of get a feel for it. When you have to make a decision during intermissions you just go with your gut. You feel what you think is the right thing to do. (C6)

Occasionally, when the coaches relied on their gut instinct they strayed from their normal intermission routines. For instance, sometimes they spoke to their team directly at the start of intermissions, or they didn't speak to the team at all:

> Depending on the game your intermissions may become spontaneous. There have been times when I walked right in to the locker room. I came in and they were getting ready to do their routine, and I walked in and the routine was broken. (C4)
>
> I have sent my assistant coaches instead of me in to address the team during intermissions. If I do that I would probably say something to them right away when they get off the ice. Like if we are really struggling with our effort I might go in and blast them a little bit and then I'll have an assistant go in at the nine-minute mark and go over the adjustments. (C2)

One coach discussed straying from his routine during his SRI. After being patient and calm the first intermission, the coach found his team trailing 1-0 after two periods. Tired of his team's low-effort performance the C4 explained, "That was a night I walked right in after the second period. I came in and they were getting ready to do their routine and I walked in and the routine was broken." His team managed to tie the game in the third period and went on to win in overtime.

Chapter 5

Discussion

Six highly successful Division I NCAA ice hockey coaches were interviewed to gain insight into their knowledge and strategies regarding coaching during intermissions. Specifically, the purpose of this study was to discover coaches' primary roles and routines during intermission, better understand their decision-making process during this time, analyze what and how they communicated to their team, and how their behaviors varied depending on the context. Overall, the results revealed that coaches build from their personal athletic and coaching experiences to form an intermission plan. Using this plan, the coaches carefully navigated the fifteen-minute intermission by adapting to the many unpredictable factors that they encountered. The coaches' behaviors were then based on their responses to these situations as well as their own personal coaching style.

This chapter will discuss these results as they pertain to previous research. More specifically, literature has defined effective coaches as those who consistently apply their professional, intrapersonal, and interpersonal knowledge to their coaching practice (Côté & Gilbert, 2009). While researchers have shown that coaches' knowledge influences their decisions and actions (Abraham, Collins, & Martindale, 2006; Gilbert & Trudel, 2001), and that they apply their knowledge at different times throughout competition (Bloom, 1996; Smith & Cushion, 2006), this chapter will discuss how coaches utilized their professional, interpersonal, and intrapersonal knowledge in relation to the specific timeframe of intermission. Finally, given that intermissions reflect the conditions described by naturalistic decision making (NDM) (Lyle, 2003), the last section of this chapter will apply NDM to evaluate the coaches' decision-making process within intermissions.

Professional Knowledge

Coaches' professional knowledge encompasses their extensive sport specific and pedagogical knowledge (Côté & Gilbert, 2009). This section will highlight the coaches' professional knowledge in this study by discussing their long-term preparation, routines, and tactical adjustments during intermissions.

Given that preparing a team for competition requires an in-depth understanding of the game and how to teach athletes to perform, professional knowledge has been identified as the most important source of knowledge for coaches (Abraham et al., 2006). Furthermore, previous research has shown that coaches apply this knowledge and prepare for competition long before game day arrives (e.g., Bloom, 1996; Elberse & Dye, 2012; Greenleaf, Gould, & Dieffenback, 2001; Gould, Greenleaf, Guinan, Dieffenbach, & McCann, 2001). Although the primary interest of this study was not to investigate coaches' preparation, the methodology allowed participants to elaborate on the factors they believed to be important for intermissions and the results revealed that preparation played a key role. In line with previous research examining elite and successful coaches (e.g., Elberse & Dye, 2012; Donoso Morales, Bloom, & Caron, 2016; Gould et al., 2001; Vallée & Bloom, 2005; Yukelson & Rose, 2014), the current findings suggest that coaches' daily attention to detail and long-term preparation is crucial to the execution of their coaching duties during intermissions. More specifically, research has shown that coaching behaviors in competition are a continuation of their daily tasks in practice rather than a separate component of coaching (Bloom, Durand-Bush, & Salmela, 1997; Debanne & Fontayne, 2009). Correspondingly, the current study suggests that the delivery and implementation of coaches' knowledge during intermission is part of the ongoing coaching process rather than a supplementary component of their in-game coaching, even though prediction of the exact

situational factors during this time is not possible. Therefore, the current results add to the growing body of research that coaching in competition is not composed of spontaneous responses, but rather is a long-term process that requires extensive planning and well-thought-out behaviors (e.g., Debanne & Fontayne, 2009; Gallimore & Tharp, 2004; Gould et al., 2001; Yukelson & Rose, 2014).

In addition to their pre-game preparations, the coaches also discussed their intermission routines. While previous research has detailed the routines for coaches before, during, and after competition (e.g., Bloom et al., 1997; Debanne & Fontayne, 2009; Gallmeier, 1987; Gould et al., 2001; Mouchet, Harvey, & Light, 2014), coach routines during intermission had yet to be the primary focus of a study. The current study revealed that coaches' intermission routines included meeting with their coaching staff to discuss the game, taking time to regulate their own emotions, heading to the locker room to address their team, and reviewing final notes before heading back on to the bench. In line with previous research (e.g., Bloom et al., 1997; Mouchet et al., 2014), the current results showed that all the coaches had similar routines that helped them accomplish their intermission duties. Furthermore, these findings demonstrate another aspect of the coaches' methodical approach to coaching in competition (e.g., Debanne & Fontayne, 2009), and suggest that routines are a crucial component to their intermissions. While the coaches' routines from this study could offer a potential model for inexperienced collegiate coaches to follow, these results may not be applicable for all coaches. As research has suggested, coach routines could differ significantly across different sport contexts, due to the varying coach-athlete relationships and external pressures (Bloom et al., 1997). Therefore, these routines may only be representative of NCAA hockey coaches. More specifically, NCAA hockey is a unique sport with two intermission periods; coaches who have only one intermission (in hockey or other

sports) may differ in their intermission approach. In addition, coaching in an elite and performance-oriented context (Côté & Gilbert, 2009), such as the NCAA, requires a detailed coaching approach as demonstrated by these routines, which may not be necessary at a different level. As such, future research should compare coach intermission routines across different coaching contexts and sports to determine what behaviors and strategies are consistent and which are context specific.

Given that intermissions are such a short period of time, the coaches explained how their routines helped them efficiently process information and make tactical adjustments. Similar to previous research that has highlighted the importance of tactical decisions coaches make within competition (e.g., Debanne & Fontayne, 2009; Gilbert, Trudel, & Haughian, 1999), the coaches in this study considered multiple factors, such as the score and their team's performance, before making any decisions. Furthermore, the coaches revealed that they utilized numerous sources of information, such as their in-game notes, their coaching staff, and video. While previous research has stressed the importance of the coaches' ability to read the game and put athletes in positions to help them succeed (Becker, 2009; Bloom, 1996), the current findings provided a detailed description of the complex process coaches used to accomplish such tasks. More specifically, the coaches applied their professional knowledge to quickly analyze their multiple sources of information and make educated decisions within the stressful and time-sensitive context of intermissions. These results add to the small body of literature that utilized stimulated recall interviews to examine hockey coaches within competition (e.g., Gilbert & Trudel, 2000; Gilbert et al., 1999; Wilcox & Trudel, 1998). While previous stimulated recall interviews identified the beliefs (Wilcox & Trudel, 1998) and factors (Gilbert et al., 1999) that guided amateur hockey coaches' decisions during games, the current study gained insight into the decision-making

process of elite NCAA coaches during intermissions, which included their routines, the factors they consider, their sources of information, and their overall behavior.

Finally, the results from this study demonstrated the coaches' instructional abilities in regards to how they communicated tactical adjustments to their team. While research has shown that the majority of coach-athlete communication throughout competition is concerned with strategic and tactical aspects of play (Mouchet et al., 2014), this study gained insight to coaches' communication strategies during a time in competition when they could formulate a speech and address their team as a whole. More specifically, during intermissions the coaches provided their athletes with clear and concise instructions by incorporating specific examples and limiting their talk to a few key points. These findings support current research that shows coaches favor brief speeches during competition (Bloom et al., 1997), and is consistent with coaching strategies that elite athletes have associated with great coaches (i.e., Becker, 2009; Breakey, Jones, Cunningham, & Holt, 2009). For instance, similar to the speeches the coaches in our study delivered, female university hockey players favored short intermission speeches that did not cover many topics (Breakey et al., 2009). Furthermore, the results from this study suggest that coaches are mindful of the content within their intermission speeches, which builds on the notion that coaching in competition is comprised of constant thinking and planning. However, while the current findings suggest successful coaches cover similar content in their intermission speeches, not all the participants in this study utilized the same method of instruction during this time. For example, some coaches preferred to incorporate video in their team talk, while other coaches drew up plays on the whiteboard. Future research could further examine the use of different instructional methods during the intermission from both the coaches' and athletes' perspectives.

In summary, this section highlighted the coaches' preparation, routines, and tactical adjustments, and how coaching strategies applied within these areas of their intermission represent the coaches' extensive professional knowledge. Most notably, their in-depth understanding of the game allowed them to prepare for and manage the unpredictable setting of intermissions, successfully use their time, and quickly analyze current situational factors to determine if tactical adjustments are necessary. Furthermore, their ability to communicate those adjustments in a clear and concise manner demonstrated their pedagogical skills. While a study done by Abraham and colleagues (2006) identified sport-specific and pedagogical knowledge as the most important aspects within coaches' decision-making process, research has argued that professional knowledge alone is insufficient to being an effective coach (Côté & Gilbert, 2009). Therefore, the next two sections will demonstrate the coaches' application of their intrapersonal and interpersonal knowledge.

Interpersonal Knowledge

Interpersonal knowledge involves a person's understanding of human interactions and their ability to build relationships (Côté & Gilbert, 2009). In the sport science literature, researchers have suggested that coaches need to build quality interpersonal relationships in order to facilitate performance outcomes in competitive situations (Chan & Mallet, 2011). This section will highlight the coaches' application of interpersonal knowledge during intermissions by discussing their interactions with the assistant coaches and their evaluation of the athletes' emotions. In addition, it will discuss the current results in relation to the concept of coaching as orchestration.

Coaching research has highlighted the interactive and social nature of the profession (Bowes & Jones, 2006; Sinotte, Bloom, & Caron, 2015). For example, interviews with Canadian

university assistant football coaches revealed that the professional relationship between the assistant coach and the head coach was a key component to having a successful coaching and team dynamic (Sinotte et al., 2015). While most research examining coaches in competition has focused on the head coach's interactions with the athletes (e.g., Debanne & Fontayne, 2009; Smith & Cushion, 2006), the current results revealed that head coaches had considerable interactions with their assistant coaches during intermissions. For instance, the assistant coaches played a supportive role to the head coaches (Côté & Salmela, 1996; Rathwell, Bloom, & Loughead, 2014; Sinotte et al., 2015) by providing them with valuable feedback and input. In addition to working alongside their assistants, the head coaches also received input from various other staff members (e.g., athletic trainers and equipment managers) that affected their decision making during intermissions. This collaborative effort of sharing information and strategies during intermissions is comparable to how successful businesses have been shown to work (e.g., Carmeli & Paulus, 2015; Carmeli, Tishler, & Edmondson, 2011). For example, Carmeli and Paulus' (2015) quantitative study showed that CEOs cultivated a collective effort among their top management teams in difficult situations. More specifically, Carmeli and Paulus revealed CEOs were leaders who actively manage group interactions by encouraging the sharing of ideas and information, paying close attention to the ideas of the individuals in the group, and utilizing each member's unique expertise. Similar to CEOs, the coaches in this study interacted with their staff to develop a high level of trust and open communication among them. Furthermore, the coaches valued the different information and knowledge that each staff member was able to provide. These interpersonal skills, demonstrated by the coaches' ability to collaborate and work as a team, enabled them to identify any problems during intermissions and find solutions for the next period (Carmeli & Paulus, 2015).

In addition to working together as a coaching staff, the current results revealed that the assistant coaches also had their own specific tasks and responsibilities during intermissions. Previous research has shown that elite coaches delegated specific responsibilities to their assistant coaches in order to develop the assistants' sense of authority and ownership to the team, and build a supportive staff (Santos, Jones, & Mesquita, 2013). In the current study, distributing the responsibilities among multiple people allowed the coaching staff to be more efficient, and thus more effective, in the limited time of intermissions. While the current findings add to the existing literature on assistant coaches' roles by identifying coaching responsibilities during intermissions (e.g., Rathwell et al., 2014; Sinotte et al., 2015), this study also provides insight to the coaching dynamic and how those tasks are divided up among the coaching staff. More specifically, the methodology allowed the current coaches to explain their rationale for assigning certain tasks to their assistants. For example, one coach assigned an assistant coach to go over the tactical adjustments with the players when he was disappointed with his team's effort in the game. As he explained, having an assistant coach discuss the adjustments with the team, rather than doing it himself, was a strategic decision so he could address his frustration with the players without his message getting lost in a discussion focused on tactics. In addition to being assigned impromptu tasks, the assistant coaches had predetermined coaching responsibilities such as preparing and managing the special teams (e.g., penalty kill and power play). This came through in the stimulated recall interview when one coach discussed how his assistant coach played a crucial role during the intermission in preparing the team to defend a penalty at the start of the next period. These findings suggest that coaching during intermissions is not only a collaboration of input from various people, but also a strategic division of tasks among coaches. Furthermore,

it demonstrates the coaches' ability to work alongside their coaching staff and involve them in the coaching duties as way to conduct a more effective intermission.

In addition to working with their staff, the coaches also interacted with their players during intermissions. While previous research has argued that the quality of interpersonal relationships between a coach and a player is related to the feelings and emotions between both parties (Chan & Mallett, 2001), the coaches in this study emphasized the importance of the athletes' mental and emotional needs during intermissions (e.g., Becker, 2009; Gould & Maynard, 2009; Vargas & Short, 2011). More specifically, all the coaches emphasized how emotionally charged this time in competition can be depending on the many situational factors of the game (i.e., the score or rivalry game). In particular, they discussed the wide range of positive (i.e., relaxed, excited, or energized) and negative (i.e., nervous, angry, or frustrated) emotions the athletes experience and how those emotions could influence the athletes' performance in the next period. For instance, the coaches explained if the players were too relaxed or too frustrated their overall performance may suffer. Therefore, the coaches stressed the importance of examining their athletes' mood and body language, and altering the content and delivery (i.e., tone of voice and body language) of their intermission speech. For example, one coach discussed how he saw his players' eyes drop and shoulders slump after he finished addressing the team, and how he responded by re-engaging with them instead of leaving the locker room. Another coach explained that when his team was too hyper, he calmed them down by talking slow and being very relaxed during his intermission speech. This ability to read athletes' emotions and use that information to adjust coaching behaviors is related to a psychological concept referred to as emotional intelligence (Salovey & Mayer, 1990). Emotional intelligence is defined as "the ability to monitor one's own and other's feelings and emotions, to discriminate among them and to use

this information to guide one's thinking and actions" (Salovey & Mayer, 1990, p. 189). As research has begun to examine this concept within coaching (e.g., Chan & Mallett, 2011; Lee & Chelladurai, 2016; Thelwell, Lane, Weston, & Greenlees, 2008), evidence suggests that emotional intelligence is an important quality of an effective coach that has been associated with coaching efficacy (Thelwell et al., 2008) and leadership skills (Chan & Mallett, 2011). Adding to the current literature, the coaches in this study emphasized the importance of emotional intelligence within the intermission context and using it to guide their intermission speech. Furthermore, the current findings support the notion that research should continue to examine emotional intelligence within the coaching context.

Finally, the current study builds on the growing concept of coaching as orchestration (Jones & Wallace, 2005), which focuses on the social activity of coaching and how coaches manage and guide others in a complex environment (Ritchie & Allen, 2015). More specifically, coaching as orchestration focuses on the coaches' ability to plan, organize, monitor, and evaluate evolving circumstances, and then respond in a manner that will positively influence the individual and collective performance of those being coached (Jones & Wallace, 2005). While coaching as orchestration has been proposed as an alternative concept of coaching (Jones & Wallace, 2005), only a limited number of studies have examined the concept of coaching as orchestration in elite coaching (Richie & Allen, 2015; Santos et al., 2013). Although, the purpose of this study was not to examine coaching as orchestration, the findings add to the current literature by highlighting this concept within the intermission context. For instance, coaches thoughtfully evaluated and responded to the athletes' emotions and their assistant coaches' feedback (Jones & Wallace, 2005). In addition, the coaches provided their athletes with directions and tasks for the next period, such as technical and tactical adjustments, and they

would assign specific jobs to their assistant coaches during intermissions, such as managing the special teams or addressing the players. In line with coaching as orchestration, this coaching approach in intermissions could be interpreted as "behind-the-scenes string pulling", where the coaches oversee and manage multiple people and their responsibilities without obtrusively interfering in the game itself (Jones & Wallace, 2005). While much remains to be explored with coaching as orchestration, the findings from this study suggest that research should continue to examine the concept of coaching as orchestration in elite coaching contexts. Furthermore, the current results reveal the coaches' strategic and thoughtful approach to the social aspect of intermissions, which is comparable to their preparation and application of their professional knowledge.

In summary, this section highlighted the coaches' interactions with their assistant coaches and their evaluation of their athletes' emotional state in order to demonstrate their interpersonal knowledge within intermissions. More specifically, it revealed that coaching during intermissions is a collaborative effort relying on a full network of staff and is focused on the athletes' emotional needs (Ritchie & Allen, 2015). Furthermore, this section provided support for the concept of coaching as orchestration. However, while coach effectiveness relies heavily on their ability to successfully work with other people, it also depends on their use of self-reflection (Côté & Gilbert, 2009). Therefore, the following section will examine the coaches' intrapersonal knowledge.

Intrapersonal Knowledge

Intrapersonal knowledge involves personal reflection and an understanding of oneself (Côté & Gilbert, 2009). This section will highlight the coaches' intrapersonal knowledge by

discussing their use of self-reflection in their continuous learning process and their self-regulation of emotions during intermissions.

Reflection has been identified as a key component of intrapersonal knowledge and overall coach development (Côté & Gilbert, 2009). More specifically, previous research has highlighted coaches' commitment to learning, and their use of self-evaluation and reflection to improve their coaching strategies (e.g., Donoso Morales et al., 2016; Gallimore, Gilbert, & Nater, 2014; Gilbert & Trudel, 2001; Vallée & Bloom, 2016). Correspondingly, all the coaches in this study revealed that coaching is a continuous learning process, and despite all their experience and success they still make mistakes and use those mistakes to grow and improve. While previous research has shown that Canadian university national championship coaches engage in self-reflection specifically to modify and improve their coaching strategies for the national championship tournament (Donoso Morales et al., 2016), this study revealed NCAA coaches reflected on and continued to evolve their intermission coaching strategies. For instance, one coach explained how his intermission approach continues to change throughout the season as he takes the time to self analyze himself after each game and reviews the decisions he made during the intermissions. Another coach discussed how he looks back at specific moments in the game, such as the intermission, and re-evaluates what he did and what he could do better next time similar to an athlete assessing his performance. Given the impressive achievements (i.e., 51 conference championships, 5 Division I coach of the year awards, 6 national titles) of the current participants and their desire to continue to improve their intermission coaching, these findings provide additional evidence to the literature, which shows elite coaches learn and develop even after achieving high levels of success (e.g., Donoso Morales et al., 2016; Mallett, Rynne, & Billett, 2016). In particular, the introspective approach the current participants took in their

continued development and their extensive amount of experience coaching supports the notion that self-reflection is a valuable source of coaching knowledge as coaches continue to progress in their career (Mallett et al., 2016; Vallée & Bloom, 2016). More specifically, the results from this study show that self-reflection is an important aspect of intermission knowledge, a component of coaching knowledge that had little previous insight or understanding.

In addition to reflecting on their intermissions, the coaches also had a strong sense of self-awareness and regulated their emotions during intermissions. As research has argued, coaches perform in their own way during competition (Gould, Guinan, Greenleaf, & Chung, 2002), and emotional control is crucial for an effective coach performance (Olusoga, Maynard, Hays, & Butt, 2012). More specifically, studies have highlighted the importance of coaches staying focused, handling crises, remaining composed in pressure situations, and understanding how their emotions might impact team performance (e.g., Donoso Morales et al., 2016; Gould et al., 2001; Gould & Maynard, 2009; Nelson et al., 2013). For example, Nelson and colleagues (2013) discovered that a semi-professional soccer coach experienced many emotions while coaching, but only presented the feelings he thought would assist him in fostering a successful sporting environment for his athletes. Correspondingly, in this study the coaches' intermission routines were structured so they had a cooling off period prior to addressing their team that allowed them to manage their emotions and adjust their mood according to what they wanted to accomplish. For instance, during his stimulated recall interview one coach discussed his negative emotions after his team went down 2-0 in the first period, and how he took the time to control those emotions prior to addressing the team and displayed a positive attitude in his team talk. This preference for exhibiting positivity during intermissions was discussed by all six coaches, and has been identified as a useful skill for managing high-pressure situations and creating

stronger bonds of trust between a leader and his followers (Chan & Mallett, 2011). Furthermore, these current findings exhibit two out of the five key components of emotional intelligence: self-awareness and self-regulation (Goleman, 2004). While self-awareness is the ability to recognize your own emotions and their effect on others, self-regulation is the ability to control and redirect those emotions in a productive manner (Goleman, 2004). As the stimulated recall and semi-structured interviews allowed the coaches in this study to detail their self-awareness and self-regulation during intermissions, the current findings reveal that coaches believe their emotional responses during the intermission could impact the team's performance in the next period (Chan & Mallett, 2011; Thelwell et al., 2008). Furthermore, the current results show that interpersonal skills and emotional intelligence are valuable tools for coaching during intermissions. Therefore, given that emotional intelligence can be developed through training (Kruml & Yockey, 2011; Nafukho, Muyia, Farnia, Kacirek, & Lynham, 2016), the current study suggests that emotional intelligence training should be considered in coach education programs.

In summary, this section highlighted the coaches' intrapersonal knowledge by discussing their self-reflection, self-awareness, and self-regulation. More specifically, the coaches discussed their introspective behavior both after and during intermissions. For instance, the coaches continuously evaluated their intermission coaching performance after competition and looked for ways to improve. In addition, they demonstrated a great deal of control during intermissions as they identified and managed their own emotions. While, research has argued that emotions are an important source of information for coaches when making decisions (Chan & Mallett, 2011), the next section will discuss the coaches' decision-making process during intermissions through the lens of NDM.

Naturalistic Decision Making

Research has shown that decision making is fundamental to coaching (Abraham et al., 2006), and this study revealed that coaches made numerous decisions throughout intermissions. For instance, they decided what tactical adjustments to make, and they determined both the content and delivery of their intermission talk. As the current study revealed, the coaches' decision-making process during intermissions was heavily focused on evaluating salient features of the current situation rather than considering and comparing multiple courses of action. This approach to decision making is comparable to the cognitive psychology concept of naturalistic decision making (NDM) (Klein, 1993). NDM describes how people make decisions in complex environments and under difficult conditions (i.e., limited time, high stakes, unstable conditions) (Klein, 1993), like those within competition. However, research has only recently begun to relate NDM to coaches' decision making during competition (i.e., Debanne & Laffaye, 2015; Harvey, Lyle, & Muir, 2015). The current time period of intermissions would appear to be an opportune time to apply NDM given that coaches have to cope with extreme amounts of pressure while managing the many different contextual factors of the game. In particular, a specific model of NDM, the recognition-primed decision (RPD) model (see Appendix A) will be applied to the results from the current study.

Out of the nine models that exist within NDM (Klein, 1997), the RPD model is the most commonly used and has found support in situations where the decision-maker has considerable experience to draw upon (Lipshitz, Klein, Orasanu, & Salas, 2001). According to the RPD model, analyzing familiar aspects of a situation allows the decision maker to identify the four main components of the model: plausible goals, relevant cues, expectations, and courses of action (Klein, 1993, 2008). These main features of RPD assist the decision-maker in relating the

present situation back to a similar occurrence from the past, which helps them determine how to respond (Klein, Calderwood, & Clinton-Cirocco, 1986). If the decision-maker is unable to match the current situation to a past experience and their expectations of the current situation are not met, the decision-maker will then seek more information (Klein, 1993). While the RPD model has been applied to study athlete decision making in competition (e.g., Kermarrec & Bossard, 2013; Macquet, 2009), very few studies have examined it in relation to coaches' decision making (e.g., Debanne & Laffaye, 2015). For example, Debanne and Laffaye (2015) studied handball coaches' defensive strategies in competition and found that, similar to the RPD model, the coaches were able to easily match the current situation with the appropriate defensive strategy based on significant features of the situation. However, the quantitative approach utilized by Debanne and Laffaye limited their findings to their pre-determined situational cues. More specifically, they only considered three factors of the situation in the coaches' decision-making process: the number of players each team had on the field, the score, and the period of the game. The current study utilized qualitative methods, which allowed the researchers to identify an unrestricted amount of situational factors coaches may consider during intermissions and gain better insight to the coaches' overall decision-making process. Furthermore, in the stimulated recall interviews the coaches could expand on specific scenarios and discuss situational factors that may have been overlooked in the semi-structured interviews or in a quantitative study.

The current results revealed that the coaches identified all four main components of the RPD model. For example, the coaches' meeting with their staff during intermissions allowed them to identify familiar problems within the game and important situational factors, in addition to strategize for the upcoming period. Furthermore, the coaches took the time to assess the athletes' mental, emotional, and physical state, which also acted as a relevant cue. In addition,

when the coaches evaluated the situation and their expectations were not met (i.e., poor team performance or an unexpected tactical strategy from their opponent), the coaches would then seek more information from various sources (i.e., video replay or input from assistants), as instructed by the RPD model. Finally, the most notable link between the RPD model and the results from the current study was the emphasis placed on experience in the decision-making process. More specifically, the coaches explicitly discussed how their experiences guided them throughout their decision-making process in intermissions. In particular, one coach explained that most situations he encounters during intermissions are familiar to him, and therefore he knows how to respond (Klein, 2008). Another coach even described his past experiences as a part of his DNA, which drives his behaviors and decisions during the intermissions. The current findings provide some early evidence to support the use of the RPD model in understanding and interpreting coaches' decision-making strategies during intermissions.

Although decision making has historically been seen as an analytical process focused on a strategic comparison of choices or options (e.g., Fishburn, 1970; Tversky & Kahneman, 1981), the RPD model highlights an intuitive component within the decision-making process (Klein, 2008). In particular, Klein (2008) explained that sometimes the process of matching the current situation with a similar past experience was done unconsciously and involved the decision-maker's intuition. In the current study, the coaches' referred to this quick and seemingly unconscious decision-making process as their gut instinct. In their own words, the coaches explained that they sometimes "followed their gut" or would "feel it out" when they made decisions during intermissions. In line with this intuitive concept, Chan and Mallett (2011) supported the notion and value of a "gut instinct" in coaching. More specifically, Chan and Mallett argued that emotions are an important source of information for coaches when they are

making decisions, and assessing their emotions to identify any gut feelings may be a key step in their decision-making process. Therefore, the current results offer support to both RPD and coaching research that claim decision making is a blend of intuition and analysis (Chan & Mallett, 2011; Klein, 2008), and that coaches' emotions, cognitions, and behaviors are all intertwined (Nelson et al., 2013).

Although the current study provides some evidence to support the RPD model, it is important to note that there were aspects of the model that did not come to light. For example, the crucial step in the model known as the mental simulation of potential courses of action was not expressed. According to the RPD model, once the decision-maker has identified a course of action, this step requires the decision-maker to imagine how that particular course of action will play out in the current situation. As the model explains, this process allows the decision-maker to assess the feasibility and potential outcome of the action. Furthermore, if the action does not play out well in the mental simulation, the decision-maker can then modify or adjust their chosen course of action (Klein, 2008), thus minimizing poor outcomes in real life and strengthening the decision-making process. While the results from the current study did not clearly demonstrate this aspect of the model in the coaches' decision-making process, it does not mean the coaches did not engage in a mental simulation of potential courses of action during intermissions. Given the elite sample of coaches in our study and their extensive experience, it is possible that this aspect of their decision-making process has become second nature during intermissions and therefore they chose not to articulate it during their interviews. Furthermore, while the box score and the contextual information provided to the coaches during their stimulated recall interviews were helpful in aiding their memory of the situational factors of the game, it would have been more challenging for the coaches to remember specific thought processes, such as a mental

simulation of a course of action. Therefore, further research is needed to better evaluate the RPD model during intermissions. More specifically, future research utilizing stimulated recall techniques may want to consider conducting the interview as soon as possible after the intermission, in order to maximize the coaches' recall abilities.

Overall the semi-structured interviews and stimulated recall used in this study provided insight to the cognitive processes of coaches during intermissions. More specifically, the current findings highlighted aspects of both RPD and emotions in their decision-making process. For instance, the current results provided support for the RPD model in coaching by revealing that decisions relied on a combination of situational factors and past experience. More specifically, the current study highlighted that coaches used their experiences to guide their decisions and behaviors in the complex context of intermissions. In addition, the current findings revealed that coaches sometimes relied on their intuition, which they referred to as a gut instinct. These current findings analyzing the coaches' decision-making process demonstrate that coaching during intermission is both a methodical and emotional task. Furthermore, intermissions consist of a series of critical decisions made by the coaches and future research should continue to examine the complex decision-making process in this context.

Chapter 6

Summary

Competition is a major component of the coaching process (Côté, Salmela, Trudel, Baria, & Russell, 1995), however, research examining coaching behaviors during competition, and particularly intermissions, has received limited empirical attention. Intermissions are the short period of time when coaches can interact with their assistants, analyze and adjust the game plan, and address their team as a whole (Bloom, 1996). Expert coaches have stressed the importance of using this time wisely (Elberse & Dye, 2012). Furthermore, coaches must make critical decisions during this time, such as what tactical adjustments to make and how to address their team. Therefore, the purpose of this study was to investigate coaches' knowledge and routines during intermissions from the perspectives of NCAA division I men's ice hockey coaches.

Upon receiving approval from the McGill Research Ethics Board, six coaches were recruited to participate in the study. All six participants were highly successful NCAA Division I men's hockey coaches and were purposefully selected based on their level of experience. Specifically, the coaches had fifteen or more years coaching experience, with at least ten years experience as a head coach at the NCAA level or higher, and a career winning percentage over .500 as a head coach in the NCAA. Exceeding these criteria, the participants in this study had an average of 31 years of coaching experience with an average win percentage of .572. Furthermore, the coaches combined for a total of 2833 wins, 57 NCAA tournament appearances, 16 Frozen Four appearances, 51 conference championships, and 6 national titles.

The current study utilized a qualitative method, which allowed the researchers to learn from the unique experiences of the participants (Martens, 1987). More specifically, a collective case study approach was implemented to determine how coaches approached and acted during

intermissions (Sparkes & Smith, 2014). The use of multiple cases allowed the researcher to gain knowledge from multiple perspectives and through the different contexts presented by each individual coach (Baxter & Jack, 2008). Given that interviews are considered to be one of the most important sources of information in case studies (Tellis, 1997), the current study utilized a two-part interview process. The two-part interview began with a semi-structured interview followed by a stimulated recall interview. Combined the total interview process ranged from 56-84 minutes long. The interviews were then audio recorded and transcribed verbatim. In preparation, a four-section interview guide (see Appendix B) was created for the semi-structured interview by the primary investigator and members of the research team. For the stimulated recall interview the primary investigator researched a specific game from the previous season, which was chosen by the participant prior to the interview. Then during the stimulated recall interview the interviewer verbally provided the participant with detailed information about the game, in addition to giving him a printed version of the box score. Following data collection, the semi-structured interviews were inductively analyzed using thematic analysis (Braun & Clarke, 2013). The results from the thematic analysis were used to deductively analyze (McCarthy & Jones, 2007) the stimulated recall data.

The analysis resulted in four over-arching themes: *coaching foundation, intermission blueprint, intermission situational factors,* and *intermission coaching behaviors.* The *coaching foundation* theme encompassed all the participants' similar trajectories in to their current positions as head coaches, including experiences as both athletes and assistant coaches. Furthermore, all those experiences created a basis of their coaching knowledge that the coaches utilized to construct their own approach to coaching during intermissions. The coaches' approach to intermission was represented by the *intermission blueprint* theme. Most notably, this theme

included their preparation strategies and their intermission routines. Using this blueprint to navigate the intermissions, the coaches then applied their knowledge to analyze the current *intermission situational factors* of the game, such as the current score, their team's performance, and the athletes' emotional state. This analysis of the current situational factors, combined with the coaches' blueprint and knowledge from past experiences, helped the coaches determine what to do and how to communicate to their team during intermissions, which is represented by the *intermission coaching behaviors*. More specifically, the intermission coaching behaviors provided insight to coaches' actions and decision-making during intermissions. Furthermore, these findings build upon the limited body of research investigating coaching in competition. In particular, the current study provides an in depth look at a time in competition during which coaches believe they can make a significant impact on the their team's overall performance.

Conclusions

- The learning experiences coaches had as collegiate athletes and as assistant coaches helped form the basis of their coaching knowledge.
- Coaching during intermissions improves with experience, however it is a never-ending learning process full of mistakes and lessons. As a result, coaches self-reflected to improve their coaching strategies.
- Coaches' individual personalities played a role in their coaching style during intermissions. Authenticity was particularly important to these coaches.
- Coaches prepared for intermissions in their day-to-day tasks by formulating a game plan, creating habits in practice, and building trust with their players.
- Coaches had a consistent routine during intermissions, which allowed them to efficiently analyze the game and make quick decisions.

- Coaches had a cooling off period that allowed them to mentally and emotionally prepare themselves prior to addressing their team.
- Four coaches provided an exact time when they entered the locker room. The other two coaches provided a small 2-3 minute time frame. On average the coaches met with their team with 8:42 left in the intermission.
- Coaches gave different time lengths for their talk, ranging from 1-6 minutes. The average time coaches spent talking to their team was 3.5 minutes.
- The coaches utilized multiple sources of information (i.e., in-game notes and video) to analyze the game and they received input from various people, such as assistant coaches, trainers, and equipment managers.
- Coaches discussed the importance of not letting the score impact their players' focus between periods. More specifically, if their team was winning the coaches focused on setting smaller goals to keep the team focused. If their team was losing the coaches tried to build up the players' confidence by highlighting some positive things. Regardless of the score, coaches focused more on the quality of their team's performance.
- Highlighting their emotional intelligence, the coaches also considered their players' emotional state by examining their body language and interactions. For example, if their athletes' shoulders were slumped, then the coaches knew the team's confidence was down, and they had to adjust their intermission talk accordingly.
- In line with naturalistic decision making, the coaches analyzed specific situational factors before making any decisions. Their previous experiences were also considered.
- The coaches discussed the importance of being flexible in their game plan and making tactical adjustments during intermissions.

- During intermission coaches decided what to say to their team and how to say it. This included determining how much of the intermission talk would be focused on tactical and technical material and how much should address the team's mental and emotional state.
- Coaches tried to limit their intermission talk to three key points.
- While the coaches all stressed the importance of positive reinforcement during intermissions, they sometimes displayed negative emotions in their team talk when they were upset with their team's performance and effort, not necessarily when they were losing.
- Coaches' delivery of their intermission talk included their tone of voice and their body language, which depended on the message the coach was trying to send.
- Pep talks are only successful if used sparingly.
- Coaches followed their gut during intermissions and discussed the intuitive aspect of coaching. Occasionally their gut instinct would cause them to stray from their routine.
- In line with the growing concept of coaching as orchestration, the coaches thoughtfully evaluated and responded to evolving circumstances during intermissions and provided guidance to their athletes that facilitated individual and collective performance.

Practical and Theoretical Implications

While research has primarily focused on other aspects of competition, particularly from the athletes' perspectives, the current study provided one of the first empirical accounts of coaching during intermissions from the perspective of the coach. The results from this study add to the current body of literature in coaching psychology by providing insights on how some of the most successful NCAA division I hockey coaches thought and behaved during intermissions.

To begin, the results of the current study revealed the extensive preparation that goes into coaching during intermissions. Despite the seemingly spontaneous nature of this moment in competition, the coaches discussed how their daily practices and tasks influenced their intermissions. For instance, coaches' preparations included developing a strong game plan, building a team culture, and creating habits with their team. More specifically, in his stimulated recall interview one coach discussed how preparing his team to face adversity during a play-off game helped his players keep their composure and remain focused during intermissions. Less experienced coaches may benefit from these findings by gaining a greater understanding of the importance of preparation and its impact on different aspects of the game, such as intermissions. Furthermore, given that the participants discussed some of their preparation strategies, coaches may gain insight on how to successfully prepare for intermissions.

In addition to preparation, the coaches all followed strict routines during the intermissions. These routines benefited not only the coaches by helping them efficiently make use of the short amount of time during intermissions, but also the athletes. More specifically, the routines helped the coaches quickly gather information and analyze the game, and they provided the athletes with time to take care of any physical needs, discuss amongst each other, and prepare for the coaches' intermission talk. In addition, the coaches always tried to address the team at the same time of intermissions so the athletes would know when to be ready. These current findings highlight the importance of maintaining routines during intermissions, as well as provide a blueprint of their intermission routines that could help aspiring coaches.

As a part of their routine, the coaches listened to feedback and input from their coaching staff. While all the coaches discussed the important role their assistants played during the intermissions, one of the coaches explained that he didn't always involve or take advantage of

his coaching staff as much as he should have. Therefore, these findings may be of interest to new or less experienced coaches who do not utilize their coaching staff as a resource. As the current findings showed, coaching during intermissions is a collective effort and the coaches welcomed input and help from those around them. Furthermore, given the unique characteristics of intermissions (i.e., time constraints, unpredictable situational factors), dividing tasks among the coaching staff was a strategy coaches in this study used to be more efficient and effective during intermissions. In addition, assistant coaches could gain insight to the type of assistance they could provide the head coach during intermissions and different roles and responsibilities they could take on during this time in competition.

During intermissions the coaches also focused on their athletes' emotional needs. For example, one coach discussed a time when he was angry with his players but the team needed him to be very positive and supportive. While the coach would have responded based on his own emotions and not considered the needs of the athletes earlier in his career, he explained how he has learned to analyze and adjust his own emotions to better benefit the athletes' needs. Therefore, these findings may also be of interest to coach education programs that may consider incorporating emotional intelligence training into their programs.

In addition to offering practical implications for coaches and coach education programs, the current findings also provide a basis for future research in growing concepts in sports, such as emotional intelligence, naturalistic decision making, and coaching as orchestration. First off, this study highlights a time in competition when emotional intelligence seems to play a significant role and suggests that future research should continue to examine emotional intelligence in this context. In addition, the current study also provides great insight to the decision-making process of coaches during intermissions. While research on coach decision

making is limited, the current study adds to the literature by employing naturalistic decision making as a lens to better understand the coaches' decision-making process. Furthermore, the current findings offer support for the concept of coaching as orchestration. Given that only a limited number of studies have applied the concept of orchestration to coaching contexts, these results may benefit researchers by providing insight to a coaching context where coaching as orchestration is applicable.

Finally, given that intermissions are largely unexplored in the coaching science literature, the current findings provide a basis for future coaching research. While the broad scope of this study revealed the general routine coaches followed, as well as their roles and responsibilities, there is a lot more that needs to be explored. For example, future research could further analyze coaches' decision-making processes during intermissions, study the assistant coaches' roles during intermissions, or examine intermissions from the athletes' perspective.

Limitations and Recommendations

Although the current study provides new insights on hockey coaches' intermission knowledge and routines, some limitations need to be addressed. To begin, the coaches in this study were all NCAA division I hockey coaches, which could limit the generalizability of the current results. More specifically, the NCAA is a league that creates a unique sporting environment for both the coaches and athletes. While it is a university sport league, similar to the Canadian Interuniversity Sport (CIS), the NCAA division I has invested more money in the athletes and coaches and it garners much more attention from fans and media than any other intercollegiate program. Therefore, both the coaches and the athletes may experience more pressure during competition, specifically during intermissions. Furthermore, the results may not be applicable in lower divisions of the NCAA, such as the NCAA division II or division III,

which are not given the same amount of financial resources or attention. Therefore, future research should consider examining coaching during intermissions at different levels of the NCAA or in different leagues, like the CIS.

In addition, NCAA hockey is a unique sport given that it has two intermissions per game. Coaches in other sports, such as soccer, may approach intermissions differently knowing that there is only one opportunity to interact with their support staff and team. Future research studying intermissions should consider the number of intermissions per game and look to examine other sports. Furthermore, the coaches were all males who coached male athletes. While there are currently no female coaches in NCAA division I men's hockey, these results may differ from a study that were to examine the intermission of female or male coaches in NCAA women's hockey. Additionally, our coaches were extremely experienced and successful within the NCAA and represent an elite group of NCAA division I coaches. As the coaches noted, their approaches and strategies to intermissions have all evolved over time and still continue to improve. Therefore, the results may not be representative of all NCAA division I men's hockey coaches, especially those with less experience. Overall, future research should consider examining coaches across different leagues, sports, genders, and experience levels in order to gain a better understanding of the different factors that may influence a coach's intermission approach.

In addition to our unique sample, our data is limited to the perspectives of head ice hockey coaches and do not represent the athletes' or assistant coaches perspectives or experiences of intermissions. More specifically, the coaches' interviews could have been influenced by their perceptions of themselves and their coaching. Therefore, future research should continue to analyze intermissions from the perspectives of other people to create a more

comprehensive understanding of this time in competition. For example, studies may conduct stimulated recall interviews with both coaches and their athletes in order to compare their experiences during the same intermission period. Moreover, stimulated recall interviews can take place sooner after the chosen game or intermission, or could incorporate observational data or video recordings to better verify the coaches' responses. Finally, examining intermissions from different perspectives should consider examining the overall impact coaching behaviors during intermission have on the athletes and their performance within the game.

Overall, the current study has indicated that there are many factors and variables at play during intermission and the coaches spend a considerable amount of time preparing for and thinking about intermissions. Although examining the coaches' prior preparations was not the purpose of this study, the results revealed that preparations before the game and throughout the season significantly impacted what the coaches did during intermissions. More specifically, the study showed that coaches' behaviors during intermissions are well thought out and purposeful. In addition, the coaches' responses revealed that they believe they can make a significant impact on the outcome of the game during intermissions. As a result, intermissions are a complex and unique time in competition that deserve further attention and examination in coaching science research.

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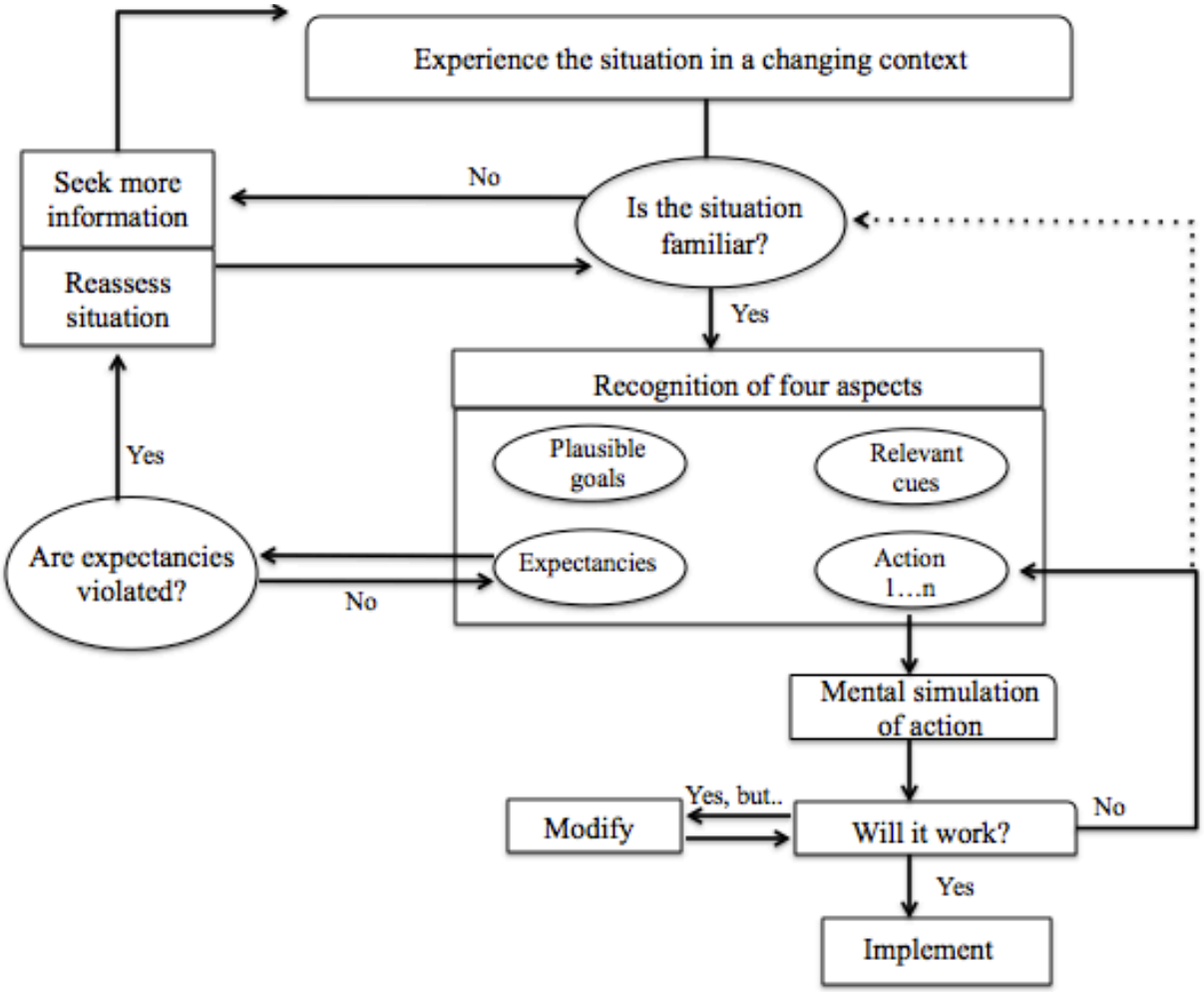
Appendix A

Recognition-Primed Decision Model



Adapted from:

Klein, G. A., Orasanu, J., Calderwood, R., & Zsambok, C. E. (Eds.)(1993). *Decision making in action: Models and methods.* Norwood, NJ: Ablex Publishing Corporation.

Appendix B
Semi-structured Interview Guide

Pre-Interview Routine
Introduction
Consent Form

Opening Questions

1. Briefly describe your career progression in coaching?

2. Describe your coaching style during competitions, including your most important roles during this time.

Key Questions

3. Describe the importance of intermissions from both a player's and a coach's perspective?

4. Walk me through the typical process from the time the buzzer sounds until the puck drops and explain your roles and routines during intermissions.
    a. Who on your staff do you talk to and about what?
    b. What information are you seeking from those you talk to?
    c. Do you go in to the locker at a specific time?
    d. How much of your intermission is spontaneous?
    e. Do you always interact with the team as a whole or do you ever pull specific individuals aside?
    f. Do you make technical or tactical adjustments?
    g. Does the first intermission differ from the second intermission?

5. How does your intermission routine vary depending on factors such as the score, team performance, rivalry game, or time of season?

6. How do you determine what to say to your team during intermissions?
    a. Length of talk?
    b. Does your tone vary (loud, angry, calming, etc.)?
    c. Does emotion play a role?
    d. Do you ever try to communicate a message non-verbally to your team?

Summary Questions

7. Overall, how influential do you think the intermissions are on the outcome of the game, and what is the most important job of a coach during intermission?

8. How do you think your approach to intermissions has changed throughout your coaching career?

9. What have been the major sources of influence of your coaching knowledge and practices during intermissions? How and where did you learn your strategies?

10. If you were asked to provide a new coach with advice for coaching during intermissions in the form of a list of do's and don'ts, what would your list include?

Concluding Questions

11. Is there anything related to our interview that we did not cover that you would like to add?

12. Can you identify any specific games in the past season where your coaching approach to intermission sticks out to you as particularly memorable?
    a. We will talk about this in more detail during the stimulated recall interview.

13. Do you have any final questions or comments?

Appendix C
Recruitment Script

Dear Coach_____,

My name is Julia Allain and I am currently working towards a Master's degree in sport psychology under the supervision of Dr. Gordon Bloom in the Department of Kinesiology and Physical Education at McGill University. My supervisor and I would like to invite you to participate in our research study examining NCAA Division I men's head hockey coaches' knowledge and routines during intermissions. You have been identified as a potential participant based on criteria that highlighted both your experience and success as a coach.

This study has been reviewed and accepted by the McGill University Ethics Board, and any information you provide during this study will remain confidential. If you choose to participate, I will conduct two separate interviews with you, at a time and place of your convenience, in your geographical region. The two interviews combined will last approximately 2 hours and will occur within 48 hours of each other. If more information is required, then a follow-up telephone conversation may occur.

Should you have any questions concerning this study, please feel free to contact either my supervisor or myself. Our contact information is provided at the bottom of the page. The McGill Sport Psychology Research Laboratory has a history of producing influential research on sport coaching and leadership. Please visit our website if you would like to learn more about our research: http://sportpsych.mcgill.ca.

Thank you for considering participating in this research project, and I look forward to hearing from you!

Sincerely,
Julia Allain

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Appendix D
Informed Consent Form

This study is in partial fulfillment of the requirements for the degree of Master of Arts for Julia Allain, a graduate student in sport psychology in the Department of Kinesiology and Physical Education at McGill University. We would like to invite you to participate in our study titled, "Routines and Knowledge of NCAA Hockey Coaches During Intermissions". Should you agree to participate you will be asked to partake in two audiotaped interviews, lasting approximately 2 hours total, without payment. During the interview you will be asked to discuss your coaching routines and strategies during intermissions, the decisions you make, and the factors you consider during this time. In addition, we will ask you to reflect on intermissions during games from your previous season. If more information is necessary, then a follow up telephone interview may occur.

At the end of the interviews you will have the opportunity to clarify or edit any comments you made. You will also receive a typed transcript of the interviews, which may be edited at your discretion. Prior to publication, you will receive copies of the results and conclusions of the study. Any and all information you provide throughout the study will **remain confidential**. Only the principle investigator, Julia Allain, and the faculty supervisor, Dr. Gordon A. Bloom, will have access to identifiable data. All audio files and the digital copies of interview transcripts will be securely stored in encrypted folders on a password-protected computer for a period of seven years. Any paper copies of notes will be converted to digital files. After ensuring they were converted accurately, the paper copies will be destroyed. Seven years after the study ends all the data will be destroyed. The information will be used for publication purposes and scholarly journals or for presentations at conferences. Your name and identity will not be revealed at any time. The McGill Research Ethics Board has reviewed this study for compliance with its ethical standards. **Your participation in this study is completely voluntary and not mandatory. You are free to refuse to answer any questions or withdraw from the study at any time for any reason without penalty or prejudice. You may refuse to continue participation at any time, without penalty, and all information gathered up to that point will be destroyed.**

After reading the above statement and having had the directions verbally explained, it is now possible for you to provide consent and voluntarily agree to participate in this research project based on the terms outlined in this consent form. You will be provided with a signed copy of this consent form for your records. Please contact the Research Ethics Officer at 514-398-6831, or Lynda.mcneil@mcgill.ca, if you have any questions or concerned regarding your rights and welfare as a participant in this research study. Please sign below if you agree to participate in this study.

I agree **(CHECK YES □ OR NO □)** to the audiotaping of the interviews with the understanding that these recordings will be used solely for the purpose of transcribing these sessions.

_____ _____

Signature Date

_____ _____

Researcher's Signature Date

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Appendix E
Coach Narratives

C1 Narrative

When discussing his role as a coach, C1 referred to himself as part of a support staff for his players. As much as he would like to say that the players are part of "his" team, he thinks the team truly belongs to the veteran players and the captains. Therefore, as a member of the support staff, C1 tries his best to guide the players towards success during competition using positive reinforcement and tactical adjustments.

C1 considers himself to be a patient coach during games, feeling things out and waiting until intermissions to make any major changes. He believes intermissions are the crucial time in a game to make adjustments because it allows him to inform the whole team of those adjustments all at once, keeping everyone on the same page. Early in his career C1 used to go straight to the locker room in the beginning of intermissions to address his team. Since then, he has learned to give his players time to settle down, and also give himself the opportunity to gather information prior to meeting with them. The information he is able to gather then helps him better prepare a game plan for the next period. In fact, C1 believes that the most important job of a coach during intermissions is to provide his team with a plan for the next period. For example, if his players have been struggling to get shots off, he helps them adjust their approach to create better opportunities.

In addition to the tactical aspects of his team's performance, C1 explained in his interview that a coach also has to address emotions during intermissions. This usually involves instilling confidence in the players when they are down by highlighting positive things from the previous period. However, even though C1 repeatedly emphasized positive reinforcement during his interview, he admitted to using sarcasm at times when he was unhappy with his team's performance. This came to light in the second period of his stimulated recall interview, where he used sarcasm to question his players' work ethic and commitment. Furthermore, he explained that he purposefully chose this game for the stimulated recall because it was a situation that required him to alter his typically positive approach with his players.

Overall, C1's intermissions are dedicated to creating a game plan and positively reinforcing his players. When he was asked in his interview to give advice to coaches on coaching during intermissions, C1 emphasized incorporating small short-term goals into the game plan for the players' to focus on. In addition, learning from his own mistakes, C1 advised coaches to give players a 5-minute break before addressing them during the intermissions. Finally, as often as you can, C1 advised coaches to finish the intermission on a good note. Ideally, the players will then leave the locker room with a positive mindset and hopefully enjoy the game.

C2 Narrative

Starting out as a volunteer coach, C2 spent a lot of time early in his career doing video work for teams. In his interview, he explained that this helped him develop good analytical skills and he described himself as a coach who "reads the ice really well". On the other hand, he admitted that his weakness as a coach is that he gets overly emotional at times. However, with experience, his self-awareness and temperament has gotten better during games. In addition, he stressed honesty as the key to his coaching success and emphasized the trust he has built with his players.

C2 thinks intermissions are a big influence on the outcome of the game. More specifically, he believes that the most important job of the coach during intermissions is to get your team into the right mindset. This was clear in his stimulated recall, where he utilized his tactical adjustments to shift the players' mindset from a defensive to a more attacking mentality. Furthermore, he thinks an intermission is the critical time to analyze the game and make any necessary adjustments. While much of this critical analysis relies on the notes he takes during the game and the input he receives from his assistant coaches, C2 admitted that sometimes coaching during intermissions relies on spontaneity and "gut feelings". More specifically, in his interview he highlighted his ability to read his players and "feel what the team needs at that moment."

During intermissions C2 wants to make sure his players have positive emotions and focused energy. For instance, he will sometimes look for a player who is struggling as he is walking off the bench and try to say something uplifting to him. C2 also said that he is aware of the energy level in the locker room. He believes if there is a lot of talking and noise in the locker room between periods, then there is a lot of positive energy. If the locker room is quiet, then C2 may try to get the energy level up by raising his own voice when he addresses the team. While he does this he will also provide them with guidance for the upcoming period. This is to ensure that he not only increases their energy but also focuses that energy towards the goal they are trying to achieve.

Overall, C2's coaching during intermission revolves around the players' mental and emotional state. When he was asked in his interview to give advice to coaches on coaching during intermissions, C2 stressed the importance of taking into account your team's needs and not letting your own emotions take precedent over theirs. In addition, he said to be positive and establish focus points before you go in to address the team. According to him, his positivity in the locker room between periods has been crucial in many of his team's come from behind victories.

C3 Narrative

C3 is an accomplished hockey coach who is confident and poised. When asked to describe his coaching style in competition, C3 responded by comparing hockey to a chess match with both teams trying to counteract each other's strengths. Therefore, he emphasizes the importance of observation and identifying the strengths and weaknesses of both teams during games. In addition to his vigilance during the game, C3 carefully watches his players during intermissions, paying particular attention to his players' interactions and body language, which he believes reveals a lot about the group dynamics and the emotional state of his team.

While C3 thinks intermissions can reveal a lot about a team, he believes the preparation done in practice, such as creating a game plan and honing his players' skills, has a bigger impact on the outcome of the game. Therefore, confident in his game plan and preparation throughout the week, C3 doesn't like to make too many changes during intermissions. In addition, he places a great deal of importance on giving players time to rest, recover, and communicate with each other during intermission. As a result, C3 doesn't have more than a few minutes with his team to impart something that he hopes will have a positive impact on the next period.

While strategy is important, C3 explained that with the young players in college hockey he addresses emotions more during intermissions. This became evident during his stimulated recall interview, where his short and quick interactions with the team were focused on making sure his players maintained their composure during an emotional rivalry game. In addition to addressing his players' emotional needs, C3 also does his best to remove himself from the emotional ups and downs of competition. He believes this increases his awareness and makes him more ready for the intermissions.

Overall, C3 highlighted the importance of observation and preparation during intermissions. When asked to give advice to coaches on coaching during intermissions, he emphasized the importance of "being in the moment" while staying emotionally calm. More specifically, he said to pay attention to what is happening both on and off the ice and address things as they come up. As he discussed, an intermission is an important snapshot of coaching and it is all about using your time wisely.

C4 Narrative

As a parent, C4 was able to draw many parallels between his role as a father and his role as a coach. In both contexts he considers himself demanding, yet fair. With both his children and his players, C4 said he tries his best to educate them and to hold them accountable. Specific to his role as a coach, he said he tries to regulate his players' emotions and energy level during competition. For example, C4 explained that during intermissions he tries to be "quiet in the eye of the storm" and "be the storm when it is quiet." In other words, when his players are upset he does his best to remain calm and when there is a lack of energy he has the tendency to get loud and be more vocal.

C4 thinks that intermissions are a crucial part of every game, whereby you can either gain or lose momentum. Furthermore, he believes great teams have a consistent intermission routine that allows them to successfully adjust and refocus for the next period. As C4 explained, just a few simple adjustments can have a significant impact on the outcome of the game. Determining which tactical adjustments are going to give his team the best chance of success is what he considers to be his most important task during intermissions.

Even though C4 thinks the tactical adjustments are an important part of intermissions, he always concludes his intermissions by reminding his players of the characteristics that make them a good hockey team. These characteristics include the passion, intensity, and effort that he expects from his team every night. Occasionally, these aspects of his team's performance are lacking and then C4 shifts his focus during intermissions from making tactical changes to addressing their overall performance. For instance, C4's stimulated recall interview highlighted an intermission where he solely addressed his team's work ethic and lack of intensity.

For the most part, C4's intermissions are focused on sticking to his routine and building momentum through tactical adjustments. However, he also stressed the importance of "following your gut" as a coach during intermissions. This was also highlighted during his stimulated recall interview when he broke his normal routine and addressed his players right at the start of intermissions. As a coach you shouldn't be locked in to a preset routine. According to C4, being flexible as a coach and trusting your gut is key to being successful during intermissions.

C5 Narrative

C5 began his coaching career at the high school level, coaching multiple sports. His coaching philosophy comes from the many different coaches he had as an athlete, particularly his football coach. He even referred to his coaching mentality as a "football mentality," as he is an emotional coach who acts on instinct. Early in his career, C5 admitted his emotions caused him to embarrass players by yelling at them during games. However, as he has gotten older and more experienced, he feels that he is better at managing his emotions and does not yell as much as he used to. In addition, C5 now lets his players play during the period and he tries to wait until the intermission to address the team and make any adjustments.

C5 believes intermissions are crucial in hockey because it is a fast-pace, transitional game. Once the puck drops, he explains, unless there is a whistle, everything is happening on the fly such as changing players and transitioning from offense to defense. This unique nature of hockey takes away a lot of control from the coach on the bench during competition. Therefore, intermissions provide him the opportunity to assess the game and make adjustments, and they give his players a chance to catch their breath.

The key to a successful intermission for a coach, according to C5, is flexibility. The game, he explained, is not going to go how you planned and you have to use your intermission to adjust. Furthermore, he prepares for intermissions by practicing flexibility throughout the week. He does this by changing things up in practice so any adjustments he may make during an intermission is not new to his players. In addition, C5 discussed how a coach has to manage the players' emotions during intermissions. This was evident during his stimulated recall when the other team scored a controversial goal with .1 second remaining in the period causing the emotions of his players to elevate as they entered the intermission.

Overall, C5 emphasized the lack of control a coach has during a hockey game and the importance of having flexibility during intermissions. In addition, his strongest piece of advice for coaches during intermissions was to speak to your players with respect. How C5 communicates with his players has been the biggest adjustment he has made on his coaching approach throughout the years, which has helped him have better and more productive relationships with his players.

C6 Narrative

C6 considers himself to be a conscientious and meticulous coach who strives to only make rational decisions. With a master's degree in education and through experience as a teacher, his actions and words are thoroughly thought out as he considers many different concepts from educational psychology in his coaching strategies. This became evident throughout his interview as he discussed his intermission approach.

To begin, when C6 goes in to address his team during intermissions, he explained that he is cognizant of the different learning styles players may have. Therefore, he always makes sure to write down what he says on a white board in order to incorporate both visual and auditory content. In addition, C6 considers the order in which he addresses different topics during intermission. For example, the first and the last things he says are going to resonate the most with the players so he tries to cover the most important things first and last. He also believes three topics is the ideal number of topics to cover during intermission before the players start to lose focus.

In addition to his educational background, C6 also highlighted many examples of continuous learning in his interview and claimed that he is constantly searching for ways to improve as a coach. Examples of continuous learning include frequent self-evaluations and input from those around him. With this open mindset, C6 has evolved from a teacher in the classroom to an active student of coaching.

Having an open mindset, continuously striving to get better and wanting to learn more, was the most important piece of advice C6 had for coaches. More specifically for intermissions, C6 advised coaches to be aware of how they deliver their message to their team. In addition, he also highlighted the importance of preparation before the game as a crucial component of a successful intermission. For example, during his stimulated recall interview, C6 highlighted the work done by his coaching staff the week prior to the game preparing their team to handle adversity during their upcoming play-off game. Therefore, although they faced a two-goal deficit during the first intermission, none of his players panicked. This allowed C6 to focus on tactical adjustments during intermission rather than worrying about his players' emotional state. He believes this preparation ultimately led to their come from behind victory.

Tables

Table 1

Alphabetical Listing of the Frequency of Codes Expressed by Each Coach

	Codes	C1	C2	C3	C4	C5	C6	Total	*f*
1	Addressing individuals	2	7	3	4	2	3	**21**	6/6
2	Addressing the team	1	1	0	0	1	0	**3**	3/6
3	Addressing the team - length of talk	2	1	2	2	1	0	**8**	5/6
4	Assistant coaches - addressing the team	1	1	2	0	0	1	**5**	4/6
5	Assistant coaches - input/feedback	2	3	1	1	1	3	**11**	6/6
6	Assistant coaches - roles	4	3	0	1	1	2	**11**	5/6
7	Athlete - emotions	5	4	4	1	4	4	**22**	6/6
8	Athlete - injuries	0	0	2	0	0	2	**4**	2/6
9	Athlete - physical recovery	0	2	2	0	0	0	**4**	2/6
10	Athlete - routines	0	0	0	3	0	0	**3**	1/6
11	Been there done that	1	3	3	1	1	1	**10**	6/6
12	Coach - emotions	6	4	3	4	5	3	**25**	6/6
13	Coach routine	2	1	5	2	3	2	**15**	6/6
14	Coach routine - straying	3	1	3	1	0	4	**12**	5/6
15	Coaching progression	1	1	1	1	1	1	**6**	6/6
16	Coaching staff meeting	2	4	2	3	0	1	**12**	5/6
17	Coaching style	2	3	2	2	5	2	**16**	6/6
18	Communication - between athletes	0	0	1	3	0	0	**4**	2/6
19	Communication - delivery	0	3	1	1	2	6	**13**	5/6
20	Communication - nonverbal	2	3	1	3	1	3	**13**	6/6
21	Content of team talk - emotion	3	2	4	1	3	1	**14**	6/6
22	Content of team talk - general	1	5	3	7	3	5	**24**	6/6
23	Content of team talk - strategy	6	2	1	0	0	2	**11**	4/6
24	Continuous learning	3	2	5	1	4	6	**21**	6/6
25	Cooling off period	4	1	0	0	0	1	**6**	3/6
26	Gut instinct	2	5	1	4	2	9	**23**	6/6
27	Hockey specific	1	0	1	1	3	0	**6**	4/6
28	In game analysis	2	0	3	1	3	0	**9**	4/6
29	In game notes	1	2	3	2	1	1	**10**	6/6
30	Intermission - 1st	1	1	0	1	0	0	**3**	3/6
31	Intermission - 2nd	3	2	0	1	2	1	**9**	5/6
32	Intermission - adjustments	3	1	1	6	8	1	**20**	6/6
33	Intermission - final minutes	1	1	0	3	1	0	**6**	4/6
34	Intermission - importance	2	5	8	4	6	3	**28**	6/6
35	Job of coach	1	3	2	4	2	3	**15**	6/6
36	Learning - as an assistant coach	0	1	0	2	0	0	**3**	2/6

37	Learning - as an athlete	2	0	0	1	1	0	**4**	3/6
38	Learning - from other coaches	0	0	3	0	0	1	**4**	2/6
39	Long term preparation	0	0	3	2	3	7	**15**	4/6
40	Non-hockey factors	0	0	1	1	2	0	**4**	3/6
41	Opponent	1	0	3	1	0	5	**10**	4/6
42	Pep talk	2	1	2	3	2	0	**10**	5/6
43	Score - importance	4	1	3	1	2	2	**13**	6/6
44	Score - losing	2	1	0	1	1	2	**7**	5/6
45	Score - winning	3	1	1	1	0	0	**6**	4/6
46	Team leaders	6	2	2	5	3	3	**21**	6/6
47	Time of season - beginning	2	0	1	0	2	4	**9**	4/6
48	Time of season - middle	1	0	3	0	0	0	**4**	2/6
49	Time of season - play-offs	3	1	0	0	1	0	**5**	3/6
50	Video	2	5	1	2	4	1	**15**	6/6
	Total	**98**	**90**	**93**	**89**	**87**	**96**	**553**	

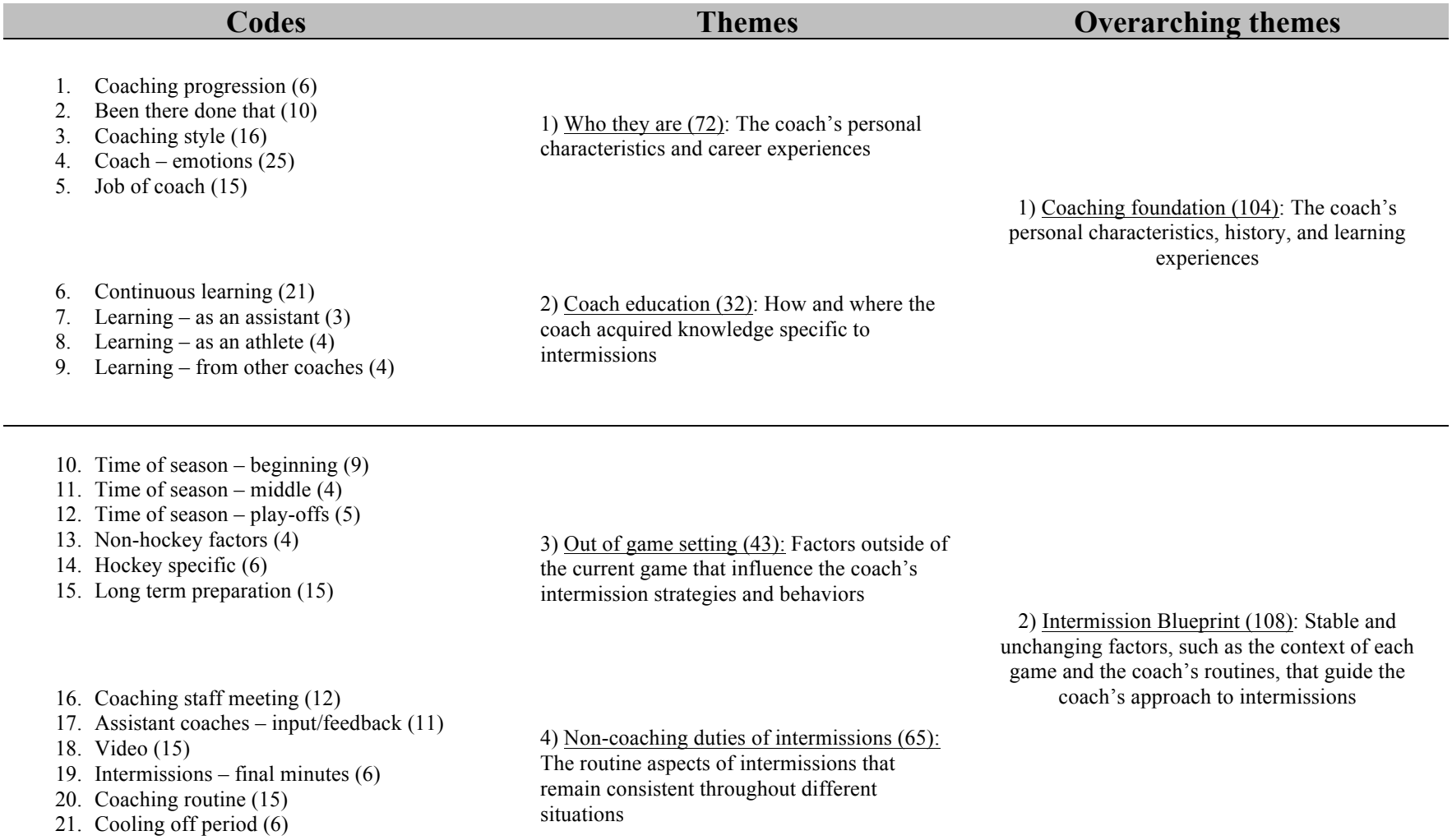
Table 2

Frequency of Overarching Themes Expressed by Each Coach in the Stimulated Recall Interview

Stimulated Recall Analysis								
	Theme	**C1**	**C2**	**C3**	**C4**	**C5**	**C6**	**Total**
1	Coaching Foundation	0	0	0	2	0	0	**2**
2	Intermission Blueprint	1	5	3	1	3	6	**19**
3	Intermission Situational Factors	6	6	9	8	8	10	**47**
4	Intermission Coaching Behaviors	6	12	4	10	2	7	**41**
	Total	**13**	**23**	**16**	**21**	**13**	**23**	**109**

Figures

Figure 1. Flow Chart of Codes, Themes, and Overarching Themes for Coaching in an Intermission (Note: numbers represent frequency of codes)



Codes	Themes	Overarching themes
1. Score – losing (7) 2. Score – winning (6) 3. Score – importance (13) 4. In game analysis (9) 5. In game notes (10) 6. Opponent (10) 7. Intermission – 1st (3) 8. Intermission – 2nd (9) 9. Intermission – importance (28)	5) In game setting (95): Factors inside the current game that influence the coach's intermission strategies and behaviors	3) Intermission situational factors (169): Factors beyond the coach's control that influence their decision-making and eventual behaviors during intermissions
10. Assistant coaches – roles (11) 11. Assistant coaches – addressing the team (5) 12. Communication – between athletes (4) 13. Athlete – injuries (4) 14. Athlete – routines (3) 15. Team leaders (21) 16. Athlete –physical recovery (4) 17. Athlete –emotions (22)	6) Other people's roles (74): The impact and responsibilities of others and their influence on how the coach thinks and behaves during intermission	
18. Addressing the team (3) 19. Addressing the team – length of talk (8) 20. Addressing individuals (21) 21. Intermission – adjustments (20) 22. Coach routine – straying (12) 23. Gut instinct (23)	7) Coaching duties of intermissions (87): The spontaneous tasks of a coach during intermissions that are reliant on the current game	4) Intermissions coaching behaviors (172): The coaching behaviors during intermission that require careful consideration of the game context and the in game factors, which then affect both the content of the team talk and how the coach delivers this information to the team
24. Content of team talk – general (24) 25. Content of team talk – emotions (14) 26. Content of team talk – strategy (11) 27. Communication – delivery (13) 28. Communication – nonverbal (13) 29. Pep talk (10)	8) Team talk (85): What the coach says to his team during intermissions and how he says it	