Coaching with Latour in the sociomateriality of sport: A cartography for practice

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While there is increasing recognition that sport is sociomaterial, little is known about what this means for an analysis of coaching practice. This paper develops a cartography of coaching based on an actor-network theory ethnography of two volunteer football coaches' practices in Scotland. A sociomaterial analysis generates anecdotes that are reordered into five parts: 1. moving from the eleven-a-side game towards a field of practice, 2. delegation, 3. quasi-object, 4. interruptions, and 5. manufacturing. Each part is accompanied with an analytical move inspired by Latourian actor-network theory. Coaching is conceptualised as a field of practice resting on three propositions. The first proposition is that coaches intervene by fabricating passages in practices which are always under construction. The second proposition is that materials and materiality shape practices in ways which can make players more, or less, disciplined. And the third proposition is for a local and situated sociomaterial competence where nonhumans are matters of concern. Coaching with Latour paves the way for a new space in the sociology of sport for studies dedicated to the sociomateriality of sport.

Keywords: Latour, actor-network theory, cartography, coaching practice, sociomateriality of sport

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Following the new materialist turn in sport sociology (Andrews, Thorpe, & Newman, 2019; Fullagar, 2017; Markula, 2019), this study builds on an emerging body of research examining sport/coaching from an actor-network theory (ANT) perspective. For example, Bunds et al. (2019) elucidated the political life cycle in the construction of a German football club SC Freiburg's stadium, whereby the old stadium became a *matter of concern* among a material public of humans, such as people from the local university, and nonhumans, such as birds and grass, that necessitated a new *matter of fact* sustainable stadium. Kerr (2014) drew on Latour's work to examine the role of nonhumans in gymnastics' practices and found that video cameras had a mediating role in self-coaching athletes, and chalk and water, honey, coca cola or hand guards came together with gymnasts' bodies in practices involving bars. Jonasson (2019) traced the use of Serres' "quasi-object" (i.e., passing of the ball in a game) but found it has received little uptake in sport research. Manley, Palmer, and Roderick (2012) also drew on Latour's concept "oligopticon" and Deleuze and Guattari's "rhizome" to show how surveillance is localised and dispersed in a football academy among coaches, managers, physiotherapists, and conditioning coaches. These studies demonstrate how ANT can develop a more in-depth understanding of materials and materialities in sport/coaching practices. However, there is still much to be understood about engagement in sport, particularly around coaching practice, where a sociomaterial analysis may prove useful. This article uses an analysis of coaching practice to further illustrate the contribution that sociomaterial approaches can make to the sociology of sport.

Coaching research, like much other sport research, has been preoccupied with what St Pierre (2011) calls a "conventional humanist qualitative inquiry" in which agency has been primarily attributed with individuals. In other words, our understanding of coaching has been predominantly considered from the points of view of coaches, athletes, and others including parents and personnel in governing bodies of sport (e.g., Cronin & Armour, 2015; Potrac, Nelson, & O'Gorman, 2016). This exemplifies an anthropocentric model of coaching (and sport), where the human, or social interactions involving humans, are the most important parts of coaching. But what if there was a different starting point for an inquiry into sport/coaching that does not privilege the voices of coaches or actions of athletes? Some have called this decisive break with humanism "*post*human" because it involves displacing the human from the centre of the inquiry. For Bradiotti (Bradiotti, 2013), once we leave

humanism behind "the subject becomes relational in a complex manner that connects it with multiple others" (p. 167). In coaching research, as with sport research more generally, however, the subject holds prominence over the object. In other words, the very materials and materiality of coaching and sporting practices have most often been downplayed or completely ignored (Kerr, 2014). Consequently, we have only ever been provided with what Latour (2007) calls a "thin description" of coaching and sporting practices because they do not explain anything about the gathering of humans *and* nonhumans. This paper presents an alternative conceptualisation of coaching practice through Latourian ANT. Specifically, this paper aims to develop a cartography, or what Serres and Latour (1995, p. 112) call a "general theory of relations", of coaching from the associations (human and nonhuman) that allow practices to hang together. Serres and Latour (1995, p. 106) proposed a "philosophy of propositions" that has two elements: first, "pre-position" denotes the tracing of relations between actors; and second, "pro-position" produces a map or general theory of relations. Latour (2013, p. 57, emphasis original) distinguished between "pre-positions" in the literal grammatical sense for marking a *position-taking*, and "pro-positions" denotes a position that is come to once the relations have been traced. At the start of the cartography, we do not know what these actors are or what they do because they precede any position (in the preposition sense) and only gain meaning from their relations. But once the relations have been traced, a picture should emerge, a map for which we will be able to see a general theory of relations (Serres & Latour, 1995). We believe that such a cartography of coaching might provide an empirical and theoretical basis that can deepen our understanding of the sociology of sport.

In what follows, first we provide some of the key assumptions of Latourian ANT. Then we present the ANT ethnography, followed by the cartography of coaching and its key propositions. Finally, we conclude with some implications of coaching with Latour.

Latourian Actor-Network Theory

This section sets out some of the key assumptions of Latourian ANT that can help to question, challenge, and contribute (Neyland, 2008) to our understanding of the sociology of sport from a focus on coaching practices. Latourian ANT starts with an assumption that practices are sociomaterial; that is, they are constituted by social and material relations. Mulcahy (2012) referred to this as "seeing double", where the success of a practice is contingent upon both social and material elements. Sociomateriality argues that all materials

(e.g., objects) are social in the way that they are created through social processes, where action is contingent upon materiality. Sandberg and Tsoukas (2011) questioned any attempts at separating subjects and objects because the logic of a practice is in the "entwinement" of social and material relations. ANT provides a useful methodological approach because it encourages us to question the separation between social (e.g., coaches, athletes) and material (e.g., cones, balls, bibs, goals) relations. In this sense, sport and coaching practices are sociomaterial because they are always already "more-than-human" (Lupton, 2019).

A second assumption of Latourian ANT is that it grants humans and nonhumans an equal right to agency. Agency is not only the prerogative of humans (MacLure, 2015, p. 2) but extends to nonhumans that, too, are an essential element of coaching practices. By doing so, the "anthropocentric gaze" (Tummons & Beach, 2019) in sport/coaching research is challenged where humans, such as coaches or athletes, are no longer privileged as the starting point and predominant focus in research. Subject-subject relations do not hold any priority over subject-object relations (Reckwitz, 2002). For example, what is football without the ball? The ball is just as important as players. ANT's "democratic" (Harman, 2009) right to all actors means that no actor (e.g., coach, athlete, ball, cone) is privileged above another.

A third assumption of Latourian ANT is that action is a relational accomplishment and anything outside of these relations does not exist (Harman, 2009). Latourian ANT "sticks to the empirical task of tracing the establishment of relations" (Latour, 1999, p. 120). According to de Vries (2016), Latourian ANT is an "empirical philosophy":

> Latour goes out to do ethnographical research. For want of a better name, we may call him an "empirical philosopher". Neglect his empirical work and you will completely lose his philosophy; disregard the philosophical intent and you will be bogged down in a bewildering set of disparate books and papers. (de Vries, 2016, p. 11)

The empirical emphasis on Latour's philosophy has the potential to contribute to the sociology of sport, including coaching research, by providing a "thick description" of practices as opposed to a "thin description" that does not explain anything about the gathering of humans and nonhumans (Latour, 2007). The contribution of all these points is what allows the ANT account to be robust.

Actor-Network Theory Ethnography

An ANT ethnography formed the basis of fieldwork that consisted of observations in two community football clubs over a season. This section details the negotiation of access to clubs, followed by the data gathering methods, including video recordings and fieldnotes. We then go on to detail the sociomaterial analysis that developed a cartography based on anecdotes or short stories about coaching practices whilst in the field.

Community Football Clubs

Two community football clubs and volunteer coaches were nominated by the Scottish Football Association and Club Directors, respectively. Both clubs were rated legacy (now platinum) in the *Quality Mark Scheme*, which is the highest level of award for community clubs in Scotland (Scottish Football Association, 2021). The *Quality Mark scheme* is a tiered quality assurance framework that sets rigorous standards to ensure community football clubs in Scotland are fit for purpose (Scottish Football Association, 2017). George (pseudonyms applied) was in his first year of coaching the 2006s (twelve-year-olds), whereas Paul had coached the 2007s (eleven-year-olds) over an eight-year period. Both coaches practised up to three times a week with games at the weekend in the West (Paul) and Southwest (George) regions in Scotland.

Data Gathering Methods

Following ethical approval from the authors' institutional ethics panel, audio-visual observations took place once a week lasting approximately two hours in each club (80 hours in total) during the 2018/19 youth football club season. Observation as a standalone method is the "hallmark" (MacLeod et al., 2019) of previous ANT ethnographies (e.g., Latour, 2010a). The first author and tripod were always placed outside practice areas to minimise obtrusiveness. However, sometimes the video camera became obtrusive when the first author was referred to as "cameraman" by some players. This is consistent with Pink (2006) who argued that video cameras become part of the researcher's identity in ethnographic research, as they influence the way informants communicate with you. Fieldnotes, written in the third person, were the primary data gathering method where the focus of writing was on the description of the practice at hand. They took a jotted form in a bullet point list as the first author's attention often shifted between different actors at any given time. Sketches of some practices were also produced to give a visual snapshot of the practice at that point of time

during the session (see Figure 1). In comparison with the detailed descriptions of fieldnotes, the sketches helped the first author attune to the practice arrangements that might not have been discernible from a reading of the text alone. Handwritten fieldnotes were typed on a laptop as soon as possible after the observation. Typed fieldnotes took approximately the same time to transcribe as the length of each session (1.5 to 2 hours). Although fieldnotes were the main reference point for writing the sociomaterial analysis, they did not feature in the cartography themselves because they were too unruly in their jotted form.

Insert Figure 1 here

Sociomaterial Analysis

The sociomaterial analysis focused on writing anecdotes or short stories about how social and material relations came together in practices (Adams and Thompson, 2016). In total, there were five anecdotes about coaching practices that came about during fieldwork in the following order. The first anecdote focused on the ball rather than coaches or players, as in conventional humanist qualitative inquiry (St Pierre, 2011). The second anecdote came about from the first author's subsequent interest in different practice arrangements that the coaches set out on the Field of Play. The third anecdote focused on interruptions in practices. The fourth anecdote considered the strangeness of moving around on the Field of Play during practices. The fifth anecdote was sparked from a memorable comment by Paul who described an attacking versus defending practice as "manufactured". The overall framing of the short stories consisted of selecting, grouping, and organising multiple fieldnote entries across several practices (see Figure 2). Fieldnote entries were first selected by the first author who wrote down all entries on an A3 sheet of paper. An entry was only selected if it was relevant to the anecdote that was being developed. The entries were then grouped together based on their similarities and differences. The five stories were then compared to readings of how Latourian ANT concepts have been used for studying practices over the course of his career.

Insert Figure 2 here

Developing a Cartography of Coaching

The cartographic metaphor can be understood from the development of Western cartography during the Renaissance which enabled international trade and territorial conquest. Latour (1987) attributed the dominance of Western cartography to the actor-network of cartographic

theory, mapping technologies, and regimes of trade and service which all had to work together to produce maps as "immutable mobiles". Immutable because maps are stable entities of legible knowledge but also mobile in the way that they can be combined and transferred forms of knowledge for sea merchants who traversed the world. Maps are not *a priori* (i.e., immutable) because they do not have meaning on their own but gain reality (i.e., become mobile) through their relations with people, discursive processes, and material things (Kitchen, Perkins, & Dodge, 2009).

The cartography was determined by reordering the anecdotes into five parts of coaching practice: (1) moving from the eleven-a-side game towards a field of practice,[1] (2) delegation, (3) quasi-object, (4) interruptions, and (5) manufacturing. The rationale for reordering anecdotes was because they came about at different times during fieldwork. Thus, the parts give a sense of ordering for how coaching was practised. The reordering of anecdotes into parts was informed by analytical moves derived from a close reading of ANT (particularly Latour and Serres). Each move offers an analytical concept of Latourian ANT for speaking about different parts of coaching: *actors*, who can be human and nonhuman (Latour, 2005); *networks*, which are how actors become assembled (Latour, 1996); *trials of strength*, which define what actors do (Latour, 1999); *translation*, which describes how actors relate to each other (Latour, 1996); and *articulated propositions*, which grant others the ability to speak about an assembled actor-network (Serres & Latour, 1995).

Results and Discussion

This section presents a cartography of coaching practice based on the sociomaterial analysis. Following the moving parts in Figure 3., the cartography starts by moving from the eleven-a-side game towards following the humans and nonhuman *actors* that make up coaching as a field of practice. Second, coaches delegate authority to actors in *networks* or specific practice arrangements. Third, actors become defined through *trials of strength* as they circulate in passages. Fourth, coaches *translate* by recreating an interrupted passage, giving an alternative, or starting the passage anew so that the practice can return to continuity. Fifth, coaching is manufactured where it is at once constructed and fabricated by coaches who *articulate propositions* to coach well.

Insert Figure 3 here

Move one (actors): Moving from the eleven-a-side game towards a field of practice

The initial focus was on the eleven-a-side pitch, but this does not mean it was privileged as a more powerful actor than any other, as that would be antithetical with ANT. Rather, it was precisely because the eleven-a-side pitch was the starting point for moving towards a field of practice. The Field of Play has a certain formalism for how the eleven-a-side game is understood as *the eleven-a-side game*. According to Kretchmar (2015), formalism in sport is predicated on the laws of the eleven-a-side game and one must simply follow game rules. Each law entails classifications enforced under certain situations that are intended to be universally applied across the world at all levels of organised formal sport. In football, the laws of the eleven-a-side game are materialised in the form of a 246-page document of text and figures governed by the International Football Association Board (IFAB, 2019). For formalism to be upheld, only those who follow the laws can be said to be playing the eleven-a-side game. Thus, the laws are an external referent for the Field of Play.

The first move involves a "displacement" (Bloomfield & Vurdubakis, 1999, p. 627), as the Field of Play transformed from the eleven-a-side game towards a field of practice. We begin by following the actors that make up coaching as a field of practice. Latour (2005, p. 108) returns to the oldest etymology of the word "social" deriving from the Latin word *socius* for following someone else, a follower, an associate. To follow the actors themselves (Latour, 2005) entails the '"art of describing" everything and the possibility of going from one type of visual trace to another (Latour, 2012, p. 10). Actor is a more inclusive term that captures the symmetry of both humans and nonhumans (Callon, 1986). However, Collins and Yearly (1992) took issue with the agency of nonhumans, but Callon and Latour (1992) clarified that symmetry is not giving "scallops voting power ... or door closers entitled to social benefits and burial rites" (p. 359).

At both clubs, practices were located on one third of the pitch with an eleven- and two seven-a-side goals, six-yard box, eighteen-yard box, two corner points, and double yellow or white lines separating other club teams' thirds. In move one, the Field of Play "leapt to the foreground as a concern" (Bunds et al., 2019, p. 7) as coaches, who were armed with cones, bags of bibs and balls, moved from the eleven-a-side game towards a field of practice.

Move two (network set-ups): Delegation

The next move considers the network set-ups or the specific configurations that actors become enrolled within. The word "network" derives from the French term "reseau", which translates to the many lines that converge in the form of a net (Latour, 1996a, p. 370). Cones dotted around the Field of Play were often delegated with authority by coaches for marking the boundaries of practice areas, most often in the place of white lines emblazoned on the Field of Play (Maclean, 2021). In this way, cones *acted* to discipline players to stay within the new practice arrangements. For example, Paul approached the first author during a wall player practice and said that he's going to "change the practice to dictate play [with] less players in the middle to create opportunities for gaps and passes".[2] Bibs also identified who's who in a practice. Otherwise, it would become increasingly difficult to distinguish between players and their positions.

The coaches also embedded conditions within practice arrangements. In ANT, conditions were like what Callon (1986) calls an "obligatory point of passage"; the first of four "moments" of translation where fishermen, scientific colleagues, and scallops entered an alliance to domesticate the scallops. In coaching practices, the condition became obligatory for the players to *pass* through. For example, George added a condition during the gate-game of five passes for the players in possession of the ball before passing it across to the other half of players.[3] When players did not pass through the condition, they were quickly reminded of its *obligatory point of passage*. On one occasion when a ball was passed across to the other side of the eighteen-yard box, George's assistant coach threw up his hands hysterically and a player said "that wasn't a one-two" whilst looking at George. In the example of the gate game, not only did the ball indicate if the defenders had won the ball, but so too did the condition. And only if the players passed through the condition would the coaches introduce a progression, which was progressively more challenging than the preceding condition. In the second move, network setups were mapped from how actors (e.g., cones, bibs, balls, players, conditions, and progressions) became delegated with authority by coaches in different practice arrangements.

Move three (trials of strength): Quasi-object
Now actor and network have been introduced, we consider how practices become a "trial of strength". According to Latour (1999, p. 311) actors are defined by what they *do* in staged trials, and these can be experiments of various sorts. An actor-network is not composed of ready-made associations but requires work in forging associations so that actors can enter a

network. Latour (2002) calls this a "variable-ontology world" because actors don't "swim twice in the same river" (p. 175). Actors constantly define one another as they act with no guarantee of stability in time.

As the ball circulated in practices, it transformed the player in connection with it (quasi-object), and others around it, who attempted to become the subject of the ball (quasi-subject) (Serres, [1980] 2007). The coaches identified the "middle" of practices as a "problem". Paul used the analogy "still bunched up" as an indication of players jostling for the ball in the middle of practices. The coaches often reminded players "not to rush into the middle as it becomes congested" and instead instructed the players to "stretch the eleven-a-side game". In an attacking versus defending practice, Paul indicated that the players had a "narrow vision" because all they were "thinking about is going there" [pointing towards the eleven-a-side goal]. He then told some players that they needed to get "wide and not go direct all the time". The players had a tendency of "naturally coming in" and instead he encouraged them to "naturally get wide". George's assistant coach encountered a similar problem when he said players were "getting into trouble all the time as they are surrounded by players". In response to players "bunching" towards the ball, Paul asked the wall players to pick up their red cones (starting position) and move them further afield. But as the practice started again, Paul noticed that the players had "all ran in again", and later said, "every time we come in here [the middle], we cannot play football". The wide players on either team were then told to stay in the seven-a-side box areas, referred to by Paul as "end zones", to help them "see it, you've got to visualise where we're going". In another attacking versus defending practice, Paul asked, "who passes the ball? Player closest to the ball. So, what do the rest of you do? Get back in position". In the trials of strength of move three, the quasi-object and eleven-a-side goal became objects of concern involving players on and off the ball.

Move four (translation): Interruptions

Practices that withstand trials of strength continue up until there is an interruption. Whilst there were countless interruptions in any given passage (e.g., the ball goes out)[4], some warranted the attention of coaches and others did not. Those that did signalled a discontinuity or weakness in the actor-network and the coaches subsequently intervened in the practice. Latour's (1996) concept of translation was helpful for speaking about interventions because it describes the effects of what happens when actors connect, partially connect, or fail to connect as they undergo trials.

When the coaches intervened in a practice they set out "an investigation for what might have gone wrong" (Denison, 2007, p. 369) by recreating, proposing an alternative, or starting the passage anew. Recreating passages gave coaches an opportunity to revisit a passage called into question up to the point of an interruption. For example, in a freeze moment during a wall player practice, Paul asked whether a player was "happy with their position"? To the player's "yes" response, Paul quizzed, "are you"? And then Paul said, "no" and highlighted a "massive gap" between the players, who were "too flat". Without the intervention, the players' positions might have continued to flatten whilst playing too far apart from the others. Alternative passages granted coaches the ability to rework a passage from the point of an interruption with a desire to maintain continuity. The coaches sometimes even "enrolled" (Callon, 1986) themselves when recreating and giving an alternative passage. For example, when a player lost possession of the ball from a misplaced pass during another variation of a wall player practice, Paul intervened and replaced the ball player who became temporarily excluded. Paul then highlighted the problem when he said, "we're in the wrong position". Then, as the passage was recreated for a second time, Paul demonstrated an alternative by "tak[ing] it on your back foot, open it up, I'll go and pass it there to Zara [wide player]". Although not directly expressed, the loss of possession was precipitated by the player taking the ball on his front foot with a closed body position. Without the intervention, the intercepted pass might have been identified as the only reason for the loss of possession. New passages did not necessarily follow from recreated or alternative passages. The coaches sometimes used the expression "games dead" to signal for a passage to start anew. In the fourth move, coaches were often called into action after an interruption. But how do we know what coaches *propose* has been well *articulated*?

Move five (articulated propositions): Manufacturing

During an attacking versus defending practice, Paul said:

> I know it's manufactured, and we don't play in this way, we would be bigger. If we didn't have the 2012's [seven-year-old age group] tonight, we would be doing it at the halfway line, half the structure. Yeah, just get an idea of it, it's a big park.

As expressed by Paul, the Field of Play became "manufactured". Manufacturing etymologically infers something being made and at the same time fabricated (Online

Etymology, 2020). This recognises that coaching practices are at once constructed processes of assembling, disassembling, and reassembling the Field of Play, and fabricated passages which are "ideal" interpretations envisaged by coaches for how the actors could move. Constructed, as the attacking versus defending practice was assembled with cones, cones as goals, bibs, players, and rules. But to say coaching is constructed is not enough. Although construction gives a glimpse of how nonhumans become actors in practices, authority however is still largely associated with coaches. Cones, balls, bibs, and goals do not *object* but rather simply take their position on the Field of Play. At the very least, construction recognises the agency of nonhumans as actors which has been a limitation of previous conceptualisations of coaching practice (Kerr, 2014).

Fabricated, as there are no laws of practices that prohibit coaches from intervening. A greater emphasis on invention was required by players in practices when there was less assembling because there were fewer markers (cones) to guide players' passages. Perhaps this is also why players took so many detours away from their positions to be the subject of the ball! Therefore, practices are considered trials of strength: will players be led astray, or not? Practices only remain stable so long as they continue uninterrupted, or at least until they come to an end. But such a utopian vision of participation in sport is unsatisfactory because interruptions are one of the distinguishing parts of coaching. Indeed, fabrication allows coaches to intervene and fabricate passages that would not have otherwise occurred if it was during the eleven-a-side game. Consequently, it is precisely what coaches propose from the many articulations between what the actors *do* (i.e., construction) and what they *could do* (i.e., fabrication) that lies at the essence of developing a theory of relations of coaching as a field of practice.

In summary, coaching is constructed through processes of assembling, disassembling, and reassembling the Field of Play. Manufacturing is an apt expression for describing coaching as its own field of practice. It is precisely the contradictory position coaches have in the eleven-a-side game (i.e., non-intervening) which grants them agency in fabricating passages in practices.

General Discussion

This paper has presented an alternative conceptualisation of coaching practice through Latourian ANT. The aim was to develop a cartography of coaching from the associations

(human and nonhuman) that allow practices to hang together. Now that the relations have been mapped (Serres and Latour 1995), three propositions can be derived from the cartography of coaching. The first proposition is that coaches intervene by fabricating passages in practices which are always under construction. The second proposition is that materials and materiality shape practices in ways which can make players more, or less, disciplined. And the third proposition is for a local and situated sociomaterial competence where nonhumans are matters of concern.

The first proposition adds to our understanding of the coaching intervention as not only constructed (i.e., to discipline) from what the actors *do*, but also how it is fabricated by what the actors *could do*. Manufacturing is further supported by the ontological difference between coaching and the eleven-a-side game because in the latter coaches would not be allowed to intervene.[5] Spending time explicating such differences between the eleven-a-side game and coaching might appear to be "moot", but Tummons (2020) persuasively suggested that if such differences remain unchallenged, they might become entrenched and be presented "immediately, unproblematically, and without mediation" (p. 48). But even as the materiality of materials was put back in, there was still a desire by the coaches in this study to cling to the eleven-a-side game, and especially near to the end of the session when they would organise a "game" or "match". The emphasis on the eleven-a-side game in practices is perhaps because we realised, with some "disconcertment" (Verran, 1999), that they both take place on the same Field of Play. This then raises a question about whether the Field of Play still exists during coaching practices which usually took place on a third of the pitch? Well, we cannot argue that it does not exist, but Denison (2010), in speaking through a Foucauldian lens, argued that training plans are discursive practices:

> Although it might appear to be more natural to run on beach than a track, once a sand
> dune is measured and made into a course is it really any more natural than a 400-
> metre oval? (Denison, 2010, p. 471)

This point captures the ontological difference between the eleven-a-side game and coaching that we are making here. Practices can take many forms as Denison makes clear. In running, practices are not limited to the track but can take place on a beach or something other, so long as it is oval shaped. This means that the coaches' practices in this study have a *being* that is crucially different from the eleven-a-side game. However, what cannot be said is that the

Olympic 100 metre event can take place on a beach or an eleven-a-side game on a third of the pitch – as would be the case in practice. This might suggest that the eleven-a-side game and coaching have different *beings*. Instead of the Field of Play there is a field of practice; instead of the Laws of the Game there are rules;[6] instead of play there are passages; instead of games there are practices; instead of context there are actors. This is not to say that coaches cannot talk of the eleven-a-side game when coaching, but if they do, they must translate the differences between them every time.

The second proposition is that materials and materiality shape practices in ways which can make players more, or less, disciplined. For example, Manley, Palmer, and Roderick (2012) showed how video analysis can be used as a disciplinary mechanism for making athletes' bodies docile. In this study, zones of cones became delegated with the authority to discipline players on staying within the boundaries of marked practice areas. Some actors were immobile, such as cones and goals; mobile, such as players; and others only became mobile when combined with another, such as balls and bibs. But as actors came together to form practice arrangements, immobile actors had a somewhat constraining effect on mobile actors, whereas in practices where the agency of players was not constrained, coaches found it more difficult to control or discipline players. Materiality can also shape practices in ways that makes players less disciplined, especially when the ball is in connection with a player (i.e., quasi-object). Although the quasi-object has received little attention in sport research (Jonasson 2019), it was a "vital player" (Bennett, 2010) in this study.

The third proposition is for a local and situated sociomaterial competence where nonhumans are matters of concern. Competence derives from the Latin *competentia*, which means "meeting together, agreement, symmetry" (Online Etymology, 2021). Coaching well is not solely the competence of coaches because that would be to mistake intervening as something that is done only by coaches when really, they speak "on behalf" of an actor-network (Latour, 2004b). Nonhumans are "matters of concern" (Latour, 2004a) only when they are granted equal agency with humans in practices. In this study, nonhumans were just as important as humans in coaching practices. This is consistent with Bunds et al. (2019) who argued that human and nonhuman involvement is intertwined. However, nonhumans are often nowhere to be seen in coaching research (Kerr, 2014). If we continue to ignore and leave matter backgrounded, our understanding of coaching practice will be partial at best or misguided at worst.

Concluding Thoughts: On Coaching with Latour

As demonstrated in this paper through an analysis of coaching practice, the sociomateriality of sport has much to offer the sociology of sport. As the title of this paper indicates, by following the moving parts of the cartography, coaches are coaching with Latour, where Latour is the "spokesperson of the nonhuman actors" (Bloomfield & Vurdubakis, 1999, p. 642). However, the moving parts of the cartography are not to be seen as a "framework" (Latour, 2005) that is prescriptive, but rather acts like an immutable mobile (Latour, 1987): the parts keep coaching somewhat stable and the moves recognise that practices can change because they are mobile and messy (Bowes & Jones, 2006; Cushion, 2007; Cushion et al., 2003). Although the cartography is an illustration of a sociomaterial analysis specific to football, we believe it can offer others a method for studying sporting practices more generally. Sociomateriality can also help to further elucidate how other categories like gender, ethnicity, and social class become embodied in the enactment of sporting and coaching practices (Kerr, Edwards, & Konoval, 2022). With that said, we encourage other researchers in the sociology of sport to test out the moving parts of the cartography across different sports (e.g., rugby or hockey) and contexts (e.g., disability sport). After all, like in any theory of relations, the "turbulences keep moving" and "flames keep dancing" (Serres & Latour 1995, p. 112).

Footnotes

1   A field of practice is specific to practices of coaching, whereas the Field of Play belongs to the eleven-a-side game.
2   The wall-player practice consisted of three groups, two competing for the ball on the inside and another group standing along the perimeter of the practice. For the groups competing for the ball on the inside, there is an expectation of passing the ball to a wall player who returns the ball to the group in possession.
3   The gate game consisted of a line of white cones that split the eighteen-yard box in two halves, with bibs given to two thirds of the players and balls placed in the "D". There are three groups of players: two groups (attackers) on either side of the box, and another group standing along the white line of cones (defenders).
4   Both Paul and George were often armed with balls ready to be enrolled in anticipation of when a ball went out of the marked practice areas.
5   However, we recognise that interventions in football are different across other sports. Further research is needed to determine how interventions differ across sports.
6   There was a sense of rules from the ordering of spaces, bodies, and objects in the coaches' practices. Although it was not clear where these rules derived from, both coaches did attend coach education programmes where rules can come in the form of a CD-ROM and booklet (Maclean, 2021). But we recognise that even in a highly professionalised sport like football, engagement with coach education for community

coaches can be limited. Therefore, although rules may exist in the form of materials provided in coach education, this requires that the coaches attend to access them.

References

Adams, C., & Thompson, T.L. (2016). *Researching a posthuman world: Interviews with digital objects*. London, England: Springer.

Andrews, D.L., Thorpe, H., & Newman, J. (2019). *Sport, physical cultures, and the moving body: Materialism, technologies, ecologies.* Rutgers, NJ: Rutgers University Press.

Bennett, J. (2010). *Vibrant matter*. London, England: Duke University Press.

Bowes, I., & Jones, R.L. (2006). Working at the edge of chaos: Understanding coaching as a complex, interpersonal system. *The Sport Psychologist, 20*(2), 235-245. doi: 10.1123/tsp.20.2.235

Bloomfield, B.P., & Vurdubakis, T. (1999). The outer limits: monsters, actor networks and the writing of displacement. *Organization*, *6*(4), 625-647. doi: 10.1177/135050849964004

Braidotti, R. (2013). *The posthuman*. Cambridge, England: Polity Press.

Bunds, K.S., McLeod, C.M., Barrett, M., Newman, J.I., & Koenigstorfer, J. (2019). The object-oriented politics of stadium sustainability: A case study of SC Frieburg. *Sustainability*, *11*(23), 1-17. doi: 10.3390/su11236712

Callon, M. (1986). Some elements of a sociology of translation: domestication of the scallops and the fishermen of St Brieuc Bay. *The Sociological Review*, *32*(1), 196-233. doi: 0.1111/j.1467-954X.1984.tb00113.x

Callon, M., & Latour, B. (1992). Don't throw the baby out with the bath school! A reply to Collins and Yearley. In A. Pickering (Ed.), *Science as practice and culture* (pp. 343-369). London, England: The University of Chicago Press.

Collins, H.M., & Yearly, S. (1992). Epistemological chicken. In A. Pickering (Ed.), *Science as practice and culture* (pp. 301-326). London, England: The University of Chicago Press.

Cronin, C., & Armour, K.M. (2015). 'Being' in the coaching world: new insights on youth performance coaching from an interpretative phenomenological approach. *Sport, Education and Society*, *22*(8), 919-931. doi: 10.1080/13573322.2015.1108912

Cushion, C.J. (2007). Modelling the complexities of the coaching process. *International Journal of Sports Science & Coaching, 2*(4), 395–401. doi: 10.1260/174795407783359650

Cushion, C.J., Armour, K.M., & Jones, R.L. (2003). Coach education and continuing professional development: Experience and learning to coach. *Quest, 55*(3), 215–230. doi: 10.1080/00336297.2003.10491800

Denison, J. (2007). Social theory for coaches: A Foucauldian reading of one athlete's poor performance. *International Journal of Sports Science & Coaching*, *2*(4), 369-383. doi: 10.1260/174795407783359777

de Vries, G. (2016). *Bruno Latour*. Cambridge, England: Polity Press.

Denison, J. (2010). Planning, practice and performance: the discursive formation of coaches' knowledge. *Sport, Education and Society*, *15*(4), 461-478. doi: 10.1080/13573322.2010.514740

Fullagar, S. (2017). Post-qualitative inquiry and the new materialist turn: Implications for sport, health and physical culture research. *Qualitative Research in Sport, Exercise and Health*, *9*(2), 247–257. doi: 10.1080/2159676X.2016.1273896

Gherardi, S. (2012). *How to conduct a practice-based study: Problems and methods*. Gloucestershire, England: Edward Elgar Publishing.

Harman, G. (2009). *Prince of networks: Bruno Latour and metaphysics*. Melbourne, Australia: re. press.

Jonasson, K. (2019). 'Sport qua science': Michel Serres' ball as an asset of knowledge. *Sport in Society*, *22*(9), 1512-1527. doi: 10.1080/17430437.2018.1435029

Kerr, R. (2014). From Foucault to Latour: Gymnastics training as a socio-technical network. *Sociology of Sport Journal*, *31*(1), 85-101. doi: 10.1123/ssj.2013-0015

Kerr, R., Edwards, S., & Konoval, T. (2021). The athlete-as-network and the athlete multiple: potential contributions of actor-network theory to sports coaching research. *Sports Coaching Review*, *11*(1), 5-22. doi: https://doi.org/10.1080/21640629.2021.1995238

Kitchen, R., Perkins, C., & Dodge, M. (2009). Thinking about maps. In M. Dodge, R. Kitchen & C. Perkins (Eds.), *Rethinking maps: New frontiers in cartographic theory* (pp. 1-25). London, England: Routledge.

Kretchmar, S. (2015). Formalism and sport. In M. NcNamee & W. J. Morgan (Eds.), *Routledge handbook of the philosophy of sport* (pp. 23-33). London, England: Routledge.

Latour, B., & Woolgar, S. (1986). *Laboratory life: the construction of scientific facts*. Chichester, England: Princeton University Press.

Latour, B. (1987). *Science in action: How to follow scientists and engineers through society*. Harvard, MA: Harvard University Press.

Latour, B. (1988). *The pasteurization of France*. Harvard, MA: Harvard University Press.

Latour, B. (1996). *Aramis or the love of technology*. Harvard, MA: Harvard University Press.

Latour, B. (1999). *Pandora's hope: essays on the reality of science studies*. Harvard, MA: Harvard University Press.

Latour, B. (2002). Gabriel Tarde and the End of the Social. The social in question: new bearings in history and the social sciences. In P. Joyce (Ed.), *The social in question. new bearings in history and the social sciences* (pp. 117- 132). London, England: Routledge.

Latour, B. (2004a). Why has critique run out of steam? From matters of fact to matters of concern. *Critical Inquiry*, *30*(2), 225-248. doi: 10.1086/421123

Latour, B. (2004b). *Politics of nature*. Harvard, MA: Harvard University Press.

Latour, B. (2005). *Reassembling the social: An introduction to actor-network-theory*. Oxford, England: Oxford University Press.

Latour, B. (2007). Can we get our materialism back, please? *Isis*, *98*(1), 138-142. doi: 10.1086/512837

Latour, B. (2010a). *The making of law: An ethnography of the Conseil d'État*. Cambridge, England: Polity Press.

Latour, B. (2010b). An attempt at a 'compositionist manifesto'. *New Literary History*, *41*(3), 471-490. doi: http://www.jstor.org/stable/40983881

Latour, B. (2012). Visualisation and cognition: Drawing things together. In: H. Kuklick, (Ed.), *Knowledge and society studies in the sociology of culture past and present* (pp. 1- 40). Stanford, CA: Jai Press.

Latour, B. (2013). *An inquiry into modes of existence*. Harvard, MA: Harvard University Press.

Lupton, D. (2019). 'Things that matter': poetic inquiry and more-than-human health literacy. *Qualitative Research in Sport, Exercise and Health*, *13*(2), 1-16. doi: https://doi.org/10.1080/2159676X.2019.1690564

Maclean, J. (2021). The 'Lieutenants' of coaching: How materiality shapes coach

developers' practices. *Somatechnics*, *11*(2), 265-282. doi: https://doi.org/10.3366/soma.2021.0355

MacLeod, A., Cameron, P., Ajjawi, R., Kits, O., & Tummons, J. (2019). Actor-network theory and ethnography: Sociomaterial approaches to researching medical education. *Perspectives on Medical Education*, *8*(3), 177-186. doi: 10.1007/s40037-019-0513-6

MacLure, M. (2015). The 'new materialisms': a thorn in the flesh of critical qualitative inquiry? In G. Cannella, M. Perez & P. Pasque (Eds.), *Critical qualitative inquiry: foundations and futures* (pp. 93-112). Walnut Creek, CA: Left Coast Press.

Manley, A., Palmer, C., & Roderick, M. (2012). Disciplinary power, the oligopticon and rhizomatic surveillance in elite sports academies. *Surveillance and Society*, *10*(3-4), 303-319. doi: 10.24908/ss.v10i3/4.4281

Markula, P. (2019). What is new about new materialism for sport sociology? Reflections on body, movement, and culture. *Sociology of Sport Journal*, *36*(1), 1-11. doi: 10.1123/ssj.2018-0064

Mulcahy, D. (2012). Thinking teacher professional learning performatively: A socio-material account. *Journal of Education and Work*, *25*(1), 121-139. doi: 10.1080/13639080.2012.644910

Neyland, D. (2008). *Organizational ethnography*. London, England: Sage.

Online etymology dictionary. (2020). *Manufacture*. Retrieved from https://www.etymonline.com/search?q=manufacture.

Online etymology dictionary. (2020). *Competence*. Retrieved from https://www.etymonline.com/search?q=competence

Pink, S. (2006). *The future of visual anthropology: Engaging the senses*. London, England: Routledge.

Potrac, P., Nelson, L., & O'Gorman, J. (2016). Exploring the everyday realities of grass-roots football coaching: towards a relational perspective. *Soccer & Society*, *17*(6), 910-925. doi: 10.1080/14660970.2015.1100900

Reckwitz, A. (2002). Toward a theory of social practices: A development in culturalist theorizing. *European Journal of Social Theory*, *5*(2), 243-263. doi: 10.1177/13684310222225432

Sandberg, J., & Tsoukas, H. (2011). Grasping the logic of practice: Theorizing through practical rationality. *The Academy of Management Review*, *36*(2), 338-360. doi: https://www.jstor.org/stable/41318004

Scottish Football Association. (2017). *One national plan for non-professional football in Scotland*. Retrieved from https://www.scottishfa.co.uk/media/2386/scottish-fa-one-national-plan-2017-20.pdf

Scottish Football Association. (2021). *Quality Mark Criteria*. Retrieved from https://www.scottishfa.co.uk/football-development/club-services/club-accreditation/quality-mark-criteria/

Serres, M. (2007) [1980]. *The Parasite*. Trans. Lawrence R. Schehr. London, England: The John Hopkins Press.

Serres, M., & Latour, B. (1995). *Conversations on science, culture, and time*. The University of Michigan, MI: The University of Michigan Press.

St Pierre, E. (2011). Post qualitative research: The critique and the coming after. In N.K. Denzin & Y.S. Lincoln (Eds.), *The SAGE handbook of qualitative research* (pp. 611-627). 4th ed. London, England: SAGE.

Tummons, J. (2020). Ontological pluralism, modes of existence, and actor-network theory: Upgrading Latour with Latour. *Social Epistemology*, *35*(1), 1-11. doi: 10.1080/02691728.2020.1774815

Tummons, J., & Beach, D. (2019). Ethnography, materiality, and the principle of symmetry: problematising anthropocentrism and interactionism in the ethnography of education. *Ethnography and Education*, *15*(3), 1-14. doi: 10.1080/17457823.2019.1683756

Verran, H. (1999). Staying true to the laughter in Nigerian classrooms. *The Sociological Review*, *47*(1), 136-155. doi: 10.1111/j.1467-954X.1999.tb03486.x