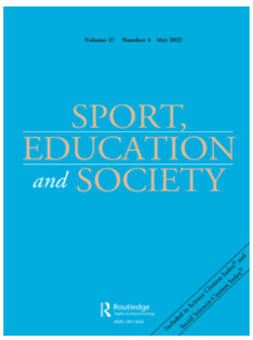

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RESEARCH ARTICLE

Where does environmental sustainability fit in the changing landscapes of outdoor sports? An analysis of logics of practice in artificial sport landscapes

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ABSTRACT

Environmental sustainability in sport is an increasingly important issue. In this paper, we want to highlight a specific phenomenon, namely artificially constructed landscapes and the outdoor sport activities that take place therein. More specifically, we are interested in the logics that govern peoples' practice of sport in such artificial landscapes and what challenges with regards to environmental sustainability that follow from these logics. The purpose of this paper is to identify what individual athletes perceive as meaningful logics when practicing sport in artificial landscapes and to analyse and discuss potential environmental consequences of these logics. The sports we focus on are cross-country skiing and canoe slalom, two sports that historically have been dependent on specific geographies and contexts. We build on two research questions: What logics of practice govern individual athletes' practice of sport in artificial landscapes? And what environmental challenges are potential consequences of the logics that are expressed by the athletes? Our findings indicate that the logic of performance is dominant for the sport practitioners who train in artificial landscapes, at the expense of perspectives such as nature experience and environmental sustainability. If performance is key, then the role of the training landscape is also first and foremost to present the best possible conditions for performance. But if the athlete/exerciser see their training as a means of experiencing nature, then other values than performance and comparability can become more important. When the environmental impact of individual athletes and of the artificial landscapes in which they do their training come under increased scrutiny, the role of logics of practice in the sport and movement culture needs further attention. Being aware of nature and the environment is also a logic that could be found meaningful in the process of making sports more sustainable.

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Introduction

In this paper, we want to highlight a specific and contemporary phenomenon, namely, landscapes that are artificially constructed by humans and the outdoor sport activities that take place therein, for example, in the form of surfing, climbing, downhill skiing and cross-country skiing (Salome et al., 2013; Sandell, 2011, 2016; Sandell & Öhman, 2013; van Bottenburg & Salome, 2010). More specifically, we are interested in the logics that govern peoples' practice of sport in these landscapes

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(Bourdieu, 1990; Engström et al., 2018), and further what challenges with regard to environmental sustainability that follow from these logics.

Sandell (2011) uses the concept of *decontextualisation*, with which he refers to the renegotiation of the context for several outdoor sports as they are currently taking place in artificial landscapes. This tendency of decontextualisation of landscapes for sport is one piece in the puzzle to understand the complexity and ambiguity built into the growing and multifaceted research field of sport, outdoor recreation and environmental sustainability. While much of the important work within this field is made from *institutional, structural* and *societal* approaches (e.g. Humberstone et al., 2016; McCullough & Kellison, 2017; Wilson & Millington, 2020), studies that take *individual* sport practitioners' perspectives on how their practice relates to environmental issues, is still underdeveloped (see e.g. Evers, 2019; Humberstone, 2011 for exceptions). We should add here that while growing and recent research on the relationship between sport and environmental issues also build on eco-centric and 'more-than-human' perspectives (see e.g. Merchant, 2020; Thorpe et al., 2021), our perspective in this paper is human-centric, a positioning that is often taken for granted.

In order to understand what *individuals* perceive as meaningful in their practice of sport, we have been inspired by Engström et al. (2018) and their division of logics within the sport and movement culture. Engström et al. (2018) build their ideas on Bourdieu's (1990) concept *logic of practice* and argue that the logic of a sport, or a movement culture, is shaped by the meeting between the individual embodied dispositions (habitus) and the activity's underlying meaning for the individual in a certain situation.

Bearing in mind that it is *individual* sport practitioners' choices and behaviours that finally determines the environmental impact of sport, more knowledge is needed about *individual* practitioners' perspectives. The purpose of this paper is to identify what individual athletes perceive as meaningful logics when practicing sport in artificial landscapes and to analyse and discuss potential environmental consequences of these logics. The sports we will focus on in this study are cross-country skiing and canoe slalom, two sports that historically have been dependent on specific geographies and contexts. We intend to answer the following research questions:

(1) What logics of practice govern individual athletes' practice of sport in artificial landscapes?
(2) What environmental challenges are potential consequences of the logics that are expressed by the athletes?

Decontextualisation of landscapes for outdoor sport

Landscapes for sport are products of the modern society (Bale, 2006). The *decontextualisation* of landscapes (Sandell, 2011) can be seen as a process that is intertwined with the *sportification* of activities. Sportification (Dunning, 1999; Elias & Dunning, 1986; Guttman, 1978) is a widely used concept for explaining how sport has developed from being a ritual into becoming more specialised, rationalised, standardised, organised and quantified (Breivik, 2010; Fahlén, 2006; Goksøyr, 1988; Lippe, 2001; Pfister, 2007; Svensson & Sörlin, 2019). This is not least evident when it comes to arenas and playing fields. Outdoor sports, which historically had strong ties to nature and were conducted in landscapes with only a limited degree of adaptation, are now increasingly using specialised arenas (Sandell, 2011, 2016; Sandell & Öhman, 2013).

For example, a cross-country ski track is not what it used to be. While the cross-country skiers in the mid-twentieth century made their own tracks manually (Sandbakk, 2017; Svensson, 2016), today's cross-country ski tracks are machine-made and often made with artificial snow. This requires extensive advanced technology (snow cannons, pumps, snow groomers), water and many working hours. Cross-country ski tracks are made according to certain standards defined by the International Ski Federation (FIS) and national and regional federations. On the FIS website, there are guidelines regarding how and when to salt a cross-country ski track, and how to design the team areas during

competitions (FIS, 2021). Somewhere in this process, a cross-country ski track is re-interpreted as a well-defined sports arena rather than a landscape for outdoor life in which some happen to conduct ski training or competition. The specialisation of sport affects not only athletes, coaches and equipment but also landscapes as well as the species that exist therein (Sandell, 2011, 2016; Sandell & Öhman, 2013). This example emphasises the importance of a historical perspective in order to understand the relational dimensions in the process of decontextualisation.

Environmental challenges following decontextualised landscapes for outdoor sports

Even though knowledge about the relation between sport and environmental sustainability is growing (McCullough & Kellison, 2017; Welch et al., 2021; Wilson & Millington, 2020), there are still many strands uncovered. One of these uncovered strands concerns what the 'indoorisation' and decontextualisation of sport landscapes can lead to in terms of environmental sustainability. We need to know more about how current societal processes are affecting sport in order to predict the future effect on the environment.

The work of Salome et al. (2013) focuses on how outdoor sports such as snowboarding, rafting and skydiving are currently being 'indoorised' and that the construction of indoor facilities for these outdoor sports consumes large amounts of water and energy resources. Salome et al. (2013) emphasise that 'it is intriguing that these settings have emerged in an era in which sustainability awareness and environmental responsibility are increasingly important in the sport industry' (p. 173).

In a similar way, Sandell (2011, 2016; Sandell & Öhman, 2013) have discussed the complexity following different approaches between humans and landscapes with regards to consequences in terms of environmental concern. Two landscape approaches that are relevant to this study are the *active domination approach* and the *active adaptation approach* (Sandell & Öhman, 2013). The active domination approach is described as 'where the landscape is regarded as a "factory" that should be adapted to the activity by means of different settings and requirements (ski facilities, adventure lands, climbing walls)' (p. 46). The active adaptation approach is described as 'where the activity is subordinate to the landscape (in terms of topography, time of year and weather) at the same time as one readily utilises and changes the landscape' (Sandell & Öhman, 2013, p. 46). While Sandell and Öhman (2013) use their framework primarily in relation to outdoor recreation activities, we also find it meaningful in relation to outdoor sports such as canoe slalom and cross-country skiing, and specifically in relation to the decontextualisation of outdoor landscapes for sport (Sandell, 2011).

In contrast to the decontextualisation and indoorisation, a recontextualisation of sport has been suggested. In their analysis of the global golf industry, Millington and Wilson (2016, pp. 210–212) suggested *contextual golf* as a possible way forward. With their words: 'in some geographical locations and environmental conditions, discontinuing a golf course or choosing not to develop a new one should be considered the best option available. Playing golf is not a human right' (Millington & Wilson, 2016, p. 211). In essence, if the construction and maintenance of a golf course require excessive use of water, fertiliser and chemicals, it is not a sustainable form of sport and leisure in that area. Though they focus on golf, the idea could be expanded to the *contextual sport*. With such a framework, the strive to offer predictable and optimised environments for certain forms of training and sport is challenged by environmental concerns. Is cross-country skiing in artificial landscapes environmentally sound? Or should skiing be reserved for areas where there are natural conditions to support it? While we do not aim to give a definitive answer to such questions, we will return to this idea in our discussion.

Research focusing on environmental sustainability and sport on an *individual* levels is not as developed as that on *institutional*, *structural* and *societal* levels. There are a few studies on sport in 'blue spaces' (water, seas, oceans), with surfing as a particularly common example, that take an

environmental perspective. For example, Humberstone (2011), in her study of windsurfers' embodied experiences, proposes autoethnographic narratives and representation to illustrate how humanitarian and environmental actions can emerge from communities of nature-based sport practitioners. In another study, Evers (2019) studied how surfers were returning to the Japanese coastline after the earthquake and tsunami in 2011 experience surfing in polluted environments. While surfing and windsurfing could, on one hand, be categorised as lifestyle sports, building on ideas that are different from traditional competitive sport, the late sportification and differentiation of these sports also include elements very similar to traditional outdoor sports such as cross-country skiing and canoe slalom (Hill & Abbott, 2009).

As mentioned, our study of the logics that sport practitioners perceive in artificial landscapes relates to the institutional level as well as to the individual level. It will complete research on the institutional and structural level as the current knowledge of how sporting practices in artificial and indoorised landscapes relates to environmentalism is relatively sparse (Millington & Wilson, 2016; Salome et al., 2013; Sandell, 2011, 2016; Sandell & Öhman, 2013; van Bottenburg & Salome, 2010). It will also add to the existing and limited research on an individual level (Evers, 2019; Humberstone, 2011; Wheaton, 2007) as our study focus on two traditional sports (cross-country skiing and canoe slalom) with a relatively long history. It is precisely that long history which provide an environmental context to skiing and canoeing – a context that is now challenged by decontextualization (Sandell, 2011). How individuals understand their own activity in relation to constructed and standardised training landscapes will thereby feed into the larger discussion about *contextual sport* (Millington & Wilson, 2016) and environmental sustainability.

The logic of practice in sport

In this paper, we are interested in the logics underlying how sport practitioners perceive their practice in artificial landscapes, with special attention paid to the potential environmental challenges following their practice. More specifically, we believe that the practices of sport activities are governed by individual dispositions for what is, consciously or unconsciously, experienced as meaningful, and that the context of the practice has a part to play. The French sociologist Pierre Bourdieu (1990) has described that all individuals are guided by different logics that result in particular practices. He emphasises the meaning of habitus in that 'incorporated dispositions, or more precisely the body schema' can function as ordering principles capable of orienting practices (Bourdieu, 1990, pp. 9–10).

The practice of sport and physical exercise have been seen as an indicator of habitus, i.e. those with similar socio-economic and cultural background develop a similar taste for what gives meaning to the practice (Engström, 2008; lisahunter & Emerald, 2015). Although habitus is individual, its expressions in habits can be studied on a group level. The logic of practice is not inscribed in the activity itself, nor in the individual or in the place, but rather in the meeting between the individual habitus, the activity's underlying meaning for the individual and the specific context where the activity takes place. In these meetings 'people do not approach a certain practice, such as a movement practice, from a rational point of view, but rather from an embodied one' (Engström et al., 2018, p. 895). Engström et al. (2018) suggest that the movement culture can be divided into different logics of practice. Competing and training are described as two of the most significant logics of sport. Experiences of nature is also described as a logic when considering a wider conceptualisation of the movement culture (Engström et al., 2018).

According to Bourdieu (1990) it is difficult to analyse and describe the essence of practice. He argues that 'the analyst is liable to fall into all the errors that flow from the tendency to confuse the actoŕs point of view with the spectator's point of view' (pp. 82–83). Further, he suggests that part of the problem with the actor's and the spectator's different relation to the practice is connected to time. In the efforts to uncover practice, science does not consider the meaning of time, which often result in a desituationalisation of practice. Bourdieu (1990) emphasises that an understanding of the logic of practice presupposes an awareness of the nature and quality of the used methodology

and also an awareness of that research findings are, to some extent historical, cultural and social constructions.

Method

This study reported in this paper was conducted in Sweden, as a part of a larger project with a focus on environmental sustainability in sport and outdoor recreation (Mistra, 2021). The sample of sports in the study, cross-country skiing and canoe slalom, was purposeful (Patton, 2002) as artificial arenas as well as 'natural' settings for both sports are located in the hometown of one of the authors. The sample of sports, and the landscapes connected to the sports, was of priority before trying to identify the participants from each sport.

As part of the purpose was to identify what *athletes* perceived as meaningful logics when practicing in cross-country skiing and canoe slalom in artificial landscapes, we needed to define *athletes* in order to know who to include within these contexts. One criterion for participation was that the athletes had to have recent experience of regularly practicing their sport in artificial courses as well as in 'natural' settings. While the initial idea was to include participants with a variation of previous experience from cross-country skiing and canoe slalom the athletes who was recruited to the study seemed to be a relatively homogenous group with regard to the preferences for training, performance and competition.

Drawing on a framework classifying level of 'eliteness', the eight athletes in the study can be categorised as ranging from 'semi-elite' to 'world-class-elite' as they were all competing, or had recently competed, on different levels (Swann et al., 2015). The expressions of the participants in this study must therefore be understood in relation to their similarities with regard to meaningful logics and preferences for the practice of sport, united by a taste for competitive logics (Bourdieu, 1990; Engström et al., 2018).

Altogether, eight athletes, four from each sport, took part in semi-structured, qualitative interviews (Brinkmann & Kvale, 2018). The cross-country skiers were personal contacts of one of the authors, while the canoe slalom paddlers were contacted through the head of the artificial canoe slalom arena. The participants' age ranged from 18–59 (seven male and one female). The males were all Swedes, while one canoe slalom paddler was a Scottish female. The interviews ranged from 45 to 75 min and were transcribed verbatim by an external part. Excerpts of particular interest were translated from Swedish to English. The conversations covered the following topics: personal background in the sport, motivators to practice the sport, comparison of practicing the sport in 'natural' and artificial context, environmental sustainability in the sport and the future for the sport.

Both authors were involved in a thematic content analysis of data (Braun et al., 2017). Using an abductive approach (Alvesson & Sköldberg, 2018), i.e. oscillating between data and theory in our analysis, we tried to become familiar with the material while simultaneously searching for codes that were of interest in relation to our aim of the paper. For example, when the conversations related to what the participants found to be meaningful logics in the practice of their sport this was highlighted to be of particular interest. This was also the case when statements dealt with artificial sport contexts or environmental issues in sport. Through processes of convergence and divergence (Patton, 2002), we have discerned the themes presented in the following section. We have not analysed the participants' habitus in terms of socio-economic and cultural background (Bourdieu, 1990) as this is beyond the scope of this paper.

Findings

We have divided the analysis into two main themes: Logics of practice in artificial landscapes for sport and: Consequences in the form of environmental challenges.

Logics of practice in artificial landscapes for sport

In this first section, we will present what we have identified as the participants' perceptions of *logics of sport practice* (Bourdieu, 1990) in artificial landscapes. The concept of *decontextualisation* of landscapes for sport (Sandell, 2011) will here serve as an important backdrop in order to understand the contexts in which the participants' practice their sports. In the second section, we analyse and discuss the consequences of the identified logics in terms of environmental challenges.

The logic of performance and competition

Several of the participants expressed that it is the logic of performance and competition (Engström et al., 2018) that is the main driving motivator in their pursuit of sports and that it does not matter in what environment the sport is performed. Within the logic of performance and competition, attention is not focused on the surrounding environment but on the actual achievement. Cross-country skier 3 and canoe slalom paddler 2 describes below what they see as the logic of their practice of sports.

> I have always loved competing, it's been a drive for my achievements. I didn't care much about where I am. I could do lap after lap on a football stadium right in Stockholm city. Competing was always the driving force for me. (Cross-country skier 3)

> I don't know, it's hard because one of the reasons I love slalom is because I am really competitive, and I really like feeling uncomfortable like feeling really angry, that sounds really bad but I like feeling really worried like when I race. And there is some attraction to like, because I know that that feeling is in my control to go make away as long as I try as hard as I can. So I think I am actually I am a little bit blind to my environment. (Canoe slalom paddler 3)

Canoe slalom paddler 2 explains below how the sport has developed with regard to the construction of artificial courses. In contrast to the notion that canoe slalom takes place in inaccessible and remote rapids where participance demands a full-day expedition, he describes that canoe-slalom competitions in artificial courses are rather easily accessible regarding their location and much like competitions in any other sport.

> Canoe slalom is very much like an arena-sport. Sort of like going to … to a track and field stadium! You go to a locker room to change, you jump in the water, get back, take a shower and perhaps a sauna. When you do canoe slalom it's like going to the gym. You're there for an hour and a half and then you're off! (Canoe slalom paddler 2)

As it appears in the above quote, the artificial construction of rapids has transformed canoe slalom into an arena-sport from something that previously took place 'natural' and sometimes remote rapids. Using the concept of Sandell (2011), this is an example of a *decontextualisation* of a landscape for canoe slalom in the sense that the context in which the sport is performed has changed with history. Yet another dimension within the logics of performance and competition (Engström et al., 2018) was to be able to 'shut down' the senses during training and getting the job done.

> You have to chase miles to get going, you have to do as much as you can for what's to come. When you do that you don't get much of nature-experiences or senses of freedom. It's more physically instrumental. You have to have a number of miles in your body, and doing laps on that course [the artificial skiing course, author's note] is part of it. (Cross-country skier 1)

> Sometimes you just have to bend your head down and go for it, to collect miles … Cause you know … on a longer workout you know that you have to stay within a certain time per kilometer. So … that's a motivator too … (Cross-country skier 2)

One part of the preparation for the competitive season appears to involve 'entering a bubble', and being in that bubble means being less receptive to other impressions. Drawing on the above examples, an increasing degree of sportification of the activity (Guttman, 1978), and particularly an increasing decontextualisation of the landscapes for the activity (Sandell, 2011), also influences the logics of sport.

The logic of predictability

The strive for control, comparability and security has a long history in the practice of sport (e.g. Elias & Dunning, 1986; Guttman, 1978; Johnson, 2009). One logic identified in the material was that being able to predict the environment and the natural forces (e.g. the texture of the snow or the force of the water in the white water rapids) appeared meaningful and important to the participants. The logic of predictability can in a sense be seen as a sub-logic to the logic of performance and competition (Engström et al., 2018) but appears to be particularly significant when practicing sport in artificial landscapes. In the quote below, it is expressed that an increasing sportification and decontextualisation drives the logic of predictability.

> We can control the flux so it's exactly the same. You don't run a ice-hockey-game on a rink outside. Even less so on a lake. It's the same in canoe slalom, you want to offer fair conditions … so being able to control the flux is crucial. (Canoe slalom paddler 4)

Interestingly, in the discussions of how conditions for training and competitions can vary in outdoor sports, one of the participants expressed that he was ashamed to admit that the logic of predictability was meaningful.

> Well, I have to admit … and it's sad to say, but when you compete in cross-country skiing you want the artificial snow! You often get a good grip for the poles, the tracks are much harder and the glide is better. It's more secure than natural snow, you can't trust natural snow, the temperature and the crystals … (Cross-country skier 3)

Besides the fact that the predictability imbued in artificial courses benefits the achievement, some participants also mentioned the aspect of safety. It was stressed that artificial courses, especially canoe slalom rapids, were much safer compared to natural ones. If performance, accessible safety and predictable training landscapes are key aspects for participants, then the routinised (some might say boring) repetitiveness of a ski tunnel or an artificial rapid becomes an advantage rather than an unfortunate drawback. From a performance perspective, a decontextualization of the conditions is perfect.

The logic of perceiving only the immediate surroundings

What to perceive when practicing sport in artificial landscapes seemed, for the interviewed participants, not to include paying attention to the surrounding nature. Within the logic of perceiving only the immediate surroundings, you focus on what is right next to you and on the individual achievement. As for the logic of predictability, the logic of perceiving only the immediate surroundings in artificial sport landscapes can be seen as a sub-logic to the logic of performance and competition (Engström et al., 2018). One tendency that was visible in this logic was that an increase of the elite level was connected to a decrease in the attention to the natural environment (and vice versa). Canoe slalom paddler 2 stressed that 'as an elite athlete you're on the course once or twice a day […] you don't think about it cause you're there for the training'. The same ideas were expressed by two of the cross-country skiers:

- Well, you don't get out much in the forest. You're down on this big pitch with giant lights. You have the fence around you, you're next to big houses in concrete. It is not at all the feeling of being outside in the free air that you can get when you go with your headtorch at night, on the track some hundred metres away.
- *So, what about experiencing nature?*
- No, no, there's nothing like that. (Cross-country skier 1)

> I don't look at nature when I am on the course [the artificial snow-course, authors' note]. No, I don't. But sometimes, especially when I have been a physical education teacher educator, I have met students without skiing experience or experience of being in the outdoors, they have thought this was nature. They even thought that the skiing tracks at Stockholm Stadium [football arena in Stockholm city, authors' note] could be called nature! (Cross-country skier 3)

As expressed by cross-country skier 3 above, there seemed to be an awareness of that 'what to perceive' can vary with individual preferences. Although this seemed to be an exception from the logics expressed by the participants, canoe slalom paddler 1 meant that paddling is 'natural so to speak, like a natural force with rollers and waves. Even if they are artificial it's something natural about it'.

Based on the quotes in the above three logics it seems that when sportified activities are practiced in artificial landscapes, it is difficult for the practitioners to find other things than the sport itself meaningful or to perceive logics besides the ones identified above. We should add here that through the interviews conducted in this study, we can only grasp what the participants *say*, and it could be different from what they actually *do* when practicing sport. It might be that in practice, the participants find other logics than the ones discovered to be important. As we will see in the next main theme, the participants reflect on the consequences of these logics in terms of environmental challenges.

Consequences in form of environmental challenges

In the following section, we analyse and discuss environmental challenges following the three logics identified above, both on a structural level and on an individual level.

Environmental awareness on structural and societal levels

Several of the participants in the study showed significant awareness on structural and societal levels of how outdoor sporting practice in artificial outdoor landscapes affects the environment and how it is conditioned by environmental considerations. Regarding canoe slalom, the issues raised in the interviews dealt with the energy demanded pumping water in artificial rapids and whether the water used was freshwater or seawater. The canoe slalom paddlers described their sport as relatively environmentally friendly regardless of if it is practiced in a 'natural' rapid or in an artificial one.

Regarding cross-country skiing on artificial ski tracks, the environmental issues raised in the interviews dealt with the water supply, the travels connected to skiing and whether or not fluoride-based ski waxes should be banned. The cross-country skiers expressed that there are attempts within the sport to make it more environmentally friendly, but also that there are a number of challenges and constraints connected to this endeavour. In the quote below, cross-country skier 1 touched upon the ambiguity and complexity involved in artificial landscapes for sport (Sandell, 2011), for example, regarding travelling. On the one hand, the artificial ski courses make skiing accessible to more people regardless of where they live, while on the other hand, they can also change the way practitioners travel to and from their exercise.

> Well, it's … the making of artificial snow is already a huge issue. I think it's a rather complex … You have lots of people engaging in a healthy activity with lots of qualities … just look at the tracks here and how many people that have got here from Stockholm. Yes, the travelling is a problem … there are more aspects of the climate in cross country skiing than the actual tracks themselves. (Cross-country skier 1)

With regards to the same theme, cross-country skier 3 reflected on that an increase of public transportation options could be a potential consequence of when new sport facilities are constructed.

> You could have a bus that took people up to here [to the artificial course, authors' note] from the city centre … perhaps it could pick up from different places in the city if you could see that people travelled less by car. And I know that there are many skilled skiers that take their bike to the skiing tracks here. If the cycle paths were better maintained during winter perhaps more people could consider taking the bike. (Cross-country skier 3)

Another environmental issue discussed was the flour ski waxes used by many competitive cross-country skiers. Lately, the International Ski Federation (FIS) has decided to limit the use of fluoride-based waxes as a step toward a total ban in competitions for cross-country skiing. Cross-country skier 2 meant that 'it would be good if they got rid of them'. Interestingly, he also reflected over what an impairment of glide would mean for the nature of the sport, suggesting that 'perhaps there would not be as much double poling' and 'perhaps we would get back to

when you used your legs again'. The late change of the former classic version of the sport, including a variation of classic techniques, to merely consist of double poling, was also brought up by cross-country skier 1. He critiqued the attempts to limit and govern athletes use of skiing technique.

> No, I think something is lost when you introduce strange rules such as a 'no-pole-zone', when the rules reduce the possibility of double-poling in a competition … I think that's very unnatural. (Cross-country skier 1)

The awareness of the environmental challenges in sports is clearly expressed in our study. The participants reflected critically over these challenges on a structural and societal level, and they also had ideas about how their sports can be more environmentally friendly. As we will see, when asked about their own actual actions, it seemed more complex for the participants to implement ideas into practice.

Absense of environmental action on an individual level

The analysis of the interviews show that structural conditions often make it difficult for the athletes to choose environmentally friendly options. This was very much the case when travelling was discussed, which is often governed by organisational regulations within the sports movement. Canoe slalom paddler 2, an elite level paddler who had competed in the World Cup and in the Olympics, reflected critically over environmental impacts of his travelling connected to his competitions around.

> Being an elite athlete it's very easy to become a hypocrite. It's very contradictory to push for environmental stuff on one hand, while at the same time you fly around the world as a manic to get to these places. For me it's difficult to push that image when I know I probably contribute more to these things [effects on the environment, authors' note] compared to average Joe. (Canoe slalom paddler 2)

The experience expressed in the quote above that athletes are almost captured by the system, with no other option but to follow the organisers' and product-suppliers' suggestions, also became evident when discussing the sport-specific products that the market supplies canoe slalom paddlers with.

> Both the paddles and the kayaks are made of carbon fiber, which is a material that has a high effect on the environment. The producers of the kayaks have to make them really light and hard. Carbon fiber is a material that is hard to change to anything else. (Canoe slalom paddler 2)

According to some of the more competitive participants in the study, the only way to make athletes choose more environmentally friendly options seems to be through regulations from their sport federations. Cross-country skier 3 describes the consequences of littering during Vasaloppet, one of the most prestigious long-distance cross-country ski races.

> When you start in the elite group, they [the organisers, authors' note] tell you that if you throw trash along the course you will get extra time. But apart from that I wouldn't say that environmental issues are very much discussed among the skiers … (Cross-country skier 3)

Canoe slalom paddler 2 had the same idea about how to make paddlers choose more environmentally sustainable products. He suggested that 'if ICF [International Canoe Federation, authors' note] would make a statement and say that 'now you can't use this material anymore', then it would sort of force to a change'. The expected ban of fluoride-based ski waxes also reflected how much the individual skiers in this study are willing to offer from their individual economy to ski more environmentally friendly.

- *Do you think the skiers will avoid fluoride-based ski waxes?*
- I think they will be phased out. If I go to myself, I mean, if I have a really good fluoride-based ski wax I don't throw it away. But if you plan to go in a race where it's forbidden, well then you have to adapt to that … (Cross-country skier 2)

Although a ban of toxic fluoride-based waxes will stop the actual production of products, it is possible, and based on the findings in this study perhaps probable, that they will still be used by cross-country skiers for a number of years to come.

We can see that the logics of performance and competition (Engström et al., 2018) and the sub-logics of predictability and of perceiving only the immediate surroundings that are made visible in this study are strong and makes it difficult for other logics to be experienced as meaningful for the participants in this study. For example, experiences of the natural surroundings in which the sport is practiced are rare to break through as this logic and is usually overshadowed by the logic of competition and performance (Bourdieu, 1990; Engström et al., 2018). This seems particularly to be the case when the outdoor sport landscapes are artificially constructed as a part of a decontextualisation process (Sandell, 2011). When discussing sport and environmental sustainability on a meta-level it seems as though the participants find these issues to be important and they also have ideas about how to overcome constraints with how to be environmentally friendly in sports. However, when the individual implementation of environmentally friendly behaviour means struggling with norms in the sport, personal financial loss, not having top-quality material or in other ways getting worse conditions compared to your competitors, it seems as if there is too much at stake for it to happen. Cross-country skier 3 describes a hypothetic situation involving the consequences of littering during a race.

> I wouldn't try twice to save it [the energy gel, authors' note] if I noticed it was falling out of my pocket during a race. I don't think many are willing to sacrifice their race for not littering. (Cross-country skier 3)

We believe that this quote reflects the hierarchical relation between the logics of performance and competition, with related sub-logics expressed in this study, and other logics that could potentially be found meaningful when practicing sport in artificial landscapes. The process of sportification (Guttman, 1978), which in this paper has been regarded as the driving force behind the decontextualisation of landscapes for sport (Sandell, 2011), is a backdrop towards which the strength of the dominating logics must be understood (Engström et al., 2018). The results of this paper mirrors that the challenges for an environmentally sustainable sport lies partly on a structural and societal level and partly on an individual level.

Discussion

In the following section, we will discuss our findings in relation to the concepts and theories previously described. The discussion is structured under three questions. The first question is focused on decontextualisation of sport landscapes (Sandell, 2011), the second question on logics in the sport and movement culture (Bourdieu, 1990; Engström et al., 2018) and the last question on the concept of contextual sport (Millington & Wilson, 2016).

What can a framework for landscape approaches offer for the understanding the decontextualisation of sport practice?

The artificial ski tracks and white water rapids in which this study were undertaken are decontextualised (Sandell, 2011), not only from the traditional forms and landscapes of skiing and canoeing, but also from the very foundation of cross-country skiing and canoe slalom as activities, i.e. natural snow and natural white water rapids. However, to say that the ski tracks and the white water rapids in this study are decontextualised (from their geography) does not mean they are without context. Instead, they have become part of new contexts built on the logic of performance and competition (Engström et al., 2018). These tracks offer predictable and safe conditions, they extend the seasons and they are of high quality for anyone who is primarily interested in the training effect. Drawing on the work of Sandell (2011, 2016; Sandell & Öhman, 2013), our study highlight that a decontextualisation of landscapes for two sports with a long cultural tradition involves a movement

from seeing the landscape as 'dedicated place to be utilized' into 'a factory for production of activities' (Sandell, 2016, p. 69). In more general terms this shift could mean that many peoples' approach to landscapes for practicing sport in, moves from active adaptation to active domination. Drawing on the recent development of indoor centres for sports that used to be conducted outdoors (Salome et al., 2013; van Bottenburg & Salome, 2010), we can probably expect an even greater spread in the indoorisation of already established and new sports. The decontextualisation and indoorisation are likely to increase sport's dominance over the environment, but it should be noted that unexpected events (such as the covid-19 pandemic) can disrupt the indoorisation trend. Although Sandell and Öhman (2013) argue that 'there is no belief in this approach [active domination, authors' note] as an inspiration for environmental concern' (p. 50), we suggest more studies need to be made of the potential benefits of artificial and decontextualised landscapes in terms of public health and accessibility.

What logics can be expected within an artificial context for sport?

As mentioned, the initial idea was to include individual participants to the study with a variation of sport habituses (Engström, 2008). However, the participants recruited from the artificial contexts were found to be relatively similar with regard to their taste for the logic of performance and competition (Engström et al., 2018). As our results indicate, these performance-focused landscapes also attract performance-focused athletes. Landscape and practitioners share the same logic of practice. This link between landscape and practitioner has historically been used by physiologists to develop training landscapes that encourage certain types of rationalised training. In the case of flood-lit tracks for running, the decontextualisation and portability was a key feature (Qviström, 2013). We see similar tendencies in the landscapes studied in this article. Building on our results above, we argue that the logics of practice that influence both athletes and the landscapes they use for training have, over time, become more and more influenced by a logic of performance and competition (Engström et al., 2018). This can be linked to the general sportification of (elite) sports, which has accentuated traits such as specialisation and standardisation (Guttman, 1978) at the expense of local variation, context and the environment.

Given the somewhat narrow characteristics in the sample, there is reason to question if a moral responsibility should be placed on the individual (elite) athletes for what they express about the environmental effects of their sporting practice? Our results indicate that some of the elite athletes in this study, to some extent, feel captured within the system and that they have limited possibilities to choose environmentally friendly options (for example, with regard to travelling and equipment). However, some results also indicate that there is a potential for improvement also on the individual level for taking action (for example, with regard not to using banned products). This study highlights the need for sport organisations, as well as for individuals, to intensify discussions about what an environmentally sustainable behaviour in sport could mean for taken-for-granted assumptions of how sport should be organised and to allow for alternative logics of practice in sport (Bourdieu, 1990).

What is the potential for sport and environment in contextual sport? Some concluding remarks

In order for sportification in general and artificial, standardised training landscapes, in particular, to be environmentally sustainable, the idea of *contextual sport* has potential (Millington & Wilson, 2016). This concept would allow for analysing the sportification process from an environmental perspective. If an indoor or outdoor ski arena with artificial snow can provide good conditions for cross-country skiing without causing excessive environmental impact, their benefits for public health and local economy may be worth the price. An aspect that is not covered in this paper but that calls for further attention is what social groups the artificial sport landscapes attracts. The design

of the artificial sport landscapes might stimulate certain logics to be perceived (Bourdieu, 1990; Engström et al., 2018) and could perhaps thereby contribute to more of equity in sport practice. However, if they cater only to a small and privileged group and are found to have a severe environmental impact, then their legitimacy could be questioned (Book, 2017). There is reason to question if the logics displayed in this study would have shown more variation given a greater variation of participants. If we were to have been more selective in our sample and were to have recruited participants at the sites, perhaps a greater variation in sport habituses than the now largely white, upper middle-class elite and semi-elite athletes would have been included. And perhaps other logics, such as playing or experiencing nature, would then have been expressed more clearly (Engström et al., 2018).

In line with the work of Millington and Wilson (2016), we argue that there is an urgent need for research that analyses the environmental impact of artificial and decontextualised training landscapes, and what would potentially be lost if such landscapes were not available. According to our study, exercisers and athletes claim to use these training landscapes in different ways and inscribe them with different meanings and values depending on which logic the individuals are primarily influenced by. If performance is key, then the role of the training landscape is also first and foremost to perform (i.e. to present the best possible conditions for performance). But if the athlete/exerciser see their training as a means of experiencing nature, then other values than performance and comparability become more important. When the environmental impact of individual athletes and of the artificial landscapes in which they do their training come under increased scrutiny, the role of logics of practice in the sport and movement culture needs further attention (Engström et al., 2018). Being aware of nature and the environment is also a logic that could be found meaningful, both for sporting individuals during certain conditions and in certain contexts and on a structural level in the process of making sports more sustainable. Contextual sport (Millington & Wilson, 2016), in the sense of sport landscapes adapted to local geography and context, will hardly be possible if performance is the only logic at play.

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