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Making the Best Even Better

Fine-tuning development and learning to achieve
international success in cross-country skiing

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To all who aspire to achieve excellence

Acknowledgements

After submitting my master thesis I had no intention to start on a PhD. However, soon after the submission the Norwegian School of Sport Sciences (henceforth NIH) searched for a PhD-student on a project on the organization of elite sports. This project captured my interest immediately. Today, being close to submission, I do not regret that I took the chance to work as a doctoral student. It has been an enormous privilege to use four years to deepen my knowledge about such an interesting topic. Furthermore, you know that you have been privileged when you have the chance to work with people who care about your work, well-being and that I know have my best interest at heart. In the following I thank those of you who have helped me with this thesis.

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Summary

The aim of this study is to systematically analyse the leadership and management of Norwegian elite cross-country skiing. More specifically, the thesis investigates how patterns of interaction within the context of Norwegian elite cross-country skiing shape athletes' reflection on training. Engaging in reflection is considered important to learn reliably from experience to improve the quality of everyday training and development. Consequently, quality of training increases the possibility for continuous development and hence sustained success in elite sports.

The main research question is: *How do the national elite teams in Norwegian cross-country skiing fine-tune processes of training and development?*

To analyze how athletes' reflection is shaped by their interaction with national elite team coaches, team-mates, and support personnel at Olympiatoppen (OLT) the thesis employ the theory of organizational mindfulness. It is an organizational sociology perspective on how to improve the quality of core processes so as to achieve continuous development. The theory was developed by studying large technical systems, such as nuclear power plants, aircraft carriers and air traffic control systems. Such organizations are characterized by being highly organized, having high ambitions, a strong emphasis on continuous evaluation, and small deviations may have major consequences. Apparently, these characteristics also define modern elite sport organizations. The underlying assumption within this theory is that reflection is the key to continuous improvement. Key mechanisms of reflection are sensemaking and interpretation. How people, for example coaches or support personnel influence athletes' reflection is captured in the concept of sensegiving. Hence, the theory of organizational mindfulness highlights how leadership and management influence social interactions in ways that encourage rich thinking and capacity for action at all levels.

The study was designed and carried out as a qualitative case study. It consists of four levels of analysis: the athlete level (article 1), the national elite team level (article 2), the inter-organizational level (article 3), and the system level (article 4). A total of 28 in-depth interviews were carried out with athletes on the national elite teams (11), national elite team coaches (5), sporting directors (3), OLT coaches (4), CEOs of OLT (2), and OLT specialists (3).

Article 1 investigates how elite cross-country skiers engage in reflection in order to improve the quality of training, and how their reflection is influenced by actors in the wider organizational setting. It addresses how the athletes perceive and organize their experiences with training by drawing upon the concept of sensemaking. Central to the analysis is how reflection can strengthen reliable learning from experience. Four reflection styles were identified: the conformist, the brooder, the experimenter, and the analyst. Self-critical athletes (brooder and experimenter) tend to generate more data available (notice more), and are more open to updating their assumptions based on newer experiences (develop the frames) because they have fine-grained frames. The result is a more comprehensive interpretation of how to deal with subsequent training efforts, that increases the likelihood for reliable learning from experience.

The less self-critical athletes (conformist and analyst) fail to generate data that may indicate that something needs to be adjusted in the training process (notice less) as they are

most preoccupied with training according to the plan. They have fewer and/or frames that are rather coarse. This result in an interpretation that mainly deals with confirming the beliefs embedded in the plans. Thus, it reduces such athletes' capacity for learning reliably from experience, as important feedback signals may be overlooked. An important implication for coaches is that they need to be aware of that athletes engage in reflection differently and consequently take these differences into account when interacting with the athletes improve their quality of training.

Article 2 investigates the coach behavior of the five national elite team coaches responsible for national elite teams between 2002 and 2011. More precisely, it analyzes how the national elite team coach, supported by support personnel, all act as sensegivers in individual training processes. The concept of sensegiving was used to direct attention to how coaches and support personnel intervene on athletes' sensemaking to stimulate their reflection. One of the coaches actively challenges the value of athletes' reflection, emphasize scientific knowledge as the basis for the design of the best training programs, with little attention to individual differences, the aim of coach intervention is to make sure that the athletes follow the plan, and the coach is the authoritative sensegiver leaving little space for other sensegivers to intervene. The other four, in contrast, saw the stimulation of mindful reflection among the athletes as a key to success. Their approach reflects institutionalized values and attitudes in the wider elite sport system. These coaches emphasize the importance of stimulating and developing athletes' capacity for reflection. Hence, how these coaches stimulate athletes' reflection strengthens reliable experience-based learning that contribute to continuous development.

Article 3 study how the national elite team coach and sporting director within cross-country skiing act as gatekeepers in the interaction with OLT between 2002 and 2011. Central to the analysis is how interpersonal relations, characterized by reciprocal credibility and trust, shape the exchange of knowledge and create space for mutual challenges. The findings illustrate that the national elite teams in period 1 (2002-2006) had a more distant interaction with OLT than the national elite teams in period 2 (2006-2011), despite that the formal agreement on cooperation was the same in both periods. This seems to be a result of a lack of reciprocal trust and credibility in the relationships between the gatekeepers and key actors at OLT. Furthermore, the article identifies two different forms of conceptual slack not previously described in the literature, *domain-specific* and *holistic*. Whereas the gatekeepers in period 1 facilitated domain-specific conceptual slack, the gatekeepers in period 2 facilitated holistic conceptual slack. Holistic conceptual slack stimulates reliable learning to a larger extent than domain-specific because it increases the variety of analytical perspectives. The result is a more nuanced picture of how to achieve excellence and can be seen as an important prerequisite for reliable learning.

Article 4 explores the organizational practices and culture of Norwegian elite sports, coordinated by OLT. The organizational practices within OLT are analyzed in relation to core elements of organizational mindfulness (preoccupation with failure, reluctance to simplify interpretations, sensitivity to operations, commitment to resilience, and deference to expertise). The findings contextualize the core elements in elite sports and illustrate that the organizational practices at OLT is consistent with the core elements. However, organizational mindfulness is not solely present within OLT. Organizational mindfulness emerges in the

interactions that take place at the interface between OLT and the national elite teams. Organizational mindfulness is created and emerges at all levels within the inter-organizational structure when 1) Roles and responsibilities are well-defined, 2) The actors have established close interpersonal relations characterized by reciprocal credibility and trust (as described in article 3), 3) The support personnel and OLT coaches are included to act as sensegivers both towards athletes and elite team coaches, 4) The interaction between the actors within the national elite team and OLT occur in a way which supports the athletes, independent of reflection style, to learn more reliably from experience.

The four articles highlight that the extent to which an elite athlete manages to learn reliably from experience is considerably influenced by patterns of interaction within the boundary of the organizational context s/he is embedded in. Furthermore, the articles illuminate the fact that it is the patterns of interaction among organizational members that produce organizational mindfulness on the different levels. The patterns of interaction are embedded in shared values which define the organizational culture and consequently shape how people act.

A major conclusion points to the fact that the national elite teams in cross-country skiing can benefit a lot from actively taking advantage of a close interaction with OLT. Hence, how the national elite teams in cross-country skiing interact with OLT in delivering elite athlete development towards the end of the period being studied here seem to be very close to the ideal form of cooperation within the Norwegian system. At the same time, the findings also illustrate that although organizational mindfulness seems to be the ideal for all ambitious elite sport organizations, it is hard to attain. The thesis provides empirical support for organizational mindfulness in an elite sport context and even refines the theory within this context. Finally, it identifies important prerequisites not previously described in the literature.

List of articles

Article 1:

Andersen, S.S., Hansen, P.Ø., & Hærem, T (in second revision). Strong beliefs – ambiguous feedback signals. How elite athletes reflect on their training in an organizational setting. *Sport in Society*

Article 2:

Hansen, P.Ø., & Andersen, S.S. (in second revision). Coaching elite athletes: How coaches stimulate elite athletes' reflection. *Sports Coaching Review*

Article 3:

Hansen, P.Ø., Andersen, S.S., & Hanstad, D.V. (under review). The sporting director and national elite team coach as gatekeepers within the Norwegian elite sport system.

Article 4:

Hansen, P.Ø. (under review). How do they do it? The Norwegian approach to elite athlete development.

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1.0 Purpose of the thesis

1.1. Background and research questions

Exceptional success in elite sports has captured my fascination ever since I was a child. A question that has become of increasing interest to me is why some athletes and teams manage to *sustain* success in elite sports, while others fade away after winning just one medal. An important part of the answer may be found in the way they pursue training and development. However, given that modern elite sport is a highly organized activity, it is likely that the organizational structure, practices and culture surrounding elite athletes influence the extent to which the training that is carried out is of the best possible quality. This thesis aims to contribute to enhancing our understanding of how leadership and management within the organizational context of elite sports influences how athletes and teams can sustain success by continuously improving their quality of training.

This study explores the leadership and management of training and development within Norwegian elite cross-country skiing (located within the Norwegian Ski Association). To capture this, there is a need to understand how the elite athletes reflect upon their everyday training as this is considered as a precondition for how leadership and management at different levels are carried out so as to support and develop elite athletes. Leadership and management are studied at four levels, each addressing a sub-question related to the main research question presented below: 1) The athlete level: How do elite athletes engage in reflection to improve the quality of training?; 2) The national elite team level: How do national elite team coaches and support personnel engage in sensegiving to influence athletes' reflection?; 3) The inter-organizational level: How do national elite team coaches and sporting directors act as gatekeepers?; 4) The system level: How does Olympiatoppen, the responsible organization for elite sport in Norway, work to deliver effective elite athlete development?

In sum, these sub-questions identify underlying conditions and critical mechanisms for a constructive interaction between Olympiatoppen (OLT) and the national elite teams, and how this interaction influences the manner in which the elite skiers pursue their training and development. To this end, the manner in which elite cross-country skiers fine-tune development and learning to improve the quality of everyday training will be analyzed in the light of how patterns of interaction within the organizational context of Norwegian skiing shape elite athletes' reflection. The main research question is: *How do the national elite teams in Norwegian cross-country skiing fine-tune processes of training and development?*

The thesis provides insight into how a group of world-class athletes plan, implement and evaluate everyday training. It analyzes how the leadership and management of everyday training influence the extent to which elite athletes learn reliably from experience. The patterns of interaction between the elite team coaches and the athletes, as well as how the elite team coaches actively take advantage of resources available within the elite sport system, has major implications for how athletes learn and how this affects quality of everyday training.

Norwegian cross-country skiing was selected as the main theme for several reasons. First, this is a sport where Norway has enjoyed exceptional international results over the last twenty years (FIS, 2013), although with considerable variation in terms of results among athletes and national elite teams. Second, cross-country skiing represents a type of endurance sport where reflection is essential in order to fine-tune everyday training in order to improve quality of training and avoid over-training (Tønnessen & Sandbakk, 2012). Finally, it is well documented that the relationship between the national teams in cross-country skiing and OLT has varied considerably from the 1990s (Hanstad, 2002) to the present (Haugli, 2009; Kroksæter, 2011; Mangelrød, 2011a).

International comparisons show that there has been a convergence of national elite sport systems among developed countries over the last 20 years. Common elements include the construction of elite facilities, support for full-time athletes, the provision of coaching, sports science and sports medicine support services, together with a hierarchy of competition opportunities centered on preparation for international sports (De Bosscher, Bingham, Shibli, van Bottenburg, & De Knop, 2008; Houlihan & Green, 2008). Despite this tendency towards convergence, there may be significant differences in how training and development are managed within such systems. However, we know little about how a national elite sport system influences athletes' training. There are few studies of how elite sport systems support and influence elite athlete development, not to mention the role of leadership and the management of training and development, and how national sports associations (national elite teams) take advantage of resources embedded within the elite sport system. The intention of this study is to contribute to increased knowledge in this area.

Training and development are core processes for all elite athletes. As elite sport has become a highly organized activity, international competitiveness is influenced by how national sport associations interact with the national elite sport organization in the management of everyday training and development. Hence, we need to acknowledge that athletes are part of a national elite team pertaining to specific sport associations that are part

of national elite sport organizations. National sport associations can take advantage of resources embedded in the elite sport system so as to ensure that the athletes train with the right quantity and best quality of training possible. However, there is a limit to how much they can train and many of the best athletes have reduced the quantity of training to focus on quality (Vesteng, 2013).

Quality of training refers to the ability to develop and reproduce the correct capacities to achieve continuous improvement. These include technique, physical capacity, mental strength or other relevant aspects of training. The focus of athletes on training quality is supported by Chambliss (1989), who argued that “*excellence is a qualitative phenomenon. Doing more does not equal doing better. High performers focus on qualitative, not quantitative, improvements*” (p.85). Hence, the national sport associations and the elite sport organization play a key role in stimulating, directing and challenging athletes in such efforts. In this sense, the interaction between athletes, coaches, and key actors within the national elite sport organization serves as an organizational setting for how elite athletes pursue training and development.

To improve the quality of training, athletes and teams invest considerable effort in continuous evaluation. The strong emphasis on continuous evaluation is consistent with how mindful organizations use time on evaluation to improve the quality of core processes. In addition, mindful organizations are highly organized, have high ambitions, and they operate within a context where small margins may have major consequences. To improve the quality of core processes requires reliable learning from ongoing experience (Weick, Sutcliffe, & Obstfeld, 1999). The theory of organizational mindfulness is employed to organize and systematize empirical processes related to reliable learning in elite sport. In addition, the findings in this study contextualize the theory in elite sports and contribute to theory development.

Reliable learning requires reflection, which means “*engaging in comparisons, considering alternatives, seeing things from various perspectives and drawing inferences*” (Jordan, Messner, & Becker, 2009, p. 466). It refers to how Goffman (1974) conceptualizes frame analysis: *the examination of the organization of experience* (p. 11). More precisely, mechanisms of reflection are captured in the concept of sensemaking (Weick, 1995; Weick, Sutcliffe, & Obstfeld, 2005). How athlete reflection is influenced by patterns of interactions within the elite sport system is captured in the concept of sensegiving (Foldy, Goldman, & Ospina, 2008; Gioia & Chittipeddi, 1991). Finally, how organizational practices and culture

influence reflection at all levels within Norwegian elite cross-country skiing is captured in the theory of organizational mindfulness (Vogus & Sutcliffe, 2012; Weick & Sutcliffe, 2001).

According to Weick and Sutcliffe, such organizations have a culture characterized by:

the combination of ongoing scrutiny of existing expectations, continuous refinement and differentiation of expectations based on newer experiences, willingness and capability to invent new expectations that make sense of unprecedented events, a more nuanced appreciation of context and ways to deal with it, and identification of new dimensions of context that improve foresight and current functioning. (Weick and Sutcliffe, 2001, p.42)

In other words, leadership and management within mindful organizations aim to stimulate actors at all levels within the organization to engage in rich thinking in order to learn more reliably from ongoing experience.

1.2. Perspective and research model

In order to analyze the leadership and management of training and development within the Norwegian national elite teams in cross-country skiing, we need to acknowledge the organizational setting that surrounds the national elite teams in which the athletes are situated.

The formal organizational context refers to the organizational entities related to the national elite teams. The Norwegian elite sport organization, Olympiatoppen (OLT) has been given the mandate to develop elite sports in cooperation with individual sports. OLT play a key role in providing the national sport associations, national elite team coaches, and athletes with expert knowledge. At the same time, OLT coaches challenge the way athletes and teams train (Andersen, 2012; Tvedt et al., 2013). Still, it is the specific sports that have the responsibility for everyday training and development within their sport. In planning and evaluating everyday training, the national elite team coach is the key person, as the leader of the elite team. Thus, as the national elite teams are part of the Norwegian elite sport system, national elite team coaches and athletes are supported and challenged by people with specialized knowledge in fields such as nutrition, training physiology and sports psychology, and also generalist OLT coaches with prior experience as national elite team coaches or successful elite athletes. For the benefit of national elite teams and athletes, such resources are channeled and mobilized through the national elite team coach. However, sometimes the initiative may come from OLT coaches or sporting directors.

In a wider sense, the organizational context also refers to values, norms and culture embedded within the elite sport system. For example, the athlete-centered approach is a key value when leaders make decisions concerning how to develop athletes or teams. The culture emphasizes a constructive interaction between sporting directors, national elite team coaches, athletes, and key actors at OLT. This requires active leadership at all levels, that is, how OLT coaches, sporting directors or national elite team coaches direct how the training is to be carried out. Management refers to patterns of interaction between athletes, national elite team coaches, sporting directors, OLT coaches and OLT specialists to ensure that the system works as intended. A critical leadership and management task is to maintain and enact core values embedded in the elite sport system and leadership is thus consistent with how Selznick (1957) conceptualizes institutional leadership. It requires that leaders understand the broader social processes embedded within the organization, that is, how leadership and management of social interactions shape how an elite team take advantage of the resources available within the Norwegian elite sport system. However, it is important to note that the OLT coaches, sporting directors and national elite team coaches engage in both leadership and management, although to varying degrees. This is discussed in section 4.5.

To understand the leadership and management of training and development within Norwegian elite cross-country skiing thus requires four levels of analysis. The four levels of analysis constitute an embedded multiple case-study design (Yin, 2009). Each level of analysis directs attention to the sub-research questions that contribute to answering the main research question.

Athlete level (1): How do elite cross-country skiers engage in reflection to improve the quality of training, and how is such reflection influenced by actors in the wider organizational setting?

National elite team level (2): To what extent do the national elite team coaches represent different approaches to sensegiving??

Inter-organizational level (3): How do the national elite team coaches and sporting director shape the interaction between Olympiatoppen and the national elite teams, and to what extent does this interaction stimulate elite athlete reflection?

National elite sport system level (4): What characterizes the organizational practices at Olympiatoppen, and how do Olympiatoppen coaches work to strengthen organizational mindfulness within cross-country skiing?

Taken together, the four levels of analysis explore how the national elite teams strive to fine-tune learning and development, and how leadership and management within the organizational context shape athletes' reflection in everyday training. Although there are four levels of analysis, the athlete level plays a key role in all the articles that deal with the different levels. Figure 1 summarizes the four levels of analysis, representing the empirical research model.

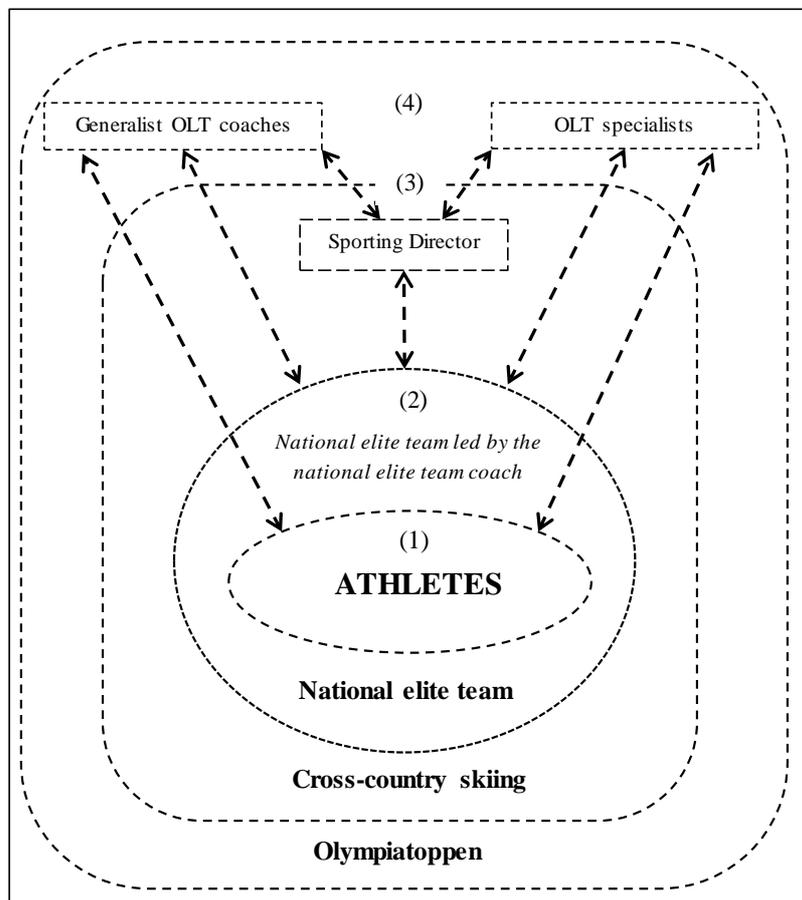


Figure 1: Empirical research model – presenting the organizational context of Norwegian elite cross-country skiing in which the elite athletes are situated. The numbers refer to the level of analysis.

The thesis offers both an empirical and a theoretical contribution. First, it provides insights into how the very best athletes within an exceptionally successful international sport plan, carry out, and evaluate everyday training and the role of the organizational context in delivering (achieving) effective elite athlete development. A key element is the role of reflection in everyday training and how such reflection is influenced by the organizational context. Furthermore, as all elite sport organizations aim to improve the quality of their core processes, the findings may be of interest to practitioners working in other elite sport systems or sports. Second, it relates the empirical findings regarding how elite athletes pursue training and development to theories of organizational learning in very ambitious organizations..

With few exceptions, such as the study by Jordan (2010), which investigates the role of reflection in anesthesiology, previous research on organizational mindfulness is primarily conducted in large technical systems, such as air traffic control systems (La Porte, 1988; La Porte, 1996), nuclear power plants (Schulman, 1993a) and air craft carriers (Weick & Roberts, 1993). The present thesis contributes to developing our understanding of mindful organizations in an elite sport context. It illustrates that social interaction in ambiguous situations where different types of specialist knowledge are combined with experience-based knowledge is vital in elite sport organizations. In such organizations, leadership and management, rather than detailed procedures, play a key role.

Finally, the thesis offers a number of specific findings. One important finding is the identification of different reflection styles among elite athletes, highlighting important leadership and management variations on how to deal with different types of athletes (article 1). Second, it illustrates how different types of sensegiving (conducted by the elite team coach and support personnel) shape individual reflection (article 2). Third, sporting directors and elite team coaches play a key role, acting as gatekeepers, in taking advantage of resources available within the inter-organizational structure of Norwegian elite sports (article 3). Fourth, it illustrates the role of leadership by linking the values and resources of the wider elite sport system to processes involving athletes and teams, in order to enhance organizational mindfulness (article 4). Although several have addressed the role of elite sport organizations (cf. the SPLISS-study (De Bosscher et al., 2008)) and the importance of quality of training (cf. the coaching literature), few have introduced a theoretical model that unifies insights from the sport management and coaching literature in explaining how to deliver effective elite athlete development (all the four articles taken together).

1.3. Previous research

1.3.1. Research on elite sport systems

The vast majority of studies on modern elite sport systems have focused on macro-organizational design and sport policy. This stream of research investigates elite sport from a structural perspective and focuses on the emergence of national elite sport systems (Green & Oakley, 2001; Oakley & Green, 2001), the content of elite sport systems (Clumpner, 1994), state intervention in elite sports (Bergsgard, Houlihan, Mangset, Nødland, & Rommetvedt, 2007; De Bosscher et al., 2008; Digel, 2002; Green, 2004; Grix & Carmichael, 2012; Houlihan & Green, 2008; Houlihan & Zheng, 2013), the relationship between funding and medals in major competitions (Bernard & Busse, 2004; Hogan & Norton, 2000), and organizational change in elite sport organizations (Thibault & Babiak, 2005). The major findings in these studies highlight that elite sport systems have become more similar in terms of organizational design, that a comprehensive strategy relating to public policy is necessary for achieving great results, and that the total amount of money invested in elite sport is the best predictor of international success.

Although such structural factors are necessary for achieving elite sport success, studies by Böhlke and Robinson (2009) and Robinson (2012) indicate that they may not be sufficient. Böhlke and Robinson (2009) argue that sport managers should be cautious to directly transfer or copy the infrastructure of successful elite sport systems as there may be important contextual (cultural) differences. Similarly, Robinson (2012) found in her study of the Malaysian elite sport system that despite possessing the same characteristics as other modern elite sport systems, it did not deliver elite sport success. Hence, the findings call for research investigating the management of elite sport systems which also concern the interface between national sport associations and the elite sport system (Robinson & Minikin, 2012).

In line with the findings in Böhlke and Robinson (2009), a growing body of literature has investigated the management of elite sport organizations (Arnold, Fletcher, & Molyneux, 2012; Fletcher & Arnold, 2011; Fletcher & Wagstaff, 2009; Sotiriadou, 2012; Wagstaff, Fletcher, & Hanton, 2012). Drawing upon theories of high performance management and leadership, these studies aim to fill the research gap concerning how elite sport organizations deliver elite sport success. As stated in Fletcher and Wagstaff (2009): *The way individuals are led and managed will become an increasingly important factor in determining NSO's [national sport organizations] success in Olympic competition*" (p. 433). This stream of research investigates the management of high performance sport from an organizational

psychology perspective, highlighting the roles and responsibilities for high performance directors, emphasizing the need to establish a clear vision and culture, managing operations properly, and showing an active leadership of people. Although studies of high performance management and leadership offer valuable insights into the role of national performance directors, it does not concern the management of training and development in elite sport organizations.

Concerning the role of environment surrounding elite athlete development, recent studies by Henriksen, Stambulova and Roessler (2010a; 2010b) investigated talent development in Danish sailing and Swedish track and field, taking a holistic ecological approach. The findings in these studies highlight the importance of contextual factors surrounding the development of elite athletes, such as coaching practices, the role of current elite athletes as role models, interaction with the national sport association and the organizational culture.

1.3.2. Research on the Norwegian elite sport system

Studies that discuss the organization of the Norwegian elite sport system highlight processes of professionalization and standardization of Norwegian elite sports (Augestad & Bergsgard, 2007; Augestad, Bergsgard, & Hansen, 2006; Steen-Johnsen & Hanstad, 2008). Augestad et al. (2006) and Augestad and Bergsgard (2007) analyzed the characteristics of the Norwegian elite sport system and found coherence between the Norwegian and other modern elite sport organizations, supporting the argument of trends of convergence. Steen-Johnsen and Hanstad (2008) identified and discussed considerable power struggles inherent in the elite sport system, more precisely between Olympiatoppen and the Norwegian Olympic and Paralympic Committee and Confederation of Sports (NIF) of which Olympiatoppen is part.

A recent book investigating the Nordic elite sport systems identified considerable variation concerning the organization of the Nordic elite sport systems, and how successful sports within the Nordic countries pursue elite athlete development (Andersen & Ronglan, 2012b). The study uncovered that although the Nordic countries pursue elite athlete development differently, a common feature for all successful sports is that they manage to mobilize and take advantage of local resources.

Gotvassli (2005) studied the management of knowledge development in Norwegian elite sports. The empirical data builds on document analysis, observation and interviews with athletes and coaches in cross-country skiing and track and field. Drawing upon theories of Knowledge Management, the study identified that experience-based knowledge play a key

role in Norwegian elite sport and sharing such knowledge within the learning network was important for the development of tacit knowledge. The study also emphasized that Olympiatoppen plays a key role in the learning network, transferring formal as well as experience-based knowledge across sports.

Andersen (2009; 2012) goes even further than Gotvassli (2005) in studying the role of Olympiatoppen in strengthening experience-based learning. In line with theories of organizational mindfulness, Andersen (2009; 2012) argues that Olympiatoppen, through active leadership, plays a key role in stimulating reliable learning from experience. Furthermore, the studies report that the way Olympiatoppen actively challenges and supports national elite team coaches and athletes is a key factor for the sustained success for Norwegian elite sports since Olympiatoppen was established in 1988. Although Andersen (2009; 2012) finds empirical support for how the management of Olympiatoppen actively stimulates the national sport associations to learn more reliably, these studies do not offer a detailed analysis of how OLT interacts with the national elite teams or how everyday training and development are managed within a sport association. Furthermore, it does not identify the extent to which organizational practices within a sport association reflect the overall approach to elite athlete development communicated by Olympiatoppen.

1.3.3. Research on the role of reflection in elite sports

Within the sports coaching literature, several studies have directed attention towards the role of reflection in learning and development. More precisely two streams of research have been identified; the role of coach reflection (Gilbert & Trudel, 2001; Gilbert & Trudel, 2005; Hughes, Lee, & Chesterfield, 2009; Irwin, Hanton, & Kerwin, 2004; Knowles, Borrie, & Telfer, 2005; Lee, Shaw, & Chesterfield, 2009; Nash & Sproule, 2011) and how elite athletes reflect in training and competition (Faull & Cropley, 2009; Hauw, 2009; Richards, Mascarenhas, & Collins, 2009; Toner, Nelson, Potrac, Gilbourne, & Marshall, 2012). Both streams of research report empirical evidence for the importance of reflection for continuously developing excellence. However, with the exception of the study by Lee, Shaw and Chesterfield (2009) which also discusses the role of the organization in stimulating a reflection culture, the existing literature primarily focuses on the coach-athlete relationship in light of coach behavior (Cushion, 2010; Cushion, Ford, & Williams, 2012; Jones, Armour, & Potrac, 2002; Jones, Potrac, Cushion, Ronglan, & Davey, 2011; Mageau & Vallerand, 2003; Smith & Smoll, 2007; Smoll & Smith, 1984). Hence, research that focuses on how athletes, national elite team coaches, sporting directors and actors within the elite sport system interact

to improve the quality of training, through reflection, is needed to enhance our understanding of how to continuously develop excellence. Finally, the coaching literature mainly investigates the role of coach and athlete reflection in team sports. Very few have studied how endurance athletes in individual sports reflect on their training and how the coach stimulates such reflection.

1.3.4. Problematizing research on the leadership and management of elite athlete development

As the preceding review of the literature has highlighted, a great body of literature has investigated the structure and characteristics of modern elite sport systems, management practices of high performance directors, the role of the environment in developing elite athletes, and how elite coaches and athletes engage in reflection. Taken together, the underlying assumptions in this stream of research is that funding, comprehensive elite sport systems, state intervention and a coach's reflection is vital in order to achieve international sporting success. Although these assumptions are adequate, little research espouses the view of the coach and athlete as being interrelated with the larger elite sport system (organization). The reason for establishing a comprehensive elite sport system is to support the coach and athlete in achieving international success, but surprisingly few have investigated how an elite sport organization systematically supports the coaches and athletes in their struggle to become best. Consequently, the present thesis seeks to add to the existing literature by introducing a theoretical perspective that unifies the athlete, the team, the inter-organizational, and the system level.

With the exception of the studies by Andersen (2009; 2012), few studies have investigated how patterns of interaction within the organizational context of elite sport shape how elite athletes reflect on their training. Thus, building on Andersen (2009; 2012), the present thesis seeks to enhance our understanding of how a national sport association, embedded within the Norwegian elite sport system, delivers elite athlete development.

1.4. The Norwegian elite sport system

As for other modern elite sport systems, the Norwegian elite sport system was established due to bad results in the Olympic Games (Oakley & Green, 2001). The events focused on were the particularly poor results in the 1980 and 1984 Winter Olympic Games, and in the 1984 Olympic Games in Los Angeles (Norway boycotted the Moscow Olympic Games in 1980). To improve the results for Norwegian elite sports, Project-88 (the forerunner of

Olympiatoppen) was established. Although initiatives were taken, the results failed to materialize. In fact, the Winter Olympic Games in Calgary 1988 was the first (and only) time Norwegian athletes or teams failed to win any gold medals. Despite the lack of short-term results, it was decided to continue the project, formalizing it through the establishment of Olympiatoppen (OLT). The main arguments for continuing the project were that promising athletes were identified, and there existed a common agreement on the importance of systematizing and centralizing competences (Andersen, 2012). Additionally, in 1988, Norway was awarded the Winter Olympic Games for 1994, which resulted in increased funding for a centralized elite sport organization. To optimize the preparations for the Olympic Games in Lillehammer, the state distributed about 17 million euros extra to OLT (Hanstad, 2002).

Ever since the establishment of OLT in 1988, OLT has taken the responsibility for the overall results of Norwegian elite sports, and has thus the authority to develop Norwegian elite sports (NIF, 2011). An interesting feature of the organization of Norwegian elite sports is that it runs counter to general patterns of political and societal organization within Norway (Andersen & Ronglan, 2012a). Contrary to Norwegian society, the elite sport system represents centralized authority and a high degree of legitimacy for elites (athletes) (ibid., p.283).

Despite possessing similar characteristics to other modern elite sport systems, the organization of Norwegian elite sports is in many ways different to its equivalents (Andersen, 2012). First, whereas decisions relating to sport policy in other systems are taken on the state level, similar decisions in Norway are taken within the sports organization (NIF). Furthermore, OLT is relatively autonomous within the confederation of sports. Although the head of OLT formally reports to the general secretary of NIF, decisions concerning *operative* priorities in the everyday development of Norwegian elite sports are rarely subject to discussion in the General Assembly, the executive board of NIF, or with the general secretary. Second, as indicated above, OLT has the authority to intervene in development processes within sports. The nature of the interaction between national sport associations and OLT allow OLT to make strict demands in order to provide financial support. Additionally, OLT also requires that a sport needs to show good results before they can benefit from financial and human resources available at OLT. Finally, and perhaps the characteristics that distinguish OLT the most from other elite sport organizations is the emphasis on active knowledge exchange across sports. Ever since it was established in 1988, the philosophy of OLT has been to exploit good as well as poor experiences from many different sports in

developing athletes and teams. Thus, key actors at OLT actively draw upon prior experiences from, for example rowing, in challenging specific plans and approaches to elite athlete development in other sports such as cross-country skiing. This is captured in the early slogan of OLT: *“We are the best of the best in the federations”* (Goksøyr & Hanstad, 2012, p. 36).

Norwegian elite sports are mainly financed through the national lottery (Norsk Tipping), distributed by the Ministry of Culture. Through the annual letter of awards, the Ministry of Culture allocates funds to five sport-specific categories: sport facilities (mass sport facilities and national sport facilities (e.g. the ski-jumping hill and cross-country skiing venue at Holmenkollen)), research and development, special activities (e.g. anti-doping), NIF, and local sport clubs, in which allocations to elite sport are part of the funding distributed to NIF. In 2012, OLT received 14.1 million euros. OLT determines how this funding for elite sports is distributed to national sport associations and specific projects. Financial support from OLT is vital for smaller sport associations (for example, OLT financed 75 % of the elite sport budget of the national rowing association (NIF, 2012)), but of lesser importance for the large sports such as cross-country skiing. Cross-country skiing (which is part of the Norwegian Ski Association) received approximately 78.000 euros in financial support from OLT in 2010, but the overall budget for the national elite teams was approximately 2.35 million euros. Hence, access to OLT specialists is much more important for cross-country skiing than the financial support from OLT.

The internal structure of Olympiatoppen is organized around the following departments concerning specialist competence; training (strength training, endurance training, motor abilities / technique), sport psychology, nutrition, and health. In addition to the specialist departments, there are also departments for endurance sports, technical sports and team sports. These three departments are led by coaches with prior experience as national elite team coaches, and they aim to secure the exchange of knowledge across sports. Finally, an Olympic office exists to plan and coordinate Norwegian participation in Olympic and Paralympic Games. The internal structure of OLT is captured in Figure 2.

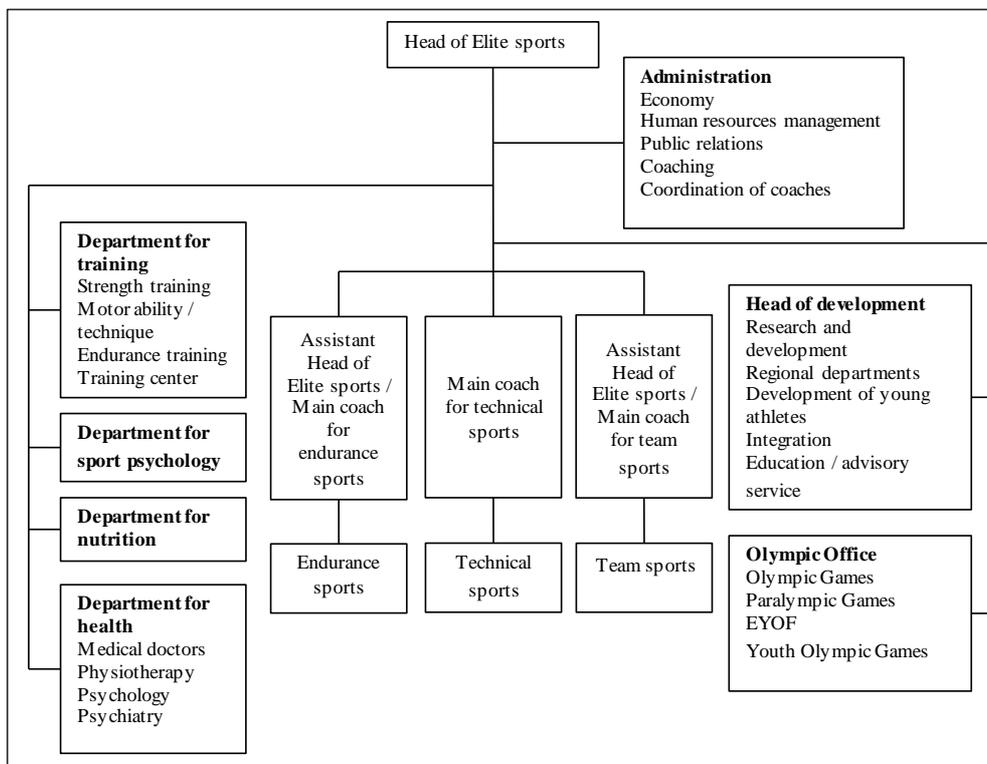


Figure 2: The internal structure of OLT (OLT, 2012).

A special feature of Olympiatoppen, which distinguishes it from other national elite sport organizations, is the role of experienced coaches. These coaches are former successful elite team coaches or previously successful elite athletes that engage in discussions with current national elite team coaches to influence what to prioritize in order to make the best even better (Andersen, 2012). It is important to note that the OLT-coaches are not an additional coach to the national elite teams. Rather, their primary role is to make sure that experiences from other sports are shared and reflected upon when discussing how to develop a particular sport. In other words; the OLT-coach is the key actor in sharing experiences from, for example rowing with cross-country skiing in developing cross-country skiing. Furthermore, the OLT-coach also informs the national elite team coaches what specialist competence at the Top Sport Center they may incorporate to improve the overall results.

Although it is OLT that has the authority to develop Norwegian elite sports, it is the national sports associations (for example the Norwegian Ski Association) that are responsible for everyday training and development. The required interaction between people with specialist competences in fields such as nutrition, strength training or physiology and/or

experienced coaches at OLT and national elite teams indicates that the Norwegian elite sport system can be viewed as a cluster, “*an inter-organizational structure characterized by rivalry and cooperation stimulating the application of competences and capabilities that may be exploited by different sports*” (Andersen, 2012, p. 238). The centralized organizational form represents an arena for discussing how to train, as well as which resources to exploit, and what is considered to be best practice.

1.5. Cross-country skiing within the Norwegian elite sport system

Cross-country skiing is a sport with great traditions, considered to be the national sport in Norway. The cradle of modern skiing is claimed to be in Morgedal, a small inland village in Norway. Internationally, the strong position of Norwegian cross-country skiing is illuminated by their records of success. Norwegian cross-country skiers have gained medals in every Winter Olympic Games ever since the first Winter Olympic Games were arranged in Chamonix 1924. Over the last twenty years Norway has become by far the most successful skiing nation, measured in terms of medals in major competitions (Nordic World Championship and Olympic Games). Table 1 highlights the competitiveness of Norwegian cross-country skiing between 1991 and 2011.

Table 1: Overall results of Norwegian cross-country skiing 1991-2011 in World Championships and Winter Olympic Games

<i>Nation</i>	<i>Medals total</i>	<i>Gold (men)</i>	<i>Silver (men)</i>	<i>Bronze (men)</i>	<i>Gold (women)</i>	<i>Silver (women)</i>	<i>Bronze (women)</i>
Norway	158	49	29	23	20	16	21
Russia	109	5	8	12	36	24	24
Italy	72	6	11	15	11	15	14
Finland	52	6	5	12	9	7	13
Sweden	49	12	11	13	4	6	3
Germany	35	2	12	7	3	9	2
Other nations (13)	86	15	17	11	11	15	17

Cross-country skiing is one of six disciplines within the Norwegian Ski Association (Ski Jumping, Nordic Combined, Alpine Skiing, Telemark, and Freestyle). Traditionally, it has been the sporting director that was responsible for the national elite teams and

consequently their results. However, in 2011 this changed, when they appointed an executive leader (CEO) for cross-country skiing. The CEO has the overall responsibility for all activities within cross-country skiing. The sporting director is responsible for the overall results of the national elite teams, the support personnel, selecting athletes for participation in international competitions, and for cooperation with OLT. Furthermore, the sporting director is responsible for the organization of four national elite teams; the all-round team for men, the all-round team for women, the sprint team for men, and the sprint team for women. In addition there are three other national teams; a recruitment team for athletes under 23, a junior team, and a physically disabled team. Figure 3 presents the structure of Norwegian elite cross-country skiing.

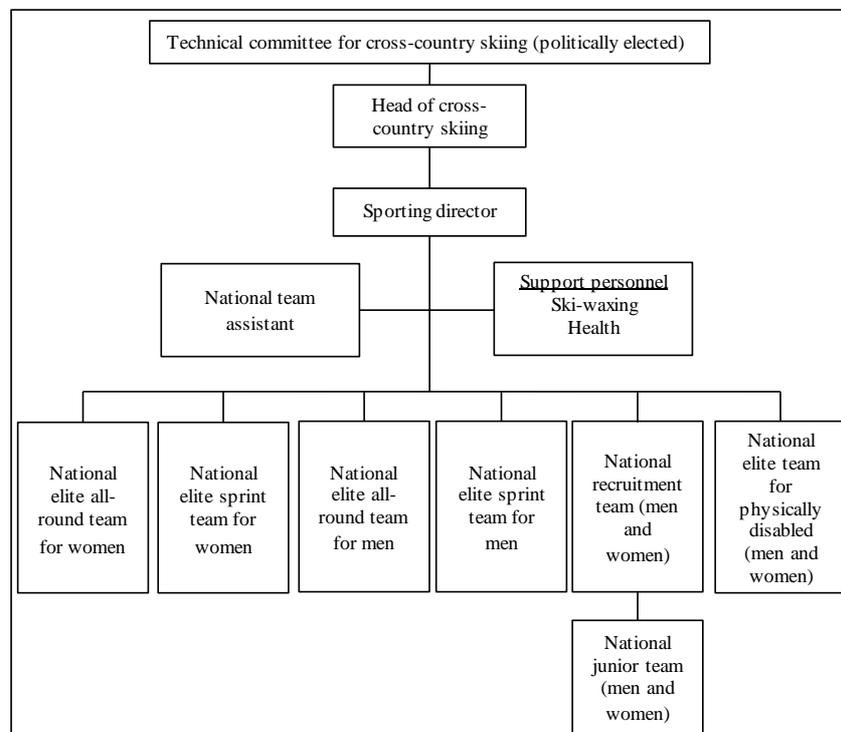


Figure 3: Internal structure of Norwegian elite cross-country skiing (NSF, 2011a).

Contrary to other sports within Norway, cross-country skiing has a relatively large budget compared to their international competitors (Tomasgard & Nord, 2013). Throughout the period from 2001 to 2011, the budget for elite sports within cross-country skiing increased from 1.4 million euros to 4.2 million euros. These numbers only include finances related to the national elite teams. As illustrated in Figure 4, the budget size increased dramatically from

2009 to 2011. This increase can be seen as a direct result of a new sponsorship contract signed after the Winter Olympic Games in Vancouver 2010. However, although the budget is relatively large, there is only a weak correlation (not significant) between budget and medals. Although a minimum of funding is required to implement training camps and other necessary activities as intended, the correlation analysis shows that funding itself is not the best predictor of success within Norwegian cross-country skiing.

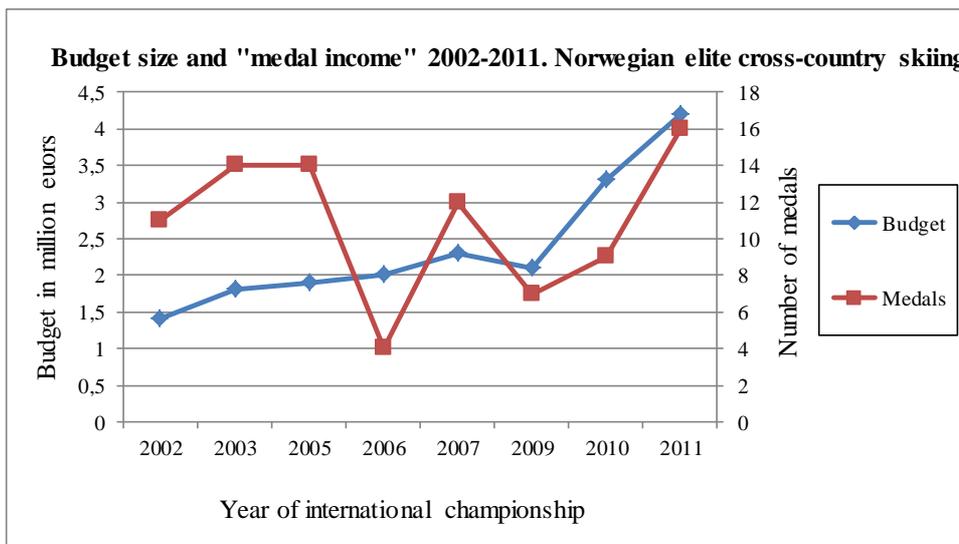


Figure 4: The figure illuminates a weak correlation between budget size and medals taken in major competitions.

The pattern of interaction between the national elite teams in cross-country skiing and OLT has by many been characterized by conflicts and disagreements (Andersen, 2012; Augestad et al., 2006; Hanstad, 2002). Although these bodies co-operated well in joint ski-waxing and high altitude training projects, the relationship in the 1990s was characterized by conflict, suspicion, misunderstanding, and disagreement about “best practice”. It all came down to who could take the credit for the outstanding results of Norwegian cross-country skiing (Hanstad, 2002). Despite the tense relationship, the national elite teams benefitted from having access to OLT specialists especially within nutrition, physiology and testing. Nevertheless, the historical patterns serve as an important background when analyzing how the national elite teams in cross-country skiing interacted with OLT between 2002 and 2011.

2.0 Theory

2.1. Introduction

The SPLISS study highlights the importance of having the necessary structures (De Bosscher et al., 2008), whereas the coaching literature highlights the role of coach reflection (e.g. Gilbert & Trudel, 2005), and the importance for coaches of stimulating elite athlete motivation in order to improve the quality of training (e.g. Mageu & Vallerand, 2003). Athletes, national elite team coaches, sporting directors and actors within the wider elite sport organization are all preoccupied with development. An important part related to developing athletes and teams in order to render international sporting success possible, is that the athletes train with the best quality possible (Chambliss, 1989).

A prerequisite for improving the quality of training is that athletes, supported by elite team coaches and support personnel, learn reliably from experience. However, fairly little is written about how the organizational context influences how athletes reflect and learn to improve the quality of training. In theories on organizational learning, it is well established that the organizational context has a great impact on how people and organizations learn from experience (Starbuck & Hedberg, 2006). It is also emphasized that experience is inherently ambiguous (March, 2010), which means that experiential learning is problematic. Nevertheless, High Reliability Organizations have developed systems that aim to counteract the difficulties of experiential learning. Such organizations are labeled mindful organizations, which refers to their willingness and capability to take advantage of and scrutinize everyday experiences to learn more reliably from experience (Weick et al., 1999). As elite sport organizations also face the same fundamental challenges concerning the difficulties of experiential learning, theoretical insights from such organizations may enhance our understanding of how some athletes and teams are able to learn more reliably and thus improve the quality of their training. The theory of organizational mindfulness unifies insights from the SPLISS-study with insights from the coaching literature by emphasizing how patterns of interaction within the organizational context shape how athletes learn in the training process.

Organizational mindfulness presents a process-oriented framework for understanding how the organizational context surrounding elite athletes influences the quality of everyday training. It helps us to theorize on how to make the best even better in terms of enhancing how athletes, supported by national elite team coaches and support personnel learn in the training process. The underlying assumption is that mindful organizations have developed

organizational practices and culture that stimulate reflection on all levels within an organization. Furthermore, by engaging in reflection, individuals as well as the organization manage to learn more reliably than most other organizations.

I begin with describing the nature of organizational learning, presenting the cognitive and behavioral framework. Rationality is a central term in organizational learning (as well as within organization sociology), and is presented in the light of theories of organizational learning. The first section ends with describing the sociological approach to organizational learning. I continue with discussing opportunities and challenges connected with experience-based learning, and how actors within an organization can learn more reliably. Here, the concept of sensemaking is presented as the key mechanism in individual reflection. Subsequently, how leaders and others within the organizational context may influence others' sensemaking is presented through the concept of sensegiving. Having presented the concepts of sensemaking and sensegiving, these concepts are related to the theory of organizational mindfulness. This part also directs attention towards organizational mechanisms stimulating reliable learning. The theory section ends by summing up the underlying theoretical conditions and mechanisms, as these have methodological implications in relation to defining the case study as well as the units of analysis within the four articles.

2.2. Organizational learning

I attempt to understand how athletes learn in the training process and how their learning is influenced by their interaction with team-members, national elite team coaches, and other actors within the elite sport system. This led me to a theory of organizational learning (organizational mindfulness). Organizational learning is a large field of research within organizational theory. As for many other research programs within the paradigm of organization science, theories of organizational learning emerged in the 1960s and 1970s. More precisely, the work of Cyert and March (1963) can be seen as one of the first contributions on organizational learning. The underlying assumption within organizational learning is that learning, both organizational and individual, is important for improved performance (Fiol & Lyles, 1985).

The literature of organizational learning distinguishes between and establishes a relationship between individual and organizational learning. Lindsay and Norman (1977), describe individual learning as a process involving the acquisition and interpretation of knowledge. More precisely, learning refers to the process of modifying one's cognitive maps or understanding, thereby changing the range of one's potential behaviours (Fiol, 1994,

p.404). Hence, individual learning occurs when a person develops a different interpretation of either new or existing information and thereby obtains a new understanding of a situation or event (Fiol, 1994). Organizational learning, on the other hand, refers to the linkages across individual learning. In other words, organizational learning is not simply the sum of every individual's learning (Cohen & Levinthal, 1990). According to Fiol (1994) organizational members may have meanings that are simultaneously diverse and shared; they may agree on some matters and disagree on others: "*organizational action can occur in the face of dissension around one dimension of meaning, as long as there is consensus around another*" (p.405). The present thesis views organizational learning as the product of both divergent and convergent interpretations of experience that are shared within the organization. Furthermore, divergence is seen as a prerequisite for reliable experience-based learning.

In accordance with Sitkin, Sutcliffe and Weick (2000), the thesis views learning as being embedded in cultural norms, work routines, and shared practices rather than in the individual mind. Thus, individual learning within organizations is embedded in social interaction and hence influenced by the organizational context (Simon, 1996). This view emphasizes the cognitive relationship between stimulus and response (Cyert & March, 1963). The thesis therefore addresses how patterns of interaction within the organization of Norwegian elite sport support athletes' learning.

Within the literature on organizational learning, the work of Argyris and Schön (1974) and March (1991) constitute two well-established ways to understand organizational learning. Argyris and Schön (1974) distinguish between single-loop and double-loop learning. The former means that failures change the behaviour, whereas double-loop learning means that failures challenge fundamental organizational assumptions. In single-loop learning, people take the organizational practices for granted and never question the related underlying assumptions or beliefs. Ethical and moral questions are never a subject for discussion in single-loop learning. The hallmark of double-loop learning is, on the other hand, the willingness to always discuss and question the organization's prevailing aims and values. The analysis of how the athletes learn corresponds to single-loop learning, but also touches upon double-loop learning as individual frames (explained in section 2.3.1) reflect institutionalized beliefs and as their learning is influenced by actors within the organizational context.

March (1991) distinguishes between exploration and exploitation in his classical article on organizational learning. Exploration refers to learning through experimentation and innovation, whereas exploitation refers to refining and executing existing practices or

products. In his article, he discusses the relationship between these two types of knowledge in organizational learning, concluding that an organization needs both properties to survive and to sustain its prosperity and to avoid a situation he labels “suboptimal stable equilibria” (March, 1991, p.71). Empirical studies indicate that when organizations experience success, there is a tendency that they use more resources and time on exploitation than exploration and they thus have difficulties changing those practices or products that led to the success (Tushman & O’Reilly, 2007). Within Norwegian elite sports, exploitation refers to taking advantage of knowledge available within the national elite teams and OLT. Exploration takes place both at the individual level and organizational level. Athletes may experiment by trying different training methods. OLT invests in research and development to facilitate experimentation. However, both exploitation and exploration take place simultaneously. The extent to which the athletes learn in the training process relies thus on finding the balance between exploiting current knowledge and exploring how the current knowledge can be adapted to the individual.

How people and organizations learn is, within organization theory, closely connected to different views on rationality (means-ends rationality). As learning is seen to be the connection between actions and interpretation of action, it is important to consider how human action is to be interpreted (March & Olsen, 2006). The literature of organizational decision-making distinguishes between two types of rationality, rational decision-making (Economic Man) and bounded rationality (Administrative Man) (Simon, 1955).

Economic Man is seen as the ideal decision-making type and assumes that people are able to act perfectly rationally. Rational decision-making occurs when the aims are given and a person has information on every possible solution, as well as the consequences that follow the possible solutions. Thus, the mechanism within this approach is that a person calculates expected outcomes following the decision. This type of rationality is common in economic organization theory, such as transaction cost theory (Williamson, 1981), and is called by March (1981) the “logic of consequence”. Although this model offers a normative view on decision-making, rational decision-making seems to be difficult in practical life. Furthermore, within this perspective there is no need to learn, as the decision-makers already have a complete overview of all the potential solutions and their consequences.

Bounded rationality (Administrative Man), on the other hand, emphasizes that humans seldom have complete information about every single solution and its consequences. Decisions are taken when people attain a satisfying alternative. Bounded rationality is further

evident as people tend to evaluate the extent to which the future resembles the past. In other words, people with bounded rationality are prone to having confirmation bias. Hence, people with bounded rationality tend to simplify interpretations. As Weick (1979) points out: “*Actors with bounded rationality presumably are more interested in confirming their schemata than in actively trying to disprove them*” (p.157). According to March (1981) bounded rationality is closely related to the logic of appropriateness; decisions are often rule, routine and law-driven, meaning that people follow standardized operating procedures without considering new alternatives. Finally, people with bounded rationality often fail to complete the learning cycle (March & Olsen, 1979). The result is that people learn, although in a role-constrained, superstitious, audience or ambiguous way. Consequently, as bounded rationality does not distinguish between observation and evaluation (interpretation), people with bounded rationality have problems to learn as it becomes difficult to identify what actions led to the desired outcomes (the interpretation of actions often become self-fulfilling prophecies). As within other organizations, elite sport organizations and athletes try to learn from experience. However, given that bounded rationality is widely common this creates challenges to the extent to which they actually learn from experience. What distinguishes mindful organizations from other organizations is that they acknowledge that bounded rationality is a fact of life due to human nature, and have developed mechanisms that counteract this tendency. How such organizations work to counteract bounded rationality is described later in the theory section.

Even though Argyris and Schön (1974), March (1991), and March and Olsen (1979) all place emphasis on learning from failure and assert the liabilities of success, they do not offer an analysis of how to cope with difficulties relating to experience-based learning. Furthermore, they do not distinguish between systematic (strategic) failure which one can learn from and failure that does not foster learning. They are also preoccupied with learning outcome rather than the learning process, which are contradictory to the theory of mindfulness (Sitkin, 1992; Weick & Sutcliffe, 2001). In such theory of organizational learning, which emphasizes a systematic approach to learning, the idea of a *complete learning cycle* is highly valued (Weick, Sutcliffe, 2001).

The present thesis views organizational learning as a social process (Easterby-Smith & Araujo, 1999; Gherardi, Nicolini, & Odella, 1998; Gherardi & Nicolini, 2001). More precisely, it undertakes a social interactionist approach to how people and organizations learn from experience (Goffman, 1974; Weick, 1979). Following this view, people are institutionalized into beliefs that shape their actions and interpretations of experience. As the

underlying assumption in the thesis is that learning is socially constructed, the organizational culture becomes important, as it assumes that culture predicts the actions taken within an organization. The extent to which athletes as well as national elite team coaches and support personnel learn reliably from experience is thus analyzed in relation to the organizational practices and culture embedded within the organizational context of Norwegian elite cross-country skiing. How mindful organizations have a culture that systematically aims to stimulate reliable learning from experience is described later. Next, I present and discuss opportunities and challenges of experience-based learning and how people can learn more reliably.

2.3. Reliable experience-based learning

Experienced-based learning is often conceptualized as a cyclical process (Dewey, 1910; Neisser, 1976; Sitkin, 1992). Actors have assumptions about reality that reflect basic beliefs about critical factors affecting what they want to achieve, and that shape expectations about future consequences of various actions. The planning, implementation and evaluation of training in elite sports follows a similar cycle (Tønnessen, 2009). For athletes, their annual plans are likely to shape expectations about training and the consequences of training (derived from general institutionalized beliefs). The gap between observed consequences and expectations provides opportunities for learning that might lead to adjustments and refinement in assumptions. Although this may seem perfectly easy, research indicates that experiential learning is difficult, especially when an organization experiences success (Miller, 1994; Sitkin, 1992; Starbuck & Hedberg, 2006; Weick & Quinn, 1999; Zollo, 2009).

Organizational success often leads to structural and strategic inertia, inattention, insularity, and the loss of sensitivity to nuance (Starbuck & Milliken, 1988a). It is well documented that when organizations experience success, people tend to develop exaggerated beliefs in the plan that made them successful (producing over-confidence), reducing the sensitivity to identify weak signals that indicate that something is about to fail (Levitt & March, 1988; Starbuck & Hedberg, 2006; Weick & Sutcliffe, 2001; Zollo, 2009). The result is superstitious learning (Levitt & March, 1988; March & Olsen, 1979; Zollo, 2009). It refers to a discrepancy between the rate of confidence and actual competence:

Superstitious learning can be defined as the situation in which the rate of development of the confidence in one's own competencies, consequent to the accumulation of experience, is larger than the rate of development of

actual competence, connected to the same amount of experience accumulation (Zollo, 2009, p.897).

Experiential learning is rendered further difficult by the fact that experience is inherently ambiguous; it is difficult to uncover the causal structure and identify the effects of actions (March, 2010). Nevertheless, some organizations are able to avoid superstitious learning (Sitkin, 1992; Weick & Sutcliffe, 2001). These organizations, labeled mindful organizations, manage to learn more reliably from experience despite high levels of success. The paradox is that such organizations emphasize the importance of failing, as failures contain a larger learning potential than success (Sitkin, 1992). Their approach to experience-based learning is thus to identify small failures despite the fact that they succeed. To capture the discrepancy between what was expected to happen with what actually happened (expectation-based learning) is thus an important condition for learning more reliably from experience and is the essence of mindfulness.

“Being mindful” is an individual characteristic and implies a willingness to engage in reflection and to use new information (experience) in order to make new distinctions (Langer, 1989; Langer, 1997). It is a mindset that emphasizes the conditional nature of knowledge by continuously questioning underlying *assumptions* and *beliefs* in the light of new experiences (Langer, 2000). More precisely, individual mindfulness is defined as “*a flexible state of mind in which we are actively engaged in the present, noticing new things and sensitive to context*” (Langer, 2000, p.220). In contrast, mindless behavior is governed by rules and routines, meaning that people are acting on auto-pilot.

A “mindful” approach to experiential learning focuses on both confirming and disconfirming assumptions and beliefs. Mindful learners acknowledge that even though you succeed, not everything is likely to go exactly as planned. The bottom line is that mindful learning counteracts bounded rationality as it implies a willingness to scrutinize prevailing beliefs based on newer experiences. In the mindful organization perspective a key concern is to develop a high degree of situational awareness and sensitivity relating to core processes (Weick et al., 1999). Training and preparation for competition are core processes for any elite sport organization. The athletes are naturally most involved: they are the products, co-producers, and in addition the most important source of information about the process. Hence, the athletes play a key role in capturing how different initiatives lead to improved quality of training.

The mechanisms for reliable learning are captured in the framework of sensemaking and organizational mindfulness. Sensemaking is described in the following. Organizational mindfulness is described after having discussed how individual sensemaking is influenced by others' sensegiving.

2.3.1. Sensemaking

To improve quality of daily training efforts, reflection is essential. Through reflection people transform experiences into knowledge. As described in the introduction, the process of reflection is consistent with frame-analysis (Goffman, 1974). How people understand "what is going on" tends to influence how they act. A more nuanced understanding of what is required to achieve excellence is therefore likely to improve the quality of training.

Reflection is about sensemaking and interpretation. Sensemaking is concerned with meaning construction and reconstruction (Starbuck & Milliken, 1988b; Weick et al., 2005). It is a process-oriented perspective on the micro level about how organizational members try to frame experienced situations as meaningful (Jørgensen, Jordan, & Mittenhofer, 2012). Sensemaking implies "*to step outside the stream of experience, and direct attention to it*" (Weick, 1979, p. 194). It is an activity or process, whereas interpretation is both a process and an outcome. According to Weick, "*the key distinction is that sensemaking is about the ways people generate what they interpret*" (Weick, 1995, p. 13). Sensemaking is closely linked to the idea of mindfulness as it emphasizes the importance of continuously questioning existing beliefs and assumptions (Jordan, Messner, & Becker, 2009; Reynolds, 1998; Weick & Sutcliffe, 2001).

The sensemaking process consists of a continuous interaction between noticing and framing (Weick, 1979; Weick, 1995). Frames are cognitive schemes that guide what people notice (Weick, 1979; Weick & Bougon, 1986). Such schemes are socially constructed, indicating that individual sensemaking is a social process (Maitlis, 2005; Patriotta & Spedale, 2009; Weick, 1995; Weick, 2006).

Frames are essential for sensemaking, and are intuitively adopted in the noticing process (Weick, 1979; Weick & Bougon, 1986). In an elite sport context, individual frames reflect basic assumptions and institutionalized beliefs about factors critical for success. Furthermore, through sensemaking, people connect actions to beliefs. Although strong beliefs in the context of elite sport may be of importance in order to carry out hours of training, it may also reduce the sensitivity to situational or contextual variation. Athletes, as well as the actors surrounding them, thus need to simultaneously doubt and believe in their beliefs.

Weick (2006) argues that *“while faith creates order, doubt fine-tunes that faith by differentiating things known from things not known”* (p.1730). By actively questioning prevailing beliefs in the light of new experience, mindful sensemaking is very close to abductive reasoning. Abductive reasoning, through sensemaking, thus aims to create a rich set of frames that are fine-grained.

An athlete may have one or multiple frames. One dominant frame refers to that an athlete direct attention to only one perspective that influences training and development, whereas multiple frames refers to that an athlete directs attention towards several perspectives. In addition the frame(s) may be coarse or fine-grained. Coarse frames are general, with few distinctions and nuances. Fine-grained frames are specific, capturing many distinctions and nuances. When the people have multiple frames that are fine-grained, they are able to notice more and thus generate richer data about a situation (Weick, 2007). As Weick, Obstfeld and Sutcliffe (1999) point out: *“When people bring new variables under their control and enlarge their ability to act on them, they also enlarge the range of issues they can notice”* (p.90). An example of a fine-grained frame is that an elite athlete has several perspectives as to the extent to which the athlete is tired and needs rest (e.g. specific indicators concerning how the athlete perceives tension in his or her legs, hours of sleep, mood, appetite, etc.). The bottom line is that sensemaking aims to grasp fine-grained contextual variations (Vince, Sutcliffe, & Olivera, 2002).

Noticed feedback signals are situational cues that people become aware of (Starbuck & Milliken, 1988b). In this sense, signals that the athletes notice are subjective. They may vary with respect to the vividness of the experience (March, 2010). Hence, signals can be strong or weak, depending on how organizational actors perceive them (Snook & Connor, 2005). For example, good results at a standardized laboratory test may be perceived as a strong signal – indicating that things are going well. However, the same feedback signal may also be perceived as weak – indicating that something is about to fail (e.g. too rapid progression). In other words, to what extent signals are perceived as weak or strong depends upon how they are framed. People that engage in mindful reflection are particularly concerned with interpretive work directed at weak signals (Weick et al., 1999). Hence, mindful reflection creates a richness of action repertoire which leads to improved alertness to what is happening. Consequently, people with a rich repertoire *“are in a better position to spot weak signals which suggest that an issue is turning into a problem which might well turn into a crisis if it is not contained”* (Weick, 2006, p. 1724). As the margins in elite sport are small, a richness of

action repertoire is believed to be of vital importance to continuously fine-tuning training and development.

Enactment is a key term in sensemaking. As the sensemaking concept views experience as a consequence of activity (Weick, 1979), people shape what they experience through their actions. Thus, enactment refers to the fact that people shape what is being experienced through action: “*Experience is not what happens to a man. It is what a man does with what happens to him*” (Huxley, cited in Weick 1979, p.147). In other words, enactment serves to bracket and construct portions of the flow of experience. When people respond to stimuli by taking a specific action, they enact their environment or actions. By acting, people enact their environment or actions in producing a second stimulus that is a result of their actions taken after the first stimulus. This is captured in how Weick explains enactment:

If an individual breaks up chaos so that other forms of order can be created, then it stands no reason that what is eventually available for inspection is something very much of the individual's own making. And the act of breaking itself suggests isolating some portion of the flow of experience for closer attention, which is largely what enactment consists of. (Weick, 1979, p.149)

The bottom line is that people change themselves through taking action which consequently changes the environment. Enactment in an elite sport context can be exemplified by athlete's training. Neither the athletes nor the coach know how the training works for an athlete until the training session is over. Through action, the athlete enacts how both he or she and the coach perceive the training. Furthermore, the coach enacts the situation by articulating his perceptions of what needs to be done in the subsequent training. The bottom line is that sensemaking has to be understood in the light of people creating their experiences, and attaching less importance to external factors. It is likely that such an approach is vital in order to succeed in the continuous development of training.

2.3.2. Sensegiving

Sensemaking refers to meaning-making, that is how individuals frame what they themselves notice (Weick, 1979). Sensegiving, in contrast, refers to the process where people intentionally try to influence how others think and act (Gioia & Chittipeddi, 1991), attempting to change a particular point of view (Bartunek, Krim, Necochea, & Humphries, 1999). It is well documented that sensegiving strengthens commitment and willingness to embrace new directions with enthusiasm rather than resistance among those being exposed to the

sensegiving (see Foldy et al., (2008) for a review). More precisely, sensegiving is about how, for example, national elite team coaches, team-mates, sporting directors, and support personnel try to influence athletes' perceptions, attitudes, and beliefs (Foldy et al., 2008). Sensegiving thus aims to provide the others with frames that guide future action and subsequent framing of what is experienced.

Since athletes themselves are in the best position to notice feedback signals about how they respond to training, the ideal form of sensegiving, in order to foster an athlete's sensemaking, is therefore to activate several frames in order to enhance their ability to generate a rich set of data from every situation or observation. Within the sensegiving literature this is called framing, and refers to changing how others perceive and interpret experience. By introducing new or refined frames towards the athletes, they are able to notice more in the training process, as well as being able to make comprehensive interpretations of what is noticed. Although all organizational actors may serve as sensegivers towards the athletes, the national elite team coach is probably the most important one as s/he is the one that has the most influence over the athletes' training. Thus, sensegiving is a leadership task (Randall, Resick, & DeChurch, 2011). It is about both being aware of how, for example, an elite team coach has the power to influence the way in which the athletes pursue training and development as well as being about the role of coordinating potential sensegiving actors in a way that does not create uncertainty or confusion over how training is to be carried out. At the same time, since developing elite athletes is a complex process, there is a need to include multiple sensegivers that see the same situation somewhat differently. When *inter alia* physiologists, nutritionists and psychologists serve as sensegivers towards the athletes, the athletes are more likely to develop more fine-grained frames.

By introducing a sensegiving perspective on how athletes' training is influenced by their interaction with actors within the organizational context, the thesis adds to the existing sensegiving literature. Very little research has been conducted to analyze what sensegivers actually do in order to change others' perceptions, attitudes, and beliefs and its consequences (Corvellec & Risberg, 2007). Furthermore, research on sensegiving mainly deals with strategic change (Gioia & Chittipeddi, 1991; Gioia & Thomas, 1996; Maitlis & Lawrence, 2007) and not continuous change (continuous development). Finally, sensegiving has received limited attention in studies of organizational mindfulness.

2.4. Organizational mindfulness

Developing elite athletes is about directing attention towards the most important aspects related to improved performance. For example, British cycling appointed a head of marginal improvements to make sure that small details affecting the levels of success were taken seriously (Harford, 2013). These included restitution routines, the rubbing of a bit of alcohol on the tires to improve grip in order to set off faster when racing in the velodrome, as well as the importance of good hand hygiene. Although such details on their own may have very small effects, the accumulated effect of improving several small details can be significant. The example of how the head of marginal improvements works to render elite sport success possible is analogous to how mindful organizations work to improve the quality of core processes. It illustrates that rather than focusing on radical changes, successful elite sport organizations emphasize the importance of many small adjustments. When an organization systematizes such a way of thinking and acting, it stimulates mindfulness.

Many people might argue that organizational mindfulness is a psychological framework, as it builds on the work of Etienne Langer (Langer, 1989; Langer, 1997; Langer, 2000). In fact, Karl Weick is a psychologist. However, his first book on sensemaking (1979), which perhaps is the most prominent, can be interpreted as a philosophical contribution as well as a psychological or sociological one. His second book on organizational sensemaking (Weick, 1995), and his work on high reliability organizations (Weick & Roberts, 1993; Weick et al., 1999; Weick & Sutcliffe, 2001; Weick, 2006) is more sociological as these to a greater extent emphasize how the organizational context shapes social interactions in learning and development. In fact, one of the seven properties of sensemaking highlights that sensemaking is a social event (Weick, 1995). Thus, the theory of organizational mindfulness (of which sensemaking is a key component) has moved towards being more sociological, as it highlights the role of interaction within the organizational context to a larger extent than the early works of sensemaking (Weick, 1979).

The theory of organizational mindfulness outlines how organizational practices and culture stimulate and support reliable learning. It focuses upon how patterns of interaction and organizational practices, culture and routines influence the quality of core processes (Jordan et al., 2009). The theory is developed through research on organizational contexts where learning and knowledge application requires a high degree of accuracy and reliability (Christianson, Sutcliffe, Miller, & Iwashyna, 2011; Jordan, 2010; Roberts, 1990a; Roberts, 1990b; Rochlin, 1993; Weick & Roberts, 1993). In particular, studies of nuclear power plants

(Schulman, 1993a), complex flight operations on air craft carriers (Weick & Roberts, 1993), air-traffic control systems (La Porte, 1988), and anesthesiology (Jordan, 2010) all provide empirical support for organizational mindfulness. Hence, the theory is closely tied to empiricism. In addition, contrary to many other theories, organizational mindfulness can be generalized across organizational contexts, despite low levels of abstraction.

Organizational mindfulness refers to “*the extent to which an organization captures discriminatory detail about emerging threats and creates a capability to swiftly act in response to these details*” (Vogus & Sutcliffe, 2012, p. 723). There is, in other words, a strong emphasis on identifying small deviations in the organizational practices that need to be improved. Organizational mindfulness captures the organizational mechanisms stimulating individual mindfulness. The mechanisms are captured in five core elements (preoccupation with failure, reluctance to simplify interpretations, sensitivity to operations, commitment to resilience, and deference to expertise) and the role of gatekeepers. Taken together, these organizational mechanisms define the organizational culture.

2.4.1. Organizational mechanisms stimulating reliable learning

Research indicates that organizations which experience success tend to become more homogenous (Fiol, 1994; Starbuck & Hedberg, 2006; Zollo, 2009), that is, organizations tend to develop homogenous beliefs which influence the way experience is interpreted. Miller (1999) argues that homogenous experience acquisition results in myopia, complacency and simplicity. To avoid homogeneity, mindful organizations emphasize the importance of requisite variety (Schulman, 1993b; Sitkin, 1992; Weick, 1987; Weick et al., 1999). Requisite variety aims to promote heterogeneity within an organization and is captured in the concept of conceptual slack. The five core elements illustrate how mindful organizations stimulate conceptual slack.

Preoccupation with failure: Contrary to many other organizations, mindful organizations embrace failures rather than trying to avoid them. They do so by treating any deviation as a symptom that something is wrong with the system, and being aware that small deviations may accumulate and turn into a major problem threatening organizational reliability (Weick et al., 1999). Deviations are thus viewed as a weak signal indicating that the system is vulnerable. Furthermore, mindful organizations also aim to generalize the failures (deviations) rather than to localize them. An identified deviation in a department may be a result of actions taken elsewhere in the organization (cf. enactment). Thus, such organizations aim to uncover the causal chains of events influencing the quality of core

processes. In an elite sport context, preoccupation with failure implies willingness to critically evaluate all factors influencing the state of performance. When an athlete experiences success, s/he may have failed on some aspects. For example, the performance might have been even better if the athlete had better recovery/restitution routines or trained slightly differently (for example different periodization or type of training). When such factors are identified, a mindful elite sport organization takes action to make sure that other athletes or teams can benefit from the identified deviations. Thus, based on such minor mistakes, the organizational routines are updated and shared within the organization.

Reluctance to simplify interpretations: Uncovering the most important factors for improvement requires an organization to facilitate discussions where prevailing interpretations are being challenged. According to Weick and Sutcliffe (2001, p.11), mindful organizations counteract simplicity by taking “*deliberate steps to create more complete and nuanced pictures*” of what is happening. To create a more nuanced picture of what is happening, there is a strong emphasis on bringing together people with different perspectives. This is the essence of conceptual slack, which refers to “*a divergence in analytical perspectives among members of an organization over theories, models, or causal assumptions pertaining to its technology or production processes*” (Schulman, 1993b, p.364). When people with divergent analytical perspectives evaluate the same situations, more data are generated. Hence, when people notice more they also uncover what is being experienced. The result is a more comprehensive interpretation of experience which strengthens reliable learning. Stimulating conceptual slack thus counteracts the tendency towards relying on a few dominant assumptions or beliefs. In other words, mindful organizations socialize people to notice more and simplify less. As the example of how a mindful elite sport organization is preoccupied with identifying small deviations indicated, identifying the factors that need to be improved requires that the organization facilitates discussions where assumptions are critically evaluated. The bottom line is that an organization has to include people who have diverse experience and are somewhat skeptical towards, for example, elite athletes pursue everyday training and development.

Bringing together people with divergent analytical perspectives is a difficult exercise. It may produce confusion (frustration) or ambiguity in an organization’s knowledge base (Schulman, 1993b). To counteract confusion and ambiguity, Schulman argues that three key values need to be in place: credibility, trust, and attentiveness. *Credibility* refers to a situation when people within an organization intervene because of a legitimate concern, and not as a

result of arbitrariness or incompetence. *Trust* refers to the fact there is an understanding that prior agreements are upheld and complied with over time. *Attentiveness* refers to the importance for an organization to continuously renegotiate its routines and to “renewing the fervor” (Schulman, 1993b). In other words, the extent to which an organization can benefit from conceptual slack is dependent upon people having skills in interpersonal relations, to counteract misunderstandings or miscommunication within the organization. As will be explained later, organizational gatekeepers play a key role to making sure that the organization benefits from conceptual slack.

Sensitivity to operations: Mindful organizations are attentive to how core processes are carried out. It refers to the “big picture” being situational and embedded in ongoing processes (Weick & Sutcliffe, 2001). Thus, mindful organizations stimulate organizational members to have situational awareness. Situational awareness means that people have an advanced understanding of the situation which makes them capable of noticing more, and being aware that what they notice is interconnected with how others within the organization perceive the situation. Endsley (1995) defines situational awareness as the “*perception of the elements in the environment within a volume of time and space, the comprehension of their meaning, and the projection of their status in the near future*” (p.36). Thus, people with situational awareness are sensitive to situational as well as contextual variation. According to Weick and Sutcliffe (2001) the key to effective performance is that people have situational awareness, which consequently means that people are able to take action after an early identification of a deviation or problem. In an elite sport context, situational awareness can be exemplified when actors close to the athletes are aware of an athlete’s overall condition (physical, psychological and social) rather than focusing on one specific aspect such as nutrition or technique. Having situational awareness is perhaps most important for the national elite team coach, as s/he are closest to the athletes. However, at the same time, it is important that support personnel and leaders also have situational awareness in order to ensure that all the organizational members have the same “big-picture” regarding how to develop athletes and teams.

Commitment to resilience: Reliable learning is stimulated through acknowledging that no system is perfect. Commitment to resilience refers to that even though an organization has a thought-through plan, they are aware that the plan has liabilities. Surprises are thus expected, and the absence of any surprise over a longer period of time is likely to create

anxiety over the fact that they are missing something (Rochlin, 1993). How mindful organizations are committed to resilience is described by Rochlin:

These organizations seek an ideal of perfection but never expect to achieve it. They demand complete safety but never expect it. They dread surprise but always anticipate it. They deliver reliability but never take it for granted. They live by the book but are unwilling to die by it. If these beliefs seem wonderfully contradictory, those who express them are under no particular pressure to rationalize their paradoxes; indeed, they seem actively to resist such rationalization” (Rochlin, 1993, p. 24)

An example of how an elite sport organization is committed to resilience is captured in Andersen’s (2009) study of experience-based knowledge development at Olympiatoppen. In this study, one of the OLT coaches stated: *“I get nervous when things are going well. We have to be attentive and work even harder when things are going well”* (p.448). This statement indicates that when everything seems to be perfectly fine, the organization is just about missing something that may cause harm in the long run.

Deference to expertise: In many organizations decision-making authority is closely connected to formal position in the organizational hierarchy. Although many mindful organizations are also hierarchical (for example air craft carriers or nuclear power plants), they are distinguishable from other organizations in the sense that decisions concerning core processes are taken by people close to the core processes (Weick & Sutcliffe, 2001). Mindful organizations strongly emphasize that decisions need to be taken by people with the most expertise, regardless of rank. As decisions in mindful organizations often must be made quickly and adequately, people close to core processes are empowered to make important decisions (Roberts, Stout, & Halpern, 1994). Furthermore, as many situations are novel and unique, decisions often migrate to others in the organization that has specific knowledge about a situation. Roberts, Stout and Halpern (1994) describe why decision often migrates around the organization at aircraft carriers: *“the decisions migrate around these organizations in search of a person who has specific knowledge of the event. This person may be someone who has a longer tenure on the carrier or in the specific job”* (p. 622). However, political or strategic decisions are mostly taken at the top of the organization. Such a decision-making structure stimulates and enables people to interact. Furthermore, the decision-making structure facilitates people to turn to others when they identify a deviation or anomaly that require further investigation (Weick & Sutcliffe, 2001). Frankly, people are encouraged to ask

for help when they struggle to understand what is happening: *“It is a sign of strength and confidence to know when you’ve reached the limits of your knowledge and know enough to enlist outside help”* (Weick & Sutcliffe, 2001, p. 77).

Deference to expertise within an elite sport context can be exemplified by taking decisions concerning athletes’ training. For example, when an athlete is struggling with training and neither the athlete nor the national elite team coach manages to grasp why the athlete is struggling, they may turn to a specialist/expert. In search of solving the “problem”, the national elite team coach may talk to specialists representing different fields of knowledge. When the situation is evaluated by people with divergent analytical perspectives (cf. conceptual slack) the most adequate specialist decides what actions need to be taken. The decision-maker is thus being responsible for the actions taken.

Taken together, the five core elements, which serve as the organizational mechanisms, constitute the organizational culture in mindful organizations. As evident in the discussion on the core elements, such organizations have a culture that stimulates people to actively reflect upon their experiences in order to improve the quality of core processes. The underlying argument of organizational mindfulness is, as it was for sensemaking, that it aims to create a richness of action repertoire (Weick et al., 1999). Although the fifth core element highlights how decisions are taken within mindful organizations, the perspective is less about organizational decision-making and more about inquiry and interpretation grounded in capabilities for action. In order to promote organizational mindfulness, leaders need to create a culture that encourages people at all levels to rich thinking and capacity for action (Ray, Baker, & Plowman, 2011, p. 199). There is also a strong emphasis on reporting near-failures or failures as these observations serve as important indicators of “loop-holes” in the organizational practices (for an example of report culture, see Weick and Roberts, 1993). Furthermore, contrary to other views on organizational culture (e.g. Schein, 1991; 1996) highlighting that culture refers to “how we do things here”, the culture in mindful organizations expresses “what we expect around here”. The description of the organizational culture in mindful organizations, presented in the introduction, confirms this.

To make sure that both the national elite teams and OLT benefit from the inter-organizational structure of Norwegian elite sports, there is a need for gatekeepers. The role of the gatekeeper is to control communication between the top and the operative parts of the organization. The primary role for a gatekeeper in an elite sport context is thus to coordinate specialist knowledge and integrate it within the national elite teams. According to Rogers and

Agarwala-Rogers (1976), a gatekeeper is; “*an individual who is located in a communication structure so as to control messages flowing through a communication channel*” (p. 133).

Within organizations, there are both formal and informal gatekeepers. When a person controls the communication based upon his or her formal position, they become a formal gatekeeper. In addition, others within the organization may act as informal gatekeepers by establishing a close informal relationship with key individuals higher up in the hierarchy (establishing an informal communication structure). Independent of the type of gatekeeper, such individuals are knowledge catalysts, communicating specialist knowledge related to elite athlete development and sharing various athletes’ experiences within the wider elite sport organization. Hence, the gatekeepers are critical for stimulating conceptual slack, allowing sensegivers with different analytical perspectives to interact with the elite athletes. The concept of gatekeepers has not previously been used in studies of organizational mindfulness. Nevertheless, it is likely that how the gatekeepers shape the interaction between actors within the national elite team and OLT is critical for the extent to which organizational mindfulness is stimulated.

2.5. Summary of the theoretical arguments

The preceding presentation of how individuals as well as organizations learn from experience illustrates that even though experiential learning is difficult, some organizations manage to learn reliably. Through organizational mechanisms, people are socialized into an approach that stimulates reflective thinking, grounded in a capacity for action. The organizational mechanisms refer to the five core elements constituting the organizational culture and the role of gatekeepers in taking advantage of divergent meanings embedded within the organizational context. At the individual level, sensemaking and interpretation constitute the mechanisms for reflection which can be seen as an important prerequisite for reliable experience-based learning. The underlying assumption is that, through engaging in sensemaking processes, people counteract bounded-rationality and thus move more towards a more complete learning cycle. In an elite sport context, this is believed to improve the quality of everyday training, as athletes are becoming more aware of the liabilities of success and stimulated to notice more when they train. Engaging in sensemaking thus makes it possible for the athletes to adapt general insights into training to individual needs. Furthermore, when organizational practices and culture stimulate the athletes to engage in sensemaking processes, the athletes generate more data from ongoing experiences and thus manage to capture empirical variations in one observation. Consequently, they are able to continuously *fine-tune* learning and development.

The result is improved quality of training. In cross-country skiing this is essential given that the athletes are in the best position to evaluate how they respond to different training activities. However, as athletes are part of a national elite team and a wider elite sport system, their interactions with different sensegivers influence how they learn from experience.

Through a close interaction, different sensegivers, for example the elite team coach or support personnel introduce new frames that guide what athletes' notice in the sensemaking process. How organizational mechanisms stimulate reliable learning is captured in Figure 5, representing the theoretical research model. The research model represents a unifying perspective on the organization and management of elite sports, identifying both organizational and individual mechanisms for fine-tuning training and development.

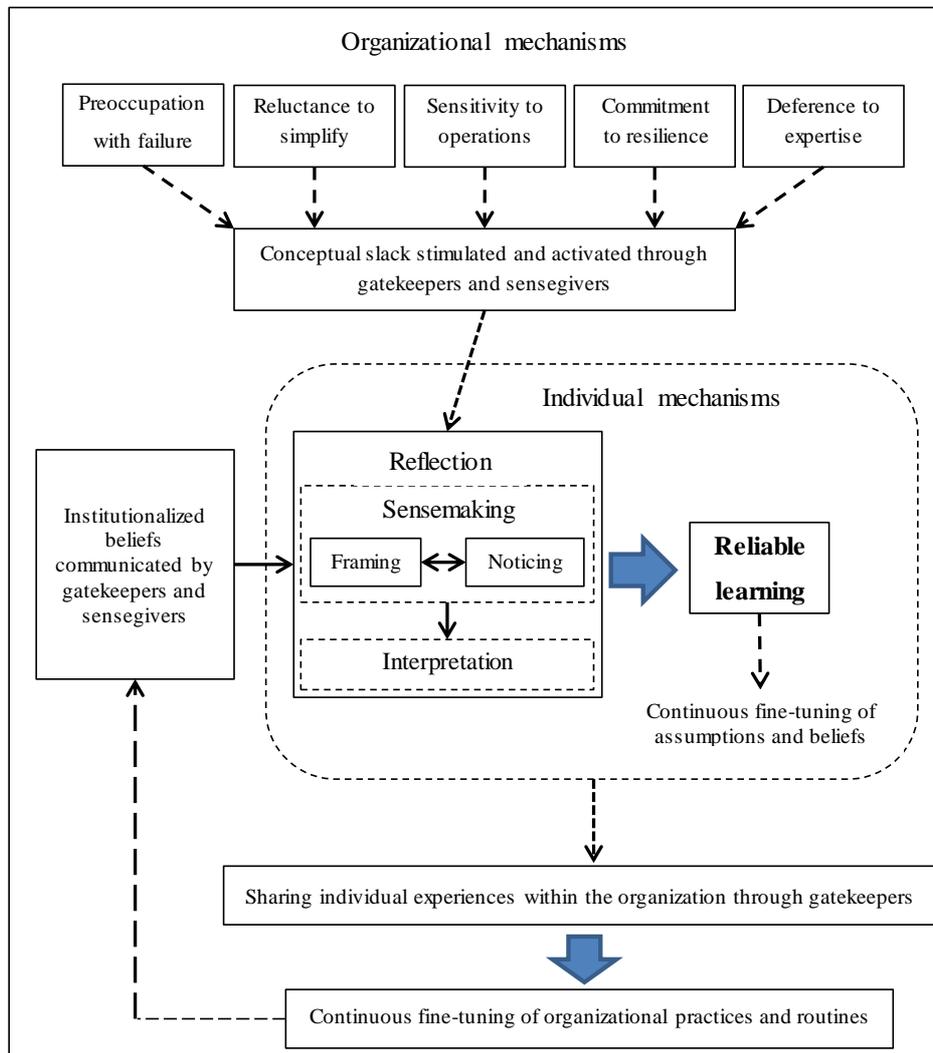


Figure 5: Organizational and individual mechanisms stimulating reliable learning.

The findings and discussion will be organized in line with the theoretical model. It starts by presenting how the athletes plan, implement and evaluate everyday training and identifies four different reflection styles among the elite skiers. Next, the thesis directs attention towards how coaches' sensegiving (as an element of coach behavior) influence athletes' reflection. Thereafter, the thesis addresses how the national elite team coach and sporting director act as gatekeepers at the interface between the national elite team and OLT. This section discusses how social relationships with key actors at OLT shape how the gatekeepers take advantage of resources available to them at OLT. Then, the thesis discusses

how the organizational practices of OLT influence training and development within the national elite teams in cross-country skiing. Finally, the findings and discussion section ends by discussing how individual reflection is influenced by the leadership and management of Norwegian cross-country skiing. However, before the findings are presented and discussed, the method and research strategy is explained.

3.0 Research method, strategy and analysis

Previous research indicates that although elite sport systems have converged over that last years in terms of structure and design, an elite sport system may come about very differently (Andersen & Ronglan, 2012b). Among western elite sport systems, the political and societal context, in which the organization is embedded, may differ a lot. Thus, by neglecting that there are important differences, studies identifying averages will, at best, give an idea of how the elite sport systems deliver elite athlete success. As Starbuck (1993) argues: *“All people, groups, organizations, and societies are peculiar and unique, and seeing how people, groups, organizations, and societies differ is at least as important as seeing how they look similar”* (p.888). We also need to keep in mind that context-independent averages say relatively little about outlying cases (Starbuck, 1993), such as successful elite sport organizations, athletes or teams. In fact, within the population of elite sport organizations, athletes and teams, the very best can be said to be outliers. Hence, as small margins may have major consequences in elite sport, there is a need to adopt a research method that allows for identifying and analyzing processes related to effective elite athlete development.

The presentation of the theoretical framework elucidated the fact that organizational mindfulness is process-oriented, building on a social constructivist view where interactions shape how organizational members learn from experience. To capture how the process of reliable learning unfolds within an organizational setting requires a method rendering this possible. The qualitative method and the qualitative case-study approach in particular, is suitable when a researcher aims to uncover a causal chain of processes and mechanisms explaining a phenomenon. Thus, rather than establishing causal effects, the qualitative method aims to identify the causal mechanisms and processes. In the present thesis, such mechanisms and processes are related to reliable learning. Before the qualitative methods and the qualitative case-study approach are reviewed, there is a need to distinguish between research methodology and research method, and between research method and research procedure and technique (van Manen, 1997).

According to Van Manen (1997) methodology refers to “*philosophic framework, the fundamental assumptions and characteristics of a human science perspective*” (p.27). In other words, the research methodology means how the researcher views knowledge. In the present thesis, the methodology refers to the social constructivist view, studied from a phenomenological perspective. The phenomenon is development and learning in elite sports, and the underlying assumption is that learning is socially constructed. Research method, on the other hand, refers to “*a certain mode of inquiry*” (p.28). The mode of inquiry in the present thesis refers to the qualitative method and more precisely the qualitative case study approach. The research procedure and technique refers to the practical side of collecting and analyzing data; the research strategy. In the present study, the primary data is generated through in-depth interviews, and supplemented by documents, observations at a high-altitude training camp, and media-coverage. In analyzing the data, the thesis employs a grounded-theory approach (Strauss & Corbin, 1998) and process-tracing (George & Bennett, 2005).

3.1. Qualitative methods

Qualitative research is characterized by a close relationship between the empirical data and the theory applied to the study. While quantitative research aims to establish significant cause-effect relationships in order to generalize on the population level, qualitative research aims to explain a specific phenomenon with a given (specific) context and only generalizes the findings to other contexts which are similar to the one that was studied. It is argued that qualitative research emphasizes the socially constructed nature of reality and how social experience is created and given meaning, while quantitative research emphasizes the importance of standardized procedures for measurement and analysis of causal relationships between variables, not processes (Denzin & Lincoln, 2005). However, establishing causality is also important in qualitative research, though not in a statistical way but by identifying the causal chain (process) between the independent variables (through process-tracing) and dependent variables (for a more comprehensive discussion, see Andersen, 2013; George & Bennet, 2005). Another feature which distinguishes the quantitative and qualitative research is that qualitative research pays attention to personal meanings, life stories, photographs and written texts, while quantitative research stresses the use of mathematical models, statistical tables and graphs (Denzin & Lincoln, 2005). The distinctions between the two research paradigms emphasizes that while objectivity is highly valued in quantitative methods, qualitative methods maintain that objectivity can never be captured.

Because of the multiple set of methods applied in qualitative research, a specific definition can hardly be obtained. Notwithstanding, Denzin and Lincoln offer a broad definition on qualitative research:

Qualitative research is a situated activity that locates the observer in the world. It consists of a set of interpretive, material practices that make the world visible. These practices transform the world. They turn the world into a series of representations, including field notes, interviews, conversations, photographs, recordings, and memo to the self. (Denzin and Lincoln, 2005, p.3)

As we can read of the quotation, qualitative research is likely to be chosen when the researcher has a desire to explain and interpret a phenomenon within a social context. Even though qualitative research is concerned with studying a phenomenon within a social context, there are different directions to follow for qualitative research (ethnography, anthropology, phenomenology, etc.). However, common to all these directions is that the case-study approach is highly valued (Yin, 2009).

3.2. Qualitative case-studies

A case study is, as the label implies, a study within a defined context (for example an elite sport organization) that is selected on the basis of the phenomenon under investigation (for example reliable experienced-based learning as a mechanism for sustained success). Even though the case study design here is related to qualitative research, it is also applied in quantitative research (Andersen, 2013; Gerring, 2004; Stake, 2005). Yin (2009) argues that the qualitative case study design is chosen in the attempt to understand a complex social phenomenon. This is in line with the definition by Denzin and Lincoln (2005) outlined above.

There exist different arguments for how to define a case study. Gerring (2004, p.342) summarizes some definitions and specifies a case study as: “*an intensive study of a single unit for the purpose of understanding a larger class of (similar) units*”. It is also here clear that the case is chosen because of the desire to investigate a social phenomenon. The logic of the case study can therefore be said to be characterized by the desire to investigate a phenomenon within a specific context (unit) with the aim to generalize the finds *theoretically* to other similar contexts. In social sciences, case-studies are often used in theory building (Eisenhardt & Graebner, 2007), or in developing a theory through empirical studies, as for the development of organizational mindfulness (Weick & Sutcliffe, 2001).

The case study design has its strengths in its conceptual validity, in deriving new hypothesis by exploring causal mechanisms (congruence analysis), and in modeling and assessing complex causal relations (process-tracing) (George & Bennett, 2005). In short, qualitative case studies are a well-suited design when the researcher aims to establish causal explanations which are related to detailed process tracing. A quantitative study, on the other hand, would have been the preferred research design if the aim was to establish causal effects (Andersen, 2007). One of the main benefits of case-studies is that both provide a rich description of an event and provide insights that go beyond the event being studied.

A central question that has been discussed in the case study literature is the N-question (Andersen, 2007; Gerring, 2004; Mahoney, 2000; Yin, 2009). There are two aspects of this question that have been discussed. First, in contrast to quantitative research; qualitative research is not preoccupied with having a large sample size in order to generalize on the population level (statistical significance) and heterogeneity in the sample is seen as a strength rather than a weakness in qualitative research. The qualitative case study endeavors to identify variations within the unit (context) that constitutes the case that can explain the phenomenon (Gerring, 2004). In summary, how the sample is chosen is something that distinguishes qualitative and quantitative research, which also appears in the case study design.

The second aspect is how to define what the N is. Does the N represent the number of cases, or does the N represent the number of units or respondents within the case? According to Gerring (2004), it is difficult to support the argument that each case is to be defined as $N=1$. Rather, he argues that it is the units that constitute the N. An example can be drawn from the present thesis. The thesis is constituted out of four nested (related) case studies which investigates how the phenomenon comes about at four levels. Therefore, one could argue that $N=4$ in my study. However, the different cases are constituted out of several units (e.g. Olympiatoppen, Ski Association) which means that $N>1$ in each case. In addition, several respondents shed light upon the phenomenon within every unit. All in all, it can be argued that the N-size is of little importance in qualitative case studies. What is then important is that the strategic sampling is done both on the dependent and independent variable in order to cover variations within the unit(s) (George & Bennett, 2005). The selection of deviant cases is also helpful in the struggle of identifying variations (ibid.). The extent to which the present study represents a deviant case can be discussed. However, research indicates that the Norwegian elite sport model is somewhat unique (Andersen & Ronglan, 2012b). Furthermore, the context of the present case-study is deviant in the sense

that very few have conducted in-depth research on how the very best athletes within a sport pursue training and development.

3.2.1. Case, context, unit of analysis and observation units

When doing a case-study, it is important to distinguish between and define what the case study is about, what context is being studied, what the units of analysis are, and who represents the key informants and observation units (Yin, 2009). The case can be *inter alia* an organization, decisions, course of events or a procedure (Andersen, 2013). However, the case may also be the unit of analysis. According to Andersen (2013) though, the case a unit of analysis has to be distinguished from the context which the study focuses on. For example, when studying decision-making processes within an organization, it is the processes themselves that constitute the unit of analysis, whereas the organization constitutes the context (*ibid.*). The unit of analysis may also refer to theoretical propositions or concepts. For example, sensegiving may be the unit of analysis in studies of how leaders within an organization manage to change people's beliefs, attitudes or actions related to organizational change (as in the study of Gioia and Chittipeddi, 1994). The observation units refers to people that are strategically selected to shed light upon the case. For example, interviewees may be selected based upon their personal experience, or because they have context-specific knowledge that is not available to the public (Silverman, 1993). In this regard, key informants that have special knowledge or experience about the phenomena studied are especially important in order to enlighten the study.

The thesis consists of four case-studies. Although all the four case-studies are conducted within the context of Norwegian elite cross-country skiing, they focus on different levels of the context. Thus, the different cases refer to different levels of analysis. Consequently, there are different units of analysis, consistent with the four levels of analysis. This has been done because different levels of analysis require a different theoretical and conceptual framework. Common to all units of analysis is that the theoretical and conceptual models (except the concept of gatekeepers) are derived from the theory of organizational mindfulness. To shed light upon the unit of analysis, observation units were strategically selected (Charmaz, 2006). The national elite team coaches are observation units within all the four cases. The extent to which the data from the interviews with OLT personnel and athletes are included were dependent on the level of analysis. Figure 3 summarizes how the four cases are interrelated, representing the case-study design for the present thesis. As the figure illuminates, the adopted case-study design can be described as an embedded multiple case-

study, as presented by Yin (2009). A multiple-case design refers to the fact that the study has several contexts and cases. Embedded means that there are multiple units of analysis related to the case or cases. It is important to note that although the thesis consists of different cases, contexts and units of analysis, they are all interrelated.

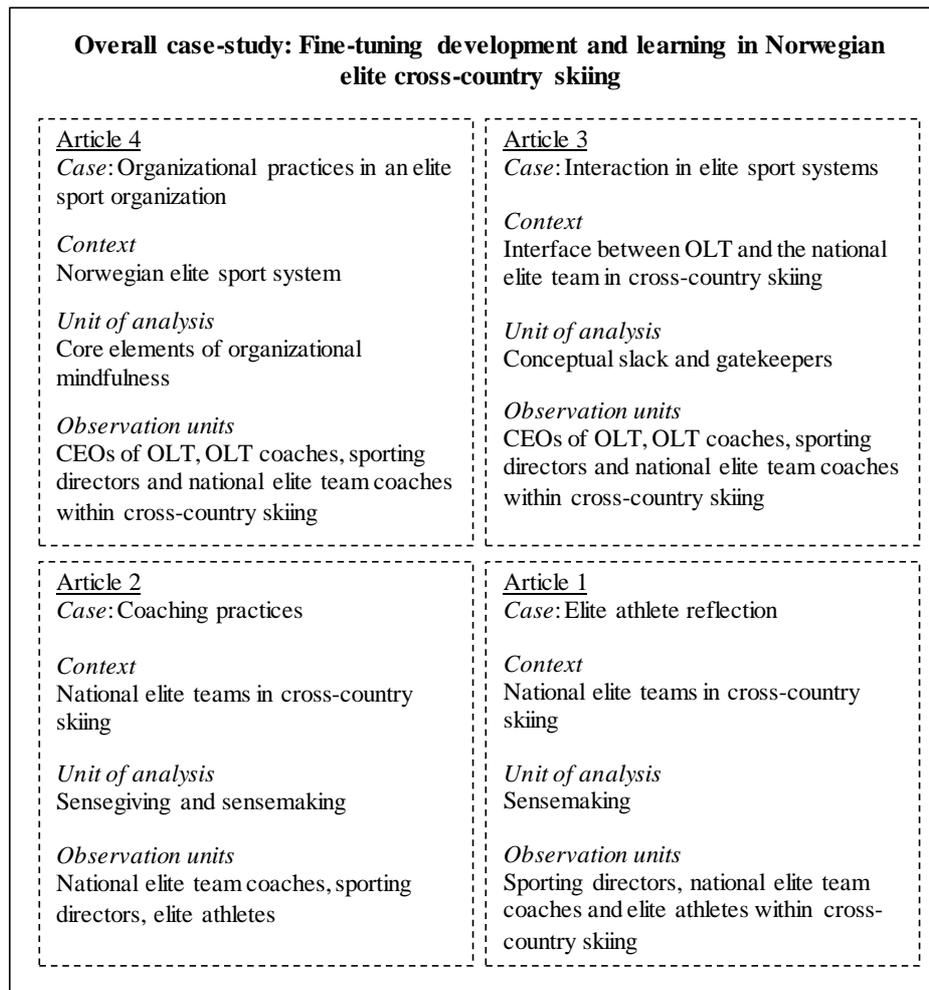


Figure 3: Highlights that the thesis has an embedded multiple case-study design.

3.3. Generating and analyzing qualitative interview data

The process of generating and analyzing interview data cannot be understood as two different processes, they are inherently interrelated. The data generated in the interviews guide the subsequent analysis. In order to avoid confirmation-seeking interviews, the semi-structured in-depth interview was utilized. Kvale (1996) defines the semi-structured interview as “an

interview whose purpose is to obtain descriptions of the life world of the interviewee with respect to interpreting the meaning of the described phenomena". (p.6). The interviews can be described as conversational, but structured around key topics (in-depth semi-structured interviews). Some of the interviews were carried out together with my two supervisors.

The interviews started with open and rather general questions, but also contained a number of specific questions to test out expectations. The informants can be viewed as world-class experts in their field, and my experience was that they had firm ideas about the key issues of interest to me. This allowed active questioning of their assumptions and arguments. Towards the end of the data collection and in interviews with experienced OLT coaches, I presented my preliminary interpretation of the organization and management of Norwegian elite sports, and in the light of this challenged them to discuss the extent to which my interpretation corresponded to their own experiences. By asking such questions, the interviewees provided me with information that confirmed, differentiated, and disconfirmed my interpretation. My experience is that when talking to people with extensive experience, this way of interviewing create very good discussions and rich (thick) descriptions (Hammersley, 2008). It also created a dynamic between the interviewee and myself as a researcher. In addition, this approach led to the interviewees problematizing issues and interpretations to a larger extent than was the case for the initial interviews. I believe that this dynamic was rendered possible because the interviewees had special interest in the research and because several of them had previously been interviewed by my executive supervisor, co-supervisor or both. When interviewing elites, it is argued that the interviewer needs "to establish his or her own authority to ensure a productive exchange" (Odendahl & Shaw, 2001, p.311). My experience is that I managed to create this authority. The fact that authority was established may also be a result of my former experience as a skier, which provides me with knowledge of the context and jargon in elite cross-country skiing.

All the interviewees where strategically selected. First, an initial strategic sampling was conducted. This sample covered athletes on the national elite teams for men and women (6 male and 5 female), national elite team coaches in cross-country skiing from 2002 to 2011 (5), and cross-country skiing sporting directors within the Norwegian Ski Association from 2002 to 2011 (3). The period between 2002 and 2011 covered two national elite teams for women (between 2002 and 2006, and between 2006 and 2011), and two national elite teams for men (between 2003 and 2006, and between 2006 and 2011). The selected athletes were on the national elite teams for the 2010-2011 season, but several also had experience from

previous national elite teams with another national elite team coach. The period between 2002 and 2011 was selected to cover differences related to gender, seniority, approaches to the interaction with OLT, and levels of success. Based on the ongoing analysis of data (explained later), a theoretical sampling was conducted. This sample included OLT coaches responsible for the overall interaction with cross-country skiing between 2002 and 2011 or intervened with the teams (4), CEOs of Olympiatoppen (2), and OLT specialists that worked closely with national elite teams in cross-country skiing (3). The reason for sampling both on the dependent and independent variable (national elite team coaches, athletes, and sporting directors on the dependent variable, and OLT personnel on the independent) was that the study sought to uncover the causal chain of processes influencing elite athlete reflection.

All together 28 in-depth interviews were carried out, lasting from 45 minutes to almost 2 hours. Interviews with national elite team coaches and sporting directors within biathlon (not part of the Norwegian Ski Association) were also carried out as the plan was to conduct a comparative study. However, as the amount of data from the interviews with actors within cross-country skiing was large, I decided to use more time on analyzing these rather than collecting more data within biathlon. Furthermore, the initial data collection and analysis with actors within cross-country skiing called for more interviews with actors that had interacted with the national elite teams, whereby a theoretical sampling was conducted. How theoretical sampling guided the analysis is described later.

The interviews with the athletes covered a description of planning training activities, reflections on such activities, and the ways in which issues related to personal experiences were influenced by or discussed with coaches, team-mates or other support personnel. The interviews with coaches and sporting directors represented a general perspective on practices within the team and how resources within the NSA and the Norwegian elite sport system was used to support individual efforts in the teams. The interviews with the CEOs of OLT focused upon the overall role of OLT in the Norwegian elite sport cluster, organizational practices, and the management of Norwegian elite sports. The interviews with the generalist coaches at OLT covered four topics: the role of OLT in developing Norwegian elite sports, the role of the OLT coaches, their experiences from being the responsible coach for cross-country skiing, and how to establish a close and constructive interaction with the national sport associations. The interviews with the OLT specialists covered topics relating to their role and experiences associated with their interaction with athletes, national elite team coaches and sporting directors within cross-country skiing.

3.3.1. Data analysis

All interviews were recorded and transcribed. This provided a rich basis for the coding process that was carried out in two major stages, open and theoretical coding. The analysis in all four articles followed the same coding procedure. However, the open coding procedure was more comprehensive in analyzing the data related to article 1 (which was written first), than for the other articles. Therefore, the open coding procedure related to article 1 guided both the theoretical sampling as well as the analysis of the subsequent interviews.

The open coding process leading up to the first article can be described as inductive; aiming to capture what the data was really about. First, the co-authors of article 1, together with myself, individually made categories that emerged out of the data. Having identified the categories, we got together to compare how the data were categorized. In this phase we compared the extent to which the individually constructed codes and categories resembled how the two others made sense of the data, verifying the major categories. This way of coding the data allowed for discussion on how the different segments could be understood and interpreted. It is important to note that only two of the authors collected the data. Thus, the third author had a different view on the how the data could be interpreted.

Although the interview guide was structured around underlying assumptions in the theory of organizational mindfulness, the open coding can be viewed as inductive, following the principles behind the grounded theory approach (Charmaz, 2006; Strauss & Corbin, 1998). However, as the interview guides contained questions that reflected my current knowledge of the context and theoretical propositions, the research strategy cannot be strictly defined as a grounded theory approach. In this respect, it is important to remember that there is a difference between an empty head and an open mind. On the one hand, having a contextual understanding may be of importance in order to ask adequate and specific questions. However, at the same time it is important to have an open mind about what is being told in the interviews in order to avoid confirmation bias. An empty head on the other hand, refers to not having any preliminary understanding of neither the context nor the theoretical assumptions and propositions. An empty head approach requires more interviews as the researcher has to use more time on obtaining an understanding of what is going on. In my opinion, a preliminary contextual understanding was vital in order to ask both open questions and follow-up questions that could enhance my understanding of how elite athletes reflect on everyday training and how this is influenced by the organizational context. However,

throughout the interviews I was cautious about letting my preliminary understanding and underlying theoretical assumptions influence the analysis of data.

Based on the comparison and discussion, a preliminary set of descriptive categories emerged. Thus, the second coding stage was more theoretical. In this stage, I started thinking about how such a data structure relates to more general theories about individual reflection and learning in organizations. In the theoretical coding, the descriptive categories were related to mechanisms of reliable learning (sensemaking and interpretation) and organizational mechanisms (core elements of organizational mindfulness with its emphasis on conceptual slack, sensegiving and gatekeepers). The theoretical coding conducted in relation to article 1 influenced the selection of more interviewees and the structure and content of the related interview-guides, resulting in more and more rich descriptions. This way of selecting interviewees and analyzing qualitative interview-data is consistent with what Charmaz (2006) labeled theoretical sampling. Theoretical sampling refers to structuring subsequent interview-guides on emerging categories that can explain the phenomenon under investigation in order to seek and collect pertinent data that can refine and develop the properties of the emerging categories (Charmaz, 2006). As Mason argues:

Theoretical sampling means selecting groups or categories to study on the basis of their relevance to your research questions, your theoretical position... and most importantly the explanation or account which you are developing. Theoretical sampling is concerned with constructing a sample which is meaningful theoretically, because it builds in certain characteristics or criteria which help to develop and test your theory and explanation.

(Mason, 1996, p. 93-94)

Consequently, when the properties of each category are identified, data saturation is achieved. Data saturation in the present thesis was achieved when people answered the questions in line with the theoretical propositions and in ways that confirmed how others answered and responded to the questions and emerging hypothesis. The theoretical coding procedure also followed the constant comparison process (Glaser & Strauss, 1967), comparing the empirical findings with theoretical arguments and propositions.

3.4. Generalization, validity and reliability

Generalization is closely related to the notions of validity and reliability. According to Yin (2009), internal validity is about “*seeking to establish a causal relationship, whereby certain conditions are believed to lead to other conditions*”, whereas external validity refers to

“defining the domain to which a study’s findings can be generalized” (p.40). Consequently, internal validity refers to theoretical representativeness, and external validity refers to empirical representativeness (Andersen, 2013).

Contrary to quantitative studies, which emphasize the importance of empirical representativeness (Shadish, Cook, & Campbell, 2002), qualitative case-studies do not cover a sample that is representative on the population level (Silverman, 2010). However, qualitative case-studies may also be empirically representative. Empirical representativeness in case-studies is about the formulation of concepts and clarifying relations that are valid for certain phenomena under certain conditions (Andersen, 2013). The extent to which the findings are empirically representative is thus dependent upon the extent to which the empirical findings properly capture the phenomena under investigation. Hence, empirical representativeness in qualitative case-studies has little to do with establishing causal effects through data that are statistically significant.

Theoretical sampling is important in qualitative case-studies as this is an important prerequisite for theoretical representativeness. Theoretical representativeness (also termed analytical generalization) refers to the extent to which the researcher is able to express convincing arguments about how empirical patterns and processes can be seen as representative for typologies, concepts, and causal mechanisms (Andersen, 2013). When a case study is strategically selected it is possible to relate empirical variation to theoretical models. For example, studies of organizational mindfulness is theoretically representative to all ambitious elite sport organizations as learning and knowledge application require a high degree of accuracy and reliability.

To strengthen the internal validity, the process-tracing method was adopted. Process-tracing is about identifying the internal consistency between observed empirical patterns and existing theoretical propositions and mechanisms inherent in underlying processes (George & Bennett, 2005). Thus, process-tracing is a good analytical method for identifying the causal chain and mechanisms between independent variables and the dependent variable. According to Hall (cited in George and Bennett, 2006, p. 206), process-tracing is *“well-suited to testing theories in a world marked by multiple interaction effects, where it is difficult to explain outcomes in terms of two or three independent variables”*. Hence, the causal relation between the independent variables and the dependent variable has to be grounded in theoretical models.

When analyzing the interview data, I was preoccupied with tracing the processes that influence reliable learning (dependent variable). The learning cycle (Dewey, 1910) and underlying assumptions in organizational mindfulness (Weick et al., 1999) directed my attention towards how athlete learning is influenced. Organizational and individual mechanisms served as the independent variables, and the analysis dealt with considering alternative paths through which reliable learning was influenced by the organizational context or not. As illustrated in the four articles, there was considerable consistency between the theoretical mechanisms and the empirical data; although the findings also challenge our understanding of how mindful organizations influence reliable learning. Thus, through process-tracing, it was possible to develop and amplify causal explanations related to the existing theory of organizational mindfulness, for example how deference to expertise was conceptualized or what the role was of gatekeepers and sensegivers in mindful organizations.

In the light of how the study was designed and carried out, I will argue that the findings of this thesis are both empirically and theoretically generalizable. First, they are empirically representative to other individual endurance sports in the sense that conditions and challenges surrounding the development of elite athlete success in sports such as cycling or long-distance running are quite similar to cross-country skiing (whereby reflection may play an important part). Second, it may also be theoretically representative. It contributes to understanding the process of reliable learning that goes beyond this particular example (elite sports). More precisely, the study refines and extends our understanding of how mindful organizations influence individual learning in a manner that contributes to improving the quality of core processes, across organizational contexts.

Reliability refers to the extent to which the study could be repeated with the same results (Yin, 2009). More precisely, reliability is about credibility and trustworthiness. Key questions in this regard are: How likely is it that the findings reflect the reality? And, how likely is it that the respondents actually tell the whole truth? Three actions have been undertaken in particular to strengthen the reliability of the study.

First, before conducting the interviews, I tried to make up a timeline highlighting critical events in the interaction between cross-country skiing and OLT. In this regard previous books (Gotvassli, 2007; Hanstad, 2002; Kaas et al., 2007; Stensbøl, 2010), scientific articles (Augestad et al., 2006; Steen-Johnsen & Hanstad, 2008), doctoral theses (Enoksen, 2002; Gotvassli, 2005; Tønnessen, 2009), documents (NSF, 2005; NSF, 2006; NSF, 2007; NSF, 2009; NSF, 2011b; NSF, 2011c; NSF, 2013; OLT, 2006; OLT, 2010; OLT, 2011), and

media coverage (Berntsen, 2001; Berntsen & Andersen, 2000; Brenna, 2005; Brenna, 2008; Brenna, 2009; Bråten, 2004; Halkjelsvik, 2006; Hanstad, 2001a; Hanstad, 2001b; Hanstad, 2004; Kirkebøen, 2005; Kirkebøen, 2007a; Kirkebøen, 2007b; Kroksæter, 2001; Kroksæter, 2010; Løfaldli, 2009; Mangelrød, 2008; Mangelrød, 2011b; Stensbøl, 2010; Ulseth, 2001) provided me with a good contextual understanding. Insights from these sources also made it possible to uncover whether the interviewees constructed a story that did not cohere with the reality (Andersen, 2006).

Second, all the quoted interviewees received a copy of the final draft of every article to give their consent to the way they were quoted and, if desirable, provide additional comments concerning the overall analysis. Some of the interviewees provided me with very fruitful feedback which led to more nuanced articles.

Third, in May 2013 I was invited to present the PhD-project to the national elite team coaches in ski-jumping. Throughout this meeting they found the findings and analysis very adequate and that it resembled much of what was found at the athlete level (article 1) and at the organizational level (articles 2 and 3) within the context of cross-country skiing. This doesn't only strengthen the reliability of the study; it also strengthens the external validity.

3.5. Ethical considerations

Openness, honesty, carefulness, and confidentiality are key norms in science (Bok, 1982; McMullin, 1985; Resnik, 1998). Research on how to achieve excellence in elite sports problematizes the norm of openness, and its antithesis, secrecy. How I dealt with these norms in my own research project is described in the following.

Throughout history, it has been very common for successful athletes and teams to keep new invented training methods or equipment secret in order to maintain their competitive advantage. The margins in elite sports are small. New equipment or insight into how elite sport organizations manage to capture small margins in the training process may have major consequences for achieving great results. For example, the highly successful ski and ski-waxing project (initiated by OLT and the NSA in 1989) led to the Norwegian skiers having, by far the best skis in the Winter Olympic Games in 1992 (Hanstad, 2002; Stensbøl, 2010). A lot of secrecy was connected with this project, making sure that their foreign competitors didn't get access to their knowledge. The fact that secrecy in elite sport is widely common is further illuminated by inventions in British cycling leading up to the 2012 Olympic Games in London (Scott, 2012; Harford, 2013), the invention of a new speed suit for Canadian alpine skiers in relation to the 2010 Winter Olympic Games at Vancouver (Elster, 2010), and the

close cooperation between OLT and the Norwegian University of Science and Technology (NTNU) in developing new equipment that may give the Norwegians a competitive advantage (Oksnes, 2006). Especially the latter highlights that other nations must be prevented from getting access to science aimed at improving an athlete's performance. From a researcher's point of view, creating and sharing knowledge about factors leading to success is especially important as it may lead to a level of playing field between rich and developing countries. In this regard, the present thesis can be seen as a contribution to all countries trying to achieve elite sport success.

Given the tendency to keep scientific results secret, one might also ask the question: How likely is it that elite skiers, national elite team coaches, sporting directors and those working at OLT will unveil what methods they employ in order to outperform their competitors? Furthermore; how likely is it that the athletes in particular will unveil their inner thoughts about how to become best? Of course, I have no guarantee that what they said in the interviews reflects the whole truth or reality. However, it is my responsibility, as a researcher, to be critical towards what is being said and through a thorough analysis to uncover both consistencies and inconsistencies. As described above, insights derived from previous books, scientific articles, doctoral theses, documents and media coverage made it possible to be critical towards how the interviewees constructed their representation of both themselves and their experiences. This allowed for capturing inconsistencies between what was told and the reality. Nevertheless, my experience is that the interviewees were very honest with me. In fact, many that I talked to were more than happy to share their experiences, and they even shared stories and experiences that they didn't want to be quoted on in order to enhance my contextual understanding. This gives rise to another question; how to deal with statements told in confidence in view of the norm of openness in science?

Accepting that segments of the empirical data cannot be published threatens the norm of openness in science. However, at the same time, it is important to remember that my integrity as a researcher rests upon that I have a proper relationship with my interviewees. If I had published something that the interviewees told in privacy, there are great reasons to believe that they would have withdrawn from the study. There is, in other words, a need to be somewhat "pragmatic" by using the statements in the analysis, whilst omitting them from the final articles. This pragmatism also highlights the importance of confidentiality.

Kvale (1996) offers a definition of confidentiality in science: "*Confidentiality in research implies that private data identifying the subjects will not be reported,*" (p. 114).

Following this definition, any form of information that may identify the interviewees cannot be reported in the articles. One way to deal with this could have been to make the organization and national elite teams anonymous. However, this would have made it difficult to explain the contextual peculiarities specific to Norwegian cross-country skiing. In a case-study such as the present thesis, contextual characteristics are important as they serve as vital pieces of information on how the findings can be interpreted. Nevertheless, my approach to secure confidentiality has been to make the statements as anonymous as possible.

According to Odendahl and Shaw (2001), confidentiality is particularly important when the sample covers high-profile subjects. On the one hand, some high-profile interviewees may not require confidentiality as they may use the research to achieve public acceptance for their thoughts or practices. On the other hand, some may require a high degree of confidentiality in order to ensure that they are not identifiable. This is likely to be the case when the research uncovers individuals responsible for great losses, actions that have had major consequences for others, or even in terms of personal conflicts. As the elite sport milieu in Norway is small, and particularly the cross-country skiing milieu, I was quite clear about the fact that the statements in the final articles could be indirectly personifying. Although I tried to make the statements anonymous, many of the statements in the articles are indeed indirectly personifying. In this regard, every interviewee read and signed an informed (written) consent (attached), in which they were made aware of this. They were also told that they could withdraw from the study at any time without providing me with the reason for this. Furthermore, as described above, they also had to accept the way in which they were quoted before the articles were submitted to scientific journals. None of the quoted interviewees rejected the use of any statements.

4.0 Findings and discussion

The findings and discussion illustrate how the organization of Norwegian elite cross-country skiing, in collaboration with OLT, pursues elite athlete development. Central to the discussion is how elite athlete reflection is influenced by key actors within the Norwegian Ski Association and in the wider elite sport system, and how patterns of interaction at the interface between the national elite teams and OLT shape organizational mindfulness. The patterns of interaction refer to socialization processes; athletes and elite team coaches are being socialized and exposed to values and experiences embedded in the elite sport system. Taken together, this constitutes the organizational context for learning.

The section is organized into five parts. First, the four articles are presented.

- Article 1 identifies different styles of reflection and how national elite team coaches interact with different types of athletes.
- Article 2 investigates how the elite team coach acts as sensegiver in individual training processes more in depth.
- Article 3 investigates how elite team coaches and sporting directors act as gatekeepers by channeling the support from OLT towards the elite athletes.
- Article 4 analyzes the extent to which OLT is a mindful organization and illustrates that organizational mindfulness within Norwegian elite sports emerges at the interface between the national elite team and OLT.

A complete version of all the four articles is attached. For this reason the summary will not fully document the specific reference to theory. Nevertheless, the discussion of each article includes a more comprehensive discussion of more far-reaching theoretical implications than being made in the attached article. It focuses upon presenting empirical observations and claims and relates these to underlying expectations and assumptions described in the theory section. Consequently, the discussion specifies observations that confirm or modify/refine underlying theoretical expectations related to reliable learning. The last part discusses key issues across the articles and attempts to integrate insights from the articles in relation to the leadership and management of everyday training in Norwegian elite cross-country skiing.

4.1. Article 1: How elite athletes reflect on their training in an organizational setting¹

This article analyzes athletes' own understanding and experience with training. The research question is: How do elite cross-country skiers engage in reflection in order to improve the quality of training, and how is such reflection influenced by actors in the wider organizational setting? By studying how athletes plan, implement, and evaluate everyday training, it illustrates how different types of athletes engage in reflection. In addition, it also addresses how their reflection is influenced by coaches, team-mates and support staff in the national team, and by support staff from the national elite sport organization in ways that reflect organizational culture and routines. Central to the analysis is how reflection can strengthen reliable learning from experience.

The article provides an insight into different reflection styles and illuminates how leadership and management play a key role in facilitating reliable learning. It covers how world-class athletes train; basic challenges and dilemmas that they face; how they reflect upon it, and how coaches and other support staff stimulate or contribute to elite athlete reflection.

4.1.1. Main empirical findings

Four typologies of reflection styles were identified; the conformist, the brooder, the experimenter, and the analyst. Individual athletes may demonstrate elements from more than one style, but typically had a dominant style. Common to all the reflection styles was the fact that the elite skiers share some basic assumption about key challenges involved in developing world-class performance. Such commonalities reflect the accumulated knowledge and practical experience, reflected in cognitive schemes, as well as shared stories about former skiers that serve as role models. This common frame provides a framework for the individual plans, and it also serves as a context for continuous evaluation of the implementation of everyday training. However, athletes' sensemaking differs according to the four reflection styles.

The *conformists* rely on one dominant (coarse) frame consistent with the institutionalized beliefs. Such athletes tend to search for feedback signals that confirm the basic beliefs. Consequently, they tend to learn superstitiously.

The *brooders* have multiple frames that are rather coarse. Such sensemaking offers a range of possible interpretations. Consequently, the brooders tend to struggle to make good

¹ Svein S. Andersen and I contributed equally to this article concerning the research design and the analysis and interpretation of data. Thorvald Hærem, who is the third author, took part in the analysis and interpretation of data, and in the drafting and revision of the article.

judgments in the training process because they are never quite sure about the extent to which they are doing the right things. Thus, the brooders in many ways are too self-critical. They struggle with equivocality, and lessons drawn from experience are ambiguous; they generate a lot of data (experience) but have problems with interpreting the experience (why things came about as they did).

The *experimenters* have multiple frames that are fine-grained and sensitive to situational variation. This makes it possible to identify specific indicators of how they respond to training. Although also the experimenters have strong beliefs in the overall training plan, they actively use new experience to continuously adjust the training. Such athletes are also capable of adapting general insights into training to individual and situational needs. Because the experimenters have multiple frames that are fine-grained, they are able to generate more experience (data) that leads to an adjustment of existing frames. The result is more reliable learning.

The *analysts* also have multiple frames that are fine-grained. However, contrary to the experimenters, these frames tend to reflect general (abstract and normative) insights into training that are not specific to individual and situational needs. Their interpretation of training deals with how athletes in general should respond to training, and not how they actually responded. The result is that they tend to learn superstitiously (what was believed to happen, happened).

To prevent the athletes learn in superstitious or ambiguous ways is a key challenge for the national elite team coaches. Given that athletes engage in reflection differently, coaches need to differentiate between the athletes. Towards the conformists, they need to regularly invoke earlier experiences and ask critical questions, thereby enriching the interpretation process. Such an approach counteracts over-confidence. Towards the brooders, who struggle with equivocality, they need to strengthen belief in the plan and to assist in interpretation of ambiguous feedback signals. Towards the experimenters the role of the national elite team coaches is to create a strong belief in the overall plan. Finally, towards the analysts, the coaches must direct attention to specific frames enabling the analysts to generate more fine-grained feedback signals and thereby reduce attention paid to possible factors that are of lesser importance.

Support personnel have two major ways of stimulating reflection. First, such personnel may provide the athletes with feedback signals that the athletes themselves are not able to notice, such as blood tests that can reveal illness, lack of vitamins or other physiological tests,

such as maximal oxygen uptake. Such tests increase the data available for athletes' sensemaking and interpretation. This is important for all types of athletes. Second, support personnel may also communicate important aspects related to their field of expertise. Such input stimulates the athletes' frames as it directs attention in ways that affect the noticing process.

4.1.2. Theoretical contribution

As pointed out in the theory section, institutionalized beliefs and underlying assumptions are essential in shaping expectations (Weick et al., 2005). They constitute frames, guiding what athletes notice in the training process. The general assumption is that the more specific expectations actors develop, the more they are able to engage in self-critical reflection that also touches upon underlying assumptions. Furthermore, the theory emphasizes the importance of critical self-reflection on all levels, in settings where individuals carry a considerable personal risk/cost (Weick & Sutcliffe, 2001). The observations in article 1 challenge and refine this theoretical expectation in two ways: 1) They illustrate that athletes sensemaking in some ways runs counter to the theoretical assumptions, and 2) They identify additional variables by capturing different reflection styles.

The general beliefs guiding individual plans are in some ways challenged through yearly evaluations, but in relation to the skiers it mainly constitutes a source of confidence-building. This is reinforced by coaches, and this reflects the special nature of the domain. Confidence in the plan seems to be a necessary condition for athlete's ability to carry out exhausting training with vigor and enthusiasm. However, as Weick (2006) has pointed out: "*enthusiasm is a friend of action, but the enemy of wisdom*" (p.1776). In relation to the kind of endurance sport studied in this thesis, this creates a dilemma. Athletes need to have strong beliefs, and strong, but general expectations about key concerns. At the same time, as the theoretical perspective emphasizes, they also need to engage in self-critical reflection during implementation of training in order to adapt general principles embodied in an individual plan to their personal and situational needs.

Different reflection styles introduce additional variables as there is considerable variation in relation to how the elite skiers engage in critical self-reflection. The variation seems to be a result of the athletes' engagement in sensemaking processes as this influences how experiences are interpreted. Self-critical athletes (brooder and experimenter) tend to generate more data available (notice more), and are more open to updating their assumptions based on newer experiences (develop the frames) because they have fine-grained frames. The

result is a more comprehensive interpretation of how to deal with subsequent training efforts, that increases the likelihood for reliable learning from experience.

The less self-critical athletes (conformist and analyst) fail to generate data that may indicate that something needs to be adjusted in the training process (notice less) as they are most preoccupied with training according to the plan. They have fewer and/or frames that are rather coarse. This result in an interpretation that mainly deals with confirming the beliefs embedded in the plans. Thus, it reduces such athletes' capacity for learning reliably from experience, as important feedback signals may be overlooked.

4.2. Article 2: How coaches stimulate elite athletes' reflection²

Article 1 study how different types of athletes reflect on their training and how coaches and support personnel support and influence their ability to learn more reliably from experience.

Article 2 explores the coaching behavior of five national elite team coaches. They were responsible for the men's and women's all-round teams in different parts of the period between 2002 and 2011. It addresses their coaching behavior by analyzing how they act as sensegivers in individual training processes, and to what extent they allow support personnel to act as sensegivers towards the athletes. This is captured in the research questions: 1) To what extent do the national elite team coaches represent different approaches to sensegiving? 2) To what extent do the coaches allow support personnel to act as sensegivers?

As presented in the theory section, sensegiving refers to how elite team coaches and support personnel try to influence how the skiers think and act (cf. Gioia & Chittipeddi, 1991). The article identifies five key mechanisms of coaches' sensegiving: sensegiving strategy, coaches' frames, application of frames in training programs, coach intervention on athletes' sensemaking, and additional sensegivers to the elite team coach. These mechanisms are related to empirical categories of coaching behavior. Hence, the empirical categories are viewed as sub-categories of sensegiving

The empirical categories of coaching behavior refers to: 1) whether the coaches is democratic (athlete-centered) or autocratic (top-down), 2) whether their training philosophy is based on insights from natural science, experience, or if experience is the basis for exploiting scientific knowledge, 3) whether they apply a standardized approach to training or adapt general insights into training to individual needs, 4) whether they intervene on athletes

² I am the main author of this article. Svein S. Andersen provided input and general comments on the theoretical framework and analysis of data. Additionally, some of the data were collected in collaboration with Svein. Thus, Svein is naturally a co-author of this article (cf. the Vancouver Declaration).

training to achieve a standardized plan or to fine-tune their training by exploiting their own reflection, and 5) to what extent they allow support personnel to strengthen athletes' reflection. Previous research and documents describing the context of Norwegian elite cross-country skiing highlight the importance of an athlete-centered approach, general insights into training has to be adapted to individuals, experiences is the basis for exploiting scientific knowledge, and the beneficial effects of interacting with specialists at OLT. Thus, these are core values.

4.2.1. Main empirical findings

Coach 1 stands out from the four other coaches as his coaching behavior is characterized by an autocratic sensegiving strategy, he emphasized the importance of insights from natural science capturing critical success factors, had a standardized approach to training leaving very little room for individualization, intervened on athletes sensemaking to achieve a standardized plan, and was very reluctant to include support personnel as additional sensegivers. Although this coach encouraged the athletes to share their views on how to improve their technique, the athletes were to a much lesser extent stimulated to reflect upon their own experiences with training; he decided when the training had to be adjusted based on observations during training sessions. Hence, the coach became the key sensemaker regarding how the athletes responded to training. Furthermore, the coach was the only sensegiver for the athletes, reducing the interaction between the athletes and support personnel at OLT. He saw it as important to make sure that support personnel didn't provide the athletes with frames that were contradictory to the desired philosophy of training. According to this coach, such sensegiving only caused uncertainty among the athletes. Furthermore, discussions were undertaken with scientists outside the Norwegian elite sport system, as the coach thought that OLT lacked the required competence.

The four other coaches (coach 2, 3, 4, and 5) approach sensegiving more democratically, used previous experiences as the basis for exploiting scientific knowledge, adapted general insights into training to individual needs, exploited athletes' own reflection in fine-tuning everyday training, and coordinated the support personnel to act as sensegivers towards the athletes. Contrary to coach 1, these coaches doubted that a standard recipe could bring out the best in all athletes, emphasizing that there may be several paths to success. They also emphasized including support personnel as sensegivers to supplement their own sensegiving. As such, the athletes obtained a more nuanced picture about how to achieve quality of training. Thus, specialists were actively used to provide the athletes with frames

that increased their capacity to generate rich information in the training process. When athletes have several frames, they notice more in the training process (cf. article 1) and consequently manage to learn more reliably from experience. However, to avoid uncertainty among the athletes about how to pursue training and development, the coaches emphasized that the interaction between support personnel and the athletes had to be coordinated through the coach. The findings illustrate that how coach 2, 3, 4, and 5 approached sensegiving stimulate elite athlete reflection to a greater extent than how coach 1 approached sensegiving.

Taken together, the findings illustrate that whereas the coach behavior of coach 2, 3, 4, and 5 reflect institutionalized values and attitudes in the wider elite sport system (cf. article 4 presented later), coach 1 actively challenged the value of openness to other perspectives, paying less attention to individual differences, which consequently questions the significance of athletes' reflection. The variations between the coaches also illustrates that even though they are all part of the Norwegian elite sport system, the extent to which elite athlete reflection is stimulated varies considerably and indicates that the extent to which a national elite team benefits from resources available depends on close social relationships with key actors. Due to variations within cross-country skiing, there are also likely to be considerable variations on how other sports stimulate elite athlete reflection, and how the patterns of interaction between other national elite team coaches and OLT influences the extent to which athletes are stimulated to reflect upon their own training.

4.2.2. Theoretical contribution

Previous research on sensegiving illustrates how leaders influence others' sensemaking (Foldy et al., 2008; Gioia & Chittipeddi, 1991). The findings in article 2 are consistent with this research. However, in addition, the observations identify five key mechanisms of sensegiving and even refine the concept of sensegiving by distinguishing between mindful sensegiving and less mindful sensegiving. Less mindful sensegiving, as illustrated with coach 1, stimulates the athletes to search for confirmation in the light of existing beliefs and assumptions. The result is less reflective athletes. Mindful sensegiving, on the other hand, means that the sensegiver is more preoccupied with providing the athletes with individualized frames grounded in overall beliefs. It stimulates athlete reflection in the sense that it increases their ability to notice more in the training process by activating more frames. Thus, by generating more feedback signals that both confirm and disconfirm prevailing frames, athletes are able to learn more reliably from ongoing experience.

Findings also indicate that mindful sensegivers are more willing to take advantage of other sensegiving actors in providing the athletes with frames that reflect specialist competence. Hence, mindful sensegiving stimulates rich thinking, which is a core element within the theory of organizational mindfulness (Ray, Baker, & Plowman, 2011). Finally, the present thesis utilizes the concept of sensegiving to illustrate how sensegivers shape continuous change. However, the findings may also be of interest for scholars interested in strategic change as it identifies variations of sensegiving (mindful and less mindful sensegiving) and its implications for learning and development.

4.3. Article 3: The sporting director and national elite team coach as gatekeepers within the Norwegian elite sport system³

This article focuses on the inter-organizational level, by studying how key actors within the national elite teams in cross-country skiing engage in constructive interactions with OLT. The research question is: How do the national elite team coaches and sporting director shape the interaction between Olympiatoppen and the national elite teams, and to what extent does this interaction stimulate elite athlete reflection? To answer this, it explores how national elite team coaches and sporting directors within cross-country skiing act as gatekeepers. Central to the analysis is how interpersonal relations, characterized by credibility, trust and attentiveness, shape the exchange of knowledge and create space for mutual challenges. The article provides an insight into the role of gatekeepers in mobilizing and taking advantage of resources within the elite sport systems, and in stimulating discussions where people with divergent perspectives meet.

Previous literature on mindful organizations addresses the importance of boundary spanners (which refers to people with diverse experience who are skeptic toward received wisdom (Weick & Sutcliffe, 2001)) in stimulating conceptual slack, that is, the capacity to view and evaluate challenges from different angles (Schulman, 1993b). As discussed in the theory section, people with diverse analytical perspective increases the variety of inputs, which can be seen as the essence of conceptual slack. Although the notion of boundary spanners illustrates the importance of stimulating discussion where prevailing beliefs and assumptions are scrutinized, it does not address how boundary spanners actually shape the interaction between people with divergent analytical perspectives. Schulman (1993b)

³ I am the main author of this article. Svein S. Andersen and Dag Vidar Hanstad provided me with input and general comments on drafts and on the analysis and interpretation of data. Additionally, some of the interview-data used in this article were collected in collaboration with Svein and Dag Vidar. Consequently, they are co-authors in this article.

highlights the fact that conceptual slack is stimulated through interpersonal relations characterized by credibility, trust and attentiveness and that managers play a key role. But he does not identify who these managers are or what positions they hold. The concept of gatekeepers is helpful in identifying who the key actors may be. It refers to actors who shape the interaction among organizational members and between the organizational members and people outside the organization by controlling the flow of communication (Rogers & Agarwala-Rogers, 1976). Hence, gatekeepers control the communication either between organizational units or between the organizational members and people from external organizations.

4.3.1. Main empirical findings

The findings in article 3 illustrate that gatekeepers play a key role in coordinating and integrating different specialists at the interface between the national elite team and OLT. The sporting directors serve as formal gatekeepers, whereas the national elite team coaches fulfill the role as informal gatekeepers. Furthermore, the extent to which a national elite team takes advantage of resources available at OLT is dependent upon personal relationships between the gatekeepers and key actors within OLT. More precisely, to benefit from the inter-organizational structure of Norwegian elite sports, credibility and trust in inter-personal relationships between the formal and informal gatekeepers, and actors at OLT are vital. When people experience this, a constructive interaction is established whereby taking advantage of resources available at OLT is rendered possible. When analyzing how the four national elite teams interacted with OLT, it was uncovered that the two national elite teams in period 1 (2002-2006) had a more distant interaction with OLT than the two national elite teams in period 2 (2006-2011).

In period 1 both the sporting director and elite team coaches experienced difficulties in establishing a close interaction with OLT. Similarly, the OLT coaches also found it difficult to establish a close and constructive interaction. The lack of establishing close personal relations can be seen as a direct consequence of a lack of reciprocal credibility and trust. More precisely, the sporting director felt that agreements were not complied with, and the elite team coaches felt that OLT was arbitrary and reluctant to accept what type of specialist competence the national elite team coaches wanted to exploit. These perceptions were supported by the OLT coaches that tried to interact with the gatekeepers in period 1.

Contrary to period 1, the sporting director and elite team coaches established a close personal relationship with both the OLT coaches and OLT specialists in period 2. The

sporting director and elite team coaches and the OLT coach agreed that in order to make both cross-country skiing and Norwegian elite sports even better, they had to interact closely. Disagreements over best practice were thus considered to be an opportunity for development, rather than a threat. This was possible because the personal relationships between the gatekeepers and the OLT coaches were characterized by reciprocal trust and credibility. The bottom line was that both parties recognized how the other could contribute and complied with agreements concerning the nature of interaction.

4.3.2. Theoretical contribution

In relation to the theoretical expectations, an important distinction emerges from the data. More precisely, by relating the concept of gatekeepers (Rogers & Agarwala-Rogers, 1976) with the three key values (credibility, trust, and attentiveness) captured by Schulman (1993b), the article identifies two different forms of conceptual slack not previously described in the literature, *domain-specific* and *holistic*. In addition, these observations also illustrate how domain-specific and holistic conceptual slack influence reliable learning differently.

Domain-specific conceptual slack refers to a divergence over analytical perspective within a specific field of knowledge (for example within nutrition, physiology of training or specific experiences in cross-country skiing). Holistic conceptual slack refers to a divergence in analytical perspectives within a compound field of knowledge (integrating perspectives from inter alia nutrition, mental training, physiology and cross-country skiing specific experiences).

The different approach to interaction between the gatekeepers and OLT in the two periods stimulated different forms of conceptual slack. In period 1, the outcome of the interaction was domain-specific conceptual slack. Organizational members within cross-country skiing discussed how to improve cross-country skiing specific issues based on previous cross-country skiing specific experiences, without any intervention from OLT. In period 2, the close interaction resulted in *holistic* conceptual slack. Through discussions with people from OLT, holding different analytical perspectives, organizational members within cross-country skiing were encouraged to consider new alternatives or paths to achieve excellence based on experiences from other sports or input from specialists with detailed knowledge of important aspects related to elite athlete development.

The two forms of conceptual slack have significant implications for the extent to which national elite team coaches and elite athletes learn reliably from experience. When the sporting director and elite team coaches stimulate domain-specific conceptual slack there is a

tendency towards neglecting the fact that there may be several paths to success, and that there may be considerable room for improvement despite high levels of success. Thus, interpretation of experience becomes confirmation-seeking. The result is exaggerated confidence in existing beliefs about factors critical for success, which increases the possibility for superstitious learning. When holistic conceptual slack is being stimulated, people are made aware of the liabilities of success and thus reminded of the fact that they may have succeeded in spite of, rather than because of, how they pursued training. By discussing past experiences with people that tend to view the training process somewhat differently, national elite team coaches' and elite athletes' interpretations become more nuanced. Hence, holistic conceptual slack stimulates reliable learning because it increases the variety of analytical perspectives (Weick & Sutcliffe, 2001), that not only concern aspects specific to cross-country skiing. The example of how different specialists analyzed the overall situation for one of the female athletes is an example of the benefits of holistic conceptual slack. Here, both the national elite team coach and the athlete were introduced to new perspectives concerning how to improve the quality of training.

The bottom line is that holistic conceptual slack stimulates reflection over a key challenge in elite sports, namely that that which led to the desired results in the short term may not lead to sustained success. Given that elite athlete development requires an integration of different types of knowledge, holistic conceptual slack seems to be an important factor for reliable learning and consequently improved quality of training. However, stimulating and benefitting from holistic conceptual slack requires that the gatekeepers establish a close personal relationship, characterized by trust and credibility, with key actors at OLT in order to avoid misunderstandings, or in the worst case conflicts. The study did not identify empirical observations of reciprocal attentiveness. This may indicate that attentiveness can be viewed as an outcome rather than a mechanism. However, more research is needed to address this more in detail.

4.4. Article 4: How do they do it? The Norwegian approach to elite athlete development⁴

The article explores the organizational practices and culture of Norwegian elite sports, coordinated by OLT. The organizational practices within OLT are analyzed in relation to core elements of organizational mindfulness. The research question is: What characterizes the organizational practices at Olympiatoppen, and how do Olympiatoppen coaches work to strengthen organizational mindfulness within cross-country skiing?

It provides the big picture of OLT as a knowledge integrator within Norwegian elite sports, that is, the capacity to identify and combine different types of knowledge when OLT interacts with the national elite teams. As the Norwegian elite sport system is characterized as a project-oriented organization (Andersen, 2012; Andersen & Hanstad, 2013), the extent to which a national elite team succeeds in delivering effective elite athlete development is closely associated with how OLT connects and brings together people with specialist knowledge or long-term experience when interacting with the elite teams. Literature within project management highlights that proper management of knowledge integration is a key to accomplishing the desired outcome in projects (Lindkvist, 2010). Hence, the article addresses how particularly the OLT coaches work to integrate specialists, and how patterns of interaction between key actors at OLT and within the national elite teams influence the extent to which the national elite teams take advantage of and benefit from people representing different knowledge bases within the elite sport system.

4.4.1. Main empirical findings

The findings contextualize the core elements in elite sports. Four of the core elements are quite consistent with the organizational practices of OLT. The fifth (deference to expertise) refines and modifies theoretical expectations that may be specific for the elite sport domain. In addition, the observations identify important prerequisites for stimulating organizational mindfulness not previously described in the literature. These observations refer to joint responsibility and enrichment-zones.

The core elements constitute conceptual slack, which is stimulated through well-defined patterns of interaction between OLT and the national elite teams. Thus, organizational mindfulness is not solely present within OLT. Organizational mindfulness emerges in the

⁴ I am the only author of this article. However, Svein S. Andersen provided me with input and general comments on early drafts. Nevertheless, Svein's contribution on this article does not meet the requirements of authorship outlined in the Vancouver Declaration, and he is thus not designated as co-author.

interactions that take place at the interface between OLT and the national elite teams. This does not require that the actors understand the theoretical model and mechanisms of reliable learning. Rather, it highlights that the way OLT coaches, OLT specialists and actors within the national elite teams interact are consistent with the mechanisms within organizational mindfulness. The bottom line is that organizational mindfulness is created and emerges at all levels within the inter-organizational structure when 1) Roles and responsibilities are well-defined (explained later), 2) The actors have established close interpersonal relations characterized by reciprocal credibility and trust (see also article 3), 3) The support personnel and OLT coaches are included to act as sensegivers both towards athletes and elite team coaches, 4) The interaction between the actors within the national elite team and OLT occur in a way which supports the athletes, independent of reflection style, to learn more reliably from experience.

OLT are *preoccupied with failure* in the sense that they are aware of the liabilities of success (cf. Miller, 1999) and consequently make thorough evaluations both when a sport experience success and when success fails to appear. Second, there is a strong emphasis on identifying the factors most important for improved results. Third, they pay close attention to how the elite athletes implement training in order to identify small deviations before they accumulate and affect the performance in major championships. Finally, they provide the national elite team coaches and sporting directors with valuable information about how to lead and manage elite athlete development.

OLT stimulates a *reluctance to simplify interpretations* by having a strong emphasis on using multidisciplinary teams in the process of identifying the most important factors for improved results for an athlete or team. Through this process, which is normally carried out once a year, OLT specialists with highly differentiated knowledge, OLT coaches with prior experience with leadership of elite athlete development, sporting directors and national elite team coaches discuss what to prioritize in the subsequent training. By shaping interactions between specialists and key actors within the national elite teams, OLT coaches introduce the necessary requisite variety. Requisite variety counteracts homogenous thinking and stimulates all actors to reflect upon previous experience (Miller, 1999; Sitkin, 1992; Weick et al., 1999). Thus, such interaction enhances national elite team coaches' sensemaking as this refines their frames and even makes the frames more fine-grained. This has important implications for how the national elite team coaches engage in sensegiving to stimulate elite athlete reflection.

OLT have *sensitivity to operations* by being attentive to what is happening in everyday training and development. In addition to challenging and supporting the national elite team coaches in the process of defining the overall plan for training, OLT also emphasizes the importance of paying close attention towards how training is implemented. To be sensitive to operations requires a close relationship between key actors at OLT and the national elite team coaches. When close relationships are established, all involved actors obtain the same ‘big-picture’; being aware of how different factors influence athletes’ training. Consequently, when all actors involved are aware of the dynamic between factors influencing the performance, they develop situational awareness. Situational awareness is an important component constituting sensitivity to operation, and refers to the fact that people are able to notice (identify) deviations early enough to prevent, for example, over-training or strain injuries.

OLT shows considerable *commitment to resilience*. The vision of OLT is to train and lead the best way possible within the context of international elite sports. An important contribution to achieving this is to prevent sporting directors, national elite team coaches and athletes from developing overconfidence and complacency. Although OLT support and strengthen their belief in the overall training plan, they remind the national elite team coaches that no plan is perfect. Furthermore, when athletes or teams experience success, and may start to believe that everything they do is close to perfect, OLT coaches intervene and ask critical questions. In addition, through the elite coaching program, sporting directors and national elite team coaches are presented situations related to the management of elite athlete development. Thus, the program increases their awareness and knowledge of how to deal with challenging situations before they appear.

The fifth core element, *deference to expertise*, is also present within OLT. Ever since OLT was established in 1988, there has been a focus on limiting the influence from sport politicians in decisions related to elite athlete development. The underlying argument has been that decisions concerning how to achieve excellence have to be taken by people close to the core process. The deference to expertise also concerns the use of specialists in evaluating what path to take in order to develop an athlete or team. However, the manner in which specialists are taken advantage of in mindful organizations is slightly different than what we might expect to find. In some mindful organizations, technical systems are engineered on the basis of natural sciences. In such systems, knowledge specialists may be granted authority to exercise considerable discretion over elements in accordance with detailed procedures.

Although insights from natural sciences also play an important role in developing elite athletes, the process of everyday training is embedded in intense social interactions guided by general values and practices rather than by strict routines as in technological systems. In this sense, openness and a willingness to listen to others represent a key value. Input from natural sciences is thus used to complement other experiences with training in cross-country skiing. Thus, specialized scientific knowledge serves as input in capturing the big picture. Although also specialists within elite sports have highly differentiated knowledge, their knowledge is less technocratic, and has to be utilized within a compound field of knowledge. This is obtained when the elite team coach interacts with specialists. Such interaction leads to a more holistic view of the training process for both the elite team coach and the specialists. Furthermore, the elite team coach is always the supreme decision-maker, which means that specialists do not have the authority to make decisions. Rather, their role is to provide the national elite team coach with valuable information on what action to take. Consequently, elite athlete development is contingent upon a number of factors from more than one field of formal knowledge.

4.4.2. Theoretical contribution

The organizational practices of mindful organizations are well described in the literature (Sitkin, 1992; Weick et al., 1999; Weick & Sutcliffe, 2001). The theoretical expectation is that routine, and the capacity to refine this, is central to stimulating organizational mindfulness. However, the observations in article 4 challenge this view. Within Norwegian elite sports, it is the patterns of interactions embedded in organizational practices and culture related to the core process (everyday training) which stimulate organizational mindfulness. This observation is connected to the fact that the core process is inherently ambiguous. Consequently, to deal with the ambiguity requires intense and constructive interaction between OLT and the national elite teams. Important prerequisites are that all the actors close to the core process are made aware of their joint responsibility and also of what the definition of enrichment-zones is.

As organizational mindfulness within the Norwegian elite sport system emerges at the interface between OLT and the national elite teams, well-defined roles and responsibilities for all actors is vital in order to facilitate a constructive interaction. When all actors are made aware of their own role and responsibility, and how their role and responsibility are interrelated to others' roles and responsibilities, the actors obtain a common understanding of how to deliver effective elite athlete development. Reminding the actors about important

organizational conditions influencing elite athlete development is thus part of the socialization process and becomes a key leadership task within elite sport organizations.

When all involved understand their role and responsibility, enrichment-zones are created. As illustrated in the article, much of the development of elite skiers takes place in such zones, which can be seen as small projects where people with specialist knowledge are integrated to deliver effective elite athlete development. It refers to how the OLT coach coordinates the interaction among different specialists at the interface between OLT and the national elite teams. In fact, it is the interaction patterns created within such enrichment-zones that enables the national elite team to take advantage of resources available at OLT. Hence, such enrichment-zones introduce heterogeneity and link highly differentiated knowledge to cross-country skiing specific challenges. This creates a context for more diverse social interactions, and can be seen as an important contributor to stimulating reliable learning.

4.5. Leadership and management of Norwegian elite cross-country skiing

The four articles highlight that the extent to which an elite athlete manages to learn reliably from experience is considerably influenced by patterns of interaction within the boundary of the organizational context s/he is embedded in. Article 1 illustrates that elite athletes engage in reflection in different ways, and the role of the national elite team coaches and support personnel is to be aware of such variations when interacting with the athletes. Article 2 illustrates that how the national elite team coach approach sensegiving has important implications for athletes' reflection, and that allowing support personnel to act as additional sensegivers is important to stimulate athletes' reflection. Article 3 illustrates that the extent to which national elite teams take advantage of resources available to them within the elite sport system is dependent upon sporting directors and national elite team coaches (acting as gatekeepers) opening the door to OLT. Article 4 illustrates that although the organizational practices within OLT are consistent with core elements of mindful organizations, organizational mindfulness emerges and shapes the way athletes and teams pursue training and development when the national elite team interacts closely with OLT.

Taken together, the four articles illuminate the fact that it is the patterns of interaction among organizational members that produce organizational mindfulness on the different levels. The patterns of interaction are embedded in shared values which define the organizational culture and consequently shape how people act. Key values are openness to people with divergent analytical perspectives (article 4), the athlete in the center of attention (article 3 and 4), and the importance of individualizing general insights into training (article 1

and 2). Constituted, these values highlight the importance of stimulating elite athlete reflection. Leadership grounded in institutionalized values is central to Norwegian elite sports. Thus, leadership within Norwegian elite sports is consistent with institutional leadership (Selznick, 1957). According to Selznick (1957) an institutional leader is: *“primarily an expert in the promotion and protection of values”* (p.28). A key leadership task is therefore to facilitate constructive interaction by enacting key values. This requires that leaders have operative competences and skills in integrating compound and complex knowledge bases.

Within the Norwegian elite sport system, the OLT coaches can be considered to be the linchpins between OLT and the national elite teams, and subsequently play a key role as leaders. The OLT coaches are responsible for socializing novices into the Norwegian approach to elite athlete development, informing them about how they can benefit from resources available at OLT, and making sure that they are introduced to tested experiences and knowledge (article 3 and 4). This is especially important when new national elite team coaches are appointed. By introducing novices and reminding “old-timers” about important aspects related to elite athlete development, and the role of leadership and management of everyday training, all the actors involved are made aware of their responsibility (article 4). In order to facilitate organizational mindfulness, this is vital and illustrates that Norwegian elite sports are leadership-intense. However, to succeed in this, the OLT coaches, OLT specialists, sporting directors, and national elite team coaches need to establish close personal relationships characterized by credibility and trust (article 3). When for example the national elite team coaches or sporting directors don't experience reciprocal credibility and trust with the OLT coach, a constructive interaction is hard to attain (article 1, 2 and 3). Consequently, the national elite team isolates itself from the wider elite sport system, as illustrated with coach 1 in article 2. In other words, OLT coaches engage in leadership by both supporting and challenging how the sporting directors and elite team coaches pursue elite athlete development.

Besides giving direction on how to deliver effective elite athlete development, OLT coaches also need to ensure that the system is effective, ensuring that the interactions among specialists and between the specialists and the actors within cross-country skiing are beneficial. Hence, they also engage in management. According to Bennis and Nanus (1985) and Daft and Lane (2011), leadership is about giving direction, and management is about making sure that the system works in line with the intentions. Specialists also play an important role in making sure that the system is efficient. When specialists are taken

advantage of, by generating objective feedback signals from, for example, laboratory tests or acting as sensegivers towards elite team coaches and athletes, they provide the elite team coaches and athletes with valuable information that influences their ability to learn reliably from experience (illustrated in all the articles). In addition, specialists may also notice signals that do not relate to their field of expertise. For example, a nutrition physiologist might not only pay attention to what athletes eat, s/he may also notice signals which relate to the group dynamic, athletes' perception of coaches, sporting directors or other specialists, or indicators of fatigue (article 1).

Leadership and management are equally important for the sporting directors and elite team coaches. However, contrary to how the OLT coaches, who mostly use time on leadership issues, the sporting directors and elite team coaches mostly engage in management. For sporting directors, a key leadership task is to ensure that a well-defined formal relationship is established between OLT and the specific sport (article 3). More precisely, their interaction with the OLT coaches concerns reaching an agreement on overall priorities, and how different specialists are to be integrated within the national elite teams. When this is achieved, their responsibility concerns management-issues: that is that the athletes have access to support services available to them and that the national elite team coaches establish a constructive interaction with the specialists. The elite team coaches, being the leaders of the teams, engage in leadership when they are acting as sensegivers in individual training processes or aiming to improve the social interactions within the team (article 1 and 2). However, most of the time they engage in management by ensuring that the athletes can benefit from input provided by other sensegivers, or by coordinating the support personnel in optimizing everyday training. In this sense, how the national elite team coach, in collaboration with the OLT coach, defines enrichment-zones stands as an example of how the elite team coach engages in management (article 4).

5.0 Concluding remarks

The purpose of this thesis has been to systematically analyze the leadership and management of training in Norwegian elite cross-country skiing. Although all elite sport organizations are preoccupied with continuous improvement, very little research has investigated how such organizations work to succeed in this. There may be many paths to continuous improvement, and this thesis has explored how Norwegian elite cross-country skiing attempts to continuously improve their athletes. Central to the thesis has been to uncover how athletes' everyday training is influenced by interactions within the organizational context of elite cross-country skiing. The underlying assumptions were that reliable learning is an important condition for improving the quality of training, and the extent to which athletes manage to learn reliably is considerably influenced by patterns of interaction within the inter-organizational structure of Norwegian elite sports.

Although Norwegian elite cross-country skiing has great traditions, high degrees of continuity, and had substantial resources available, particularly in recent years, this thesis highlights the fact that they can benefit a lot from actively taking advantage of a close interaction with OLT. Hence, how the national elite teams in cross-country skiing interact with OLT in delivering elite athlete development towards the end of the period being studied here seem to be very close to the ideal form of cooperation within the Norwegian system. At the same time, the findings also illustrate that although organizational mindfulness seems to be the ideal for all ambitious elite sport organizations, it is hard to attain. As highlighted in the discussion, the extent to which a national elite team delivers mindful elite athlete development is dependent upon the patterns of interactions in 1) Elite team coach – athlete relationships, 2) Athlete – support personnel relationships, 3) Elite team coach – OLT coach relationships, 4) Elite team coach – OLT specialist relationships, and 5) OLT coach – OLT specialist relationships. The bottom line is that it is difficult to regulate and strictly define standard operating procedures for how to cope with the complexity and ambiguity surrounding the struggle to make the best even better. The extent to which the actors establish constructive patterns of interactions depends upon developing close inter-personal relationships characterized by credibility and trust. Hence, it is the patterns of interaction that support and facilitate organizational mindfulness within an elite sport context.

The findings in this study indicate that the way Norwegian elite cross-country skiing is lead and managed provides the skiers with a competitive advantage. Although there is a lack

of empirical data regarding how other nations lead and manage elite cross-country skiing, few national skiing associations have the same approach to leadership and management of elite sport as Norway. At the same time, the Norwegian model is vulnerable. The recent report on the Norwegian elite sport model indicates considerable variations within the Norwegian elite sport system regarding how different sports interact with OLT (Tvedt et al., 2013). The conclusion in the report somewhat reflects the findings in this thesis; the different relations between the elite teams in the two periods illustrate important variations concerning how to take advantage of resources at OLT. A recurrent theme, in the report, was that many sports called for a more clear definition of the role of the OLT coach as they struggled to make sense of their role and contribution. I will not attempt to conclude whether this is really the case or why different sports experience this. Nevertheless, it illustrates leadership and management challenges inherent in Norwegian elite sports and highlights the importance of active leadership at both the system (OLT) and the national elite team level. Furthermore, by comparing the findings in this thesis with the conclusion in the report, it seems that the potential inherent in the Norwegian elite sport system is far from being taken full advantage of. In this sense, the present thesis can be seen to be a contribution to unleashing the potential by directing attention towards the significance of a constructive social interaction, as well as the role leadership and management has in succeeding in this.

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7.0 Appendices

7.1. Summary in Norwegian: Hvordan gjøre de beste enda bedre? En studie av hvordan de norske landslagene i langrenn tilrettelegger for kontinuerlig læring og utvikling

Hensikten med denne studien er å analysere hvordan de norske landslagene i langrenn tilrettelegger for kontinuerlig utvikling. Mer presist ser studien nærmere på hvordan organisasjon og ledelse innenfor norsk elitelangrenn påvirker utøvernes treningskvalitet. Treningskvalitet er en forutsetning for kontinuerlig utvikling. Det underliggende argumentet er at treningskvalitet oppnås gjennom pålitelig erfaringsbasert læring. Pålitelig læring utvikles gjennom refleksjon. Således er refleksjon en forutsetning for pålitelig læring. Studiens hovedproblemstilling lyder:

Hvordan tilrettelegger landslagene i langrenn for kontinuerlig utvikling?

Perspektivet på påpasselige organisasjoner utgjør det teoretiske rammeverket. Denne teorien ble utviklet gjennom studier av hvordan sosial samhandling styrker kvaliteten i en organisasjons kjerneprosesser. Hovedargumentet innenfor dette perspektivet er at refleksjon på alle nivå i en organisasjon er en forutsetning for pålitelig læring og således økt kvalitet i kjerneprosessene. Organisasjoner som ble studert var blant annet hangarskip, kjernekraftverk og luftfartssystemer. Dette er organisasjoner som har høye ambisjoner, sterk fokus på evaluering, er gjennomorganisert og hvor små avvik kan få store konsekvenser. Disse kjennetegnene betegner også moderne toppidrettsorganisasjoner. Det er derfor noe overraskende at dette perspektivet til nå ikke har fått mer oppmerksomhet i studier av hvordan toppidrettsorganisasjoner tilrettelegger for økt treningskvalitet.

Avhandlingen bygger på fire case studier. Disse representerer fire nivå: utøver-nivået (artikkel 1), landslagsnivået (artikkel 2), mellom-organisatorisk nivå (artikkel 3) og systemnivået (artikkel 4). Studien bygger på kvalitative dybdeintervjuer med landslagsutøvere (11), landslagstrenerne (5), sportssjefer (3), Olympiatoppens coacher som har vært ansvarlig for samarbeidet med langrenn (4), Olympiatoppens fagpersoner med erfaring fra langrenn (3) og toppidrettssjefer (2). Studien tar for seg damenes og herrenes all-round lag i perioden 2002-2011. Det er dog verdt å nevne at dette ikke er en longitudinell studie.

Artikkel 1 studerer hvordan eliteutøvere i langrenn reflekterer i daglige treningsprosesser, og hvordan deres refleksjon er påvirket av deres samhandling med landslagstreneren og

støtteapparatet. Sensemaking benyttes for å belyse hvordan utøverne reflekterer. Fire refleksjonsstiler ble identifisert: konformisten, grubleren, eksperimentatoren og analytikeren.

Konformisten og analytikeren fremstår som mindre refleksive enn grubleren og eksperimentatoren. Både konformisten og analytikeren er meget opptatt av å trene det som definert i treningsplanen og er i liten grad sensitiv til hvordan de faktisk responderer på treningen. Deres tolkning av treningen bærer derfor preg av å lete etter bekræftelser på at de har den beste planen. Resultatet er at denne typen utøvere tenderer til å lære på en overtroisk eller tvetydig måte.

Grubleren og eksperimentatoren derimot evner å generere mer informasjon om hvordan de responderer på daglig trening. De er således bedre i stand til å evaluere daglig trening hvilket øker deres evne til å lære pålitelig av egen erfaring. Dette medfører en forbedret evne til å finjustere den daglige treningen hvilket bidrar til økt treningskvalitet.

For trenere er det viktig å være klar over at utøvere reflekterer forskjellig i treningsprosessen. Å kjenne utøvernes tilnærming til evaluering er en forutsetning for hvordan de skal intervensjonere for å bidra til økt treningskvalitet. For eksempel, i møtet med konformisten eller analytikeren fremkommer det av studien at treneren spiller en viktig rolle i å utfordre deres evalueringer gjennom å stille kritiske spørsmål omkring hvordan de faktisk responderer på trening. Ovenfor grubleren og eksperimentatoren er det viktigere for treneren å skape tro på at de har den beste planen og støtte dem i implementeringen av denne.

Artikkel 2 går nærmere inn på hvordan fem landslagstrenerne og støtteapparatet stimulerer utøvernes refleksjon. Mer presist omhandler studien hvordan trenerne og støtteapparatet opptrer som sensegivere (gir retning til utøvernes refleksjon) for å påvirke hvordan utøverne reflekterer i treningsprosessen.

Et sentralt funn i denne artikkelen er at fire av trenerne angriper trenerrollen på en måte som er i overensstemmelse med kjerneverdiene som definerer norsk toppidrett. Kjerneverdiene er utøveren i sentrum, individuell tilpasning, utøvernes ansvar for egen utvikling, aktiv samhandling med fagpersoner på Olympiatoppen og viktigheten av å kombinere forskningsbasert kunnskap med beste praksis. Disse fremhever betydningen av å stimulere utøverne til å reflektere omkring egen erfaring fra treningsprosessen. Deres sensegiving bygger på en kombinasjon av forskningsbasert kunnskap og beste praksis, stor grad av

individualisering og bruker fagpersonene på Olympiatoppen aktivt som sensegivere for å stimulere utøvernes refleksjon.

Den siste treneren er mindre opptatt av å stimulere utøverne til å reflektere. Denne treneren bygger sin sensegiving på innsikt fra naturvitenskapelige studier, tar lite hensyn til individuelle variasjoner mellom utøverne og er tilbakeholden med å åpne for at fagpersoner fra Olympiatoppen kan opptre som sensegivere. Således står denne tilnærmingen til trenerrollen på mange måter i kontrast til verdiene som definerer norsk toppidrett.

Artikkel 3 omhandler hvordan landslagstreneren og sportssjefen opptrer som «portvakter» i samhandlingen med Olympiatoppen mellom 2002 og 2011. Mer presist ser artikkelen nærmere på i hvilken grad relasjonene mellom «portvaktene» og nøkkelaktørene på Olympiatoppen kan karakteriseres av gjensidig tillit og troverdighet, og hvordan uformelle relasjoner former samhandlingen mellom landslagene og Olympiatoppen.

Studien identifiserer et tidsskille i hvordan landslagene i langrenn samhandlet med Olympiatoppen. Periode 1 (2002-2006) kan karakteriseres av at «portvaktene» ikke etablerte en konstruktiv uformell relasjon, kjennetegnet av gjensidig tillit og troverdighet, til verken Olympiatoppens coacher eller Olympiatoppens fagpersoner. Dette resulterte i at landslagene i langrenn distanserte seg fra Olympiatoppen. I periode 2 (2006-2011) bruker både «portvaktene» og nøkkelaktører på Olympiatoppen tid på å etablere gode uformelle relasjoner kjennetegnet av gjensidig tillit og troverdighet. Dette muliggjorde en tettere samhandling som resulterte i at både trenerne og utøverne fikk et mer nyansert bilde av hvordan bedre den daglige treningskvaliteten.

Et viktig funn i artikkelen er skillet mellom domenespesifikk konseptuell variasjon og helhetlig konseptuell variasjon. Dette skillet er ikke tidligere identifisert i litteraturen som omhandler påpasselige organisasjoner. Periode 1 preges av domenespesifikk konseptuell variasjon. Dette innebærer at diskusjoner omkring hvordan utvikle norsk langrenn var fundert på erfaringer fra langrenn. Periode 2 derimot preges av helhetlig konseptuell variasjon. Denne formen for konseptuell variasjon kommer til syne ved at diskusjoner omkring hvordan utvikle norsk langrenn ble gjort i samarbeid med Olympiatoppens coacher og fagpersoner. I lys av ønsket om lære pålitelig av erfaring fremstår helhetlig konseptuell variasjon som mer hensiktsmessig enn domenespesifikk konseptuell variasjon ved at både trenere og utøvere erverver et mer nyansert bilde av faktorer som kan bidra til økt treningskvalitet.

Artikkel 4 utforsker arbeidsmetodikken til Olympiatoppen. Arbeidsmetodikken er belyst gjennom å anvende fem kjennetegn på påpasselige organisasjoner (åpenhet for feiltoleranse, motvilje til å forenkle tolkninger, sensitivitet til kjerneprosessen (trening), resiliens som innebærer en erkjennelse om at ingen plan er perfekt og åpenhet for ekspertise). Studien kontekstualiserer disse kjennetegnene og illustrerer at arbeidsmetodikken til Olympiatoppen er i overensstemmelse med disse kjennetegnene.

Selv om studien finner at Olympiatoppens arbeidsmetodikk er i tråd med hvordan påpasselige organisasjoner tilrettelegger for økt kvalitet i kjerneprosessene, fremkommer det av analysen at påpasselighet skapes i samhandlingen med landslagene. I tråd med funnene i artikkel 3 fremstår konstruktive relasjoner mellom nøkkelaktører i landslagene og Olympiatoppens coacher og fagpersoner som en forutsetning for stimuleringen av påpasselighet. Påpasselighet i samhandlingen mellom landslagene og Olympiatoppen skapes når: 1) roller og ansvarsområder er tydelig definert og forstått, 2) aktørene har etablert konstruktive relasjoner karakterisert av gjensidig tillit og troverdighet (som forklart i artikkel 3), 3) landslagstrenerne koordinerer fagpersonenes samhandling med utøverne, og 4) samhandlingen mellom landslagstrenerne og aktører på Olympiatoppen fremkommer på en måte som bidrar til pålitelig læring på utøvernivået – uavhengig av refleksjonsstil.

De fire artiklene illustrerer hvordan organisasjon og ledelse påvirker utøvernes evne til å reflektere i treningsprosessen. I presentasjonen av funnene i disse artiklene fremkommer det tydelig hvorvidt utøvere evner å lære pålitelig påvirkes av samhandlingsmønstre innenfor konteksten av norsk elitelangrenn. Ettersom definering av hvordan Olympiatoppens coacher fagpersoner skal utnyttes for å forbedre treningskvaliteten til norske eliteutøvere i langrenn spiller ledelse en sentral rolle. Innenfor konteksten, norsk elite langrenn, handler ledelse om å gi retning til treningsprosessen ved å fatte beslutninger på bakgrunn av kjerneverdiene. Dette er i litteraturen definert som institusjonell ledelse. I tillegg til ledelse spiller også management en viktig rolle. Management referer til at systemet virker som det skal. Det vil si at etter at landslagstrenerne i samarbeid med Olympiatoppens coach har definert og gitt retning til hvordan de skal samhandle for å forbedre treningskvaliteten, er de en del av managementet i samarbeid med fagpersonene på Olympiatoppen.

Hovedkonklusjonen er at ledelse og management fremstår som forutsetninger for økt treningskvalitet og således vedvarende vellykkethet. Samtidig viser funnene i denne studien at hvorvidt de norske landslagene har tilrettelagt for økt treningskvalitet har variert. Funnene i

denne avhandlingen er derfor på mange måter i overensstemmelse med hva Tvedt-rapporten peker på. Innsikter fra avhandlingen illustrerer dog at mer standardiserte prosedyrer for samarbeidet mellom Olympiatoppen og landslagene i langrenn ikke bidrar til en konstruktiv samhandling. Etablering av uformelle relasjoner innenfor rammene av et formalisert samarbeid fremstår som langt mer avgjørende.

7.2. Norwegian Social Science Data Services – acceptance for collecting and keeping personal data

Norsk samfunnsvitenskapelig datatjeneste AS
NORWEGIAN SOCIAL SCIENCE DATA SERVICES



Harald Hårfagre gate 29
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Per Øystein Hansen
Seksjon for kultur og samfunn
Norges idrettshøgskole
Postboks 4014 Ullevål stadion
0806 OSLO

Vår dato: 21.06.2010

Vår ref: 24498 / 2 / MSS

Deres dato:

Deres ref:

KVITTERING PÅ MELDING OM BEHANDLING AV PERSONOPPLYSNINGER

Vi viser til melding om behandling av personopplysninger, mottatt 02.06.2010. All nødvendig informasjon om prosjektet forelå i sin helhet 21.06.2010. Meldingen gjelder prosjektet:

24498 *Making the Best Even Better*
Behandlingsansvarlig *Norges idrettshøgskole, ved institusjonens overste leder*
Daglig ansvarlig *Per Øystein Hansen*

Personvernombudet har vurdert prosjektet og finner at behandlingen av personopplysninger er meldepliktig i henhold til personopplysningsloven § 31. Behandlingen tilfredsstiller kravene i personopplysningsloven.

Personvernombudets vurdering forutsetter at prosjektet gjennomføres i tråd med opplysningene gitt i melde skjemaet, korrespondanse med ombudet, vedlagte prosjektvurdering - kommentarer samt personopplysningsloven/-helseregisterloven med forskrifter. Behandlingen av personopplysninger kan settes i gang.

Det gjøres oppmerksom på at det skal gis ny melding dersom behandlingen endres i forhold til de opplysninger som ligger til grunn for personvernombudets vurdering. Endringsmeldinger gis via et eget skjema, http://www.nsd.uib.no/personvern/forsk_stud/skjema.html. Det skal også gis melding etter tre år dersom prosjektet fortsatt pågår. Meldinger skal skje skriftlig til ombudet.

Personvernombudet har lagt ut opplysninger om prosjektet i en offentlig database, <http://www.nsd.uib.no/personvern/prosjektoversikt.jsp>.

Personvernombudet vil ved prosjektets avslutning, 30.06.2014, rette en henvendelse angående status for behandlingen av personopplysninger.

Vennlig hilsen


Atle Alvhheim


Marie Strand Schildmann

Kontaktperson: Marie Strand Schildmann tlf: 55 58 31 52
Vedlegg: Prosjektvurdering

Avdelingskontorer / District Offices:

OSLO: NSD, Universitetet i Oslo, Postboks 1055 Blindern, 0316 Oslo. Tel: +47-22 85 52 11. nsd@uio.no
TRONDHEIM: NSD, Norges teknisk-naturvitenskapelige universitet, 7491 Trondheim. Tel: +47-73 59 19 07. kyrie.svarva@svt.ntnu.no
TROMSØ: NSD, SVF, Universitetet i Tromsø, 9037 Tromsø. Tel: +47-77 64 43 36. nsdmas@svt.uit.no



Personvernombudet for forskning finner det reviderte informasjonsskrivet av 21.06.2010 tilfredsstillende.

Ombudet legger til grunn at informanten gis anledning til å lese transkripsjoner på egne opplysninger og godkjenne personidentifiserbare opplysninger som skal publiseres.

Prosjektsslutt er 30.06.2014. Datamaterialet anonymiseres i den grad det lar seg gjøre og i henhold til avtale med den enkelte informant. Koblingsnøkkelen og lyd/bildemateriale slettes.

7.3. Informert consent



Forespørsel om deltakelse i forskningsprosjektet

"Making the Best Even Better"

Hvem står bak studien

Doktorgradsstipendiat, Per Øystein Hansen (per.oystein.hansen@nih.no)
Prosjektstart: 12.10.2009
Prosjektslutt: 11.10.2013

Bakgrunn og hensikt

Dette er et spørsmål til deg om å delta i en forskningsstudie som har til hensikt å belyse faktorer som kan forklare hvordan private lag og de Nordiske landslagene i langrenn driver utviklingsprosesser. Sentralt i temaet står spørsmålet om hvordan ulike lag utnytter læringspotensialet som ligger i små avvik. Hvordan utviklingsprosesser, som har til hensikt å føre til internasjonal suksess, blir drevet i både de private lagene og landslagene vil bli belyst gjennom samtale om treningsprosesser.

Studien ser også på graden av samarbeid mellom de private lagene og nasjonens toppidrettsorgan, og mellom landslagene og nasjonens toppidrettsorgan. Spesielt vil samarbeidet mellom langrenn og Olympiatoppen og skiskyting og Olympiatoppen i perioden 2002-2010 bli belyst.

Hva innebærer studien?

Studien vil innebære et personlig dybdeintervju. Intervjuene vil bli foretatt på intervjupersonens arbeidssted, Norges Idrettshøgskole, eller sted etter nærmere avtale. Varigheten på intervjuet vil være på mellom 1 og 1,5 time. Spørsmålene i intervjuet vil omhandle utviklingsprosesser i toppidretten. Alle data blir oppbevart i henhold til reglement for oppbevaring av sensitive opplysninger.

Mulige fordeler og ulemper

Alle involverte får muligheten til å komme med sitt synspunkt på hvordan utviklingsprosesser bør bli drevet for å utvikle toppidretten. Ved at dette er en vitenskapelig studie vil ikke sensitiv informasjon komme ut og det vil således bli gjengitt et nyansert bilde uten at bruddsetninger blir brukt for å oppnå oppmerksomhet fra media. Studien har *ikke* til hensikt å avdekke personlige konflikter eller andre konflikter på det mellommenneskelige plan.

Hva skjer med informasjonen om deg?

Det er kun autorisert personell knyttet til prosjektet som har adgang til navnelisten og som kan finne tilbake til deg. Etter at intervjuet er gjennomført vil navnet ditt bli erstattet av et nummer. Studien tilstreber at opplysningene om deg i det ferdige materialet vil være anonymisert. Men ettersom norsk langrenn er et lite miljø, vil enkelte opplysninger som fremkommer i det ferdige materialet for noen være indirekte personifiserende. Intervjuet vil bli tatt opp via diktafon, for så i etterkant å bli transkribert. Intervjupersonen får, som tidligere nevnt, mulighet til å godkjenne utsagn eller sitat i det ferdige resultatet. Alle lydfilene fra intervjuene, samt navnelisten, slettes ved prosjektslutt. Eventuelle bilder slettes også ved prosjektslutt.

Frivillig deltakelse

Det er frivillig å delta i studien. Du kan når som helst og uten å oppgi noen grunn trekke ditt samtykke til å delta i studien. Dette vil ikke få konsekvenser for din videre behandling. Dersom du ønsker å delta, undertegner du samtykkeerklæringen på siste side. Om du nå sier ja til å delta, kan du senere trekke tilbake ditt samtykke uten at det påvirker din øvrige behandling.



NORGES IDRETTSHØGSKOLE

Dersom du senere ønsker å trekke deg eller har spørsmål til studien, kan du kontakte Per Øystein Hansen på telefon; 23 26 24 46 / 47 75 84 21 eller per epost; per.oystein.hansen@nih.no

Samtykke til deltakelse i studien

Jeg er villig til å delta i studien

(Signert av prosjektdeltaker, dato)

Jeg bekrefter å ha gitt informasjon om studien

(Signert, rolle i studien, dato)

7.4. Interview guide athletes

Tema 1 (1 – 4): Bakgrunn, utviklings- og elitelandslag

Tema 2 (5 – 8): Forholdet til Olympiatoppen

Tema 3 (9-12): Utviklingsprosesser på rekrutteringslag, elitelag og privat lag

1. Kan du fortelle litt om ”din historie” fra du var junior til du etablerte deg på elitelaget?
 - a. Er det noen spesielle hendelser som har hatt mye å si for din utvikling?
2. Er det noen spesielle personer som har betydd mye for deg i perioden fra tidlig senioralder til du etablerte deg på elitelaget?
 - a. Evt. Hvilke?
3. Hvilke likheter er det mellom et rekrutteringslandslag og elitelag?
 - a. Er det noen forskjeller? Evt. Hvilke?
4. Du har jo måttet forholde deg til forskjellige trenere på elitelaget. Har dette påvirket din utvikling?
 - a. Evt. Hvordan?

5. Hvordan vil du beskrive Olympiatoppens betydning for din utvikling?
 - a. Er det noen spesielle personer som har betydd mye for din utvikling?
6. Var det forskjeller på din tilknytning til Olympiatoppen da du var på rekrutteringslandslag vs elitelaget?
7. Hvordan oppfatter du samarbeidet mellom NSF og Olympiatoppen?
 - a. Har dette på noe tidspunkt endret seg i perioden du har vært i kontakt med OLT?
 - b. Har du på noe tidspunkt merket en endret holdning fra ledelsen i NSF?
 - c. Hvor mye har landslagstrener eller sportssjef hatt å si for dette samarbeidet?
8. Hva mener du bør være Olympiatoppens rolle ovenfor NSF og eliteløperne?

9. Kan du beskrive treningsprosessen (planlegging, gjennomføring, evaluering) i en treningsmåned?
 - a. Er det forskjeller mellom hvordan dette ble gjort på rekrutteringslandslag og elitelag?
 - b. Hvor ofte evaluerer du treningen? Og hvordan blir dette gjort?
10. I planlegging og evaluering av treningsprosesser vil det alltid være innslag av usikkerhet og tvetydighet. Hvordan håndterte du (dere, NSF OLT) dette da du var på rekrutteringslandslag og elitelag?
11. I hvilken grad eksperimenterer(te) du i treningsarbeidet?
 - a. Har du eksempler på hvordan dette ble gjort?

7.5. Interview guide national elite team coaches

Tema 1-3 omhandler intervjupersonens rolle i landslaget

1. Hva er din rolle i landslaget?
 - a. Hva er ditt ansvarsområde?
2. Hvordan vil du beskrive samarbeidet med toppidrettsorganet?
3. På hvilke måter er du / har du vært involvert i samarbeidet med toppidrettsorganet?

Utviklingsprosesser og påpasselig læring

Tema 1-7 omhandler de toppidrettsorganene i lys av påpasselig læring

1. Dersom du skal trekke frem fire faktorer som du mener er særdeles viktige i planleggingen, gjennomføringen og evalueringen av treningsprosesser – hva er disse?
2. Kan du trekke frem to hendelser som har hatt mye å si for hvordan deres samarbeid med toppidrettsorganet har utviklet seg?
 - a. Kan du beskrive disse to i forhold til hva dere erfarte og hva dette fikk å si for samarbeidet?
3. I mange situasjoner ønsker man å ta lærdom av feil
 - a. På hvilke måter kommer avvikene mest til syne i treningsprosessene dere er involvert i?
 - b. I hvilke situasjoner synes dere det er viktig å lære av feilene dere gjør?
 - c. Har du eksempler på hvordan dere tok tak i dette?
4. I hvilken grad vil du si at din eller deres filosofi har rot i erfaringsbasert eller forskningsbasert kunnskap?
 - a. Alle som driver med toppidrett driver med en eller annen form for eksperimentering. Er dette noe som dere kjenner dere igjen i?
 - i. Kan du eventuelt utdype dette?
5. Hva er den største utfordringen din organisasjon står ovenfor i utviklingen av langrennsløpere?
6. Hvilken kompetanse mener du din organisasjon har som ikke toppidrettsorganet har?
 - a. Og motsatt: hvilken kompetanse mener du toppidrettsorganet har som ikke dere har?
7. Hva mener du er ditt lags viktigste egenskap som muliggjør utvikling av utøvere fra å være gode til å bli best?
 - a. Hvilke overordnede områder definerer dere som viktigst å utvikle?

7.6. Interview guide sporting directors

Tema 1: Hvordan tilrettelegger NSF for kontinuerlig prestasjonsutvikling

1. Jeg tenkte vi kunne begynne med din bakgrunn. Kan du fortelle litt om din tilknytning til langrenn og beskrive tiden din i NSF fra du kom inn til i dag?
2. Hva er din rolle i å utvikle verdens beste langrennsløpere?
 - a. Hvordan vil du beskrive hvordan dere på elitelagene i langrenn arbeider med å utvikle dere?
3. Hva legger dere ledere i langrenn vekt på når tilrettelegger for kontinuerlig prestasjonsutvikling?
 - a. Mest vekt på utstyr? Samlingsopplegg? Kvalitet i gjennomføringene? Stimulere trenere og utøvere til å reflektere over hvorvidt ting går etter planen?
4. Hva fokuserer dere på når «organisasjonen» landslaget i langrenn skal struktureres?
5. Hvem er det som gjør prioriteringene i langrenn – knyttet til hvilke prosjekter eller tiltak det skal brukes penger på? (ikke i den daglige treningen hos den enkelte utøver)?
6. Landslagene kan forstås som avdelinger innenfor langrenn i NSF. Hvordan er samhandlingen på tvers av lagene?
 - a. I hvilken grad stimulerer NSF til erfaringsutveksling på tvers av lagene på utøver, trener og ledernivå?
 - b. Er det forskjeller på hvordan de ulike lagene «angriper» planlegging, gjennomføring og evaluering?
 - c. Er det noen likheter på tvers av lagene som du mener betyr mye for landslagenes evne til å utvikle seg?
7. Hva vil du si er norsk langrenns komparative fortrinn?
8. Hva er den største utfordringen?
9. En sentral utfordring i all prestasjonsutvikling er å justere treningen før det er for sent.
 - a. Hva er din rolle i å bidra til at små feil / avvik blir oppdaget før de kommer til syne som store feil – ofte i form av at utøverne møter veggen?

Tema 2: Forholdet NSF – OLT

1. Hvordan vil du beskrive forholdet mellom NSF og OLT?
 - a. Bidrar OLT til at deres utøvere utvikler seg kontinuerlig?
 - b. Hva burde / kunne vært annerledes?
2. Hvilken kunnskap har OLT som gjør et samarbeid interessant?
3. Vil du si at OLT har nøkkelpersoner (som nøkkelpersonligheter) eller vil du si at det er hele systemet som gjør et samarbeid attraktivt for dere (eventuelt lite attraktivt)?

7.7. Interview guide OLT coaches

Bakgrunn:

- Hva mener du er Olympiatoppens viktigste oppgave?
- Olympiatoppens visjon er å lede og trene best i verden
 - Hva legger du i dette?
 - Hvordan leder man best i verden?
 - Hvordan trener man best i verden?

Coach-rollen:

- Hvordan vil du beskrive coach-rollen?
 - Hva er din viktigste oppgave?

Coach for langrenn:

- Hvordan vil du beskrive din rolle som Coach ovenfor langrenn?
- Hva er din tilnærming?
- Coachen skal utfordre særforbundene
 - Hvordan utforder du langrenn?
- Hva har Olympiatoppen som langrenn og skiskyting ikke har?
 - Og: vice versa?

Samarbeid og relasjoner:

- I lys av dine erfaringer; hva var det viktigste for å få til et konstruktivt samarbeid med langrenn?
- Hvordan opplever du rollen til sportssjefen og landslagstrenerne
 - Hvem er nøkkelpersonene i samarbeidet?

Prestasjonskultur:

- OLT er bærer av den norske toppidrettskulturen
 - Hva mener du kjennetegner den norske toppidrettskulturen?
 - Hvordan forankrer man denne kulturen i idrettene?
- OLT hevder at refleksjon er helt sentralt
 - Hva legger du i begrepet refleksjon?
 - Hvordan kan du som coach stimulere til refleksjon hos trenere og utøvere?
- Kvalitet i trening er helt sentralt for å lykkes på øverste nivå
 - Hvordan definerer du treningskvalitet?
 - Hvordan kan du som coach bidra til at landslagsmiljøene trener med tilstrekkelig god kvalitet?

7.8. Interview guide OLT specialists

- Kan du fortelle litt om din rolle fra du begynte å være med og frem til i dag?
 - Hva mener du er kjernen i OLT – det vil si hva er det unike med OLT?
- Hva er din viktigste oppgave i møtet med landslagene?
- I hvilken grad er du involvert i planleggingen av treningen på landslagene?
 - Hva er din rolle ovenfor trenere?
 - Hva er din rolle ovenfor utøvere?
 - Hvilke svar kan du gi utøvere du tester?
- I tillegg til å sette utøveren i fokus, skal også OLT utfordre landslagsmiljøene. Hvordan har du utfordret landslagene og hvordan de trener?
- Coachene har jo kommet mer og mer inn siden slutten av 90-tallet.
 - Hva er din rolle ovenfor coachene – hvordan jobber dere sammen i forhold til å utvikle landslagene?
 - Sportsjefstillingen kom også utover 2000-tallet. Merket du noen forskjell etter at denne stillingen ble opprettet?
- Hvordan vil du beskrive samarbeidet med langrenn?
- Treningsfilosofi utvikles hele tiden. Fra ditt ståsted; hvordan har utholdenhetstrening utviklet seg fra da du begynte?
 - Hvordan jobber OLT med å få en enda bedre forståelse av hvordan utholdenhetsutøvere skal trene enda bedre?

7.9. Interview guide head of Olympiatoppen

Tema 1: Olympiatoppens rolle i norsk toppidrett

1. Hvordan jobbet/jobber Olympiatoppen med å bidra til fremragende resultater for norsk toppidrett da du var/er toppidrettssjef?
 - a. Hvordan ble «nettverks-tankegangen» en realitet?
2. Hvordan vil du karakterisere OLTs arbeidsmetodikk?
3. Hva er rollen til toppidrettssjefen?
4. Hva er toppidrettssjefens rolle i relasjonen OLT – særforbund (landslag)

Tema 2: Toppidrettskultur

5. Hvordan vil du beskrive den norske toppidrettskulturen da du var sjef?
6. Hvordan jobbet OLT med å styrke denne i særforbundene?
7. Hvordan bidro landslagene til å styrke den overordnede kulturen?

Tema 3: Coach-rollen

8. Hva var/er tanken bak bruken av coacher (sportslig koordinatører)?
9. Hva legges til grunn i valget av coach?
10. Coachene representerer en form for kulturbærere;
 - a. Er du enig i dette? Og eventuelt - hva mener du ligger i dette?
11. Hvordan er samhandlingen mellom coach-spesialister og coach-landslag tenkt?

Tema 4: Samhandling med landslagene

12. Hva mener du er det mest sentrale for å lykkes i å etablere et konstruktivt samarbeid med landslagsmiljøene?
13. Hvem er nøkkelpersonene i samhandlingen?

8.0 Articles

Article 1:

Andersen, S.S., Hansen, P.Ø., & Hærem, T (in second revision). Strong beliefs – ambiguous feedback signals. How elite athletes reflect on their training in an organizational setting. *Sport in Society*

Article 2:

Hansen, P.Ø., & Andersen, S.S. (in second revision). Coaching elite athletes: How coaches stimulate elite athletes' reflection. *Sports Coaching Review*

Article 3:

Hansen, P.Ø., Andersen, S.S., & Hanstad, D.V. (under review). The sporting director and national elite team coach as gatekeepers within the Norwegian elite sport system.

Article 4:

Hansen, P.Ø. (under review). How do they do it? The Norwegian approach to elite athlete development.

Article 1

Strong beliefs – ambiguous feedback signals. How elite athletes reflect on their training in an organizational setting

Andersen, S.S., Hansen, P.Ø., & Hærem, T.

Abstract

During recent decades, societies have invested heavily in elite sports, but increased investments do not automatically lead to more medals. At the micro-level, an important condition for success is to understand how resources are adapted to the specific needs of individuals and teams. For elite athletes to improve the quality of training is the key concern, and athletes' own experiences are a key source of information in such processes. Athletes must believe in what they do, while searching for the small cues that may be essential feedback. Reliable learning requires mindful reflection. This article focuses on how members of the Norwegian elite cross-country skiing teams reflect on their training sessions. In addition, it illustrates how they perceive input from coaches, team-mates and support personnel in the national team and from the national elite sport organization. It identifies four different reflection styles and illuminates how organizational factors may influence individual reflection.

Keywords: reflection, sensemaking, mindful organizations, cross-country skiing, elite sports

Introduction

During recent decades, societies have invested heavily in elite sports. Important motives for this are to enhance the countries' international prestige, strengthen national identity, and to stimulate masses participation in sports.¹ In this global sporting arms race increased investments, does however not automatically lead to more medals.² This raises important issues for policy makers. Macro-studies of elite sport systems have identified convergence on important structural characteristics,³ but a new challenge is to develop differentiated strategies and to improve the efficient use of resources at the level of athletes and teams. Investments in elite sport target research and development in areas such as physiology, mental training, nutrition, equipment, as well as construction of training facilities. At the micro-level, an important condition for success is to understand how coaches and support personnel apply available resources to the specific needs of individuals and teams.

This article explores how world class athletes in cross-country skiing reflect on their experiences in training. A recent study has suggested that athlete reflection may be essential for fine-tuning training in endurance sports.⁴ Reflection takes place in an organizational setting through interaction with coaches, team mates and support personnel in the sport as well as the national elite sport organization. Different reflection styles influence the ability to learn reliably in ways which improve the quality of training. The research questions are: 1) How do elite athletes engage in reflection to improve the quality of training? 2) How is such reflection influenced by actors in the wider organizational setting? To answer these research questions, qualitative interviews with athletes and head-coaches on two elite teams were carried out.

There are several studies of how coaches engage in reflection.⁵ With the exception of Toner et al.,⁶ that discuss how narratives stimulate reflection and learning, few have paid attention to how athletes' reflection may influence the quality of training. As highlighted by Chambliss:⁷ *"high performers focus on qualitative, not quantitative, improvements"*. In this

process, the athletes' own experiences are a key source of information. Athletes must believe in what they do, and at the same time search for small cues that may provide essential feedback. However, the way elite athlete perceives and organizes their experiences may differ. In this regard, three studies,⁸ drawing upon Goffman,⁹ have used frame analysis to explore differences in coach-athlete relationships. A key concern in such interactions is to improve the quality of training, in which reflection is an essential element. Reflection means "*engaging in comparisons, considering alternatives, seeing things from various perspectives and drawing inferences*".¹⁰ Hence, reflection may contribute to reliable learning from experience.

Modern elite sport is a highly organized activity, relying on multiple types of expertise that need to be combined and adapted to the requirements of individual athletes and teams. They have high ambitions. Furthermore, they are conscious about the fact that small lapses in the way training and development are carried out may have major consequences for results. It seems that the ideal for everyone involved in elite sports is to learn reliably from experiences. This is demonstrated in continuous efforts of evaluation and adjustment, where reflection is a key to reliable learning. The theory of mindful organizations represents a theoretical framework where such efforts are at the center of attention, stimulating and systematizing empirical variations that may provide important insights into the role of athletes' reflection.

The present article views learning as a social process in which individual reflection is a key component.¹¹ Theories of mindful learning¹² and mindful organizations¹³ specifically direct attention to mechanisms for reliable learning that are of central interest in this study. "Being mindful" is an individual characteristic and implies a willingness to engage in reflection; to use new information (experience) to make new distinctions.¹⁴ More precisely, it is a mindset that emphasizes the conditional nature of knowledge by continuously questioning underlying *assumptions* and *beliefs* in the light of new experiences.¹⁵ The underlying

assumption in the theory of mindful organizations is that the extent to which individuals act mindfully is influenced by patterns of interactions and relationships at the micro-level. Hence, individual reflection is socially constructed; institutionalized knowledge is taken for granted as general beliefs about how to achieve success, and patterns of interaction between athletes, coaches and support personnel shape elite athletes' reflection. Through reflection, athletes in collaboration with the elite team coach, identify individual and situational needs. This is an important condition in order to benefit from resources available in the elite sport system.

The rest of the article is organized as follows. First we present the context of our study – the characteristics of elite cross-country skiing, defining the empirical research focus. Next, we develop our theoretical perspective before presenting the research strategy and method. The findings are then presented and organized around elements central to our theoretical model: how athletes engage in reflection and how this is influenced by coaches, team-mates and support personnel. The final section summarizes the argument and implications for elite athletes as well as for coaches.

Elite cross-country skiing in Norway: Organization and training philosophy

Cross-country skiing has been on the Olympic program ever since the first Olympic winter games in 1924. It consists of two disciplines; classic and skating. The individual distances vary from sprint (1 – 1.8 km for men and 0.5 – 1.8 km for women), to 50 km for men and 30 km for women.¹⁶ In addition, athletes also compete in team sprints and relays.

In international cross-country skiing, Norway is the most successful nation over the last twenty years measured in terms of the number of medals in major competitions.¹⁷

Within the Norwegian Ski Association (NSA), there are four national elite cross-country skiing teams; the men's elite all-round team, the men's elite sprint team, the women's elite all-round team, and the women's elite sprint team. An overall philosophy of training seems to be institutionalized within Norwegian cross-country skiing, with considerable coherence

between the elite level and clubs.¹⁸ The NSA collaborates with Olympiatoppen (OLT) – the organization for elite sport in Norway. The role of OLT is to link both scientific knowledge and experience (best-practice) across sports, and based upon this, challenge the best-practice within the different sports.¹⁹ Furthermore, OLT has the authority to intervene in every-day training and development in the sport associations in order to improve the quality of training. Within Norwegian elite sports, there is a strong emphasis on the adaptation of training principles to individual needs.²⁰ Hence, the implementation of the training philosophy requires that athletes actively reflect upon their experiences so as to optimize every-day training.

In order to acquire an understanding of how elite athletes reflect during training, we need to consider how they plan, carry out and evaluate their training. Planning is an institutionalized process central to the training process. It commences with the annual plan, the purpose of which is to design a program that “*maximizes performance potential at a known future date, and (ii) minimizes the risk of fatigue and over-training during the period of training leading up to that date*”.²¹ The annual plan divides the year into roughly three major phases: the preparatory, the competitive, and the evaluation, planning and recovery phase by the end of the season. Preparation starts in May while competitions take place from November to the end of March. April is a transition period consisting of annual evaluation and planning, and restitution. These three phases are further divided into training periods, lasting normally for three weeks.

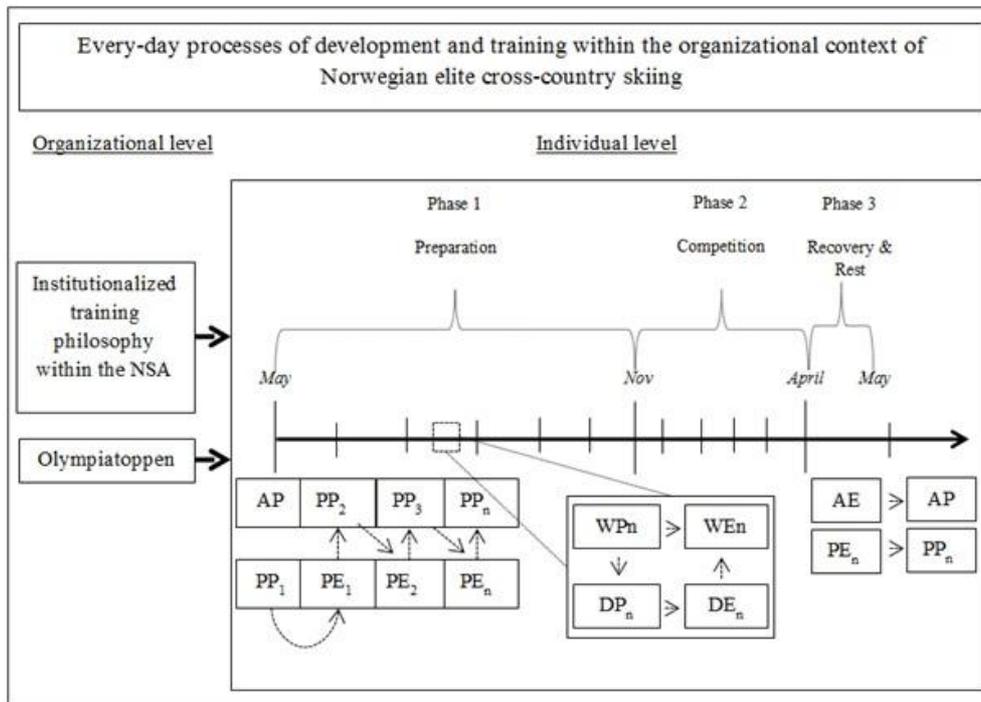


Figure 1: Empirical research model. Highlights how the organizational context influences ever-day training on the individual level. AP=annual plan, AE=annual evaluation, PP=periodical plan, PE=periodical evaluation, WP=weekly plan, WE=weekly evaluation, DP=daily plan, DE=daily evaluation

The main priorities and overall planning are based on the evaluations that take place in April. Such evaluations are comprehensive and include all factors on the organizational level that may influence results including organizational roles and responsibilities on all levels, various specialists involved in support functions, training methodology, national team structure, and coaching practices. This provides the foundation for individual annual plans and represents a strong normative and practical framework for individual efforts.

The periodical plans provide detailed information on how to implement the main priorities. The periodical evaluation is an interactive process between the coach and athlete, and deals with how the athlete has progressed during the prior period, whereas the daily evaluation and weekly evaluation, which is generally done by the athlete him/herself, involves reflections on the extent to which training was carried out as intended. In this study, the focus

is on how the elite skiers implement training plans and then reflect on how they implemented the training during the preparation phase. Before we describe the methodology, we develop our research questions in light of theories about mindfulness and mindful organizations.

Theoretical framework: Mindful organization as a context for reflection

The theory of mindful organizations is a well-established framework to study contexts where learning and knowledge application require a high degree of accuracy and reliability. They are organizations with high ambitions, in terms of operational accuracy and the ability to continuously learn to sustain success. Such studies cover organizations that operate complex technical systems as well as those applying multiple types of knowledge in processes of social interaction, like modern hospitals. In both cases fine-tuning of knowledge application requires continuous reliable learning from experience. Within the field of developing elite athlete expertise, the concept of sensemaking adds to the concept of deliberate practice²² by directing attention to how reflection influences the quality of training.

Modern elite sport requires the application of many different types of knowledge. Adaptation of knowledge held by coaches and support personnel to the needs of individual athletes is inherently ambiguous and often difficult to achieve. In this process of continuous adaptation and adjustment, the extent to which athletes engage in mindful reflection may be crucial to achieve quality of training. Mindful reflection enhances reliable learning and good judgments. Such process takes place in a social setting that also involves coaches, team-mates and various support personnel.

Mindfulness is originally defined by Langer as “*a flexible state of mind in which we are actively engaged in the present, noticing new things and sensitive to context*”.²³ In contrast, mindless behavior is governed by rules and routines acting on auto-pilot. Building on this, Weick and Sutcliffe developed a model of mindful organizations where reflection is crucial:

(...) the combination of ongoing scrutiny of existing expectations, continuous refinement and differentiation of expectations based on newer experiences, willingness and capability to invent new expectations that make sense of unprecedented events, a more nuanced appreciation of context and ways to deal with it, and identification of new dimensions of context that improve foresight and current functioning.²⁴

Mindful organizations seem to be the ideal for any ambitious elite sport organization. To continuously develop excellence, athletes, as well as coaches and support personnel, need to scrutinize what factors led to the desired (or undesired) results to fine-tune training methods or practices in order to stay ahead of the competitors. This is achieved through reflection.

Reflection is about sensemaking and interpretation. Sensemaking implies *“to step outside the stream of experience, and direct attention to it”*.²⁵ It is an activity or process, whereas interpretation is both a process and an outcome. According to Weick, *“the key distinction is that sensemaking is about the ways people generate what they interpret”*.²⁶ The sensemaking process refers to the interaction between noticing and framing. Individual frames lead to selective noticing of signals. Feed-back signals refer to what people notice in relation to specific training activities, test results, general feeling of fatigue, or a sense of achieving targets. Frames are cognitive schemes that guides what people notice.²⁷ Such cognitive schemes are socially constructed, indicating that individual sensemaking is a social process.²⁸ Sensemaking is closely linked to the idea of mindfulness which emphasizes the importance of continuously questioning existing beliefs and assumptions.²⁹

On the organizational level, the beliefs that athletes and elite team coaches hold reflect general institutionalized knowledge about what it takes to achieve success in cross-country skiing.³⁰ In an elite sport context such knowledge is generated both through science and experience,³¹ and highlights what is required to achieve success. Beliefs represent general

frames that athletes are socialized into. Such beliefs may enhance or limit the space for reflection. Hence, institutionalized knowledge is manifested in individual plans which influence what the athletes are more likely to notice.

In the mindful organization perspective a key concern is to develop a high degree of situational awareness and sensitivity relating to core processes.³² Training and preparation for competition are core processes. The athletes are naturally most involved: they are the products, co-producers, and in addition the most important source of information about the process.

We are interested in what athletes notice and how they place feedback signals within different frames. Part of this is how such processes are influenced by actors within the organizational setting of Norwegian elite skiing. The relationship between individual reflection and reliable learning, and how reflection may be influenced by actors in the elite ski system is presented our theoretical model (Figure 2).

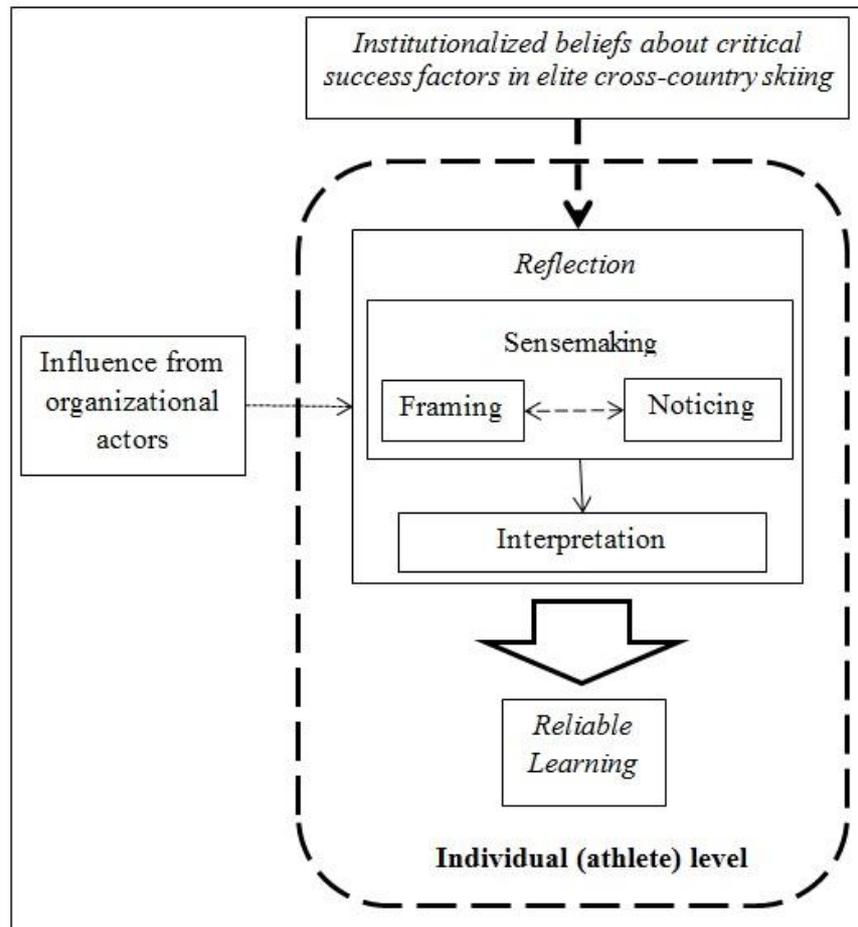


Figure 2: Highlights how reflection may produce reliable learning from experience and how organizational actors may influence athletes' reflection.

The theoretical discussion has highlighted the role of reflection in reliable learning. The discussion also emphasizes two aspects of the organizational context that influence individual reflection. First, institutionalized beliefs and knowledge within organizations about how to achieve excellence. Second, the interaction with actors holding central positions in managing and supporting development processes. These themes emerged during the data analysis and guide the discussion of our findings. We first present the research strategy and method.

Method

The research was designed as a qualitative case study.³³ The Norwegian elite cross-country skiing teams were selected on the basis of their longstanding international success. The strategic sample covered major variations within the teams: gender, age, seniority and results.³⁴

Existing studies,³⁵ documents,³⁶ and media coverage³⁷ provided a good general insight into methods and philosophy of training. One of the authors also has experience as a former skier, and acquired the highest level of coach education within the NSA. This was helpful in establishing a relevant contextual understanding. It also provided useful contacts and valuable information, both when selecting informants and in the construction of the interview-guides.

We conducted 14 in-depth interviews, lasting from 45 minutes to almost 2 hours. This covered 10 (5 men and 5 women) of a total of 13 athletes on two of the national elite teams. In addition, we interviewed the two head coaches. Most of the interviews were conducted by the two main authors in Norwegian. The quotations used in the article were first translated into English. The extent to which the meaning of the Norwegian quotations were captured in the translated text was discussed with colleagues that were asked to back-translate them.

The interviews with the athletes can be described as semi-structured open-ended in-depth interviews, structured around the key topics: How athletes plan, implement and evaluate everyday training, how they exploit resources available to them within the organizational context of Norwegian elite sports, their experiences with different coaches, and the interactions on the national team. We started with open and rather general questions, but we also had a number of specific questions to test our own expectations. The athletes had firm ideas about the key issues of interest to us. This allowed active questioning of their assumptions and arguments.

All interviews were recorded and transcribed. This provided a rich basis for the coding process that was carried out in two stages. In the first open coding³⁸ we commenced on the basis of the interview-guide based on the two research questions. The authors independently identified observations, arguments and sub-topics relating to athletes' reflection and how this is influenced by the organizational context. Based on comparisons and discussions, a preliminary set of descriptive categories emerged. Having pursued this predominately inductive strategy of data reduction, we started thinking about how such a data structure relates to more general theories about individual reflection and learning in organizations. The coding of the interview data was undertaken manually. The quotations given by athletes and coaches are identified with A and C respectively.

In the next section we present and discuss our findings. These are organized in accordance to the categories identified in the theory section; athletes' beliefs and expectations about critical success factors, sensemaking, interpretation, and the impact of the organizational context.

Findings: athletes' sensemaking and reflection styles

The framework - institutionalized beliefs about factors critical for success

Athlete's beliefs about factors that are critical to success or failure are fundamental to their reflections. They provide a major anchor for reflection. Through the step-wise procedure described in the method section we identified three sub-categories highlighting athletes' basic beliefs about factors key to success. They concern training volume, the balance between training and rest, and the need to identify personal physical boundaries concerning how much training each athlete can tolerate. In short, we found that all athletes shared the strong belief that in order to become the best, they have to train the most, be aware of the delicate balance between hard training and proper restitution, and develop insight about their own optimal training volume.

The following are typical statements: “To be successful in cross-country skiing, you have to carry out enormous amounts of training” (A); and “The best are also those who train the most” (A). The desired effect of physical training rests upon proper restitution and recovery.³⁹ The challenge is therefore to find the right balance. A recurrent theme was the difficulty of distinguishing between “properly tired”, as one should be, and being exhausted: “and that difference, that is the most difficult distinction to make” (A). It is widely held that good judgments about this balance can only be acquired through personal experience; the ability to identify and take into account such boundaries is essential in individual adaptation and fine-tuning of heavy loads of training.

In the implementation of training, the athletes naturally notice feedback signals. Existing beliefs create context-specific expectations consistent with certain frames that direct attention to noticed feedback signals from activities. In the same way, noticing certain situational characteristics may activate corresponding frames. In other words, signals and frames interact. The periodic plans produce specific expectations about how training should improve certain objective indicators.

Sensemaking

As discussed in the theory section, the sensemaking process consists of noticing and framing. Signals are situational cues of which athletes become aware. They may vary with respect to the vividness of the experience.⁴⁰ They can be general (feeling of fatigue), or linked to the execution of specific tasks (technique). The role and significance of different signals in relation to individual training processes depends on how they are framed. Frames are essential for sensemaking, and intuitively adopted in the noticing process.⁴¹

Subjective feedback signals stems from the athletes own experiences:

When you train as much as we do, you notice that some days and some sessions are good... And if you have trained a lot, a typical signal, for me, is that I need more sleep, and the mood changes. (A)

Subjective signals direct attention to whether something is going well or not. Vivid experiences create signals that direct athlete's awareness to something that may deserve further attention. More subjective signals are regularly complemented with less subjective signals that are specific and declarative and which may be object to inter-subjective verifications. Physiological tests produce indicators that help control the amount, intensity, and effect of training. Examples are monitoring heart rate, testing lactate threshold and maximal oxygen uptake, and using standardized test runs. In the training process, heart rate monitoring is the most objective signal. "After I started using a heart rate monitor, I notice that I tend to train with too high intensity" (A). However, we should keep in mind that even such signals may be subject to different framing processes.

Individuals have repertoires of frames that may carry more or less fine-grained distinctions. Individual frames reflect the basic assumptions and beliefs that are built into the planning process. Such frames cover different aspects essential for the implementation of training efforts, providing indicators that help them make sense of their own experiences with every-day training. An important frame for interpreting feedback signals is derived from athletes belief about the importance of training much and hard;

As an elite athlete, you tend to be a little one-track minded, and blinded by the fact that it is the high-intensity training which separates the best from the second-best. And if you train hard, and gets really tired after such trainings, then you become best. (A)

This quote indicates that the athlete may tend to frame feedback signals of being really tired as an indicator of being “on-track”. Such framing might result in the ambiguity of important feedback signals being overlooked.⁴² For example, the signals may be a sign of exhaustion, and in the worst case, over-training.

So far, we have discussed how noticing and frames interact in a process of sensemaking. The interaction illustrates that experiences in the training process may be framed in different ways, and that frames directs athlete’s attention towards certain signals. In this sense, sensemaking creates a richness of “raw data” that needs to be evaluated through an interpretation process.⁴³ Having identified the central dimensions, we used the constant comparison process⁴⁴ and compared these dimensions across the reflective processes of all the athletes.

We did not find one dominant sensemaking process which describes how the athletes engage in reflection. Instead we found a typology of processes which varied with respect to the set of central dimensions of sensemaking. It is clear from our data that some athletes are more actively engaged in sensemaking than others. The typology describes typical variations in reflective processes, rather than exact descriptions of any one individual. The variation in the central dimensions of sensemaking across the typologies is summarized in the table below.

One dominant frame refers to that an athlete direct attention to only one perspective that influences training and development, whereas multiple frames refers to that an athlete directs attention towards several perspectives. Coarse frames are general, with few distinctions and nuances. Fine-grained frames are specific, capturing many distinctions and nuances. Our findings suggest that general frames tend to be used normatively to evaluate the extent to which training is consistent with general insights. Sensemaking guided by such

frames is not consistent with mindful reflection. Sensemaking guided by specific and situational frames support mindful reflection on personal experience with training.

Table I: Sensemaking processes across different reflection styles

Reflection style \ Sensemaking process	<i>The analyst</i>	<i>The experimenter</i>	<i>The brooder</i>	<i>The conformist</i>
One dominant frame				X
Multiple frames	X	X	X	
Fine-grained frames	X	X		
Coarse frames			X	X
Specific and situational frames		X	X	
General frames	X			X

The conformists are likely to have one dominant frame that directs attention towards feedback signals consistent with institutionalized beliefs about critical success factors. The frame is likely to be a rough indicator of the extent to which training is working as intended. Furthermore, the conformists' frames are based on personal experiences. Despite being told by coaches and other support personnel about how to frame feedback signals the conformists tend to stick to their dominant frame. Thus, for the conformists, there is often an element of after-rationalization. The following quote illustrates that the plan directs attention to one dominant frame for the conformists: "I strongly believe in the plan, so I can't imagine changing it. I have a plan to stay at home, and train in surroundings I know well" (A).

The brooders, who constantly think on numerous experiences and are never quite sure about the best action to take, also develop the frames mainly through personal experience. The brooders use more frames than the conformists, but they seem to be equally coarse. This makes this type of athlete capable of noticing more, making more "raw data" available for

framing, than the conformist. However, although the brooders use more frames, it seems that they struggle to make sense of training, as the frames tend to be rather coarse. They acknowledge that there is always a room for improvement, but have difficulty in finding good indicators of specific things that are going well or things that can be improved: “I tend to explain away things. Even though I have trained and performed well, I am still not satisfied... Still a little bit doubtful even though I do it well” (A). This may be a result of not having discussed training with previous coaches and the lack of evaluation of training: “I have not been particularly good at using coaches throughout my career. I have hardly ever evaluated a season. I’ve had to pay for that” (A).

The experimenters, who constantly reframe what is noticed in the training process, apply multiple fine-grained frames. In this way such athletes generate more and diverse experiences from one set of observations. The frames are, as for the conformists and brooders, mainly developed through personal experience with training. However, as the experimenters seem to have a more active reframing of the precise goals of each training effort, they develop several distinctions that serve as precise indicators of every frame. As the emphasis is on how the training is executed, the experimenters notice specific feedback signals by applying context-specific frames.

Before you train, I believe that it is of crucial importance that you ask yourself; what am I going to improve today? Why are you doing this, and what is your focus? ... Even though you have an overall plan for training that you strongly believe in, you need an additional plan that defines how every training session is to be executed. (A)

By applying such frames for the interpretation of each training session, the experimenters are able to generate a rich set of data that can say something about how they respond to the training.

Similarly to the experimenters, *the analysts* also have multiple frames. However, the frames are both coarse and fine-grained: the frames that may indicate that the athlete is tired or exhausted are coarse, whereas the frames that direct attention towards aspects that does not concern specific training seem to be fine-grained. The frames are mainly developed through a close interaction with different types of expertise, and to a lesser extent through personal experience. As the frames are mainly developed through a close interaction with experts and often studies of expert literature, they tend to reflect a general insight into aspects that influence the performance rather than how they respond to training.

What did I do wrong? Perhaps the only thing that I did wrong two years ago was that I was too eager to eat proteins to build muscles instead of eating properly during training! And if I had eaten better during training, I might have succeeded? (A)

Thus, by focusing on a range of aspects related to the outcome of the training process, the analysts notice many fine-grained feedback signals that in many ways are irrelevant in their own training. Instead they direct considerable attention towards feedback signals that are generally important for performance.

The discussion so far shows that athletes' sensemaking differs. This has important implications for how athletes interpret the training process, which is the topic of the next section.

Interpretation

Sensemaking generates "data" for interpretation.⁴⁵ Interpretation involves a process of evaluation and a search for significant patterns. The next question is how athletes interpret their experiences in ways that confirm, challenge, or enrich beliefs related to training. In such interpretation processes, athletes may experience several challenges.

As pointed out, *conformists*' sensemaking is dominated by few and coarse-grained frames that generate rough indicators reflecting a strong personal commitment to the execution of the plan. This reduces sensitivity to situational variations, and has important implications for how experiences are interpreted; "Sometimes, I feel that a strict execution of the plan makes me exhausted. However, I often cross my fingers, and trust that the plans will lead to the desired results" (A). Such few and coarse-grained frames seem to limit the capacity to exploit experiences to fine-tune everyday training.

The conformists engage in rough evaluations, whether experiences are consistent with general expectations set out in the plans or not.

If the plan says 'three hours' and you try to implement it with the intended intensity, even if you feel tired... it may not be a successful training session. But I cross my fingers and hope that it will become better in the near future. (A)

In other words, when in doubt; follow the plan! When conformists use the institutionalized plan as the dominant frame it limits their ability to notice variations critical to the adjustment of the every-day training. When looking back at their own experiences, such athletes see that they have a tendency to misinterpret situations: "This year, I strongly believe that I finally understand how to interpret training. However, I get that feeling every year..." (A). Hence, the conformists tend to make the same kind of mistake over and over again. Our data indicates that the conformists therefore need critical feedback from coaches and other support personnel in order to arrive at more precise understandings of their own situations.

Contrary to the conformists (who tend to view all training sessions performed according to the plan as successful), *the brooders* are never satisfied – although they may experience that things are going well. While the conformists strongly believe in the overall plan, the brooders seem to have an underlying doubt in both the plan and the implementation

of it: “I am never sure about how much it is adequate to compete when I am in good shape – or how much to train and so on...” (A). Thus, the brooders in many ways are too self-critical. They struggle with equivocality. Multiple and coarse sensemaking processes offers a range of possible interpretations. Continuously asking question about various aspects of the plan counteracts overconfidence and reduces the likelihood that the plan will be taken for granted. This increases the sensitivity towards situational variations in every-day training. However, the constant doubt generated by the reframing may undermine the focus on training and the result may be too many diverse considerations, making it harder to make precise interpretations of training. Hence, the role of the coach, in relation to the brooders, is to direct the framing process so that the critical signals are noticed.

The experimenters approach to interpretation builds on multiple fine-grained frames. This makes it possible to identify specific indicators of how they respond to training. Although the experimenters have strong belief in the plan, they are never afraid of introducing variations into the implementation.

I believe that the plan I commit to paper is rock solid... However, at the same time you are, of course, open to new impulses... I am never afraid to reschedule or postpone for example high intensity training – if I believe that I can benefit from doing it another day. So, I do not follow the plan very strictly. (A)

In other words, such athletes seem to have an active experimentation within the boundaries of the plan. The quote highlights that the experimenters’ frames are sensitive to situational variations.

Based upon the noticed signals, the experimenters are likely to adjust the training according to their individual needs. Furthermore, such athletes emphasizes that it is they who need to interpret noticed feedback signals in a training situation:

In our game, it is very up to yourself. When we are “released” on high intensity trainings, there is no chance that the coach can feel the extent to which you are a little bit more tired than you should be. You need to consider it yourself. (A)

The analyst’s sensemaking involves multiple frames. Whereas the experimenters generate a rich set of fine-grained feedback signals, the analysts tend to interpret the feedback in light of general and abstract insights about training. Their evaluations focus on the extent to which plans are properly executed; how people in general should respond to the training. Consequently, such athletes are less sensitive to idiosyncratic signals that may only be relevant to one individual in a unique situation.

I evaluate if my training was executed in line with the plan. Did I train too much? Did I train shorter than I should? That is very unlikely to happen. Did I train with too high intensity? Did I train with too low intensity? That is also very unlikely to happen. All high intensity trainings are comprehensively evaluated. Strength training; did I follow the program? (A)

In other words, analysts tend to view the training in light of normative and general frames about good training practices. The result is that the quality of the training is less likely to be an object for interpretation. Instead, the analysts search for causal explanations by directing attention to a range of aspects that do not concern the unique training session just enacted by themselves. They tend to focus on general dimensions like nutrition, physiological aspects or daily routines (sleep etc.).

To answer the question about which reflection styles that are perceived to contribute most to improved training outcomes would require systematic data beyond the scope of this

study. But in general we would expect that experimenters are better able to improve quality of training, and in this way develop their potential. It stems from their ability to develop rich data in training, and to critically evaluate observations in light of multiple, fine-grained frames. The other reflection styles have greater challenges and rely upon the ability of coaches and support personnel to compensate for weaknesses in individual reflection.

How team-mates, coaches and support personnel influence reflection

The findings illustrate different patterns of reflection among the athletes. Such variations stem from how they engage in sensemaking, and their ability to exploit input from coaches, team member and support personnel.

Experiences with training are discussed within the team. There is a strong emphasis on sharing experience and giving advice concerning how to deal with challenges in the training process: *“We discuss a lot and give each other feedback within the team. We are quite open when it comes to give advices, especially when an athlete need to rest”* (A). Such input from team-mates serves as feedback signals guiding an athlete’s framing, and hence stimulate their reflection. The interviews with both the athletes and the national elite team coaches indicate that sharing experience and giving advice to a large extent is systematized. The national elite teams use considerable time on discussing how the athletes can make their team-mates and elite team coach even better.

At every training camp all the athletes are encouraged to share their experience from their training since they last met. So, we evaluate ourselves and receive input from our team-mates: Why did you train the way you did? Given that you have struggled with training the last weeks – why didn’t you rest? Based upon such questions every athlete needs to explain his/her training plan for the next period. (A)

In relation to stimulating elite athlete reflection, such discussions seem to be of vital importance in order to both help each other in the noticing process, and by providing each other with frames that guide future noticing.

The most important input from the team-mates comes from comparisons with others in training situations. This is a potential source of corrective feedback, but especially for the conformists, it is ambiguous. For instance, the experience that team-mates are unable to follow another athlete's pace during training can be interpreted as an indication that the plan is working: "It seemed that we were invincible, as many on the team challenged the best of our team and even outran him on certain high intensity trainings... At that time, we felt that no one could have outperformed us" (A). As it turned out, this was a misinterpretation. Positive confirmation later turned out to be part of an excessively intense training regime leading to exhaustion undermining performance in the following season: "However, we didn't notice that we were training too hard until the season started" (A).

It appears from our data that coaches have a dual role. They create enthusiasm and belief in the plan, but are also critical to how athletes implement it. In this sensemaking perspective, the coaches do this by stimulating processes of sensemaking and interpretation. To what extent and the way the coach stimulate the sensemaking processes may vary according to athletes' reflection style.

Independent of reflection style, an important role of the coach is to be critical when everything seems to be perfect, thus preventing athletes from developing overconfidence.

It is not easy to hold back when you feel that you are "flying". Then, it is hard to keep the intensity down. However, the coach reminded us throughout the fall that we were not to perform in November, but in late February and early March. Furthermore, he reminded us several times that we ought to be careful when we were close to approach peak

performance during the fall – be careful and do the right things in order to be able to perform at the right moment. (A)

The coaches emphasized that they tend to get worried when everything seems to work perfectly. One coach compared the “feeling of being invincible” with “the chain saw effect”:

You know what the “chain saw effect” is? Just before it runs out of fuel, the engine races enormously. So I believe that it is a little bit like that; just before you get exhausted, it goes very well. And that is, I suppose, the final twitch. (C)

The coaches attempt to get the athletes to “hold back” when they are close to reaching peak performance by directing their attention to the “chain-saw frame”.

For the *conformists*, there is a tendency that every training session is seen as a success: “He [a conformist] is satisfied with all training. It is very unlikely that he is dissatisfied” (C). One way to balance this is that coaches regularly invoke earlier experiences and ask critical questions thereby enriching the interpretation process.

For the *brooders*, the coach plays a key role in equivocality reduction. The following quote illustrates the importance of coach assisting the interpretation process for the brooders: “When I make decisions about adjusting training in collaboration with my coach, it gets right. I have made a few wrong decisions on my own throughout my career” (A2). The quote indicates that the coach both needs to strengthen belief in the plan and to assist in interpretation of ambiguous feedback signals that guide future action.

For the *experimenters* the coach plays a key role in creating belief in the overall plan: “My experience is that when the coach and I make a plan together, we both strongly believe in it. And when there is a need to adjust the plan, like last season, we have faith in the revised plan” (A). Furthermore, the coach also assists in adapting general insights to individual needs:

“The coach is good at adapting the plan to my individual needs” (A). The coach presents a draft plan including the main priorities and “key elements”. Based upon this, the experimenters implement training according to interpretation of feedback signals during training.

The *analysts* (like the conformists) have few doubts about the overall plan. Given how the analysts make sense of and interpret daily training efforts, the coach must direct attention to specific frames enabling the analyst to generate more fine-grained feedback signals. As for the brooders, this means reducing the equivocality of individual experiences by creating focus and reducing attention on possible factors that are of lesser importance.

Our analysis suggests that support personnel influence the athletes’ reflection in three ways. First, they generate additional interpretations about the effects of training; secondly, they stimulate the development of individual frames (as exemplified with the analysts), and thirdly they challenge the athletes’ interpretation about best-practice and how to enhance the quality of the training process.

Support personnel provide clear and specific feedback within their domain (for example, blood specimens and physiological tests). Such feedback is important for all the elite athletes, as this comes in addition to what they notice themselves. This type of feedback signals is important for both coaches and athletes. It increases the amount of data available for sensemaking and interpretation. In addition, support personnel may also notice signals that do not relate to their field of expertise. For example, a nutrition physiologist may not only pay attention to what athletes eat, s/he may also notice signals which relate to the group dynamic, athletes’ perception of coaches, or indication of fatigue.

In addition to generating feedback signals through tests and observations, experts also influence the athletes’ frames. At both training camps and at the top sport center, staff from OLT communicates important aspects related to their field of expertise. Such input stimulates

the athletes` frames as it directs attention in ways that affect the noticing process. For the conformists, such input seems to be of special importance, as they tend to interpret all training as successful.

Having contact with a person that knows so much about high altitude training is very important – especially for the inexperienced skiers... Although I know how to train in high altitude, I have regular meetings with him [the physiologist] where he asks me how I am doing and tells me; be careful, be careful, be careful. (A)

Through such interaction, ambiguous signals may be framed in ways that increase the ability to fine-tune everyday processes of training. Consequently, the athletes are likely to learn more reliably from experience.

Support personnel includes not only experts like psychologists, medical doctors, nutritionists or physiologists; but also experienced OLT coaches who challenge what is perceived as best-practice within the national teams. They interact with the national team coaches individually and simultaneously with the athletes and national team coaches: “To have regular meetings with [OLT-coach] has been very inspiring. He has many strong opinions which have resulted in fruitful discussions” (A). These discussions cover topics related both to the philosophy of training and how training may be implemented. Thus, it seems that the OLT coaches play an important role in institutionalizing general beliefs about factors critical for success, developing athletes` frames, noticing important feedback signals, and challenging the athletes` interpretations.

Concluding remarks

The last decades nations have increased their investments in elite sports. However, increased investments don't necessarily lead to improved performance. This raises important challenges

regarding the implementation of policy-objectives. The present article deals with an important mechanism linking the elite sport systems and core processes. Empirically, it explores how elite athletes reflect on their training, and how such reflection is influenced by key actors within the elite sport system. Theoretically, it refines the concept of reflection within the theoretical framework of mindful organizations. Reflection is viewed as important to a continuous improvement of the quality of everyday training. The mechanisms of sensemaking; noticing and framing, are used to identify variations in different reflection styles.

Athletes' basic beliefs shape reflection and provide a framework for individual plans, and they also serve as a context for continuous reflection over everyday training. The athletes demonstrate different engagement in sensemaking processes, thereby influencing how experiences are interpreted. Differences in reflection styles are likely to influence the quality of training and consequently the ability for sustained high level performance.

The two most reflective athletes (brooders and experimenters) tend to generate more data related to their training (notice more), and are more open to updating their assumptions based on newer experiences (developing the frames). The two types of less reflective athletes (conformists and analysts) fail to generate data that may indicate that something need to be adjusted in their own training (notices less) as they are mostly preoccupied with implementing training according to the plan. The result is interpretation of experience that mainly confirms beliefs embedded in the plans.

Mindful reflection is believed to increase the quality of focal operative procedures in organizations (for elite sport organizations, every-day training).⁴⁶ Our findings support this argument. The relationship between reflection styles and age does not seem to have a clear pattern. On the one hand, some athletes under-scored how their styles had developed over time; on the other, we find that others clearly represent different styles independent upon age

or seniority. Nevertheless, the relationship between different reflection styles and training outcomes has to be investigated further.

The main contribution of this article is theory development, identifying styles of reflection that introduce new distinctions within the theory of mindful reflection. However, we also believe that the insights presented about elite athlete reflection have important implications for studies of how sport systems stimulate quality of training, as well as for coaches close to the athletes.

It's quite common that athletes are expected to write detailed training diaries, covering both what they did and how they experienced the training sessions. For them, the findings presented here may increase their awareness of how they perceive and organize their experiences. Coaches and support personnel can both contribute to the development of "new" frames and provide the athletes with additional information (in terms of noticing feedback signals) about how they respond to training. In other words, it seems that the organizational context plays a key role in stimulating to reflection by actively generating signals, activating frames, and repeatedly asking critical questions in ways that challenge athletes' interpretations. However, different reflection styles require different input.

Notes

- ¹ Grix and Carmichael, 'Why do governments invest in elite sport? A polemic'
- ² Kærup, 'The price of a medal is rising'
- ³ De Bosscher et al., *The global sporting arms race*; Houlihan and Green, 'Comparative elite sport development'
- ⁴ Tønnessen and Sandbakk. *Den norske langrennsboka*
- ⁵ See Gilbert and Trudel, 'Learning to coach through experience'; Gilbert and Trudel, 'The coach as a reflective practitioner'; Hughes, Lee and Chesterfield, 'Innovation in sports coaching'.
- ⁶ Toner et al., 'From "blame" to "shame"'
- ⁷ Chambliss, 'The mundanity of excellence: An ethnographic report on stratification and Olympic swimmers', p.85 (our italics).
- ⁸ Jones, Armour, and Potrac, *Sports coaching cultures: From practice to theory*; Jones, Armour, and Potrac, 'Constructing expert knowledge: A case study of a top-level professional soccer coach'; Potrac, Jones, and Armour, 'It's all about getting respect'
- ⁹ Goffman, *Frame analysis*
- ¹⁰ Jordan, Messner and Becker, 'Reflection and Mindfulness in Organizations', p. 466 (our italics).
- ¹¹ Gherardi and Nicolini, 'The sociological foundations of organizational learning'; Jordan, 'Learning to be surprised'
- ¹² Langer, 'Mindful learning'
- ¹³ Weick and Sutcliffe, *Managing the unexpected*.
- ¹⁴ Langer, *Mindfulness*; Langer, *The power of mindful learning*.
- ¹⁵ Langer, 'Mindful learning' (our italics).
- ¹⁶ FIS, *International Ski Competition Rules*.
- ¹⁷ Based on FIS official statistics: <http://www.fis-ski.com/uk/medg/mgjp/overview.html?category=&category=WSC§or=CC&search=Search.And>: <http://www.fis-ski.com/uk/medg/mgjp/overview.html?category=&category=OWG§or=CC&search=Search>. See appendix.
- ¹⁸ Tønnessen and Sandbakk, *Den norske langrennsboka*.
- ¹⁹ Andersen, 'Olympiatoppen in the Norwegian sports cluster'; Gotvassli, 'Et praksisbasert perspektiv på dynamiske læringsnettverk i toppidretten'.
- ²⁰ Andersen, 'Olympiatoppen in the Norwegian sports cluster'
- ²¹ Smith, 'A framework for understanding the training process leading to elite performance', p.1114 (our italics).
- ²² Ericsson and Charness, 'Expert performance – Its structure and acquisition'; Hodges, Starkes and MacMahon, 'Expert performance in sport'; Campitelli and Gobet, 'Deliberate practice: Necessary but not sufficient'
- ²³ Langer, 'Mindful learning', p.220 (our italics).
- ²⁴ Weick and Sutcliffe, *Managing the unexpected*, p.42.
- ²⁵ Weick, *The social psychology of organizing*, p.194 (our italics).
- ²⁶ Weick, *Sensemaking in Organizations*, p.13 (our italics).
- ²⁷ Weick, *The social psychology of organizing*.
- ²⁸ Weick, *Sensemaking in Organizations*.
- ²⁹ Jordan, Messner and Becker, 'Reflection and Mindfulness in Organizations'; Reynolds, 'Reflection and critical reflection in management learning'; Weick and Sutcliffe, *Managing the unexpected*.
- ³⁰ Weick, *Sensemaking in Organizations*.
- ³¹ Andersen, 'Olympiatoppen in the Norwegian sports cluster'.
- ³² Weick, Sutcliffe and Obstfeld, 'Organizing for high reliability'
- ³³ Yin, *Case study Research*.
- ³⁴ Charmaz, *Constructing grounded theory*.
- ³⁵ Enoksen, *Utviklingsprosessen fra talent til eliteutøver*; Smith, 'A framework for understanding the training process leading to elite performance'; Tønnessen, *Hvorfor ble de beste best?*
- ³⁶ NSA, *Utviklingstrappa, Langrenn*.
- ³⁷ Brenna, 'Samdals gull-oppskrift'; Bråten, 'Skari ville kjørt sitt eget løp'; Manglerød, 'Ti prosent lavere kapasitet på dagens landslag'.
- ³⁸ Charmaz, *Constructing grounded theory*. The open coding were close to how Charmaz defines initial coding.
- ³⁹ Rusko, 'Training for cross-country skiing'
- ⁴⁰ March, *The ambiguities of experience*. For an explanation of the term "vividness of experience", see page 104-106.
- ⁴¹ Weick, *The social psychology of organizing*.
- ⁴² Snook and Connor, 'The price of progress'
- ⁴³ Weick, 'The generative properties of richness'
- ⁴⁴ Glaser and Strauss, *The discovery of grounded theory*.

⁴⁵ Weick, *Sensemaking in Organizations*.

⁴⁶ Weick and Sutcliffe, *Managing the unexpected*.

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Appendix: Success of Norwegian cross-country skiing 1991-2011

Appendix 1: Overall results of Norwegian cross-country skiing 1991-2011 in World Championships and Olympic Winter Games

<i>Nation</i>	<i>Medals total</i>	<i>Gold (men)</i>	<i>Silver (men)</i>	<i>Bronze (men)</i>	<i>Gold (women)</i>	<i>Silver (women)</i>	<i>Bronze (women)</i>
Norway	158	49	29	23	20	16	21
Russia	109	5	8	12	36	24	24
Italy	72	6	11	15	11	15	14
Finland	52	6	5	12	9	7	13
Sweden	49	12	11	13	4	6	3
Germany	35	2	12	7	3	9	2
Other nations (13)	86	15	17	11	11	15	17

Appendix 2: Individual results of Norwegian elite cross-country skiers 1991-2011 in World Championships and Olympic Winter Games

<i>Number of athletes that have been on the national elite teams 1991-2011</i>	<i>Number of athletes with individual medals in 1 championship</i>	<i>Number of athletes with individual medals in 2 championships</i>	<i>Number of athletes with individual medals in 3 championships</i>	<i>Number of athletes with individual medals in 4 championships or more</i>
95	11	11	3	7

Article 2

Coaching elite athletes: How coaches stimulate elite athletes' reflection

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Coaching elite athletes: How coaches stimulate elite athletes' reflection

This article investigates the coaching behavior of five Norwegian national elite team coaches in cross-country skiing. It identifies how they act as sensegivers towards the athletes. An important part of this is how coaches, assisted by support personnel, stimulate elite athletes' reflection in ways that improves the quality of everyday training. It draws upon insight about social and relational aspects of learning within an organizational setting. The theory of mindful organizations, with its emphasis on sensemaking and sensegiving, is introduced to capture how coaches and support personnel can influence athletes' reflection. The article has both an empirical and theoretical contribution. First, it directs attention to sensegiving as an important element of coaching behavior. Second, it identifies key mechanisms of sensegiving not previously discussed in the literature.

Keywords: coach behavior, sensemaking, sensegiving, reflection, mindful organizations, cross-country skiing, Norwegian elite sports

Introduction

An important part of the sport coaching literature directs attention to coach behavior, illustrating how coaches interact with the athletes to improve athletes' skills and competences (Cushion, 2010; Cushion, Ford, & Williams, 2012; Jones, Armour, & Potrac, 2002; Jones, 2004; Jones, Potrac, Cushion, Ronglan, & Davey, 2011; Ronglan, 2011; Smith & Smoll, 2007; Smoll & Smith, 1984). Several studies direct attention to how coaches reflect on their own practices (Cassidy, Jones, & Potrac, 2009; Cushion, Armour, & Jones, 2003; Gilbert & Trudel, 2001; Gilbert & Trudel, 2005; Gilbert & Trudel, 2006). Other studies explore how coaches influence athlete learning, as an outcome (Cassidy, Jones, & Potrac, 2009; Hughes, Lee, & Chesterfield, 2009; Toner, Nelson, Potrac, Gilbourne, & Marshall, 2012). However, little attention has been paid to how coaches influence athletes' reflection as a key mechanism

of learning. In line with Goffman's (1974) frame analysis, reflection can be defined as the way athletes perceive and organize experiences. Sometimes coaches want athletes to frame their experiences in ways that increase motivation, commitment, and well-being (Mageau & Vallerand, 2003), and respect the decisions of the coach (Potrac, Jones, & Armour, 2002). In this article we explore coaching behavior in terms of how coaches influence athletes' reflection to enhance reliable learning in developing and fine-tuning training.

Influencing athletes' reflection to enhance reliable learning from experience may be an important element in coaching behavior. To be successful, coaches need to intervene on key elements of reflection. To address this, we introduce the theoretical perspective of mindful learning (Hernes & Irgens, 2013; Weick, Sutcliffe, & Obstfeld, 1999). Building on Goffman's (1974) frame analysis, it directs attention to sensemaking and interpretation as conditions for reliable learning. Sensemaking and interpretation are the key mechanism of reflection. Sensemaking consists of two parallel processes: noticing and framing. What athletes notice depends on the kind of cognitive frames that they hold. Interpretation is an evaluation of what is noticed. Thus, to stimulate athletes' reflection, coaches need to intervene on the sensemaking process. This is called sensegiving and corresponds to how coaches guide and control the way athletes perceive and interpret training advice (Jones, Potrac, Cushion, Ronglan, & Davey, 2011).

The present study covers coaching behavior of five national elite team coaches in Norwegian cross-country skiing. It is the sensegiving of the coaches that is the key concern. The study is conducted as a qualitative case study (Yin, 2009). The data comes from in-depth interviews with the coaches. In addition, we also interviewed elite athletes and support personnel to better understand how coaching behavior were perceived. The research questions are: 1) to what extent do the national elite team coaches represent different approaches to sensegiving? 2) To what extent do the coaches allow support personnel to act as sensegivers?

The rest of the article is organized as follows. First we present the background, outlining key values within the organizational context of Norwegian elite cross-country skiing. We then explain the concepts of sensemaking and sensegiving and relate these to the theory of mindful organizations before reviewing the method and research strategy. We then proceed to present and discuss the empirical findings. Findings are organized around mechanisms of sensegiving identified in the theoretical analysis. In the final section, we summarize the major findings and discuss some practical implications.

Cross-country skiing within the Norwegian elite sport context

It is important to acknowledge that the national elite team coach in cross-country skiing operates within a highly organized elite sport system. Olympiatoppen (OLT) has the overall responsibility for elite sport in Norway. It is a center for competence development, drawing upon scientific expertise as well as experiences from many different sports. The national elite team coach is mainly responsible for training and development. However, OLT coaches with extensive experience from various sports may intervene in ongoing training and development. They challenge and support national elite team coaches and act as liaisons to specialists. Through such initiatives the national elite team coaches are exposed to institutionalized values and attitudes in the elite sport system:

1) The combination of scientific and experience-based knowledge: There is a strong emphasis on experience-based knowledge as the basis for exploiting scientific knowledge. This is reflected in the structure and content of the coach education within the Norwegian cross-country skiing (Böhlke, 2007). Hence, utilizing best practice is considered critical for success within Norwegian elite cross-country skiing.

2) How knowledge is applied to athletes' individual needs: The experiences of former elite athletes and coaches are adapted to athletes' individual needs in planning, implementing, and the evaluation of everyday training within the national team (Sandbakk & Tønnessen,

2012). Both athletes and coaches are socialized into an approach where lessons from everyday activities are discussed and shared within the national team.

3) Strengthen athletes' responsibility for their own as well as their team-mates' development: Within the Norwegian elite sport system, as within the Norwegian society, there is strong emphasis on the athlete's responsibility for his or her own development. Making the athletes aware of their responsibility for the development of their team-mates is a core value (Andersen, 2012).

4) Making sure that the athletes benefit from the expertise available within OLT: The coach is the leader of the national elite team, and plays a key role in both structuring training activities and actively taking advantage of the support personnel within the Norwegian Ski Association as well as within OLT (Hansen, 2012).

We studied five national elite team coaches in cross-country skiing in the period from 2002 to 2011. They were responsible for the men's and women's all-round teams in different parts of this period. We were interested in exploring to what extent the coaches' thinking and actions were consistent with the institutionalized values and attitudes embedded in the elite sport system. As emphasized by OLT, a key aspect is that the athletes transform experiences into knowledge through reflection (OLT, 2011). This is considered as a critical factor in achieving individual development. Tønnessen and Sandbakk (2012) view reflection as essential to improve the quality of training in cross-country skiing.

The focus in the present article is how coaches stimulate and shape athletes' reflection in ways that strengthen reliable learning. This directed our attention towards the concepts of sensemaking (Starbuck & Milliken, 1988; Weick, 1995; Weick, Sutcliffe, & Obstfeld, 2005) and the role of sensegiving (Foldy, Goldman, & Ospina, 2008; Gioia & Chittipeddi, 1991) as a key element of coaching behavior. These concepts highlight the importance of social

relationships and interaction in mindful reflection and reliable learning from experience.

Below we develop the theoretical perspective in more detail.

Theoretical framework: Sensegiving stimulating reflection

Reflection is about the way experiences are perceived and organized (Goffman, 1974). This involves sensemaking and interpretation. Sensemaking consists of a continuous interaction between framing and noticing (Weick, 1995). Individual frames are cognitive schemes that guide what athletes notice when they train as situational cues. In this sense they are subjective. Multiple fine-grained frames make it possible to notice more, and thus generate richer data about a situation (Weick, 2007). Sensemaking is “*about the ways people generate what they interpret*” (Weick, 1995, p. 13). People may see the same event quite differently. For example, ‘what is play for the golfer is work for the caddy’ (Goffman, 1974, p.8). Cues may also vary with respect to the vividness of the experience (March, 2010). Noticed cues become feed-back signals, and how actors make sense of such signals depends on the frames that they hold (Snook & Connor, 2005).

Interpretation involves a process of evaluation and a search for significant patterns in relation to expectations guiding behavior, for instance as generated by the training plan. This involves making inferences and judgments that contain delicate trade-offs. Mindful reflection requires the ability to critically question assumptions governing both sensemaking and interpretation. In such situations, learning from experience implies the continuous testing and refining of existing knowledge (Weick & Sutcliffe, 2001). Thus, mindful reflection is about both confirming and disconfirming interpretations. The degree to which athletes are able to engage in mindful reflection is essential for their ability to learn reliable from experience, and to provide the coach with detailed and relevant knowledge about how they respond to different training activities (Jordan, 2009; Weick, Sutcliffe, & Obstfeld, 1999).

Given the challenges related to mindful reflection, the coaches' ability to influence reflection through sensegiving is essential in efforts to improve the quality of training. Sensegiving is about influencing people's perceptions, attitudes, and beliefs (Foldy, Goldman, & Ospina, 2008; Gioia & Chittipeddi, 1991). Consequently, the ideal form of sensegiving in order to foster athlete reflection is to activate several frames or point to new distinctions within frames that actors already apply. This makes it possible for athletes to notice cues that they might overlook, give significance to signals not perceived as important, and provide a better overall understanding of experiences. Thus, such sensegiving enhances the athlete's capacity for mindful reflection, and consequently generate a rich set of data constituting individual experience.

Coaches may use their comprehensive formal knowledge and experience to make demands on athletes in ways that pay little attention to athletes' sensemaking. For such autocratic coaches, sensegiving may literally replace athletes' sensemaking (Potrac, Jones, & Armour, 2002). This directs athletes' attention towards a few and fixed feed-back signals that confirm coaches' expectations. Sometimes, this may lead to success. Another type of sensegiving aim to stimulate athletes' own sensemaking in adapting knowledge to fine-tune training. Such democratic coaches may also experience that athlete's need or demand authoritative sensegiving to overcome uncertainty. The athlete-centered approach to sensegiving emphasizes that athletes have responsibility for their own development (Cushion, 2010). An important part of this is to stimulate their ability to transform experience into reliable knowledge through mindful reflection. The underlying assumption is that this is the key to assure continuous development and sustained success (Weick & Sutcliffe, 2001).

Within the Norwegian elite sport context several actors may act as sensegivers towards the athletes. As the elite team coach is closest to the athletes, s/he is naturally the most important sensegiver. The coach may engage in sensegiving in two ways. First, the coaches'

frames are reflected in athletes' training plans; giving direction to what the athletes should be aware of when they train. Secondly, by observing and interacting with the athletes may also notice cues the athletes themselves don't notice. Such cues are identified through the coaches' sensemaking process and may relate to signals indicating that the training has to be adjusted.

The support personnel within the Ski Association and OLT, or experts outside the elite sport system, may also act as sensegivers towards the athletes in two different ways. When specialists with detailed knowledge share their competence with the athletes, they provide them with specific frames. For example, a nutritionist may raise the athletes' awareness of what type of food they should eat before or after the training session. In addition, they provide the athletes with information from laboratory tests. This is information the athletes themselves are not able to generate.

How potential sensegiving actors within the context of Norwegian elite cross-country skiing context may act as sensegivers is summarized in our theoretical research model (Figure 1). Note that when athletes communicate their interpretation of training, they also become sensegivers. The model integrates the context of Norwegian elite cross-country skiing and summarizes the theoretical arguments.

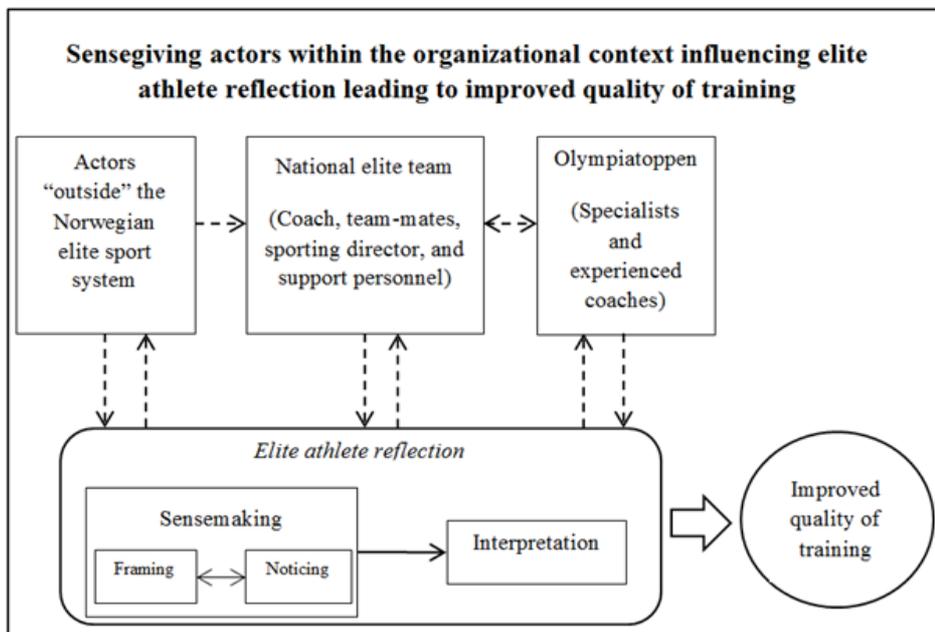


Figure 1: Potential sensegiving actors and their influence on elite athlete reflection.

In an athlete centered elite sport organization, emphasizing the importance for athletes to take responsibility for their own development, reflection plays a key role. Hence, for such organizations stimulating reflection seems to be the ideal. Such an approach to the management of development processes is analogous to the theory of mindful organizations (Weick, Sutcliffe, & Obstfeld, 1999; Weick & Sutcliffe, 2001). It is an organizational sociology perspective on how to improve the quality of core processes. Central to this is how organization and leadership influence social interactions in ways that encourage mindful reflection and a capacity for action (Ray, Baker, & Plowman, 2011, p.199).

Method and research strategy

The study consists of five cases of how coaches act as sensegivers to stimulate athletes' reflection. The sensegiving process is the unit of analysis. The coaches act within the context of the Norwegian Ski Association, NSA, with links to the national elite sport organization, OLT. The national elite team coaches in cross-country skiing were strategically selected

(Charmaz, 2006). First, Norwegian cross-country skiing represents a sport with extraordinary sustained success for both men and women (FIS, 2013). Second, cross-country skiing is an endurance sport where athletes' reflection is considered a key to achieve the necessary quality of training (Tønnessen & Sandbakk, 2012). And, finally, Norwegian cross-country skiing is situated within an elite sport context where the athlete-centered approach to coaching is an essential value (OLT, 2011).

We conducted in-depth interviews with 5 national elite team coaches. In addition, we interviewed 11 athletes (6 men and 5 women). Several of these athletes had experience from being coached by two of the coaches that we interviewed. The interviews were guided by a general interest in how athletes plan, carry out, and evaluate everyday training in interaction with the elite team coach and support personnel.

The interviews with the coaches covered topics related to their: emphasis on experience and scientific knowledge; philosophy of coaching and leadership; views on OLT; and approach to elite athlete development. The interviews with the athletes concerned four key topics: How everyday training was planned, implemented and evaluated; their interaction with support personnel within and outside the elite sport system; their experiences with different coaches; and the interactions on the national team. All of the interviews can be described as conversational, but structured around the key topics (semi-structured interviews). We started with open and rather general questions, but also had a number of specific questions to test explore assumptions about athlete-centered coaching, and reflection in training.

The interviews lasted from 45 minutes to almost 2 hours and were conducted in Norwegian. They were all recorded and transcribed. When translating the quotations, these were initially translated into English. The extent to which the meaning of the quotations

corresponded with its meaning in Norwegian was then discussed. Quotations from the interviews with the athletes are used to highlight how they perceive the coaches' behavior.

Within qualitative methods, there is more than one way to analyze interview data (Saldaña, 2009). In the present study, we first conducted an initial coding, corresponding with the explanation of this type of coding given by Charmaz (2006). Starting out with the research questions, 31 categories in the interviews with the coaches emerged from the data. After the initial coding, we conducted a focused coding leading to the discovery of both variations and similarities across interviews. We approach the same strategy when analyzing the interviews with the athletes. Having pursued the first steps of data reduction inductively, we started to conceptualize the findings by conducting axial coding.

Our interest in how reflection could influence the quality of training directed our attention to the literature of mindful learning as a theoretical framework. Initially, we focused on athletes' reflection. Through this analysis we realized that the coaches' active intervention was crucial in shaping how athletes' make sense of and interpret their experiences. Within this phase, we started to relate and interpret the data in light of coaching behavior. Finally we conducted a theoretical coding, linking five key mechanisms of sensegiving to coach behavior.

Findings & Discussion

In the following we present and discuss how the five coaches influence athletes' reflection. In addition, we also present and discuss to what extent the coaches allow support personnel to influence athletes' reflection. The national elite team, embedded in the Norwegian elite sport system, represents the context for the interaction between the coach and the athletes, between the support personnel and the athletes, and between the coach and the support personnel. The presentation and discussion of the empirical findings are structured around five key mechanisms of sensegiving derived from the theoretical analysis. The empirical categories of

coaching behavior that emerged from the analysis are viewed as sub-categories of the general mechanisms of sensegiving. This is consistent to how we described the theoretical coding in the method section, and presented in Figure 2.

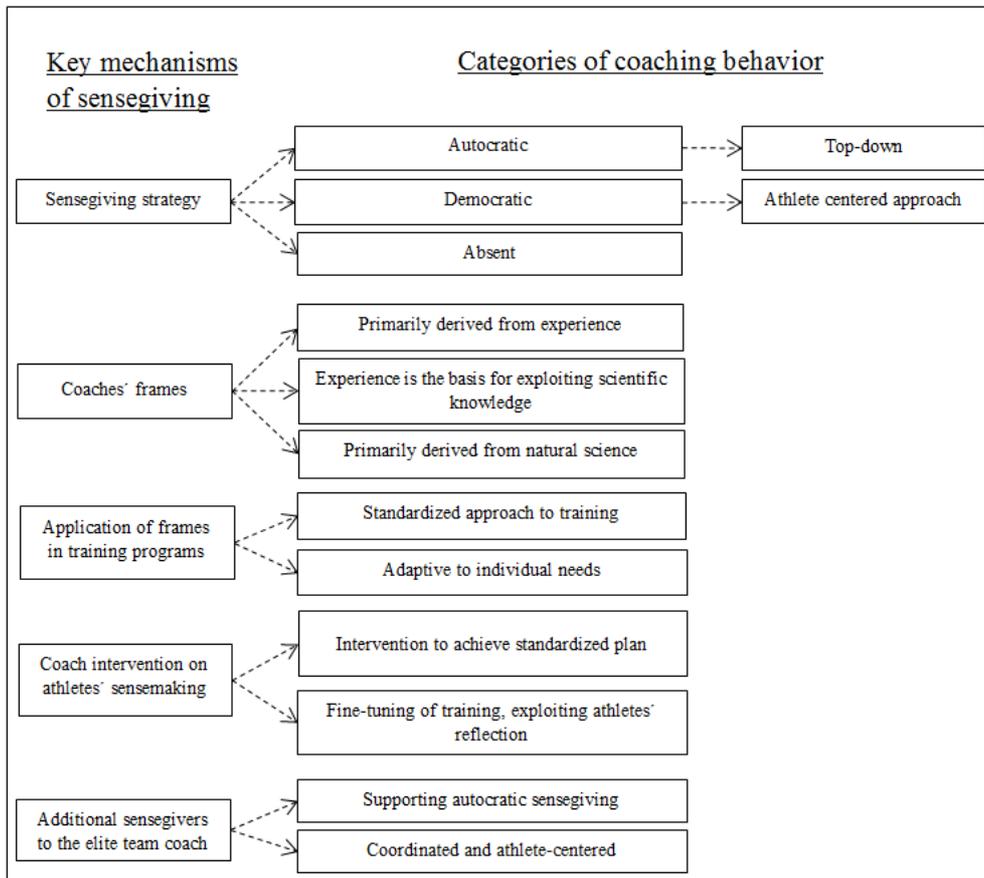


Figure 2: Key mechanisms of sensegiving in an elite sport context

Sensegiving strategy

The primary role of the coach is to facilitate the development of athlete's skills (Cushion, 2010). Central to how coaches manage processes of training and development is their interaction with individual athletes and with the team. As pointed out in our brief presentation of cross-country skiing within the Norwegian elite sport context, a democratic athlete-centered approach is a central value. However, our data show that coach 1 approached sensegiving quite different from the other four coaches.

Autocratic sensegiving

Before coach 1 was appointed, the national elite team had suffered from lack of a clear training philosophy, and the athletes treated each other as the major rivals. As long as you beat your teammate, it didn't matter if you failed to perform well in international races. In order to strengthen the social interactions within the team, and thus make the athletes more united, coach 1 used team-building as an organizational strategy:

The view of the rival was much more internal than external. (...) I tried to move the focus of whom to beat, and thus create a common interest in how to improve the results of the whole team. We agreed on a common goal that Norway once again should become the best female skiing nation, and focused more on the relays and team-building events than the former elite teams. (C1)

The coach emphasized social interaction within the team, but approached the interaction with athletes from a 'top-down' perspective. He encouraged athletes to share their views on how to improve their technique (in classic and skating). However, his desire for control meant that athletes were not stimulated to actively reflect on their own experiences, as discussed later under coach intervention on athletes' sensemaking.

Democratic sensegiving

Contrary to the coach 1, coach 2, which took over the team, provided the athletes with few clear answers about how to train. An important part of the coaching behavior of coach 2 concerned stimulating athletes to reflect upon their training. Nevertheless, coach 2 had to consider to what extent the situation called for creating beliefs or challenging athlete's reflection:

You have to exploit every opportunity to facilitate the athletes to reflect upon their training. However, you need to consider what situations you can stimulate reflection. (...) When athletes are struggling, you need to communicate that you

have the right solutions, whereas when athletes perform well, you can challenge their reflection to a larger extent.

Coach 2 took over a team with some very successful athletes. In his interaction with such athletes he asks critical questions rather than simply telling them how to train. This created a challenge both for the coach and the athletes as the athletes were used to being told how to train. Thus, his democratic sensegiving strategy, emphasizing dialogue, led to uncertainty among the athletes. One of the athletes who had experienced great success under coach 1 didn't feel that coach 2 was able to create strong beliefs in the training process. This athlete decided to continue to work with coach 1:

He [coach 1] created strong confidence and belief in what we did. The new head-coach was very different. Whereas the first coach was crystal clear and never expressed his uncertainty, his successor was much more eager to discuss how to train and expressed more uncertainty. So, I decided to keep in touch with the former coach. (A2)

However, after the three first seasons, the athletes got to know coach 2 and his coaching behavior better. They understood the importance of communicating their own experiences with training when discussing the training plan. Emphasizing dialogue, athletes' own experiences with training were thus considered vital in order to create optimal individual plans. Hence, sensegiving was characterized by the coach introducing context specific frames based on athletes' individual needs and experiences.

Coach 4 expressed a similar attitude towards sensegiving as coach 2. However, his challenge during the initial years was that he had to use a lot of time on logistics (taking care of airplane tickets, rental cars, accommodation, and budgeting).

Coach 3 and 5 balanced an autocratic sensegiving strategy with a democratic approach. Both coaches emphasized that the most important task for an elite team coach was to be a leader:

You are of course a pal of the athletes. On the other hand, they need to be aware of that you are their leader. It is important that you show leadership and make decisions because many elite athletes tend to have quite strange ideas about how to become best. (C5)

Although the athletes perceived the coaches as leaders, their sensegiving was more democratic than autocratic. The coaches acknowledged that the athletes were the most important source of information (knowledge) about how they respond to training. Thus, a close dialogue was deemed important:

I believe that it is very important to listen to the athletes because they know their own body best, and know what it takes to become better. (C5)

These two different strategies of sensegiving have important implications for how coaches try to influence athletes' sensemaking.

What frames do coaches rely on?

What type of knowledge did the coaches deem to be most important is fundamental for their philosophy of training; that is, what they believe to be critical success factors. Such beliefs are reflected in their frames.

All the coaches addressed the importance of knowing the institutionalized cross-country skiing philosophy (derived through years of experience). However, there were variations between the coaches concerning the relationship between experience-based and scientific knowledge.

The primacy of scientific knowledge

Coach 1 considered insights into scientifically grounded theories of physiology and training to be vital:

In my opinion, it is very difficult to conclude something that is based purely on experience! I emphasized the numbers, exploiting the results from physiological tests. Used such documentation as a sign of equality.

Furthermore, he argued that the scientific literature offered a recipe for how to achieve excellence:

You can find the answers of how to train in the literature. The Swedes have tested their athletes for a long time... Studies... have established causal relationships in this regard.

In other words, this coach relied on a few and fixed frames derived from the scientific literature about the physiology of endurance training.

Experience and scientific knowledge

Whereas coach 1 strongly emphasized scientific knowledge, the four other coaches represented a different view on the relationship between experience-based and scientific knowledge. Scientific knowledge was used to complement the experiences of successful athletes and coaches. This is reflected in the statement by coach 3:

No theoretical studies have ever revolutionized training in cross-country skiing. Our training philosophy rests on experience. Throughout the years we have, of course, received some impulses from science, like the high-altitude training regime, but it doesn't budge our overall training philosophy. Rather, it contributes to an adjustment of small parts of it.

Similar views were expressed by the other coaches. The following statement was given by coach 4:

The most of that we do is based on experience. However, I try to keep an eye on what is happening in the field of science in order to get a grasp of how to train in the future in order to develop elite cross-country skiing.

The quotations show that the training philosophy for the four coaches emphasized experiences and best-practice, supplemented by scientific knowledge. By combining these two types of knowledge, the coaches had multiple perspectives (and thus multiple frames) about how to develop excellence. Hence, their training philosophy was more nuanced than overall philosophy for coach 1.

Application of frames in the training plans?

Standardized approach to training

Coach 1 pursued the training procedure in a fixed, objective and standardized way. The procedure, derived from formal knowledge was the basis for individual plans. Training plans were adapted to individual differences only to a very limited extent. Although there were some individual variations concerning how much each skier should focus upon different training movements (roller ski or running), they all followed the same philosophy in terms of periodization and the balance between high and low intensity training. There was, in other words, very little tolerance for individual variation. Hence, the plan was viewed as recipe for achieving great results, and had to be followed.

To convince the athletes that his philosophy was the best path to success, coach 1 presented the athletes with scientific evidence. The following statement from an athlete highlights this:

We were told that the desired philosophy of training was the only way to success.

And the coach and his staff had very good arguments. I didn't dare to raise my hand and express my concerns, because they presented evidence from science.

(A1)

Relying on a few and fixed frames, reflecting formal knowledge, the coach operationalized his frames in the training plans, which became a strong normative framework.

Individualized best practice

The four other coaches had a much stronger emphasis on adapting standardized routines and procedures to individual needs. Objective routines and procedures were thus socially embedded, combining scientific and experience-based knowledge with athletes' own experiences with training. Coach 2 expressed the importance of individualizing the training plan for every athlete:

I believe that it is very difficult to demand that all the athletes on my team follow the same training philosophy, because every athlete is different. If you demand that every skier is to follow the same 'recipe', one or two athletes may succeed, but the rest of the team is likely to fail. In order to succeed, you need to adapt the training plan to individual needs. Then every athlete has a greater chance for reaching his/her full potential.

Coach 4 had a similar approach to knowledge application as coach 2. Dependent upon what type of athlete he was discussing and planning training with, the coach presented a plan that either could be very detailed or rather rough:

Every athlete is different. Someone needs to have a strict training plan, whereas others need a draft plan that identifies the key trainings, and then make the most of the planning themselves.

By focusing on how to adapt training to individual needs, coach 2, 3, 4, and 5 emphasized that there are several paths to success. They did not believe in a standard recipe that could bring out the best in all athletes. This is highlighted by coach 3:

Some believe that athletes can be told how become best. However, I have not seen any athlete being 'controlled' to become best in the world. They [the best athletes] know what it takes, and are able to continuously adjust the training to their needs.

Consequently, two of the most successful athletes on his team in terms of results (and in the history of Norwegian cross-country skiing) approach training very differently:

There were great variations. Two of the athletes I trained, trained so differently that you wouldn't believe that they did the same sport. (C3)

The quotations indicate that when formal knowledge and standardized routines are adapted to individual needs, it adds to the cumulative knowledge development about how to develop elite athletes in cross-country skiing. Hence, coaches learn more about how different types of athlete require different types of training.

Coach intervention on athletes' sensemaking

Intervention to achieve standardized plan

In the interview, the coach admitted that he was probably too eager to control the athletes, making them very dependent upon himself:

Perhaps I should have been more able to let go control or stimulate the athletes to take control over their own training. One athlete became particularly dependent upon my presence because I was in a better position to notice whether things went well or not. She was not able to identify the signals indicating whether she was tired or not. (C1)

As the quotation indicates, the coach instructed the skiers to strictly follow the training plan.

This was confirmed by an athlete:

If we were tired, or felt that we didn't respond to training, we were told to continue following the training plan because it should be exhausting. (A1)

Hence, the coach became a more important sensemaker of daily training than the athletes themselves.

The moral for the athletes trained by this coach was therefore: If you are tired and next to exhaustion, you had better continue with the same kind of training that made you really tired. Contrary to the institutionalized training philosophy in Norway, the coach believed that empowering the athletes to take responsibility for their own development was of lesser importance:

In Norway, it has been a philosophy that the athletes are to take responsibility for their own training. In such cases, the coach makes himself redundant. (C1)

The data highlights that the coach himself is the most important sensemaker within the national elite team. How the coach perceives the athletes is the basis for how the athletes evaluate the quality of training. Instead of providing the athletes with frames directing attention towards certain feed-back signals generated in the training process, the coach generates the feed-back signals by observing the athletes. Consequently, the athletes become very dependent upon having the coach by their side, as he is in a better position to make sense of how they respond to training. The result is that the athletes are less likely to actively reflect upon their own experiences. As the quotation given by athlete 1 highlights, this seems to restrain quality of training.

Fine-tuning of training, exploiting athletes sensemaking

Throughout the training process, coach 2, 3, 4, and 5 continuously made an effort to empower the athletes and reduce their role as an autocratic sensegiver. To stimulate the athletes to reflect upon their training, they believed that it was important to ask critical questions concerning their training. However, their interaction towards young and inexperienced skiers and experienced ones differed:

Young athletes need to be educated. You need to explain them what is wise and not. For the experienced skiers, you are more like an interlocutor, a person who asks critical questions which stimulate them to consider why they are training as they do. (C3)

By coaching experienced skiers this way the athletes became more competent to make small adjustments in the training process when they were training for themselves. More comprehensive, monthly, adjustments which often are more far-reaching were made in close collaboration with the coach.

Within the national elite teams led by coach 3 and 5, how the athletes' made sense of their training served as the foundation for the coaches' sensegiving. Hence, the coaches' sensegiving was primarily focused on challenging athletes' interpretation. They engaged in sensegiving by introducing context specific frames directing athletes' attention towards corresponding feed-back signals in the subsequent training process.

Similar to how coaches 2, 3, and 5 interacted with the athletes; coach 4 also emphasized a close dialogue. A close interaction with the athletes was, according to the coach, vital in order to identify small deviations in the training process:

I believe that a close contact with the athlete is of crucial importance to identify small deviations. I have some signs that I look for with every athlete, based on how they act when they are tired. (C4)

As mentioned earlier, in the initial years, managing administrative tasks resulted in too little time for monitoring athletes' every-day process of development and training. In other words, the coach was more of an organizer than a coach:

Studying training reports has often been set aside as I had to use time on ordering airplane tickets and accommodation. Because you know that on the following Monday, all logistics need to be in place. Standing with 30 people in Munich, not having rental cars... Then it becomes a crisis. (C4)

Of course, taking care of logistics is important in order to carry out training camps as intended. However, when the coach uses too much time on tickets and other logistics, too little time is spent on interacting with the athletes. Hence, monitoring every-day training and asking precise and critical questions about both the training became secondary.

In later years, when other administrative staff took care of all the logistics, the coach finally had the time to interact with the athletes on daily basis:

When I got more time with the athletes, it became easier to ask the right questions.

This in turn leads to that the athletes become more conscious concerning their own development. (C4)

Hence, a close interaction is vital in order to engage in mindful sensegiving towards the athletes, i.e. stimulating mindful reflection by activating context specific frames, adapted to athletes' situational and individual needs.

Additional sensegivers

Within the national elite teams, the coach is the primary sensegiver. However, support personnel with specific knowledge within a given field may also be brought in to supplement the coach in matters such as nutrition, strength training or physiology. Such support personnel sensegiving may provide the athletes with specific frames about aspects of everyday training. We identified a relationship between sensegiving strategy and the extent to which the coaches allowed other sensegivers to interact with the athletes.

Support for autocratic sensegiving

As coach 1 emphasized the importance of scientific knowledge, most of his discussions regarding training were undertaken with scientists or experienced coaches outside the elite sport system with such insight. Although Olympiatoppen (OLT) is believed to have competence on theoretical issues related to training, the coach thought that OLT lacked the required competence. Consequently, he found it very difficult to benefit from the expertise available within the elite sport system:

I wasn't very impressed by the competence at Olympiatoppen. Those working within the field of physiology were educated as sociologists and social economists and only had personal experience with training as former successful coaches. It was impossible to have a discussion with them based on theoretical insights. (C1)

The coach also saw it as a problem that support personnel from OLT intervened with the athletes directly. In his view, coaches should limit the contact between the athletes and support personnel holding different opinions about training:

They [the OLT-staff] are all experts. When we were at a high-altitude training camp, this person from Olympiatoppen chats with the skiers at the lunch-table. The person asks them about how the training works for them and gives advice. That is simply not acceptable! In such cases, it gets very hard for the skiers because they start to believe that everything that this person talks about is as important as what I and my staff talks about – and that is evidently not true! (C1)

The quotations indicate that coach 1 is the only sensegiver within his national elite team. Although he discusses principles of training with scientists and coaches outside the Norwegian elite sport system, these do not serve as sensegivers towards the athletes. By being the only sensegiver, the coach ensures that the athletes are provided with frames that correspond to his philosophy of training.

Coordinated and athlete-centered

As for coach 1, coach 3 and 5 also emphasized that a key to success was to control the interaction between the support personnel and the athletes. Limiting the interaction between the athletes and support personnel were considered as especially important when athletes struggled with training:

We believed that having as few people as possible in direct contact with our team was a key to success. (...) When too many people surround the national elite team, the athletes are exposed to too many ideas. And it is really important that an athlete who struggles with achieving the desired results doesn't get too many diverse opinions about how to improve. (C3)

According to coach 3 and 5, the role of support personnel sensegiving was to generate objective feed-back signals from laboratory tests and to lesser extent to provide athletes with

specific frames reflecting their area of expertise. In addition to generating objective feed-back signals, the coaches used one OLT specialist as an important discussion partner. He served as an important sensegiver towards the coaches, sharing his formal knowledge and experience concerning how to achieve excellence. Despite this close collaboration with one of the OLT specialists, they were highly critical to OLT coaches who demanded changes in the overall philosophy of training. The interaction with personnel from the OLT was very dependent upon the personal relationships.

Coach 2 and 4 also emphasized the need to limit the number of support personnel in direct contact with the athletes. However, coach 2 saw the use of OLT expertise as vital since he saw himself as a generalist. However, the potential sensegivers had to be coordinated through the coach, making sure that the athlete didn't lose the 'big-picture':

As a coach, you need to know a little bit about everything. And if there is a need to include an expert, the expert needs to provide very detailed expertise. However, there is a challenge to include experts, because s/he often makes his/her role bigger than it really is. And my job is to coordinate the experts and make sure that they understand that their expertise is part of a whole. No one is more important than others. (C2)

Aside from exploiting OLT expertise on training, the coach 2 and 4 also utilized the competence OLT possessed in team building to strengthen social interaction within the teams. This worked well for coach 2. Two years later, coach 4 initiated the same processes. The assumption behind these efforts was that social interactions within the team are important in stimulating mindful reflection and consequently athletes' quality of training. The following quote, given by coach 4, highlights their view on the relationship between social interaction and the ability to reach every athlete's full potential:

The most important thing for me is to make sure that social interaction within the team is constructive in order that the full potential for every skier is reached. In the

light of how the social interaction within the female elite team improved, and how their results increased, we initiated the process to strengthen the social interaction within our team.

The presentation of how coach 2 and 4 interacted with OLT emphasizes that support personnel to a larger extent served as sensegivers than for the other coaches. Specialists and experienced coaches from OLT engaged in sensegiving both towards the coaches and the athletes. Similar to the coach 1, 3, and 5, coach 2 and 4 stressed that support personnel had to be coordinated (and controlled). However, contrary to the coach 1, 3, and 5, they were much more amenable towards specialists intervening directly with the athletes. Thus, the athletes were introduced to specific frames that increased their capability to generate rich information in the training process. To ensure that the athletes weren't exposed to divergent (and contradictory) frames, it was the coaches who initiated the interaction between the support personnel and the athletes.

Concluding remarks

Sensegiving as a key element in coach behavior

The study explored how five elite team coaches approached sensegiving to stimulate athletes' reflection, and their willingness to include support personnel as additional sensegivers. Central to our analysis was how sensegiving is a key element in coaching behavior. As described in the method section, we identified the theory of mindful learning as a useful framework for analyzing and organizing the data. We identified two main approaches to coaches' sensegiving, reflecting the weight they attach to athletes' sensemaking and their coaching behavior. This is summarized in Table 1.

Table 1: Mechanisms of sensegiving

Type of sensegiving	Less mindful sensegiving	Mindful sensegiving
Mechanisms		
Sensegiving strategy	Autocratic (top-down)	Democratic (athlete-centered)
Coaches' frames	Primarily derived from natural science	Experience is the basis for exploiting scientific knowledge
Application of frames in training programs	Standardized approach to training	Adaptive to individual needs
Coach intervention on athletes' sensemaking	Intervention to achieve standardized plan	Fine-tuning of training, exploiting athletes' reflection
Additional sensegivers	Supporting autocratic sensegiving	Coordinated and athlete-centered

Coach 1 actively challenges the value of athletes' reflection, emphasize scientific knowledge as the basis for the design of the best training programs, with little attention to individual differences, the aim of coach intervention is to make sure that the athletes follow the plan, and the coach is the authoritative sensegiver leaving little space for other sensegivers to intervene. There is no effort to stimulate or exploit mindful reflection among the athletes. As such, it violates core values that dominate Norwegian elite sports. Despite this, the coach had considerable success with some of the athletes within a limited period of time.

The other four coaches (2, 3, 4, 5), in contrast, saw the stimulation of mindful reflection among the athletes as a key to success. Their approach reflects institutionalized values and attitudes in the wider elite sport system. These coaches emphasize the importance of stimulating and developing athletes' capacity for reflection. Such an approach makes it possible to individualize general insights into training that exploit both experience-based and scientific knowledge, and let athletes to take responsibility for their own development. Looking at success for these four coaches, the picture is mixed. Part of the reason is that one experienced a generation shift among the best athletes (coach 4), and two took over a team of exceptional athletes successful (coach 3 and 5). The last coach (2) took over the team from coach 1. Adjusting to a new approach to sensegiving was painful and it took time. However,

when these athletes accepted and understood the new approach the results were exceptional in the years to come.

Implications

In an endurance sport as cross-country skiing, there is a limit to how much an athlete can train. Despite investments in research there is uncertainty about how to individualize training and to find the right balance between training and restitution. Increasingly, quality of training requires that the athletes are able to make sense of their experiences and communicate these to the coach. Sensegiving is not only about the coach interpreting experiences on behalf of the athletes, but also to stimulate athletes' abilities to generate and transform experiences into knowledge that can serve as a basis for dialogue about improvement. Although coaches may have different views on the relationship between an autocratic and democratic approach to sensegiving, paying attention to this may help unleash individual potential for excellence.

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Article 3

The sporting director and national elite team coach as gatekeepers within the Norwegian elite sport system

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Abstract

Much research on elite sport systems focuses on the infrastructure and intentions behind national elite sport system. Few have studied how the national sport associations exploit resources within such systems with the aim of increasing the quality of athletes training. Drawing upon the theory of organizational mindfulness, the present study explores how national elite team coaches and sporting directors within Norwegian cross-country skiing, acting as gatekeepers, interact with the wider elite sport in delivering effective elite athlete development. Central to our analysis is how interpersonal relations, characterized by credibility, trust and attentiveness, shape the exchange of knowledge. It is a qualitative case study using in depth interviews with key actors. The paper provides an insight into the role of gatekeepers in mobilizing and taking advantage of resources within the elite sport systems, and in stimulating discussions where people with divergent perspectives meet.

Keywords: organizational mindfulness, conceptual slack, gatekeepers, Norwegian elite sports, cross-country skiing

Introduction

Elite sport success depends upon a comprehensive national elite sport system (De Bosscher, Bingham, Shibli, van Bottenburg, & De Knop, 2008; Houlihan & Green, 2008). Modern elite sport systems have public funding, training facilities, full-time athletes, talent identification programs, coaching, sport science and support services, and a hierarchy of competition opportunities preparing athletes for international competition (Houlihan & Green, 2008, p.6). However, while such systems may be necessary to produce elite sport success, these alone may not be sufficient (Fletcher & Wagstaff, 2009). As Robinson (2012) showed in her study of Malaysian elite sport; “*it is not about what you have, it is about what you can do with it*”.

Research on elite sport development tends to focus on either the structure of elite sport systems, or the coach-athlete relationship. Few have studied how the national elite team coach exploits resources within the elite sport system so as to increase the quality of athletes’ everyday training. This article is about the interaction between a national elite team within a sport and the national elite sport organization in Norway, *Olympiatoppen*, which supports elite sport development across all sports. In this interaction, the sporting director and the national elite team coach play key roles, acting as gatekeepers, shaping relationships and the nature of exchange that takes place.

Improving the quality of every-day training is a key concern of the interaction between elite teams within individual sports and key actors in any national elite sport system (Robinson & Minikin, 2012). How elite athletes pursue everyday training reflects institutionalized beliefs and knowledge about factors critical for success within a national elite team as well as access to the necessary resources and support. Such factors are essential for the way coaches define priorities and organize training activities that constitute successful national elite teams. In this way everyday training is influenced by both formal and informal

relationships which make it possible to mobilize and use knowledge and competence embedded in the wider elite sport system.

The framework of organizational mindfulness (Ray, Baker, & Plowman, 2011; Vogus & Sutcliffe, 2012; Weick & Sutcliffe, 2001) can increase our understanding of how patterns of interaction within the boundaries of an elite sport system may improve the quality of core processes. It has been used to study the importance of interaction in a number of organizational contexts where learning and knowledge application require a high degree of accuracy and reliability (Jordan, 2010; Ray et al., 2011; Weick & Roberts, 1993). Only a few studies have utilized this theoretical framework to increase our understanding of elite athlete development (Andersen, 2009; Andersen, 2012; Kristiansen, Tomten, Hanstad, & Roberts, 2012).

The theory of organizational mindfulness emphasizes the importance of social relationships and interaction in reflection and learning within organizations. The present study utilizes the concept of gatekeepers (Rogers & Agarwala-Rogers, 1976) and links it to an insight into how so-called conceptual slack can expand the capacity for reliable learning (Schulman, 1993). A gatekeeper refers to key actors who control communication within an inter-organizational network. Conceptual slack emphasizes how people with different formal knowledge or experience can benefit from the fact that they tend to view the same phenomena somewhat differently.

We studied how the national elite teams for men and women in cross-country skiing interacted with Olympiatoppen (OLT) between 2002 and 2011. In 2006, there was a change of elite team coaches and sporting director. Thus, we divide the period into two phases: 2002–2006, and 2006–2011. Central to our analysis is how the national elite team coaches and the sporting directors acted as gatekeepers in the interaction with OLT. The research questions are: 1) How do gatekeepers within the national elite teams shape the interaction between OLT

in the period between 2002 and 2011? 2) How do patterns of interaction between actors with different knowledge and experience stimulate conceptual slack?

The article is organized as follows: First we present the context of the study, highlighting the nature of the Norwegian elite sport system. Thereafter, we present the theoretical framework, reviewing how mindful organizations stimulate gatekeepers' ability to connect actors and knowledge in ways that stimulate conceptual slack. Thereafter, the research strategy and method are described. Next, we present and discuss the empirical findings. In this part we discuss how interpersonal relationships between the gatekeepers and actors within the elite sport system shape the interaction that takes place, and how the interaction stimulates conceptual slack. The final section summarizes the major findings and discusses practical implications for persons working within elite sport organizations.

Contextual background

Cross-country skiing is one of six disciplines within the Norwegian Ski Association (the others being ski jumping, Nordic combined, alpine skiing, telemark, and freestyle). Within cross-country skiing, the CEO is responsible for the overall results of all the elite teams. In addition, a sporting director is responsible for the support personnel, selecting athletes for participation in international competitions, and for the cooperation with OLT. Furthermore, the sporting director is responsible for the organization of four national elite teams: the all-round team for men, the all-round team for women, the sprint team for men, and the sprint team for women.

Within the Norwegian elite sport system, the national sport associations (e.g. the National Ski Association) have the responsibility for everyday training and development. Olympiatoppen, on the other hand, has the total responsibility for the overall results and the authority to develop Norwegian elite sports (NIF, 2011). The role of OLT is to provide both specialist competence, and to actively challenge and support development processes within

the national sport associations. In challenging and supporting the national sport associations, generalist OLT coaches play a key role.

These coaches are former successful elite team coaches who engage in discussions with current national elite team coaches to influence what should be given priority in order to make the best even better (Andersen, 2012). It is important to note that the OLT coaches are not additional coaches to the national elite teams: rather, their primary role is to make sure that experiences from other sports are shared and reflected upon when discussing how to develop a particular sport. In other words, the OLT coach is the key actor in sharing experiences from, for example, rowing with cross-country skiing in developing cross-country skiing. Furthermore, the OLT coach also informs the national elite team coaches what specialist competence at the Top Sport Center they may incorporate to improve the overall results.

The fact that it is national sport associations which are responsible for everyday training and development, whereas OLT both possess specialist competence and OLT coaches who disseminate bad as well as good experiences across sports, indicates that the Norwegian elite sport system can be viewed as a cluster – *“an inter-organizational structure characterized by rivalry and cooperation stimulating the application of competences and capabilities that may be exploited by different sports”* (Andersen, 2012, p. 238). The centralized organizational form represents an arena for discussing how to train, which resources to exploit, and what is considered as best-practice. Hence, the interaction between a national elite team and OLT may take different forms: (1) Top-down: OLT coaches may require that the national elite team coach incorporates different OLT specialists in fields like nutrition or mental training. (2) Bottom-up: The national elite team coach may ask for specific OLT competence (physiotherapy, endurance training, strength training etc.) or (3) Balanced (reciprocal): The national elite team coach and the OLT coach in collaboration define which

resources are to be exploited, engage in discussions over training philosophy, and determine how social interaction within the national elite team can be improved.

The national team in the elite sport system

The interaction between OLT and a national sport association is formalized through a general agreement on co-operation which defines the responsibilities for both parties. The contracts which were introduced in 2001 (Hanstad, 2001) define members of the liaison group, requests both parties to make demands in a binding cooperation, and highlight the importance for both parties of making constructive mention of each other in the media (OLT, 2010). By signing the agreement, the sport association allows OLT to actively challenge and intervene in development processes. At the same time, OLT guarantees that the sport association will benefit from the specialist competence at the Top Sport Center and offer financial support for specific projects. The bottom line is that both parties acknowledge that a close cooperation is vital in order to achieve and sustain success in international elite sports.

The relationship between Norwegian elite cross-country skiing and OLT is perhaps the most contested relationship within the Norwegian elite sport system (Andersen, 2012; Augestad, Bergsgard, & Hansen, 2006; Hanstad, 2002). Although these bodies co-operated well in joint ski-waxing and high altitude training projects, the relationship in the 1990s was characterized by conflict, suspicion, misunderstanding, and disagreement about “best-practice”. It all came down to who could take the credit for the outstanding results of Norwegian cross-country skiing (Hanstad, 2002).

In addition to the formalized relationship between cross-country skiing and the OLT, informal relations between actors within cross-country skiing and OLT may also exist. The national elite team coach, the sporting director, and the athletes may have developed an informal relation to actors within OLT. Furthermore, to what extent both parties benefit from cooperation is dependent upon actors establishing an informal relation where they come to

know each other. Hence, the quality of the informal relations is vital in order to benefit from a formalized relation. When people develop strong informal relations, interaction becomes closer than when only a formal relation exists. Figure 1 illustrates the relations between a national elite cross-country skiing team and OLT, representing our empirical research model. The solid arrows indicate a formal relation; dashed arrows indicate informal relations.

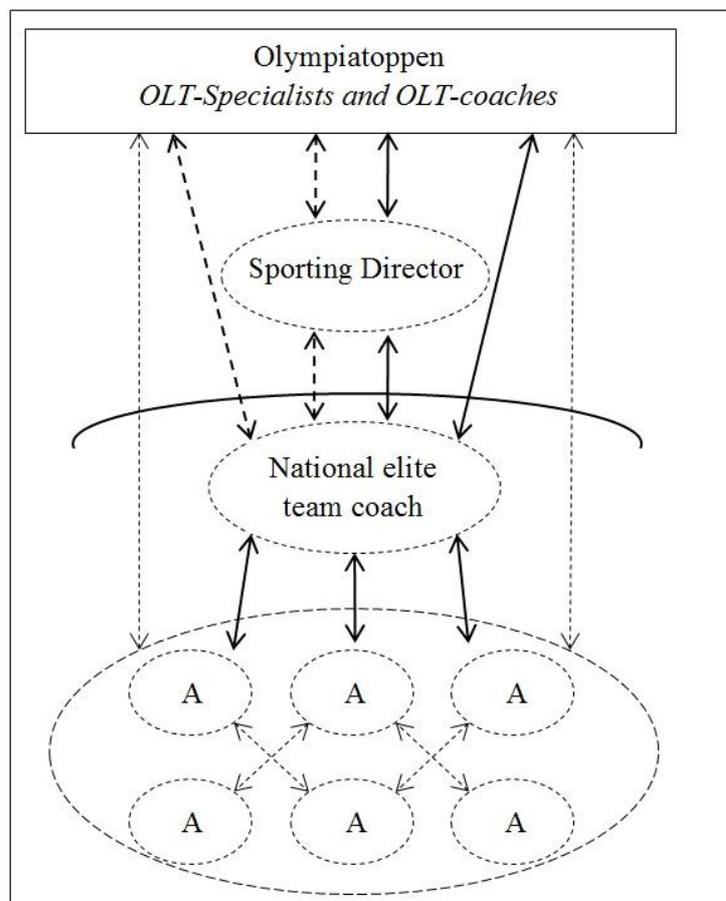


Figure 1: Empirical research model highlighting formal and informal relations between actors within cross-country skiing and OLT. A=Athletes

The empirical research model highlights that both the national elite team coach and the sporting director act as the main gatekeepers. Through formal as well as informal roles, they have considerable influence on the interaction between the athletes and OLT. However, the

athletes may bypass them by interacting directly with OLT specialists. In the following we first briefly outline organizational mindfulness, and then define the role of a gatekeeper and how gatekeepers stimulate conceptual slack.

Theory: organizational mindfulness

Organizational mindfulness refers to “*the extent to which an organization captures discriminatory detail about emerging threats and creates a capability to swiftly act in response to these details* (Vogus & Sutcliffe, 2012, p.723). Furthermore, mindful organizations have a culture characterized by a willingness to confront existing expectations and beliefs in order to develop a more nuanced understanding of the context and ways to deal with it (Weick & Sutcliffe, 2001). Thus, to promote organizational mindfulness, leaders need to create a culture that encourages people on all levels to rich thinking and capacity for action (Ray, Baker & Plowman, 2011, p.199).

Gatekeepers

The role of the gatekeeper is to control communication between the top and the operative parts of the organization. The primary role for a gatekeeper in an elite sport context is thus to coordinate specialist knowledge and integrate it within the national elite teams. According to Rogers and Agarwala-Rogers (1976), a gatekeeper is; “*an individual who is located in a communication structure so as to control messages flowing through a communication channel*” (p. 133). Within organizations, there are both formal and informal gatekeepers. When a person controls the communication based upon his or her formal position, they become a formal gatekeeper. In addition, others within the organization may act as informal gatekeepers by establishing a close informal relationship with key individuals higher up in the hierarchy (establishing an informal communication structure). Independent upon type of gatekeeper, such individuals are knowledge catalysts, communicating specialist knowledge

related to elite athlete development and sharing various athletes' experiences within the wider elite sport organization. Hence, the gatekeepers are critical for stimulating conceptual slack.

Conceptual slack

Schulman (1993) defines conceptual slack as: “*a divergence in analytical perspectives among members of an organization over theories, models, or causal assumptions pertaining to its technology or production process*” (p. 364). In order to learn reliably from ongoing experiences, mindful organizations encourage people with different analytical perspectives to discuss “what is going on”. More precisely, when people with different frames (reflecting both different types of formal knowledge and experience) engage in discussion over one observation, it increases the empirical variation and thus creates a richness of data (Weick, 2007).

Conceptual slack has different forms; it may be domain-specific or include different domains (holistic). Domain-specific conceptual slack refers to a divergence in analytical perspectives within a specific field of knowledge. In an elite sport context, domain-specific conceptual slack occurs, for example, when nutrition physiologists discuss those aspects related to nutrition considered to be most important for improved results (for example, are these vitamin D or anti-oxidants?). Holistic conceptual slack refers to a divergence in analytical perspectives within a compound field of knowledge. Developing elite athletes includes an integration of various types of both formal and experience-based knowledge that ranges from physiology, training methods, mental skills and so forth. Thus, holistic conceptual slack appears within an elite sport context when people with divergent analytical perspectives engage in discussions that aim to identify what field of knowledge or what experiences are most important for improved results (for example, are these the training methods, physiological aspects, mental training, or do others have previous experiences that can be exploited?).

Bringing together people with divergent analytical perspectives is a difficult exercise. It may produce confusion (frustration) or ambiguity in an organization's knowledge base (Schulman, 1993). To counteract confusion and ambiguity, Schulman (1993) argues that three key values need to be in place: credibility, trust, and attentiveness. *Credibility* refers to a situation when people within an organization intervene because of a legitimate concern, and not as a result of arbitrariness or incompetence. *Trust* refers to that there is an understanding that prior agreements are upheld and complied with over time. *Attentiveness* refers to the importance for an organization to continuously renegotiate its routines and to "renewing the fervor" (Schulman, 1993). In other words, the extent to which an organization can benefit from conceptual slack is dependent upon people having skills in interpersonal relations, to counteract misunderstandings or miscommunication within the organization. Hence, gatekeepers need to establish a close interpersonal relation to actors within the elite sport system, to control the communication and prevent misunderstandings.

Method

It is a qualitative case study (Yin, 2009) of how gatekeepers interact with key actors within the elite sport system and this interaction stimulate conceptual slack. We interviewed five national elite team coaches and three sporting directors who represented two national elite teams for men and two national elite teams for women between 2002 and 2011. The first period commenced in 2002 and ended in 2006. In this period there was one sporting director for the teams, and one elite team coach for the women's team. On the men's team there was a shift of elite team coach, but the relationship to OLT remained the same. The second period lasted from 2006 to 2011. In 2006 the sporting director and both the national elite team coaches were replaced. In 2010 there was again a change of sporting director but this did not represent a change of policy towards OLT. In addition we interviewed four OLT coaches who

were responsible for cross-country skiing from 2002 to 2011, and one OLT specialist which the national elite teams exploited throughout the period.

All of the interviews were conversational, but structured around key topics. The conversation with the sporting directors and national elite team coaches covered three topics relevant to the present study: philosophy of coaching, how they benefitted from specialists at Olympiatoppen, and how they interacted with OLT coaches. The conversations with the generalist coaches at Olympiatoppen covered four topics: the role of OLT in developing Norwegian elite sports, the role of the OLT coaches, their experiences from being the responsible coach for cross-country skiing, and how to establish a close and constructive interaction with the national sport associations. We started with open and rather general questions, but also had a number of specific questions to test our own expectations. The interviews lasted from 45 minutes to almost 2 hours, and were conducted in Norwegian. They were all recorded and transcribed. All the interviewees that were quoted in the paper received a copy of the complete paper asked to their quotations. They were also encouraged to give comments on the analysis.

When analyzing the interviews, we conducted three stages of coding: initial coding, focused coding, and theoretical coding (Charmaz, 2006; Strauss & Corbin, 1998). The initial coding aimed to identify key dimensions in the data that could reveal how the national elite team coaches and sporting directors interacted with OLT coaches and OLT specialists. During the initial coding, five major categories emerged from the data: 1) how the national elite team coaches, sporting directors, and people at OLT perceived each other; 2) types of interaction; 3) roles and responsibilities in the interaction; 4) formal and informal relationships; and 5) what type of specialist competence were exploited in respect of OLT. Having identified the major themes, we proceeded with focused coding (Charmaz, 2006). In this phase we compared the interviewee's experiences and interpretations to enhance our understanding of

the interaction between OLT and the national elite teams during the two periods. Within this phase we were interested in establishing the similarities and differences across the two periods in order to identify the underlying conditions for the interaction. Rather than establishing frequencies relating to each category, we were interested in revealing the conditions that could enhance our understanding of how the national elite team coaches and sporting directors interacted with OLT (Glaser & Strauss, 1967). The focused coding resulted in a descriptive understanding of how the national elite team coaches, sporting directors, and key actors at OLT approached the interaction.

In the final stage of the coding we started by relating the descriptive categories to theories of organizational learning. As the descriptive categories revealed different approaches to interaction, we were interested in identifying the mechanisms for a constructive relation between cross-country skiing and OLT that could facilitate reliable experience-based learning. This led us to the theory of organizational mindfulness and the concepts of gatekeepers and conceptual slack. More precisely, we were interested in analyzing the extent to which the interaction between the gatekeepers and OLT was characterized by credibility, trust and attentiveness, and how this interaction stimulated different forms of conceptual slack.

Findings and discussion: interaction within the Norwegian elite sport system

In the following we first present how the sporting directors and national elite team coaches, acting as formal and informal gatekeepers, perceived the interaction with OLT. Having presented and discussed patterns of interaction between the gatekeepers and OLT, we proceed to present the outcome of the interaction, discussing what type of conceptual slack the gatekeepers stimulated. The perceptions of the national elite team coaches and sporting directors concerning the interaction with OLT are supplemented with how the OLT coaches perceived the interaction. The quotations given by sporting directors, national elite team coaches, and OLT coaches are identified with SD, C, and OLT coach respectively

Interaction between formal and informal gatekeepers and actors at Olympiatoppen

The sporting director is the formal gatekeeper in the interface between the national elite teams in cross-country skiing and OLT, by being responsible for the formal communication. The national elite team coaches on the other hand, act as the informal gatekeepers by shaping the nature of everyday interaction. As being presented in the following, our data indicates that developing close interpersonal relationships between the gatekeepers and actors at OLT, characterized by reciprocal credibility, trust and attentiveness, are vital in order to benefit from an interaction. However, we find that the relations between both the formal and informal gatekeepers and actors at OLT varied within the two periods.

Formal gatekeeper in period 1 (2002–2006)

When the sporting director were appointed in 2002, cross-country skiing was close to bankrupt, there was a generational change of elite skiers, and several changes within the support personnel were made. According to the sporting director, resigning support personnel that had contributed to great results was especially challenging. One reason for this was that the resigned support personnel were appointed by cross-country skiing in collaboration with OLT. Several of the ski-waxers were appointed in the common ski-waxing projects mentioned earlier in the paper. In order to understand how the sporting director interacted with OLT, such contextual factors are important to keep in mind.

In the first period, the sporting director felt that it was difficult to establish a close interaction with OLT because formal agreements not were complied with: *“I experienced that matters that we jointly had agreed upon, were changed later”* (SD1). Consequently, there was a lack of reciprocal trust. There was a particularly tense relation with the CEO of OLT that made a constructive cooperation difficult: *“I expect openness, trust, and loyalty. I didn’t experience that in my relation to the CEO”* (SD1). According to the sporting director, the lack of a close interaction between cross-country skiing and OLT was partly a result of a poor

personal relationship between himself and the CEO. However, when a new CEO was appointed towards the end of the period, the interaction became more constructive:

When the new CEO was appointed, the role descriptions and hierarchy became much clearer. There were some people at OLT, and some at OLT may say the same about cross-country skiing, which destroyed the conditions for establishing a good collaboration. The collaboration with the former CEO was not very constructive. (SD1)

During the period, OLT also assigned a new generalist coach to be responsible for the interaction between OLT and cross-country skiing. The interview with this OLT coach confirms our impression of a tense relationship. Shortly after he was appointed, he had a meeting with the national elite teams. In this meeting, he was confronted with how the sporting director perceived OLT:

Cross-country skiing had a tense relation to Olympiatoppen when I was appointed. In a meeting with the sporting director and the national elite team coaches, the sporting director had prepared two pages about how dissatisfied he was with Olympiatoppen, which he expressed throughout the meeting. (OLT coach 1)

During the meeting, it became clear that the tense relation was a result of how the sporting director perceived the intervention from OLT. Despite a formalized agreement on cooperation, the sporting director did not have a close personal relationship, neither with the OLT coach nor the CEO of OLT. According to the OLT coach, such relationships were vital in order to establish a constructive interaction: *“Cooperation is hard to attain if the sporting director doesn't open the door for an interaction with the national elite team coaches. So, it's important that a good relationship is established with the sporting director”* (OLT coach 1).

In order to create trust (and credibility), the OLT coach decided to use time on establishing close relations with both the sporting director and the national elite team coaches.

I used quite a time on creating good relations; convince them that their opinions were taken into account. (...) My strategy was to acquaint with cross-country skiing and those who constituted the support personnel. Indicate that I took them seriously” (OLT coach 1).

Although the OLT coach tried to change how the sporting director interacted with OLT, the interaction between OLT and cross-country skiing didn't change considerably until the new sporting director was appointed in 2006.

Formal gatekeepers in Period 2 (2006–2011)

When the sporting director in Period 2 was appointed in 2006, he established a new approach to the interaction with OLT. Although the formal agreement on cooperation was the same as in Period 1; the sporting director was more open to intervention from OLT. From actively resisting intervention by OLT with the national elite team coaches, the new sporting director emphasized that a close interaction was vital in order to improve the results of Norwegian cross-country skiing. The following statement, given by the current sporting director that worked closely with the sporting director appointed in 2006, highlights how the attitude towards OLT changed:

I feel that things changed after 2006 [when the new sporting director was appointed], regarding how we exploit the resources and specialists at OLT. We agreed that we had to collaborate with OLT rather than having small fights with them constantly. (...) We had to play on the same team in order to exchange experiences and exploit the specialists' competence at OLT. (SD2-2)

Although the sporting director in Period 1 had also emphasized the importance of defining roles and responsibilities, the new sporting director was even more specific in defining roles especially that of the OLT coach.

We defined the role of the OLT coach in a way that they should be unpleasant for us. And that approach has worked very well. Contrary to the previous period when OLT was perceived as a "sparring partner". However, the problem [before 2006] was that the national elite team coaches didn't view OLT as a "sparring partner", but as a "pain in the ass". Rather as a plague that always had to intervene with the national team coaches' affairs. (SD2-2)

Another factor for a closer interaction with OLT was that the sporting director and the OLT coach developed a common understanding about how to develop the elite skiers. Rather than having constant conflicts over what to prioritize, the sporting director and the OLT coach, in collaboration with the national elite team coaches, worked to obtain an agreement about what to prioritize. As the OLT coach stated:

If you continue to have fights about everything you may succeed in changing something that will lead to the desired results. However, if you really want development, you need to create an agreement about some fundamental things, and base your discussions on those.

(OLT coach 1)

Rather than perceiving OLT as a threat, the new sporting director viewed OLT as an important discussion partner, making sure that the elite skiers train the best way possible: *“We want OLT specialists to assure the quality of what we do. When they engage in quality assurance, we know that we exploit the optimal resources”* (SD2-2). The basis for the interaction was clarified in meetings involving the sporting director and OLT coach: *“We have annual meetings with the leadership of cross-country skiing where we specify aims and priorities. We discuss what OLT can provide and what national elite teams shall do without our intervention; defining the nature of cooperation”* (OLT coach 2).

The preceding section highlighted that the sporting directors are important formal gatekeepers, establishing a basis for the communication between OLT and the national elite teams. However, it is the national elite team coaches which interact with OLT on a daily basis. Therefore, the extent to which the national elite teams actively interact with OLT depends on whether the national elite team coaches establish a close relationship with both the OLT coach and OLT specialists. Hence, the national elite team coaches are important informal gatekeepers, controlling the communication between people at OLT and the elite athletes. In the following, we analyze the interaction between the informal gatekeepers and OLT in the two periods.

Informal gatekeepers in Period 1(2002-2006)

As presented earlier, the relation between the national elite teams in cross-country skiing and OLT was in the 1990s quite tense. Since the coaches for the national elite team for men had different roles within Norwegian cross-country skiing in the 1990s, their experiences with how OLT intervened with the national elite teams before 2000 influenced how they perceived OLT. They felt that OLT had a top-down approach to the interaction as the following indicates.

OLT provided us with a coach from speed skating after the Olympic Games at Lillehammer, who was assigned to teach us how to improve our ski skating technique. It all went totally wrong. (...) And I believe that it is adequate to say that the “wall” between OLT and cross-country skiing that was built then, came to be very hard to demolish. (C2-2)

The national elite team coaches for the male elite team didn't feel that OLT intervened because of a legitimate concern: *“You always got what you asked for at OLT. However, the problem was that they demanded that you should include something else as well”* (C2-1). Consequently, they felt that OLT was arbitrary and reluctant to accept what type of specialist competence the national elite team coaches wanted to exploit. Hence, it became difficult to establish a close relationship, characterized by reciprocal credibility.

The national elite team coaches' personal relation to actors at OLT was also difficult as they felt that the OLT coaches often had a hidden agenda; to promote themselves by having their name associated with the success of Norwegian cross-country skiing: *“I suspect that because many of the consultants [OLT coaches] also work outside elite sports, it is advantageous for them to have their name associated with cross-country skiing. In fact, I do believe that such an attitude exists”* (C2-1).

The skepticism towards OLT seems also to be a result of that the cross-country skiing community felt that the OLT coaches lacked the required competence:

The relationship between OLT and cross-country skiing has always been tense. (...) I believe that it has to do with the consultants [OLT coaches] which we were forced to use. They did not possess the competence we needed, but were pushed on us because they believed that we could gain a lot through cooperation. (C2-1)

In accordance to the statement given by the elite team coach, one of the OLT coaches also emphasized difficulties reflecting how previous OLT coaches and OLT specialists had acted towards cross-country skiing:

In previous years, Olympiatoppen didn't listen very much to what cross-country skiing said. I guess those working within the national elite teams felt that Olympiatoppen provided them with simple solutions which had to be implemented. And they used financial resources as a jimmy to get cross-country skiing to accept the solutions. (OLT coach 1)

Although the national elite team coaches often had a distant relationship with some actors at OLT, they all established a close personal relation to one OLT specialist – a physiologist who had worked with cross-country skiing since the late 1980s. Although he had his formal position at OLT, he was looked upon as a “cross-country skiing person”. The following statement describes the OLT specialist's approach and illustrates the importance of credibility in interpersonal relations:

He has seen many coaches and athletes and gained much experience. He is the type of person that you talk to and get advice. He does not provide you with strong opinions regarding what you *should* do. He has been a very attractive person. (C2-2)

Towards the end of the period, OLT appointed a new generalist coach responsible for cross-country skiing. According to the coach for the female elite team, the new OLT coach had a more balanced approach to interaction which resulted in a closer interaction:

It was much more pleasant to work with him than the former OLT coaches. He always had deep respect for our results, and was more occupied in asking questions and give advice. He didn't provide us with the answers. (C1)

As the statement indicates, developing a close personal relation is important in order to create a constructive interaction. When the informal gatekeepers develop a close relationship with

key actors at OLT characterized by reciprocal trust and credibility, the interactions become more constructive. Contrary to Period 1, the informal gatekeepers in Period 2 managed to establish a close interpersonal relation to people at OLT.

Informal gatekeepers in period 2 (2006-2011)

In Period 2, the interaction between OLT and cross-country skiing became more balanced. The sporting director established a close interpersonal relationship with the OLT coach leading to a clarification of roles. The national elite team coaches acknowledged that OLT had insight into endurance training from which they could benefit. This stimulated reciprocal curiosity about how to become better. As one of the elite team coaches stated: *“I believe that we [national elite team] have much knowledge concerning endurance training. At the same time, I also believe that OLT possesses knowledge about endurance training. It is a matter of becoming best together”* (C4). According to one of the OLT coaches, an important condition for improved co-operation was that the national elite team coaches were curious about what OLT could provide.

Contrary to Period 1, the informal gatekeepers felt that OLT intervened on the basis of a legitimate concern, which highlights increased levels of credibility. The importance of reciprocal credibility was also emphasized by one of the OLT coaches: *“When a sport don't see how we [OLT] can contribute, it is hard to attain constructive interaction. In such cases there is a lack of mutual understanding as to how we shall cooperate, and our intervention only leads to disturbance”* (OLT coach 2). Both the national elite team coaches and the OLT coaches emphasized the need for a common understanding of *what* to prioritize. Consequently, when the national elite team coaches aim to identify how OLT can contribute to increase the quality of training, the conditions for establishing a close relation and thus a constructive interaction increase.

Despite a closer cooperation with the OLT coach, the two national elite team coaches interacted differently with the OLT coach. Whereas one national elite team coach had a close personal relation to the OLT coach, the other national elite team coach used another person at OLT. However, they both exploited these persons to strengthen the social interactions within the team:

The most important person for me has been the OLT coach for cross-country skiing in recent years. I have used him both personally and towards the team. Together with another OLT coach, he was exploited in the process of improving the social relations within the team. (...) And that process went very well. (C4)

In the process that aimed to improve the social relations within the team, the OLT coach challenged how the athletes trained, how they interacted with each other in the training process, and how the national elite team coach acted as a leader. As the OLT coach had a close interpersonal relation to the elite team coach he approached the intervention by being rather inflammatory in order to stimulate discussion over what to do. In the following statement, the OLT coach describes how he approached the process:

The problem was that they didn't act as team. The athletes trained for themselves and were perceived by many as peevish. Actually, it wasn't a national elite team. So I asked them how they wanted to be perceived, and how they could challenge each other in order to improve the training. Through discussions, we agreed that they should ask each other about their main priorities and what they had done in order to improve their training since the last training camp. Concerning the national elite team coach, we decided that he should be more determined. And throughout the training camps I asked the athletes to what extent he had succeed in becoming more determined. (OLT coach 3)

The presentation of how the formal and informal gatekeepers interacted with the OLT coaches illustrates that developing a close personal relationship is an important condition for fruitful interaction. When the national elite team coaches establishes a personal relation to central

actors within OLT, characterized by trust and credibility, the interaction becomes more constructive than if the national elite team coaches and people at OLT misconceive each other.

Outcome of the interaction between the gatekeepers and Olympiatoppen

The preceding discussion illustrated different approaches to the interaction between the gatekeepers and key actors at OLT. As is discussed in the following, the nature of the interaction has implications for what type of conceptual slack the gatekeepers stimulate.

Period 1: domain-specific conceptual slack

Because of the lack of reciprocal credibility in interpersonal relationships, the national elite team coaches felt that OLT had no respect for either their results or their training methods. In fact, the coach for the female elite team felt that OLT worked against the national elite team: *“Both my impression and that of the athletes was that some at OLT didn’t want us to get the desired results”* (C1). This view seems to be partly a result of disagreements concerning the philosophy of training between the national elite team coach and people at Olympiatoppen. Even if the results for the female elite skiers improved dramatically, voices at OLT expressed concern about how they trained. The disagreements culminated in an open conflict between the national elite team coach and Olympiatoppen. The result was that OLT was denied any form of intervention.

One of the coaches for the male elite team felt that OLT hardly expressed an interest in how cross-country skiers trained: *“On aspects related to training, OLT never expressed an interest for what we did in cross-country skiing. They knew exactly what we should do, but were never interested in what we actually did”* (C2-1). Hence, the national elite team coaches felt that OLT lacked humility, resulting in increased levels of frustration and confusion. Consequently they desisted from exploiting specialists and coaches at OLT. This situation was also highlighted by one of the OLT coaches: *“Some of the consultants from Olympiatoppen presented ideas and solutions concerning cross-country skiing, expressing*

little humility. The result was that cross-country skiing shut the door” (OLT coach 1). The national elite team coaches limited the contact with the OLT. Instead they used a person that they could trust and had credibility in – the sporting director.

I kept the coaches at arm’s length because I had a very good coach in the sporting director.

He was a person that I knew had my best interest at heart. A person that I knew wanted me to succeed, which made me believe in myself. (C2-2)

As a result, most discussions about training took place within cross-country skiing. This stimulated domain-specific conceptual slack, sharing experiences within cross-country skiing as the primary knowledge-base for developing the training and consequently the results. Such discussions between the national elite team coaches are essential in developing cross-country skiing specific aspects. However, when discussions become too focused on a few factors that are specific to cross-country skiing (e.g. what is the optimal classic technique?), important factors may be overlooked.

Period 2: holistic conceptual slack

By defining roles and responsibilities, and acknowledging that intervention is based on a legitimate concern, it became easier for the OLT coach to challenge the national elite team coaches. According to one of the OLT coaches, close relationships between the national elite team coaches and the OLT coach was a prerequisite for productive interaction: *“Our job is to ask questions to stimulate reflection. However, we need to have a close relation to the national elite team coaches to decide what approach to take. Towards some coaches we can ask inflammatory questions, whereas towards others we need to be more careful”* (OLT coach 1).

The OLT coach challenges the “pig-picture” national elite team coaches hold. An important part of this was, according to the OLT coaches to ask “silly questions”:

It is an advantage to have coaches that have experience from other sports, because they tend to view a situation somewhat differently than the elite team coaches. We may ask some silly questions. However, such questions don’t turn out to be that silly when they are

reflected upon. They often lead to an adjustment that is important for development. (OLT coach 1)

In addition to stimulating their “big-picture”, the close interpersonal relationship between the informal gatekeepers and the OLT coach allowed the latter mobilize relevant expertise: *“The OLT coach has a very good overview over what OLT can provide, and I consulted him when athletes struggled with training or needed help in order to identify what person to exploit”* (C4). In many cases the OLT coach was a door-opener for specialists that the national elite team coaches could benefit from.

How the gatekeepers in Period 2 mobilized and took advantage of resources within the elite sport system can be exemplified by the development of one of the female cross-country athletes. She had struggled for several seasons, and the national elite team coach and selected persons from OLT gathered to discuss what to do. Through these discussions OLT specialists, possessing different types of knowledge, analyzed her situation and suggested various perspectives on how to improve her training. The following statement, from the sporting director illustrates how an elite athlete may benefit from the close interaction between the gatekeepers in the sport and key actors at OLT: *“In the process of bringing the athlete “back-on-track”, OLT specialists were vital. They played an important role in providing us with new perspectives”* (SD2-2).

The role of the national elite team coach in such processes was to maintain a sport-specific perspective. However, the purpose of such processes was not to create a complete agreement, but rather to exploit divergent perspectives. There was an agreement about the overall aim; the question was what path to take in order to reach it. The coach made final decisions about what expertise to use. An important rationale was to include specialists that neither the national elite team coach, nor others within the Ski Association possessed: *“What we need from OLT is specific specialist competence in fields like strength training, physiology and mental training. Expertise that the Norwegian Ski Association can't provide”* (C3). In

other words, it was important for the coach to include people within a compound field of knowledge.

How the gatekeepers in Period 2 stimulated holistic conceptual slack is in line with how mindful organizations work to increase the variety of analytical perspectives (Weick & Sutcliffe, 2001). The result is increased reflection at all levels within the organizational context of Norwegian elite cross-country skiing.

Concluding remarks: major findings and practical implications

Limited research has been undertaken to explore how a national sport association interacts with the elite sport system with the aim of increasing the quality of training. The purpose of the present article is to explore how the national elite team coaches and sporting directors acted as gatekeepers, shaping the relationships and the nature of exchange that took place within cross-country skiing and Olympiatoppen. Our findings confirm the findings by Robinson (2012) which indicate that a constructive interaction between a national sport association and the national elite sport organization is important for elite sport success.

The discussion of the role of gatekeepers revealed that whereas the sporting director is an important *formal* gatekeeper, the national elite team coach is an important *informal* gatekeeper. By comparing how the gatekeepers in the two periods interacted with OLT, we find that even though an elite sport system possesses different types of specialist competence, such resources have to be mobilized through both formal and informal gatekeepers.

The relation between the gatekeepers and OLT during Period 1 was characterized by a lack of credibility and trust, which rendered establishing close interpersonal relationships difficult. This resulted in the national elite team coaches avoided intervention by OLT and used the sporting director as their “coach”. Consequently, the gatekeepers facilitated domain-specific conceptual slack; discussions concerning how to improve focused on divergent cross-country skiing-specific experiences.

In Period 2, the gatekeepers established a close interpersonal relationship, characterized by reciprocal trust and credibility. The close interpersonal relations resulted in OLT specialists being exploited to larger extent. Hence, the discussions became more holistic, aiming to stimulate reflection over how to improve the social interactions within the team, the quality of everyday training, and how the national elite team coaches acted as leaders. Within such discussions the coach played a key role in maintaining a cross-country skiing-specific perspective.

Central to mindful organizations is that they stimulate conceptual slack (Schulman, 1993; Weick & Sutcliffe, 2001). The rationale for stimulating conceptual slack is that this strengthens people's ability to learn reliably from experience. When people with divergent analytical frames discuss "what is going on", it creates new ideas about how to develop the core processes. The findings are consistent with this perspective, and enhance our understanding of the role of gatekeepers in the process of organizing and exploiting available resources in order to learn more reliably. Whereas domain-specific conceptual slack may lead to improved quality of training in the short term, holistic conceptual slack is critical for continuous improvement in the quality of training in the long run. Finally, we also need to keep in mind that holistic conceptual slack also contributes to developing knowledge of how to achieve excellence embedded within the elite sport system.

Practical implications

The findings indicate that the gatekeepers, as well as those with whom they interact, should spend time on developing close interpersonal relations in order to avoid the possibility for miscommunication and misunderstandings. When people experience reciprocal credibility and trust, the interaction becomes more balanced. Consequently it is more likely that the national elite team coaches and sporting directors accept and benefit from challenges by outsiders. This stimulates reflection and helps develop a more nuanced understanding about how to

achieve excellence. This is especially important when a sport experiences success, as success often leads to overconfidence. Therefore, national elite team coaches, as well as sporting directors, should pay attention towards how gatekeepers exploit the resources embedded in the elite sport system, and how interpersonal relationships shape the interaction in everyday processes of training and development.

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Article 4

How do they do it? The Norwegian approach to elite athlete development

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Abstract

The paper explores the organizational practices and culture of Norwegian elite sports, coordinated by the organization responsible for elite sports, Olympiatoppen (OLT). It is a qualitative case-study of how OLT, in collaboration with the national sport associations, pursues the management of training and development. Cross-country skiing is used to illustrate challenges and opportunities in the interaction between OLT and a national sport association (national elite team). The theory of organizational mindfulness provides a sociological perspective of ambitious efforts to improve the quality of core processes. Data is primarily in-depth interviews with key actors. Findings indicate that the key practices of OLT, being the key actor within the network of Norwegian elite sports, are consistent with core elements of organizational mindfulness. Close interaction between OLT and national sport associations stimulate organizational mindfulness in a way that improves the quality of training. However, well-defined roles and responsibilities in the cooperation between OLT and the national sport associations are a prerequisite.

Keywords: Norwegian elite sports, organizational culture, organizational mindfulness, reflection, cross-country skiing,

1. Introduction

All elite sport systems have high ambitions. To cope within the “global sporting arms race” (Oakley & Green, 2001), states have increased their intervention and funding of national elite sport systems to render international sporting success possible. Consequently, modern elite sport systems have become highly organized, and key elements have converged over the last twenty years (Houlihan & Green, 2008). Such elements emphasize structural functions necessary for achieving sporting success (De Bosscher, De Knop, van Bottenburg, Shibli, & Bingham, 2009). These elements are referred to as the nine pillars and include financial support, an integrated approach to policy development, participation in sport, talent identification systems, athletic and post career support, training facilities, coaching provision, international competition, and scientific research.

Although these pillars are essential elements of an elite sport system they may not be sufficient. This is supported by findings in recent studies, applying a more process-oriented approach to investigate national elite sport systems (Andersen & Ronglan, 2012; Arnold, Fletcher & Molyneux, 2012; Fletcher & Arnold, 2011; Sotiriadou & Shilbury, 2009; Sotiriadou, 2012). As Robinson (2012) showed in her study of Malaysian elite sport, “it is not about what you have, it is about what you can do with it”. Consequently, there is a need for studies that go beyond structural characteristics.

The purpose of the present paper is to explore how the responsible organization for elite sports in Norway, *Olympiatoppen*, supports national sport associations in the process of developing successful sportsmen and women. Although different perspectives on how to improve the quality of training are captured in the coaching literature (Jones, Armour, & Potrac, 2002; Jones, Potrac, Cushion, Ronglan & Davey, 2011; Mallett & Hanrahan, 2004), and in an ethnographical study (Chambliss, 1989), limited research has investigated how elite

sport organizations at the organizational level actually support learning and development in order to improve the quality of training.

The theory of organizational mindfulness specifically directs attention towards how organizational practices and culture influences the quality of core processes (Weick & Sutcliffe, 2001). It is an organizational sociology perspective on how social relationships and interaction within an organization influence its ability for continuous development. A key concern is how organization and leadership influence social interactions in ways that encourage rich thinking and capacity for action at all levels (Ray, Baker, & Plowman, 2011). Although several studies provide empirical support for organizational mindfulness (e.g. Jordan, 2010; Rochlin, 1993; Weick and Roberts, 1993), only a few have utilized this perspective in studies of elite sports (Andersen, 2009; Andersen, 2012; Kristiansen, Tomten, Hanstad & Roberts, 2012).

The present paper analyzes the role of Olympiatoppen (OLT) in supporting training and development within the national sport associations. The research questions are: 1) To what extent do the organizational practices and culture of OLT stimulate organizational mindfulness within OLT and the network of Norwegian elite sports? 2) How does OLT support and challenge development processes within the national elite teams in cross-country skiing to improve the quality of training? Cross-country skiing is used to illustrate general patterns and challenges in the cooperation between OLT and a national sport association.

The study is qualitative where the data is primarily based on in-depth interviews with leaders within OLT who have detailed knowledge into the organizational practices and culture of OLT. In addition, sporting directors and national elite team coaches within cross-country skiing were interviewed to provide information on how a national sport association experiences the interaction with OLT.

The article is organized as follows. First the nature of the Norwegian elite sport system is presented of which national sport associations are a part. Thereafter, the theory of organizational mindfulness is described, explaining how mindful organizations approach the process of continuous improvement in the quality of core process. Thereafter the research and method strategy is outlined. Next, the empirical findings are presented and discussed. The first part of the discussion presents the organizational practices and culture within OLT, and relates the empirical findings to the theory of organizational mindfulness. The second part discusses prerequisites for a constructive interaction between OLT and the national sport associations. The final section summarizes the major findings and discusses practical implications for persons working in national elite sport organizations as well as within national sport associations, and gives recommendations for further research.

2. The Norwegian elite sport model

Although Norwegian elite sport system does not contain a national system for talent identification, the system nevertheless embraces the structural characteristics of other modern elite sport systems. The organizational structure of the Norwegian elite sport system is in some ways nevertheless unique (Andersen, 2012). The Norwegian Olympic and Paralympic Committee and Confederation of Sports (NIF), of which Olympiatoppen is a part, is relatively autonomous. Whereas decisions relating to sport policy in other systems are taken at the level of the state, corresponding decisions in Norway are taken within the sport organization (NIF). Hence, there are no state institutions for neither mass nor elite sports. Both mass and elite sports are integrated under the same umbrella organization for organized sports – the NIF.

NIF receives virtually all its funding from the proceeds of the national lottery which is distributed by the Ministry of Culture based on an annual letter of awards. The letter of award allocates funds to six categories (mass sport facilities, national sport facilities, research and development, special activities (e.g. anti-doping), NIF, and local sport clubs), in which the

support to elite sport is part of the funding distributed to NIF. It is important to note that all state funding specific for elite sports are distributed via OLT. In 2012, OLT received 14.1 million euros. OLT determines how this funding for elite sports is distributed to national sport associations and specific projects. Financial support from OLT is vital for smaller sport associations (for example those concerned with rowing or sailing), but of lesser importance for the large associations such as the Norwegian Ski Association. Cross-country skiing (which is part of the Norwegian Ski Association) received approximately 78 000 euros in financial support from OLT in 2010, but the overall budget for the national elite teams was approximately 2.35 million euros. Hence, access to OLT specialists is much more important for cross-country skiing than the financial support from OLT.

OLT is the operative elite sport organization of the NIF, but enjoys a relatively autonomous role within the confederation. While the head of OLT formally reports to the general secretary of NIF, the main priorities and organization of OLT are rarely subject to discussion in the General Assembly, the executive board of NIF, or with the general secretary. The head of OLT has thus considerable freedom regarding decisions concerning the organization of elite sports in Norway.

Another characteristic that distinguishes OLT from other national elite sport organizations is that OLT may actively intervene in everyday processes of development and training within the national sport associations (Andersen & Ronglan, 2012). Thus, OLT plays a key role challenging the national sport associations concerning how they pursue training and development (Andersen, 2012). Ever since the establishment of OLT in 1988, the underlying argument of Norwegian elite sports has been to actively share experiences and knowledge across sports. Thus, OLT is the focal organization within the learning network of Norwegian elite sports (Gotvassli, 2005). Consequently, the Norwegian model has a strong emphasis on

close interaction between OLT and the national sport associations in the process of delivering effective elite athlete development.

2.1. *The national sport associations within the elite sport system*

Within the Norwegian elite sport system, the national sport associations have the responsibility for everyday training and development in their sport. Olympiatoppen, on the other hand, has the overall responsibility for the results of Norwegian elite sports and has thus the authority and competence to influence how a sport pursues the process of delivering elite athlete development. OLT possesses specialist competence and people with extensive experience from a range of sports concerning elite athlete development from which national elite teams can benefit. Hence, the Norwegian elite sport system can be viewed as a cluster, “an inter-organizational structure characterized by rivalry and cooperation stimulating the application of competences and capabilities that may be exploited by different sports” (Andersen, 2012, p. 238). Although regional departments of OLT exist, most of the interaction between OLT and the national sport associations (national elite teams) takes place at the centralized Top Sport Centre in Oslo. The centralized organizational form represents an arena for discussing how to train, which resources to exploit, and what is considered as best-practice. The Norwegian elite sport system is open to all 54 national sport associations, given that they demonstrate capacity for achieving great results. In 2012, OLT had a formalized cooperation with 37 sports (Tvedt et al., 2013). A basic principle for receiving support from OLT (both economical and human) is that the sport first exhibits the capability to produce successful athletes or teams. In other words: first results, then support.

The role of OLT is to offer specialist competence, and to actively challenge and support development processes within the national sport associations. The generalist OLT coaches play a key role. These coaches are former successful elite team coaches who engage in discussions with current national elite team coaches across sports to influence what to

prioritize in order to make the best even better (Andersen, 2012). Their primary role is to make sure that experiences from various sports are shared and reflected upon when discussing how to develop a particular sport. The OLT coach also informs the national elite team coaches about those OLT specialists from whom they may benefit. Cooperation between OLT and the sport associations is formalized through a general agreement on co-operation which defines the responsibilities for both parties (Goksøyr & Hanstad, 2012):

Olympiatoppen's responsibility is to conduct quality control of training and contribute to the establishment of a curriculum for the development of young athletes. The federations' responsibility is that coaches have the required professional competence. They must also ensure that training is properly planned and implemented" (p. 41).

It follows from the preceding discussion that the manner in which national sport associations pursue training and development is associated with experiences and formal knowledge embedded within the elite sport system. Thus, OLT plays a key role in bringing people with specialist competence and/or with extensive experiences concerning best-practice together in order to ensure that the athletes across sports train with the best quality possible. A type of organization that takes deliberately steps to improve the quality of core processes is mindful organizations (Weick, Sutcliffe, & Obstfeld, 1999). The culture and practices that support learning and development is explained in the section 3, but first Olympiatoppen's philosophy of elite athlete development is described.

2.2. *The philosophy of elite athlete development within OLT*

An interesting feature of the organization of Norwegian elite sports is that it runs counter to egalitarian patterns of political and societal organization within Norway (Andersen & Ronglan, 2012). Contrary to Norwegian society, the elite sport system represents centralized authority and a high degree of legitimacy for elites (athletes) (Andersen & Rognlan, 2012, p.

283). Furthermore, there is strong emphasis on the athlete's responsibility for his or her own development (Andersen, 2012).

As in other elite sport systems, the overall philosophy is to place the athlete at the center of attention. The extent to which this is achieved may differ (Tvedt et al., 2013). The athlete-centered approach within OLT is highlighted in the vision, labeled "the state of performance". Rather than explaining the organizational aims of OLT, the vision presents a normative view on how an elite athlete has to think and act in order to reach world class performance:

As an elite athlete I find myself in a continuous state of performance. It all comes down to getting the most out of my talent, which means that I have to exploit and develop my own conditions to the maximum. I always aim to develop my performance (OLT, 2011).

To reach the absolute level of competitiveness there is a strong emphasis on improving the social interaction and dynamics within the national elite team. Elite athletes are thus socialized into an approach that acknowledges that it is difficult to become best on your own: "I know that none can reach excellence alone. To improve myself I have to help others. I demand a lot from others athletes and other persons involved, as they do from me" (OLT, 2011). Such an approach represents what OLT term *extended egoism* and constitute the keystone in the Norwegian elite sport philosophy. Furthermore, athletes are made aware that they are responsible for their own development. It is the athlete's responsibility to secure that the training is planned, implemented and evaluated the best way possible. Consequently, to adapt general insights into training and development to individual needs, athletes are encouraged to reflect upon how they experience training activities: "To reach absolute competitiveness I know that I have to reflect, plan and train focused over time. Through reflection I transform occurrences into experience which I actively exploit in my further development" (OLT, 2011).

Although the vision clearly state that reflection is an important element of improving the quality of training, fairly little is said about how OLT and the sport associations stimulate reflection. A theoretical perspective that can enhance our understanding of how OLT, in collaboration with the national sport associations, systematically aim to improve the quality of training, can be drawn from studies investigating other organizational contexts where learning and knowledge application require a high degree of accuracy and reliability (Christianson, Sutcliffe, Miller, & Iwashyna, 2011; Jordan, 2010; Roberts, 1990; Rochlin, 1993; Weick & Roberts, 1993). This is captured in the theory of organizational mindfulness, which is described in the following.

3. **Theory: organizational mindfulness**

Critical to all ambitious elite sport organizations are that they transform their strategies and aims into action. A key concern is to make sure that the overall plans and priorities are implemented with vigor and quality. As Chambliss (1989) points out: "Excellence is a qualitative phenomenon. Doing more does not equal doing better. High performers focus on qualitative, not quantitative, improvements" (p. 85). A type of organization that takes this statement seriously is a mindful organization. Such organizations stimulate an organizational culture where people actively reflect upon their experiences to improve the quality of core processes. The underlying argument of organizational mindfulness is that it aims to create a richness of action repertoire (Weick et al., 1999). This perspective is less about organizational decision-making and more about inquiry and interpretation grounded in capabilities for action. The bottom line is that it directs attention towards how organizational practices and culture support everyday action to improve the quality of core processes. To promote organizational mindfulness leaders need to create a culture that encourages people at all levels to rich thinking and capacity for action (Ray, Baker, & Plowman, 2011, p. 199).

Organizational mindfulness refers to “the extent to which an organization captures discriminatory detail about emerging threats and creates a capability to swiftly act in response to these details” (Vogus & Sutcliffe, 2012, p. 723). There is, in other words, a strong emphasis on identifying small deviations in the organizational practices that need to be improved. How mindful organizations stimulate people at all levels in the organization to expose deviations and lapses is summarized in five core elements (Weick & Sutcliffe, 2001, pp. 10–17): 1) *Preoccupation with failure* – any lapse/deviation is treated as a symptom indicating that something is wrong with the system. 2) *Reluctance to simplify interpretations* – encourage people to take deliberate steps to create a complete and nuanced picture of what is happening. 3) *Sensitivity to operations* – emphasizes that people close to core processes have situational awareness. 4) *Commitment to resilience* – acknowledges that no system is perfect and therefore stimulates people to anticipate possible failures. 5) *Deference to expertise* – decisions are taken by people with the most expertise, regardless of their rank. The five core elements constitute the essence of the organizational culture within mindful organizations, which according to Weick and Sutcliffe (2001) is characterized by

the combination of ongoing scrutiny of existing expectations, continuous refinement and differentiation of expectations based on newer experiences, willingness and capability to invent new expectations that make sense of unprecedented events, a more nuanced appreciation of context and ways to deal with it, and identification of new dimensions of context that improve foresight and current functioning (p. 42)

The definition highlights that mindful organizations actively stimulate people to reflect upon their experiences. Thus, such organizations deliberately try to avoid confirmation bias: people often tend to look for signals that confirm their expectations, indicating that the existing practices are correct. In order to counteract confirmation bias, people in mindful organizations

are encouraged to search for information that disconfirms their expectations. Hence, such an approach increases the empirical variation and thus creates a richness of data about what is happening (Weick, 2007). In an elite sport context, such an approach to everyday evaluation and interpretation of training means that both the elite athletes and the people that surround them take deliberate steps to identify signals that both confirm and disconfirm the expectations embedded in the training plan.

The preceding presentation pointed to the core elements of a mindful organization. Although this seems to be the ideal for any ambitious elite sport organization, it is hard to attain. To what extent an organization is mindful will vary considerably. Notwithstanding, previous research indicates that OLT deliver elite athlete development in line with arguments of mindful organizations' work to improve the quality of core processes (Andersen, 2009; 2012). The presentation and discussion of the empirical findings analyzes whether the organizational practices within OLT are consistent with the core elements of organizational mindfulness, and how OLT interacts with the national sport associations to stimulate organizational mindfulness. Prior to the presentation and discussion of the findings, the research strategy and method are explained.

4. Method

The study was designed and conducted as a qualitative case-study (Yin, 2009). This is a case study of how OLT, being the focal organization within the intra-organizational structure of Norwegian elite sports, supports training and development processes within the national sport associations. Sporting directors, national elite team coaches, OLT coaches, OLT specialists, and CEOs of OLT, represent the observation units and were strategically selected (Charmaz, 2006). More precisely, five national elite team coaches, three sporting directors of cross-country skiing, four OLT coaches, two CEOs of OLT, and two OLT specialists were interviewed to increase our understanding of the extent to which the interaction between

cross-country skiing and OLT stimulates organizational mindfulness. In addition, interviews with national elite team coaches and sporting directors within cross-country skiing were also carried out. The comments given by OLT coaches, CEOs of OLT, and national elite team coaches are identified with OLT coach, head of OLT, and C respectively.

The interviews lasted from 45 minutes to almost 2 hours and were conducted in Norwegian. These were recorded and transcribed. All of the interviews can be described as conversational, but structured around the key topics (semi-structured interviews). The interviews started with open and rather general questions, but also contained a number of specific questions to test specific expectations. The conversation with the national elite team coaches and sporting directors covered topics related to their view of OLT, philosophy of coaching and leadership, and approach to elite athlete development. The conversations with the OLT coaches, the OLT specialist, and the CEOs of OLT covered topics related to the nature of Norwegian elite sport culture, the role of the OLT coach, how they intervened in everyday training and development, and their approach to stimulating reflection. All the interviewees quoted in the paper received a copy of the complete paper asked to comment on their quotations. They were also encouraged to give comments on the analysis.

4.1. *Data analysis*

The data analysis followed a stepwise coding procedure: initial, focused and theoretical coding (Charmaz, 2006; Strauss & Corbin, 1998). The initial coding identified key dimensions in the data that revealed descriptive characteristics of the Norwegian elite sport culture, patterns of interaction between actors at OLT and the sporting directors and national elite team coaches, how OLT coaches intervened in processes of everyday training and development, and the sporting directors and national elite team coaches' view on OLT.

The initial coding was followed by focused coding. This revealed both similarities and differences concerning how different OLT coaches interacted with the sporting director and

national elite team coaches to improve the quality of training and development. Furthermore, this stage of the analysis also showed how the five national elite team coaches and three sporting directors took advantage of OLT coaches and OLT specialists to strengthen the organizational culture within the national elite teams.

Having conducted focused coding, the empirical findings were related to theories of organizational culture. More precisely, the core elements of organizational mindfulness were used as an analytical tool to capture whether the OLT coaches' approach to improving the quality of training is consistent with how mindful organizations work to improve the quality of core processes. Furthermore, the theoretical analysis aimed to reveal the theoretical conditions and mechanisms for stimulating organizational mindfulness in delivering effective athlete development within the national elite teams.

5. Findings and discussion: How OLT stimulate organizational mindfulness

Olympiatoppen plays a key role in challenging and supporting how a national elite team delivers effective elite athlete development. Although it is the specific sport associations that make the final decisions regarding which path to take to achieve excellence, their decisions are considerably influenced by OLT. The findings indicate that the organizational practices of OLT are largely consistent with organizational mindfulness. However, the findings also illustrate that organizational mindfulness within the Norwegian elite sport system is strengthened when the national sport association establishes a close interaction where roles and responsibilities are well developed and understood. Hence, OLT is not only itself a mindful organization: organizational mindfulness also emerges when the national sport associations allow OLT to support and challenge how they deliver elite athlete development through a close interaction.

The first part of the discussion analyses the organizational practices within OLT at the interface with the national sport associations and relates them to the core elements of

organizational mindfulness. This part presents and discusses the experiences of OLT coaches who had been responsible for cross-country skiing, and CEOs who had an insight into overall elite sport issues. Thereafter, prerequisites for stimulating organizational mindfulness are discussed. This part highlights the importance of defining roles and responsibilities, and how OLT needs to maintain a certain distance from the national elite teams and at the same time be close enough to adequately challenge how they pursue training and development. Furthermore, this part also introduces the term “enrichment-zone” which refers to defining the nature of interaction between different actors surrounding the development of elite athletes.

5.1. Core elements of organizational mindfulness in the context of Norwegian elite sports

In the interface between the national elite teams and OLT, it is the OLT coaches’ responsibility to ensure that a close interaction is established. Consequently, OLT coaches are the linchpins in the intra-organizational structure of Norwegian elite sports, challenging how the national elite teams pursue training and development and making sure that they benefit from OLT specialists.

5.1.1. Preoccupied with failure:

In the process of challenging and supporting the national elite teams OLT coaches’ aim to create a nuanced understanding of how the success was made possible or why the success failed to come, “it is important to acknowledge that not everything is great when you succeed. At the same time, you also need to keep in mind that it is dangerous to change everything although you don’t succeed” (OLT coach 5). Hence, by having a similar attitude towards evaluations of success or the lack of success, OLT is preoccupied with identifying small deviations that lead to improved results. It all comes down to seeing the opportunities for improvement in the identified deviations. As one of the CEOs of Olympiatoppen stated: “We need to be stubborn when we are struggling and a driving force for development and change when we experience success” (head of OLT 1). The statement illustrates that in line with

mindful organizations, OLT is aware of the liabilities of success (Weick et al., 1999). Rather than attributing the success to a golden recipe, OLT deliberately aim to uncover deviations that need to be dealt with in order to sustain successful. Hence, OLT actively try to avoid complacency and inattention towards how their practices can be further developed. In addition, by having a similar attitude towards evaluating the lack of success, OLT is more likely to identify the critical factors that need to be improved.

According to the OLT coaches, their role at the interface between the OLT and cross-country skiing was to develop cross-country skiing and to make sure athletes train with the best quality possible. In the process of improving the quality of training, the OLT coaches facilitate discussion over the annual plan and major priorities, and more importantly; whether the training is carried out as intended: “We aim to monitor how the athletes accomplish the training. We have to make sure that in addition to having a good plan, we need to make sure that the athletes’ training is the best in the world” (OLT coach 3). According to this OLT coach, essential to delivering effective elite athlete development is to ensure that the training is implemented in line with intentions: “Defining overall aims and priorities of training is important. However, in recent years I have become more preoccupied with evaluating whether the actual implementation of training meets our standards” (OLT coach 3).

To ensure that the implementation of training is as good as possible, one of the OLT coaches emphasized the importance of building relationships between the national elite team coach and the athletes: “It is the relationship between national elite team coach and the athletes which represents the core process and constitutes the “factory”. The medals are produced in such relationships” (OLT coach 5). Another OLT coach also emphasized the importance of interacting with the national elite team coach, as it is the national elite team coach that is closest to the athletes: “It is, of course, the national elite team coach who has the closest interaction with the athletes and thereby becomes the most important person for the

OLT coach to interact with” (OLT Coach 4). In order to monitor how the national elite team coaches organized training and development, regular meetings were held, and the OLT coach also attended training camps where they observed how the national elite team coach acted and how training was carried out.

In addition, the OLT coaches also interact with the sporting director to enhance the way the national elite teams are organized and managed: “Our job is to stimulate the sport to establish and carry out specific development processes to continuously develop their performances” (OLT Coach 3). Thus, the OLT coach both stimulates the organization and the management of the national elite team, and monitors how the training is carried out. Central to the close interaction with the sporting director and the national elite team is to establish a more comprehensive understanding of how to proceed with the training. By interacting closely with key actors within the national elite teams the OLT coaches, together with OLT specialists, critically evaluate how they interpret everyday training.

5.1.2. Reluctance to simplify interpretations

When people with different analytical perspectives try to make sense of what is happening, it reduces the likelihood of relying too much on one prevailing interpretation. In accordance with mindful organizations, OLT also emphasizes the importance of critically evaluating everyday operations (training and development). In this sense, the OLT coaches function as the key linchpins; bringing together specialists with highly differentiated knowledge. Both in the process of defining the annual plan for training, and in the implementation of training, specialists are included to challenge the national elite team coaches’ interpretations. The following statement, given by an OLT coach, illustrates how OLT works to challenge the national elite team coaches’ interpretations of the overall (annual) training plan:

We try to involve our specialists at least once a year in order to challenge how the national elite teams pursue training and development. The national

elite team coach first decides upon an overall plan for training in collaboration with the OLT coach. The overall plan is then “attacked” by our specialists where they ask questions like: Is this plan as good as you perceive it to be? Why is it a good plan? How may the plan be improved? How do you intend to implement it? (OLT coach 5)

In other words, letting specialists challenge the content of the plan increases the national elite team coaches’ awareness of how to achieve excellence, something which consequently makes them more reluctant to simplify their interpretations of athletes’ training. The bottom line is that such an approach to support and challenge how the national elite team coaches pursue training and development counteracts overconfidence. How the interaction with the OLT coach and specialists counteracts overconfidence in the process of everyday training was highlighted in the interview with one of the national elite team coaches for cross-country skiing:

Although I use quite a time on reading the athletes’ training diaries, you often tend to become a little bit “single-track minded”. Therefore, it is important that outsiders evaluate what we are doing from time to time. Being challenged by outsiders has obviously stimulated my reflection regarding my role as an elite team coach. In fact, I believe that it has influenced how I interact with the athletes in a good way. (C4)

However, it is not only OLT that challenges the national elite team coaches; it may also be the other way around. According to one of the CEOs of OLT a reciprocal challenge of how to achieve excellence was of vital importance:

The extent to which we succeed is dependent upon competent national elite team coaches and sporting directors also challenges us. Our specialists may deliver advices which are documented in science, indicating that they have

found the right answers. However, in such cases it is a relief when they challenges us back by saying that the specialists are wrong. Based upon such disagreements we have very good discussions. (Head of OLT 1)

This statement illustrates that organizational mindfulness is not solely created within OLT. Rather, the extent to which organizational mindfulness is stimulated seem to be a result of a reciprocal process where both OLT specialists and national elite team coaches challenge each other's interpretation of how to achieve excellence. The data illustrates that OLT acknowledges that achieving elite sport success is a complex process and therefore takes deliberate steps to create a complete picture, identifying the key indicators for every elite athlete and how the indicators can be improved. However, a nuanced picture is only obtained when sport specific experiences are combined with detailed specialist knowledge. In the literature of mindful organizations this is termed requisite variety. According to Weick, Sutcliffe and Obstfeld (1999), requisite variety seeks "to provide the organization with a broader set of assumptions that sensitize it to a greater variety of inputs" (p. 95). Within the Norwegian elite sport system, it is OLT that stimulate requisite variety by introducing people with specialist knowledge or experience to the national elite team coaches or sporting directors. Hence, OLT are preoccupied by utilizing multidisciplinary teams to provide the national elite team coaches with a broader set of assumptions about what to be aware of in the training process. The result is that OLT systematically induces organizational mindfulness.

5.1.3. Sensitivity to operations

Acknowledging that elite sport success is influenced by a range of factors, the role of the OLT coach is to maintain the big-picture; balancing different views on factors believed to lead to success.

You need to open up in order to identify all the factors that increase the likelihood for increased performance for every elite athlete. When those are

identified, it is time to go into every one of them. (...) However, you need to keep an eye on the big picture – identifying how the different factors constitute the whole. (OLT Coach 5)

Furthermore, maintaining the big picture also include that both national elite team coaches and the elite athletes acknowledge that social factors influence whether success is achieved: “you need to obtain a holistic view. Training cannot be isolated from social aspects surrounding the elite athlete” (OLT coach 2).

The organizational structure of OLT is described as an organized adhocracy (Tvedt et al., 2013). In line with mindful organizations, OLT personnel are attentive to what is happening in the front line (i.e. training and development). The highly dynamic organizational form emphasizes the importance of close relationships between specialists, OLT coaches and national elite team coaches. One of the CEOs of OLT stated that being close to what is happening within the national elite teams was a key to success: “our mandate was to conduct control of training. And in order to succeed in this, we needed to be in close contact with the national elite teams and athletes” (head of OLT 2). In line with this statement, one of the OLT coaches argued: “we have to pay close attention to how the national elite teams pursue training. When we continuously monitor how they train, we are able to identify deviations and consequently give advices concerning how the training can be improved” (OLT coach 4).

When both OLT coaches and OLT specialists interact with national elite team coaches and sporting directors, they put together different information about how the training is carried out into a single picture of the overall situation (the big picture). When all actors involved “see” the same big picture situational awareness is strengthened. Situational awareness is an important component constituting sensitivity to operation. It refers to the extent to which all actors involved in the daily operations (e.g. training of elite cross-country skiers) are aware of how each individual can contribute to improving the current situation –

even though it seems that an elite athlete is training well. There is, in other words, a strong emphasis on efforts to capture the dynamic between factors influencing the performance. Hence, by being a highly operative organization, the “big-picture” in OLT is embedded in ongoing processes. Actors pay closer attention to the extent to which everyday training activities are implemented with quality, rather than the overall organization and political priorities of Norwegian elite sports.

5.1.4. Commitment to resilience

The overall aim of OLT is to lead and train the best way possible within the context of international elite sports. Section 5.1.2 discussed how OLT interacted with the national elite team coaches to challenge their interpretation of everyday training to counteract overconfidence. However, in order to lead and train the best way possible the OLT coaches also emphasized the importance of challenging the national elite team coaches’ and elite athletes’ perception of the overall training plan. Strong beliefs in the overall training plan may be of importance in order to carry out the training as intended. However, such beliefs may produce over-confidence. They create expectations that direct attention towards signals that confirms the expectations. As Weick and Sutcliffe (2001) put it: “We actively seek out evidence that confirms our expectations and avoid evidence that disconfirms them” (p. 34).

Beliefs shape context-specific expectations that are important when national elite team coaches and elite athletes try to interpret how an elite athlete responds to different types of training. At the same time, they may also reduce their sensitivity to identifying signals (deviations) in the training process. In line with mindful organizations, OLT emphasizes that an optimal plan cannot be attained. According to one of the OLT coaches, acknowledging that no plan is perfect constitutes one of the key ingredients of leading and training the best way possible within international sports:

It is impossible to perceive the plan as optimal. In order to train and lead best in the world of elite sports, you need to be very critical when the overall plan is decided upon. You need to ask yourself to what extent the content of the plan actually will lead to improved performance. (OLT Coach 5)

OLT has a commitment to resilience by trying to identify potential weaknesses in the overall plan:

There is a danger that the national elite teams develop a “group-think” where there are no substantial objections. In such cases there is a danger of failure. However, when there seems to be a certain level of group-think we need to intervene. Ask the national elite team coaches and sporting directors whether the specific plan is as good as they perceive it to be. (OLT coach 5)

These two statements indicate that OLT actively challenges the national elite team coaches’ and the sporting directors’ assumptions and beliefs. Nevertheless, they also support their assumptions and beliefs. In cases where the national elite team coaches and sporting directors’ beliefs are consistent with the OLT coaches’ assumptions and experiences, they support future action based on those beliefs. One OLT coach explains how OLT support and challenge a national sport association:

When a sport is performing well, the key actors often tend to neglect the fact that things need to be improved. We need to be aware in such cases and ask them what led to success today; will it lead to success tomorrow? At the same time, we need to remember and continue with the good practices. It is dangerous to throw everything overboard. I believe that OLT has an advantage by having extensive experience from other sports similar to cross-country skiing for example, sports that have developed better practices than

others in certain aspects – or vice versa. In such cases we hold many good arguments when discussing what path to take in order to improve, for example, cross-country skiing. (OLT coach 3)

As this statement illustrates, OLT coaches may simultaneously believe in and doubt past experiences. This is in line with how mindful organizations both believe in and doubt past experiences (Weick et al., 1999). By stimulating national elite team coaches and sporting directors to reflect upon what factors led to the desired results, OLT facilitates reliable learning that fosters good judgment in the subsequent training process.

Another factor which serves to illustrate that the organizational practices of OLT support commitment to resilience is that they use considerable time on training sporting directors and national elite team coaches as leaders in high performance sport. In the 1990s, OLT initiated the *project winning leadership* which aimed to increase knowledge of national elite team coaches, sporting directors, administrative staff and national sport associations' presidents of how to deliver successful sportsmen and women. Central to the project was the role of the organization (national sport association), the importance of high ambitions and strict priorities, to follow up training processes closely, and the role of close relationships in stimulating actors to provide feedback concerning how training is pursued.

A similar project is present also today, captured in the *elite coaching program*. Here, sporting directors and national elite team coaches assemble to discuss specific challenges evident in the field of coaching elite athletes. During meetings and discussions the sporting directors and national elite team coaches are provided with different cases representing challenges that need to be dealt with in delivering effective elite athlete management. The program aims to prepare for both expected and unexpected situations. Such an approach is consistent with the organizational practices of mindful organizations. It is all about increasing

the sporting directors' and national elite team coaches' repertoire in ways that make them more capable of dealing with future situations.

5.1.5. Deference to expertise

During all the interviews it became clear that sport politicians (board members of national sport associations and members of the executive board of NIF) had to be kept at arms distance from operative decisions concerning elite sport. It is important that those who decided upon the organization and management of elite sport and upon how to achieve excellence have detailed knowledge or experiences about key processes. According to the interviewees, members of the board of national sport associations or the executive board of NIF did not have the required experience or knowledge about the key processes. Before OLT was established in 1989, it was primarily sport politicians who decided how to achieve excellence and selected athletes for participation in international competitions. In the following, one of the CEOs of OLT describes the process of keeping sport politicians away from the everyday organization and management of elite sports.

The process of separating politics from the operative part of elite sport was very hard. The politicians were strong opponents, as they feared for losing their influence and considered that OLT was assigned too much attention.

The national elite team coaches were on our side – they were occupied in continuously improving their performance. (Head of OLT 2)

OLT has succeeded in limiting the influence of sport politicians. However, it is important to note that presidents of national sport associations are included in a liaison group – a group which agrees upon how the nature of cooperation between a specific sport and OLT shall be. Nevertheless, when it comes to main priorities concerning elite athlete development it is the national elite team coaches and sporting directors, in collaboration with OLT, which decides what path to shall be taken. When selecting athletes for participation in the Olympic Games

(OLT is responsible for the selection of athletes, preparation, and the accomplishment at the Olympic Games), the sporting directors nominate athletes to OLT, which makes the final decision.

The approach to delivering effective elite athlete development is, as indicated, characterized by a considerable effort to map the current situation for the whole team as well as for the individual athlete. To capture the current situation, and thus identify the critical success factors, requires cooperation between specialists with detailed knowledge. In searching for accurate decisions concerning elite athlete development, unique knowledge needs to be adapted to situations that are inherently ambiguous and uncertain (Weick & Sutcliffe, 2001). In mindful organizations such decisions migrate around in the organization, depending upon people's level of expertise or experience. Contrary to most mindful organizations, in elite sport it is the national elite team coach who decides how a given situation shall be dealt with. However, his or her decisions are considerably influenced by how various specialists perceive the situation. For example, when an athlete is injured or needs assistance to improve his/her diet, specialists provide valuable information about how to improve the diet or recover from an injury, for example. However, it is the national elite team coach who determines those initiatives to be undertaken. In this sense, input from specialists is vital and illustrates a high degree of deference to expertise, although in a slightly different way than in other mindful organizations.

Bringing different specialists together to enrich the national elite team coach's perspective may lead to confusion. There is a danger of that decision-making can turn into a "garbage-can" (Cohen, March, & Olsen, 1979), where specialists present a range of problems and different solutions related to the problems. To avoid "garbage-can" decision-making, specialists need to be managed; they need to be reminded of that their field of expertise is only a small part of the whole. To avoid specialists making their role bigger than it really is,

the OLT coach is responsible for deciding which specialists shall be incorporated with regard to situational needs, whereas the national elite team coach has the supreme decision-making authority.

It is important for me, as an OLT coach, to include specialists from OLT whenever the situation requires it. Such specialists can provide detailed facts that are important when discussing how to train with the national elite team coach. (...) However, such specialists need to be coordinated through the OLT coach since they tend to believe that their field of expertise is the most important. (OLT coach 4)

Hence, by deciding what specialists to include, OLT coaches make sure that specialists provide valuable information about the situation, and at the same time ensure that a big-picture is maintained. Such an approach to managing core processes are analogous to the organizational practices in mindful organizations since it makes sure that those who have the required expertise or experience are included in the decision-making process (Weick et al., 1999). Nevertheless, rather than deciding upon what path to take in the training process, specialists are used to provide the national elite team coaches with information about factors influencing elite sport success. Such information thus contributes to enriching the “big-picture” in which the OLT coach discusses with the national elite team coach. When the interaction between specialists, OLT coach and the national elite team coach are organized and managed properly, it fosters good judgments over how to improve the quality of training. Furthermore, by including different specialists that hold different interpretations of what to prioritize in order to achieve excellence the national elite team coaches and elite athletes are more likely to increase their situational awareness.

5.1.6. Summary: is OLT a mindful organization?

The preceding discussion shows how OLT systematically works to improve the quality of training and illustrates considerable consistency between the organizational practices in mindful organizations. Key characteristics are: *preoccupation with failure* (continuous evaluations are aimed at identifying deviations which need to be corrected); considerable *reluctance to simplify interpretations* (the OLT coaches include specialists to create a nuanced understanding of how to improve); *sensitivity to operations* (the OLT coach interacts with the national elite team coach to improve his/her situational awareness); *commitment to resilience* (acknowledges that no plan is perfect); and *deference to expertise* (specialists provide valuable information that the national elite team coaches can benefit from in making decisions concerning what path to take).

Table 1 summarizes the findings and relates the core elements of mindful organization to the context of OLT and Norwegian elite sports.

TABLE 1: Core elements of organizational mindfulness applied to OLT

Core elements	Examples from OLT
Preoccupied with failure	<ul style="list-style-type: none"> • Regular meetings with the national elite team coaches aims to uncover deviations from the overall plan • Continuous evaluations of everyday training • Strong emphasis on measuring to what extent an athlete or sport are making progress • Utilize previous experiences, poor as well as good, in the process of composing future training
Reluctance to simplify	<ul style="list-style-type: none"> • Aware of that focusing on a few factors influencing elite athlete development may produce overconfidence • Use specialists with divergent analytical perspectives to analyze what is happening • OLT coaches actively challenge the national elite teams coaches' interpretations
Sensitivity to operations	<ul style="list-style-type: none"> • Aware of the current situation of an elite athlete and maintain a holistic view on factors influencing success • OLT monitor the training to secure that the implementation is as good as possible
Commitment to resilience	<ul style="list-style-type: none"> • Acknowledges that no plan is perfect • The elite coaching program introduces perspectives that needs to be dealt with by sporting directors and national elite team coaches • Encourage the use of multidisciplinary teams
Deference to expertise	<ul style="list-style-type: none"> • Specialists are included in the decision-making to provide the national elite team coach with valuable information • Sport politicians have little influence over the operative organization and priorities within elite sports

Core elements are related to the organizational practice within OLT. However, organizational mindfulness stems not only from within OLT; organizational mindfulness within the context of Norwegian elite sports emerges and is strengthened when national sport associations (national elite team coaches and sporting directors) interact closely with OLT. A recent report on the organization of Norwegian elite sport illustrates that the extent to which a national sport association (national elite team) interacts with OLT varies considerably (Tvedt et al., 2013). To benefit from the inter-organizational structure of Norwegian elite sports and thus allowing OLT to stimulate organizational mindfulness, defining roles and responsibilities

for all actors involved is essential. When all actors involved are made aware of their role and contribution, enrichment-zones are established.

5.2. Prerequisites for stimulating organizational mindfulness

5.2.1. Joint responsibility

When roles and responsibilities are defined, a trustful interaction is facilitated. Trustful interaction is obtained when OLT and the national elite team coaches and sporting directors agree upon a common conviction about how to achieve excellence and by acknowledging that OLT and the national elite team supplement each other (both parties acknowledge the importance of taking advantage of different types of knowledge embedded in the national elite teams and OLT). All the interviewees emphasized that obtaining a common understanding of roles and responsibilities in the nature of interaction was an important condition for taking advantage of the Norwegian approach to elite athlete development.

As discussed earlier, OLT has the overall responsibility for the results of Norwegian elite sports. Notwithstanding, this does not mean that the specific sports are without responsibility. Rather, when defining the nature of cooperation between OLT and the national elite teams, OLT coaches see it as an important task to clarify who has the responsibility for what. The bottom line is that all actors that are part of training and development processes within in a sport are ascribed 100% responsibility for their area of responsibility. Within the Norwegian elite sport system, this is termed “joint responsibility” and constitutes the most important prerequisite for a constructive interaction between OLT and the national elite teams (Kaas et al., 2007). In the word of one of the OLT coaches: “We need to clarify the roles and ensure that the actors possess the required competence. A good interaction is obtained when there is a common understanding of what we want to obtain” (OLT coach 5).

The underlying argument for defining roles and responsibilities is to make sure that the organization of a specific sport (e.g. cross-country skiing) is as good as possible. As elite

cross-country skiing consist of several national elite teams, with a large pool of support personnel in which not only concern the OLT specialists, it is especially important to clarify the roles of different actors. In order to ensure that the organization of elite cross-country skiing is organized the best way possible, all actors involved are assigned responsibility for their role and for the whole team. The following statement given by an OLT coach describes what is meant by joint responsibility within elite cross-country skiing, and why it is of crucial importance:

The secretary general has the overall 100% responsibility for Norwegian skiing. The sporting director has 100% responsibility for the results of cross-country skiing. The CEO has the responsibility for the national elite team coaches. The national elite team coaches have 100% responsibility for the results for their respective national elite teams. The national elite team coaches are responsible for selecting their support personnel. The assistant elite team coaches have 100% responsibility for the task they are assigned – which also is defined in detail. Within the support personnel every leader of a specific field of expertise has 100% responsibility for their tasks and roles. The clarifying of roles were done because there was a need to create an understanding of the fundamental organizational conditions regarding how to make the most out of the organization (OLT coach 2)

The clarification of roles shapes the nature of interaction that takes places in everyday training and development in which reduce the likelihood for misunderstandings or in the worst case conflicts.

The fact that everyone is assigned joint responsibility also includes the responsibility to report whenever something needs to be improved or corrected. Within the literature of organizational mindfulness such responsibility for reporting situations that need to be dealt

with is defined as “reporting culture” (Weick & Sutcliffe, 2001). A reporting culture within the literature of organizational mindfulness concerns human, technical, organizational and environmental factors that influence the quality of core processes. However, whereas the report culture within the literature of organizational mindfulness rewards people who share their concern related to factors critical to safety, the report culture in elite sports refers to stimulating people to express their concerns related to factors that influence elite athlete performance.

5.2.2. Enrichment-zones

Delivering elite athlete development requires and integration of different types of knowledge. To ensure that every athlete reaches his/her full potential, there is a strong emphasis on adapting general insights into the athletes’ individual and situational needs. The organizational practices of OLT illustrate the importance of acknowledging that every elite athlete has special needs, and such needs have to be taken into account in delivering elite athlete development. This is in line with the Norwegian principles of special education, which aims to promote individual learning and development by reducing the barriers unfolding in the learning and development process (Tangen, 2012). Thus, bringing together different types of knowledge and assumptions stimulate discussion over prevailing challenges concerning the development of best-practice. Consistent with the organizational practices within OLT, there is a strong emphasis on opportunities rather than problems. In the literature of special education, this way of enhancing learning is termed “enrichment” (Befring, 1997). This argues that heterogeneity establishes a context for more diverse social interactions. Books describing the principles behind elite athlete development within Norwegian elite sports indicate that stimulating enrichment is key concern (Andreassen & Wadel, 1989; Kaas et al., 2007).

To make sure that the national elite team coaches and elite athletes are not exposed to too many perspectives regarding how to improve, the OLT coaches see it as their role to define how different specialists are to intervene with national elite teams. To avoid that too many specialists intervene with the national elite teams or the elite athletes, the OLT coaches define “enrichment-zones”.

According to the OLT coaches, enrichment-zones refer to defining situations where there is a need for different specialists to simultaneously intervene with the national elite teams. Enrichment-zones are especially important in order to maintain the whole picture regarding the development of every athlete. In addition, specialists are also made aware of the danger of believing that their field of expertise is the most important (cf. the discussion of coordinating specialists in section 5.1.5.). The bottom line is that specialists need to cooperate whenever the situation requires. One of the OLT coaches explained the meaning of enrichment-zones:

It is difficult to place a wall between the different fields of specialists. Some situations call for collaboration across such fields, and it is important to define how people with different specialist competence shall interact in situations that require collaboration. We need to clarify such situations.

(OLT Coach 3)

One example is how actors cooperate in developing an athlete’s ski technique. As we know from the literature of cross-country skiing technique, technique is determined by the athlete’s physiological (e.g. strength and maximum oxygen uptake) and motor ability conditions (Sandbakk & Tønnessen, 2012; Smith, 2003). Thus, developing an elite athlete’s technical skills requires that individuals with a detailed understanding of biomechanics, motor ability, physiology and strength training interact with the elite team coach for technique (for example the assistant national elite team coach). When technique for a given athlete is evaluated with

input from different experts, it increases the likelihood for enabling identification of the most important factors for improvement. In such cases specialists communicate their view on what to improve (e.g. does the athlete has underdeveloped motor abilities? Does the athlete need to improve his/her strength? Does the athlete have the necessary physiological capacity?)

Having identified which factors need to be improved, and how they influence each other, the responsible elite team coach (in this case the assistant coach) for technique, together with the OLT coach, determines how the specialists shall interact in order to improve the technique. In other words, enrichment-zones are defined where the specialists are reminded of what they are responsible for and what type of situations call for interaction with the other specialists or the assistant elite team coach. Furthermore, as the head coach of the national elite team is responsible for the overall development of the elite athlete, the enrichment-zones also include defining how the “project” of developing the athlete’s technique is part of the whole training. In other words, at the end of day, it is the head-coach of the national elite team who is responsible for the extent to which the athlete achieves excellence. Hence, the head coach needs to make sure that those working with improving the technique follow the defined enrichment-zone to avoid a chaotic situation for the elite athlete.

Although defining enrichment-zones may seem complex, the possible benefits are far greater than if the technique coach work for him/herself together with the athlete. Relating to improving the ski-technique, statements given by elite skiers in the media highlight the benefits of well-defined enrichment-zones (Wahlstrøm, 2011; Burheim, 2013). As the margins in elite sports are small, such an approach to delivering elite athlete development seems to be a critical factor for taking full advantage of resources embedded within the elite sport system. However, it requires that all the involved actors are aware of their responsibility and how their role is interconnected with the other people’s roles and responsibilities.

Finally, to succeed in challenging how the national elite teams pursue training and development, a certain distance between the OLT coach and key actors within the national elite teams was considered vital. According to the OLT coaches, an OLT coach should avoid being too close to the national elite teams. Although being close to the teams is important in order to ask adequate questions concerning how they train, it may lead to losing the “critical eye”: “There is a danger that you become part of the support personnel surrounding the national elite team. It is very important to remember that our role is to keep a certain level of distance; maintaining an outsider-perspective” (OLT coach 4). To succeed in challenging how the national elite teams pursue training and development, one of the coaches believed that an OLT coach should be assigned a sport where he does not have first-hand experience:

In order to challenge the national elite teams the best way possible, I believe that an OLT coach should be assigned a sport he doesn't know well. Then it is easier to not be perceived as part of the national elite team (OLT coach 3).

6. **Concluding remarks**

The present paper has explored the organizational practices and culture of Olympiatoppen (OLT), and how OLT interacts with national sport associations to improve the quality of training. The discussion of the organizational practices illustrates that the organization and management of OLT stimulates organizational mindfulness. More precisely, the organizational practices and culture systematically aim to stimulate how sporting directors, national elite team coaches and the elite athletes reflect on how the quality of training may be improved. Hence, the way OLT supports and challenges how the national elite teams pursue everyday training and development improves the quality of training in three ways: 1) it enhances the sporting directors' knowledge about organization and leadership, 2) the national elite team coaches obtain a more nuanced picture about factors influencing the quality of training, and 3) it makes sure that elite athletes' special needs are taken into account when

developing the individual athlete. Thus, the organizational practices and culture of OLT constitute an important contribution to delivering effective elite athlete development as it creates a more nuanced picture about which factors influence quality of training.

Although the organizational practices of OLT are consistent with the core elements of organizational mindfulness, organizational mindfulness within Norwegian elite sports emerges when key actors within the national elite teams establish a close interaction with OLT. As was discussed, defining roles and responsibilities in the interaction can be seen as an important prerequisite for stimulating organizational mindfulness. When roles and responsibilities are defined, enrichment-zones can be facilitated whereby people with highly differentiated knowledge are included to evaluate how to improve the quality of training for the elite athletes. Consequently, when national elite team coaches interact closely with key actors within OLT, they are continuously being challenged to consider how specific initiatives can improve the quality of training. In addition, it is important to note that OLT also benefits from interacting with the national elite teams, as poor as well as good experiences are systematized and taken advantage of when OLT interacts with a similar sport.

6.1. *Practical implications and further research*

The findings illustrate how patterns of interaction between a national elite sport organization and a national sport association can improve the quality of everyday training. Although the Norwegian elite sport model is somewhat different from other elite sport models, in terms of a weak state intervention, the findings can be transferred to all ambitious elite sport systems which are facing the same challenges regarding how to improve quality of training. More precisely, the findings suggest that stimulating organizational mindfulness contribute to improved quality of training in three ways: 1) it ensures that a national elite team doesn't use time on factors proven not leading to improvement, 2) it ensures that the national elite teams are reminded about what is considered as best-practice, and 3) it increases the

possibility to identify minor deviations in the training process that may have major consequences for future success. To succeed in this, defining roles and responsibilities and keeping a certain level of distance between the challengers and those being challenged are important prerequisites.

Although elite sport systems have converged over the last 20 years, there may be important differences concerning how these systems deliver effective elite athlete development. More process-oriented research capturing different approaches to the organization and management of training and development is needed to address this. Although different elite sport systems may have different organizational practices supporting elite athlete development, they are all consistently engaged in improving the quality of training. Hence, by uncovering the culture and practices in modern elite sport systems we may come closer to answering the question of how to deliver *effective* elite athlete development.

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