Investigating the athlete-environment relationship in a form of life: An ethnographic study

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Abstract

From the theoretical perspective of ecological dynamics, skilful behaviour in performance contexts like sport and education is predicted on the establishment of a functional relationship between an individual and the environment. The strength of this functional relationship is shaped over time by everyday behaviours, values, and customs (sociocultural practices) within a specific sport organisation. A growing body of research seeks to identify these influential sociocultural practices that emerge and exist in sport cultures and organisations. However, little is known from an ecological realism perspective how these practices affect an athlete's engagement with opportunities offered by the environment (e.g., affordances). In this study, we draw on ethnographic data and theoretical tenets of James Gibson's ecological psychology to identify how the sociocultural practices of a British rugby league football academy might shape an athlete's engagement with affordances. Findings revealed that masculinity and disciplined behaviours were the dominant sociocultural practices, instrumental in developing beliefs, values, and customs of athlete development practices. An ecological realism analysis of the data suggested that cultural pressures meant that key actors ignored the potential for development and learning of athletes' self-organisation tendencies, and inhibited individuals' capacities to respond to opportunities for action offered in many traditional practice designs. We conclude by discussing implications for sport practitioners that promote 'affordance-regulated' practice designs to enhance athlete-environment interactions.

Keywords: ecological realism**,** athlete-environment relationship, affordances, a form of life, sociocultural practices, ethnography, rugby league.

Introduction

Uehara et al. (2018) provided evidence illuminating how organizational and societal sociocultural practices shape the development of functional athlete-environment relationships in sport performance and practice. Sociocultural practices are deeply embedded in the inherent values, beliefs, traditions, customs, and behaviors of specific communities, societies and sport organisations, and they can shape the learning and development opportunities of athletes seeking to interact with a performance environment (Rothwell et al., 2019). Broader sociocultural factors influencing sport can lead to the normalisation of athlete development practices that have, at their core, an acceptance of disciplinary power, reductionist views of performance, and hegemonic masculine attitudes.

Athlete development practices of this nature can silence or marginalise individuals who demonstrate other resources, such as dexterity, skill, and creativity that may not fit with cultural norms like adhering to rigid team structures and patterns of play, following orders and ‘playing tough’. Denison et al. (2017) illustrated these ideas with their Foucauldian analysis of 'disciplinary legacy and the challenge of coaching differently'. They argued that discipline forces, emanating from social and political ideals, align with coaching practices that they considered to render athletes as compliant 'docile bodies' (Denison & Avner, 2011). Similarly, Stewart et al.'s (2019) investigation of a Scottish secondary physical education context identified that male pupils embodied a particular form of masculinity, aligned to an influential rugby culture, through the importance placed on 'trying hard' and 'physical ability' to maintain participants’ social standing in the educational institution.

A growing body of research has continued to identify the normative practices apparent in sport cultures and organisations (e.g., Adams, 2020; Blackett et al., 2019; Purdy et al., 2009). To advance these findings for the benefit of athletes and coaches, Anver et al. (2020, p. 14) have argued for a "deeper understanding of the docility-producing effects" that

are a consequence of attitudes toward coaching, learning and knowledge, deeply rooted in historical sociocultural factors. Aligned with Anver et al.'s (2020) sentiments, our intention in this paper is to explore an alternative perspective on docility-producing effects, by drawing on theoretical tenets of James Gibson's (1979) ecological psychology. Here, we seek to develop our understanding of how particular sociocultural practices can continually shape an athlete's intentional engagement with opportunities for behavioural interactions provided by the task constraints of practice and competition (e.g., affordances; see Reed, 1993). Adopting an ecological realism perspective can offer new insights for understanding why and how athletes behave as they do in different sporting contexts and why individuals are intentionally and selectively responsive to one opportunity for action rather than another (Araújo et al., 2019a).

An ecological dynamics conceptualisation of sport performance

Implementing an underlying conceptual framework in athlete development and performance preparation programmes can protect sport organisations, coaches, performance managers, and athletes against effects of 'path dependency' (inherent biases) by mitigating against values, beliefs, traditions, customs, and behaviors that are detrimental to supporting the long-term development and functionality of athletes (Ross et al., 2018; Woods et al., in press). Rasmussen et al. (2019) exemplified this point to counter deterministic views of athlete performance by proposing an interdisciplinary, theoretical framework to stimulate creative actions in sport, and to challenge traditional customs within coaching.

Ecological dynamics (the integration of ecological psychology and dynamical systems theory) is one such theoretical framework that can support sport practitioners in recognising social and cultural biases to coaching and talent development practices (Rothwell et al., 2020). Ecological dynamics rejects a traditional assumption that an individual's interactions

with a performance environment are mediated through internally stored mental representations of the world. Instead, ecological dynamics emphasises the development and enrichment of a reciprocal and functional relationship between an individual and environment to form a complex, interconnected system (Araújo & Davids, 2011). This perspective is inspired by the direct realism of ecological psychology (Lobo et al., 2018), where the starting point for understanding human behaviour is the engagement between the active organism (individual), and the constraints of the surrounding environment, predicated on the continuous use of information to regulate actions (Richardson et al., 2008). From the inherent complexity of the athlete-environment system, functional, goal-directed behaviours emerge as an athlete learns to satisfy multiple interacting constraints, deeply integrated and related to personal (e.g., genetic composition and physical and emotional attributes), task (e.g., the relationship between fundamental rule changes, equipment (re)design and performance demands) and environmental (e.g., social, cultural, economic, historical and political) factors (Phillips et al., 2010; Newell, 1986).

Embedding an athlete's practice experiences in environmental contexts that consist of value (opportunities for action) and meaning (information) can strengthen functionality within a performance environment (Araújo et al., 2019b). Opportunities for action, continuously offered by properties of playing surfaces and markings, positioning of teammates and competitors, equipment, technology and features of competition exemplify *affordances* in ecological dynamics (Davids et al., 2017; Gibson, 1979). In the most simplistic form, affordances are 'possibilities for action' that an environment offers an organism (Gibson, 1979). Rietveld and Kiverstein (2014) have proposed a broader conceptual framework of affordances, suggesting that possibilities for action provided by an environment are dependent on the specific abilities possessed by an individual to integrate mind and body to perceive and act on the rich information sources available in the environment (Woods et

al., 2020). To advance conceptual understanding, Rietveld and Kiverstein (2014) highlighted, that, in human behaviour, effectivities (abilities, capacities and tendencies) and affordances can only be understood in the context of an ecological niche and the relationship with a *form of life* (Wittgenstein, 1953). Rietveld and Kiverstein (2014, p. 330) elaborated:

> Affordances are possibilities for action the environment offers to a form of life, and an ecological niche is a network of interrelated affordances available in a particular form of life on the basis of the abilities manifested in its practices—its stable ways of doing things.

In human behavioural contexts, a form of life describes standard sociocultural practices that are "manifest in the normative behaviors and customs of our communities" (Rietveld & Kiverstein, 2014, pp. 328, 329). It is this intertwined relationship between a form of life captured in an ecological niche, which serves as a significant reference point for understanding the functionality of human behaviours in specific performance contexts (Ramstead et al., 2016). An ecological niche reflects how a species or group of individuals, actively construct and modify their own and each other's evolutionary niches (Odling-Smee et al., 2013). Several examples have illustrated how, in a sport performance context, an ecological niche may be formed by a support team of practitioners, sport scientists, performance analysts, and athletes (classed as a performance and development preparation team) within a high-performance programme (McCosker et al., 2019). Exemplified by a Department of Methodology, such integrated teams can modify, reproduce and implement a shared methodological approach that influences each performer's ability to interact with affordances in the microstructure of practice or competition (Rothwell et al., 2020). Therefore, an athlete's ability to respond to *solicitations* (multiple promoted affordances that have great relevance to an individual in a specific performance context) is highly dependent

on how the form of life influences the practices of athlete development teams that exist in a particular ecological niche (Araújo et al., 2019a).

These ideas are exemplified by consecutive NBA champions, the Detroit Pistons, who infamously employed a tough, highly structured, machine-like, defensive style renowned for the 'Jordan Rules' (illegal tactics used when playing the Chicago Bulls to minimise the dominating influence of Michael Jordan's attacking game). Additionally, Detroit's famous Kronk boxing gym has nurtured many World Champions who adopted a similar confrontational and gritty front foot, power punching, fighting style (Lee, 2019). From an evolutionary perspective it is perfectly logical that these sport performance characteristics were a resonant legacy of the socio-cultural and historical characteristics of Detroit city's mechanized, mass-production, automotive industry. These performance characteristics seem to have formed deeply engrained ideologies shared between coaches, athletes and consumers that fostered tough, reductionist and mechanistic attitudes towards sport performance (Zehntner et al., 2019).

To date, research adopting a perspective of ecological realism to investigate the effect of sociocultural practices on the individual-environment relationship is limited (for some exceptions see Rothwell et al., 2019; Rynne, 2016; Sanderud et al., 2019). An ecological realism perspective may provide unique insights into how the everyday practices of a sport organisation influence an athlete's engagement with affordances. One way to increase understanding and generate knowledge about the relationship between sociocultural practices and underlying structures that influence human behaviour, is to adopt an ethnographic approach (Atkinson, 2017). Through taking an ethnographic approach, and adhering to an ecological realist framework, we sought to consider the following question: What are the sociocultural practices that influence a form of life, and how do they affect the athlete-environment relationship? Additionally, in considering the research question we intended to

address the following aims: 1) identify and observe first-hand the sociocultural practices of a sport organisation, and characterise the relationship with the existent form of life, and 2), conceptualise, from an ecological realist perspective, how a form of life influences the athlete-environment relationship.

Methodology

Background and context

A British rugby league football academy provided a research base due to the sport's rich and unique socio-cultural-historical backdrop. Formally organised in 1895, with its origins embedded in the Victorian era (1837–1901) and its industrialisation of manufacturing and labour, rugby league football has developed its influential structures, culture and traditions (synonymous with the social and political ideals of the time and hegemonic masculinities discussed earlier) that remain today (Collins, 2006). A season-long (September to June) ethnographic study at a professional club's England Talent Pathway (ETP) programme was conducted to gain meaningful insights into these systems and processes. The ETP is a talent development initiative developed by the Rugby Football League (RFL) and aims to increase the number of talented 12 to14-year-old rugby league players (Rugby Football League 2015). Every British Super League professional club runs the ETP provision and, unlike traditional talent pathways, the ETP removes selection and de-selection through an inclusive approach where any registered school or club player has the autonomy to attend any ETP provision in the country.

Situated within a Super League club in the north of England, the ETP was considered to be an integral part of the clubs player development pathway, insofar that all the 2017/18 scholarship players were recruited from the club's ETP. The club ran multiple coaching sessions during the week and on weekends, and all sessions took place at a local school's

floodlit artificial pitch. All sessions were field-based and aimed to improve players' understanding of the game, mental attributes, movement, and coachability (Rugby Football League, 2015). The first author gained access to the ETP through personal contact at the Super League club, and throughout the study was immersed as a full participant (Patton, 2002). To achieve this position, the first author volunteered as an ETP coach on the programme, but fully disclosed his position and aim of the research to fellow coaches during the first coach development meeting. Although disclosure was initially met with some scepticism from some of the coaches who viewed the lead author as an outsider, an insider position was adopted due to the lead author's previous coaching experiences and coaching qualifications.

Research design and procedures

To develop a sophisticated understanding of the culture of groups or organisations from the perspective of the members, ethnographic studies are considered a legitimate means for generating insights into the sociocultural mechanisms that influence human forms of life (e.g., Sparkes et al., 2020). This ethnographic study built on previously-collected interview data to adopt a *critical realist* ethnography (Atkinson, 2017), positioning the underlying socio-cultural-historical contexts to generate a deeper understanding of the factors that influence traditions, customs, and practices in the specific ecological niche (see Rothwell et al., 2018). In doing so, we take the position that the talent development setting alone cannot account for the behaviour of its inhabitants. Instead, their behaviour is a product of, not only, the ETP, but the wider sociocultural practices of the communities they live in (Hammersley, 2006).

The ten-month period provided multiple data collection opportunities. Initially, coach meetings and coach development sessions generated observation data, followed by weekly

observations of activities before, during, and after practice sessions. An observational funnel approach was adopted (Alder & Alder, 1994), to gain a general understanding of the broader sociocultural context (Tjora, 2006). Field notes were used throughout the observations to capture and describe routines, behaviours, interactions, and specific incidents relevant to the research aim (Walford, 2009). Writing field notes during coaching sessions was not practical, therefore, in line with the advice of Thorpe and Olive (2017), detailed field notes were written away from the training facility immediately after practice had finished. Interview data were also collected in the form of casual conversations and organised individual unstructured interviews to generate a more sophisticated understanding of the form of life present in the talent programme (Smith, 2013). Discussions between the researcher and participants also provided opportunities to further explore experiences and to attach meaning to specific situations that were explicitly related to the research aims (Smith & Sparkes, 2016).

The host university ethics board granted institutional ethical approval, and all the coaches (pseudonyms for the study are Barrie, head coach; Simon, Terry and Phil assistant coaches) in the study provided informed consent. Additionally, throughout the research process, a relational ethics position was adopted (Lahman et al., 2011). This approach was motivated by the research team's desire to develop "respectful connections" with the participants to fully appreciate how embedded sociocultural practices are in the talent development programme (Palmer, 2016, p. 319).

Data Analysis

A relativist ontology and subjective epistemology guided the study, exposing researchers to their own "value system", which can lead to the misinterpretation and distortion of data (Baur & Ernst, 2011, p. 120). Evident here, because of the first author's research position and sociocultural biases acquired during previous experiences of managing a rugby league

football talent development programme. However, Elias (1956) argued that analysis of social life must move between the researcher's subjective experiences of the world under study and a level of distancing gained through an analytically detached perspective, allowing theory and reflection to provide a more objective view of the social environment under study. The first author engaged in involvement-detachment theory by grounding continuous reflections and the thematic analysis in the theoretical positions informing the research (Braun et al., 2016). The first author did struggle to become entirely detached from the experiences of the ETP, althoug a conscious effort was made to remain detached throughout the data analysis process. Indeed, Elias himself maintained that the involvement-detachment dynamic was a balance and that a fully detached position was impossible (Sinclair, 2016). Exemplified in this study by the first author becoming empathetic towards the participants' (coaches') views towards the highly disciplined and coach-led nature of practice. However, this fluid relationship between the involvement and detachment dynamic served to focus future observations, field notes, and topics of conversation with the coaches. To further encourage reflexivity on how the first author's presuppositions may have impacted on the construction of knowledge, the second and third authors acted as "critical friends". Specifically, they provided opportunities to engage in the process of critical dialogue to challenge interpretations made and to provide a sounding board for reflection and exploration of multiple and alternative explanations for the data (Smith & McGannon, 2018).

Results

Data analysis resulted in three main dimensions about the study aims and started to highlight responses to the complex and dynamic relationships between people, context and the sociocultural practices. The three dimensions are categorised as: (a) sociocultural practices (masculinity and disciplined behaviour), (b) a socially- and culturally-constructed ecological niche, and (c), the athlete-environment relationship.

Sociocultural practices

Sociocultural practices refer to the specific details of how the dominant individuals within the talent development setting influenced attitudes towards the development and performance of the young players. Masculinity and disciplined behaviour were socially and culturally constructed and reproduced by the actions, attitudes, and practices of key agents. These attitudes were exemplified by one of the first author's encounters with the coaches during a planning meeting, where a more established cohort of coaches was discussing a recent Super League game. The discussion focused on the reasons why the losing team had not performed well, where the consensus was that the losing team were not 'tough enough' and 'lacked discipline' (field notes). The weekly practice activities that the academy players participated in reflected these masculine and disciplined attitudes. In one practice session, observations revealed that performance expectations followed a path of over-valuing and over-emphasising physical size and toughness, rather than emphasising skill performance, innovation, and dexterity. Apparent when two coaches were discussing a player who demonstrated skilful play but was considered to lack 'heart':

> Simon: I really like him, he plays some nice stuff.
> Phil: The problem with him he's a soft cunt, he doesn't like the contact.
> Simon: Yea but look at him he's tiny. He'll grow over time.
> Phil: I watched him last week at xxxxxxxx (club), he went missing when it got tough.
> Simon: Won't he develop (physically) over time? He's only 15.
> Phil: He ain't got the heart for it. (Field notes)

This apparent toughness value was explored further through interviews, where masculine identity was attirbuted to the sociocultural backdrop of the sport and the working class nature of the rugby league community. Terry elaborates:

> Your city clubs, i.e., your xxxxx clubs, you know you’re gonna get some rougher lads who are open to a good fight and all that and even at an early (age), I mean, I know for a fact.

The sociocultural context also embedded disciplined behaviour in the player development practices, reflected in attitudes towards how the players should behave during practice. These behavioural expectations were set and reinforced by the coaches' instructions and actions, where, the norms of the environment restricted players from deviating away from these expectations (i.e., running, passing, jumping and landing in a prescribed way and demonstrating compliance with the 'right' attitude to learn). These expectations were (mostly) reproduced by the players' willingness to conform to these normative behaviours, to comply with instructions and avoid the critical, watchful eye of the coaches who were ultimately responsible for their destiny. In one instance, during a warm-up task, a group of players were considered to be 'messing around' by one of the more senior coaches because of their lack of adherence to a task (the players had broken out into an impromptu tag game after completing the warm-up task). The coach became frustrated by this, and his reaction revealed a dissonance regarding players' expectations and the learning culture held by the coaches', discussed here:

> Phil: I would have bollocked them if I wasn't here, but at the club.
> Lead author: Why not here?
> Phil: The problem is kids come here to play games, not to learn.
> Lead author: Ok.
> Phil: They can't think, they need telling what to do and when to do it. (Field notes)

The conversation demonstrates the reciprocal and influential nature of individual and environment interactions. On the one hand, the coach suppresses his initial instincts to have "bollocked" (castigated) the players for not conforming with instructions, due to the environmental expectations set by the professional club. Whereas, the players' expectation to "play" games during practice ultimately influences (some) parts of practice. These conflicting positions demonstrate how specific attitudes towards behaviour and practice are part of a

complex social and cultural dimension that can ultimately influence player and coach intentions.

A socially- and culturally- constructed ecological niche

A goal of the talent development programme was to support player development through a *game sense* approach. The rationale behind the professional club moving towards a game sense approach was to support players to become more 'aware' and to improve their 'decision making' behaviour. This aim was evident from the experiences of the coach development sessions, where coaches designed a range of games to support the development of 'decision making' skills. The ETP coach resource also guided how to structure coaching sessions (e.g., warm-up, game, movement, game, cool down, and summary (Rugby Football League, 2015), where a 'game sense' element features twice during a session. Barrie also reinforced this position during the practice sessions, where he reminded the coaches about the approach to practice.

> The coaches are waiting to start practice. Players are starting to arrive, as they do most start kicking a ball to each other. Some play a small-sided game of touch rugby. Coaches are setting up the practices, discussing their session plans, and confirming who is doing which bit of the session. Barrie calls the coaches over to him and reminds them about his expectations. "Let the players enjoy and express themselves and don't be too worried about them making a mistake, let them learn without actually realising it through the game." (Field notes)

Although the professional club and national governing body promoted a game sense approach, deeper probing and observation revealed there was a clear disparity between the recommended method of practice and the coaches' customs and habits. Although a game sense method was used (because the coaches were instructed to), most of the coaches often reverted to traditional coaching methods (i.e., high levels of instruction and critical feedback).

Simon explained that the problem was that some of the coaches' just didn't 'get' a game sense approach; he elaborated:

> Probably because it's ingrained (traditional practice methods) and they've been around it for that long, and that's what they see as normal, that's what the current coaching education programmes have kind of rammed down their throat. Scared to do anything different and they don't quite understand, but at the same time there's probably a small number of coaches that really do get it and are open and get the concepts so it's probably down to the individual and how open they are or how maybe intelligent they are, but also what a lot of clubs have got going against them is the norms what they've seen for the last ten-twenty years maybe.

The 'norms' that Simon discussed indicated strong historical traditions of practice ingrained over time and aligned to a deterministic view of human behaviour. Simon discussed how previous playing experiences (creating a path dependency) might play a part in supporting these strongly-held coaching assumptions and traditions, leading to a status quo bias for a very specific coaching approach. Simon elaborates:

> They've played with a successful amateur team, and they've obviously got a vision of how it was done back then, and if it doesn't look like what they were doing back, then they don't understand the way that things have changed.

Thus, the coaches tended to coach the way that they themselves were coached, exemplifying the 'path dependence' that haunts many sports organisations with strong cultural and historical biases towards traditional ways of working. These customs, habits and traditions of practice reinforced the provision of explicit knowledge and mental representations, exemplified by the coaches' disproportionate use of instruction, demonstrations, and feedback based on a putative, internalised, 'technical' model of player behaviour.

The intricacies of a rugby league 'technical' model (e.g., technical components such as pass, catch, tackle, kick) dominated conversations before and after practice sessions. Barrie explained that ensuring players mastered these optimal technical movement patterns, considered essential to play rugby league successfully, was a common goal across the sport. The result was an over-emphasis on repetitive, coach-driven practice designs that focused on all players acquiring basic technical competence, he elaborated:

> On a typical training night where there's six squads training, and it all looks very the same and it's people queuing, it's people not listening being shouted at just the old traditional kind of they very much drill, stop listen to me. Just not a general understanding of how players develop and how different people learn and the need to put variety to sessions and players will develop at different rates, they all expect it to be a real linear process.

During the interviews the commonly held reductionist view of learning was explored. Coaches valued an ideology that the complex multi-dimensional actions during competition needed to be 'broken down' for players to learn them and to adequately play the game. This propensity for 'task decomposition' was exemplified by Terry, who explained about the importance of being 'more skilful' to compete, he explains:

> The detail we put into players now and they've got more to think about in that detailed way of where to pass, kids nowadays know. Especially into this environment in a Super League club, they know that there's not gonna be weak players in front of them, so they've got to do everything more skilful and more detailed to try and break it down.

Terry's comments demonstrate the commonly-held view of determinate human behaviours, where coaches' associated being 'skilful' with acquiring technical skills in highly specific

ways that closely replicated the sequentially-listed coaching points highlighted in rugby league coaching manuals. For example, when coaching the sidestep, players must perform these action components in sequence: 1. push off either foot when 1–2 metres away from the defender, 2. drive selected foot hard against the ground and step away from a defender into space, 3. land on opposite foot with a slight lean forward, 4. accelerate into space to reach top speed (Rugby Football League, 2014). This reductionist and deterministic ideology to measure players' performance improvement, reinforced the view of the human body as a machine. This belief held by the coaches' resulted in them seeking mechanistic principles to quantify performance improvement by providing explicit knowledge and mental representations to hone technical outputs. This approach was exemplified by Terry, who explained how he supported one player at the club who had a chance of 'making it', by providing him with information about these complex actions:

> I'm putting a lot of input into him, I'm putting a lot of information into him because I know he can make it. It tell him don't practice poor, every time you practice make sure that everything is just more quality than quantity, just do it and just practice it really good and it'll come naturally to you then.

The dissonance between (most of) the coaches' socially and culturally constructed beliefs towards coaching practice and the approach promoted through the talent development programme of this professional sport organisation was evident throughout the programme. Interestingly, the cohort of coaches who held these strong beliefs never consciously challenged alternative methods and would agree that players needed better decision-making skills. However, ultimately the strong sociocultural influences ensured the status quo was maintained.

The athlete-environment relationship

Players' experiences of practice tasks and the coaches' behaviour during the field-based sessions were considered influential in shaping players' thoughts and actions during performance. Barrie felt that certain reductionist practice methods were supporting 'robotic' player behaviours, meaning players could only react mechanistically to external features of the environment, a limitation in the dynamic performance context of team sports. He elaborates:

> I think it (traditional practice methods) makes them (players) very coach dependent so not necessarily very aware of themselves, what they need to improve on, not great at making decisions, very robotic at times, unable to work things out for themselves so the game's very, very structured now and as a result, people can't make great decisions, yeah very robotic more than anything.

An example of the traditional practice methods that Barrie discussed aimed to enhance predictability and reduce uncertainty through rigid role specification and the reduction of personal autonomy. These traditional practice methods simply required players to 'go through the motions', to rehearse pre-planned actions, with very little emphasis on players to be responsive to the opportunities that may *emerge* in the practice environment. Exemplified here by a coach's session plan:

> Mark out an area with 3 cones in a triangle shape with player 1 at the peak and 2 and 3 on the other corners. Player 1 starts with ball. Once he sets off player 2 and 3 time their run so that P1 passes to P2 who in turn passes to P3. Every pass as to be backwards and timed so that the ball stays in the middle area of the triangle. (Session plan)

Reducing players' openness to information emerging within the environment was a consistent feature of practice. Rather than letting the players interact with the practice

environment, coaches would use the experience to identify and correct poor 'technique' (i.e., not reproducing a movement as per the coaching manual). This situation was evident on many occasions where coaches would pre-empt technical deficiencies before the session starting, rather than enhancing opportunities to experience decision making actions. This experience was exemplified here by pre-session email correspondence from a coach to the lead researcher:

> One coach will lead with it being game-based, and the other can pull players out while the game is running to make sure they are using correct techniques, 2nd game we will switch roles, so both coaches are involved in both aspects of the session if you're ok with that. (email communication)

This approach fostered an environment that valued players' 'reproduction of technique' capacity as opposed to the programme aim of developing better decision-making behaviours, where coach control, rather than player autonomy, was a constant feature of practice. The result was that coaches adopted a 'coach-centred' approach by continually interrupting the flow of practice to provide verbal instructions and corrective feedback if they felt that players were not adhering to 'appropriate' technical competence, regardless of the outcome. Demonstrated here by an exchange between Terry and the lead author:

> Terry: Stop it, you need to stop it (the session), they're getting sloppy (at passing)
> Lead author: Right, ok
>
> Terry walks onto the pitch, stops the practice and speaks to the players.
>
> Terry: Remember your passing, I don't want to see this any more (demonstrated an incorrect passing action), right crack on.
>
> Terry returns to the pitchside.
>
> Terry: You've got to keep on at them, or they get sloppy. Don't be afraid to stop it (the practice) and tell them. (Field notes)

The consequence of this technical bias was the influence on players' exploratory behaviours during the chaos of gameplay. Demonstrated during a game designed to improve players' ability to identify and attack space, a playing area was set up with increased width, allowing more space for the attacking team to explore and exploit attacking opportunities.

> During the 8 v 8 game players are using approximately 30 meters of the 60 meter wide pitch. Both teams are crowding around the ball. The attacking team are not making much ground, attacking players are happy to run into multiple defenders and get tackled. Phil is getting frustrated. He starts shouting instructions to the attacking team "space!" "where's space!", players don't respond, the coach gets more frustrated. He stops the game and calls the players over to him and questions them about the practice.
>
> Phil: What's the aim of this game? (10 seconds passes, and the players have not responded)
> Phil: Attackers, what are you trying to do?
>
> One of the more confident players responds.
>
> Player: Find space
> Phil: So why are you only attacking the middle? (Another period of silence passes)
> Phil: This time I want you to use the whole width of the pitch. What will that create?
> Player: More space to attack.
> Phil: Ok, good, let's go.
>
> The game resumes, and for a short, while the attacking team uses the full width, this results in the performance behaviours the coach is expecting but also increased handling errors and mistakes. Leading to the attacking team reverting to playing down the "middle". (Field notes)

Although a minority of players were willing to respond to questions and explore the practice landscape when encouraged to do so, the majority of players remained passive, unresponsive, compliant and 'robotic' during practice (i.e., could only act when told to do so). This situation

illuminates the risks involved when a dichotomy of coaching approaches (identified previously) contradict one another, creating dissonance and leaving players 'unsure' and 'apprehensive' about how they should interact with the coaches and the opportunities that practice and competition provided for them.

Discussion

Sociocultural practices and the form of life

The study identified masculinity and disciplined behaviour as the dominant sociocultural practices that influenced the coaches' and players attitudes towards performance and development. Historically, masculinity and disciplined behaviour have been synonymous with rugby league since the sport's birth in 1895, a sport played and watched by members of the industrial working class. The industrial workhouses shaped men and women through arduous, masculine, and disciplined work conditions. This work organisation pattern was influenced by Frederick Winslow Taylor's 'task system of management' (Taylor, 2008), which aimed to remove manufacturing uncertainty by applying hierarchal systems of control through rigid role specification and task repetition (Taylor, 1911). The workforce was merely a cog in the system and was submissive to institutional regimes. Consequently, on the rugby field, these individuals were governed by the same institutional regimes honed on the shop floor in the workhouses of the industrial north (Smith & Davids, 1992). These same synergistic interactions between sport and society were demonstrated and reproduced by the coaches (in the current study) perfunctory and inflexible attitudes towards player performance and were ultimately maintained by the complex power relations embedded within the rugby league academy (Bronfenbrenner & Morris, 2007; Gearity & Mills, 2012).

The authoritarian coaching approach embraced by the coaches, synonymous with the traditional daily practices of the industrial workhouses, was based on normative models of how players should adhere to performance solutions that emphasised aggression, toughness,

and the execution of predetermined movement behaviours (e.g., Denison et al., 2017). The coaches embraced these familiar structural models of human learning based on notions of *linear causality* (Kelso, 2007), with the belief that the enrichment of components can achieve improved athlete performance (e.g., technical component skills in rugby league), through limiting performance variability, the constant repetition of single tasks, and continuous monitoring for, and detection of, system errors (Schöllhorn et al., 2009). These socially- and culturally-constructed beliefs and dispositions, demonstrate how powerful a form of life can be in sustaining customs, habits, attitudes, and practices within a sporting ecological niche (Button et al., 2020).

However, the dominant form of life identified here can be problematic in sport because socially and culturally constructed attitudes to coaching and performance can marginalise players who do not possess the required traits to fit in (Uehara et al., 2018). Exemplified by the expectation of players to follow orders, be tough, demonstrate manliness, and to adopt a disciplined attitude. However, these prevailing traits could be a challenge to developing highly engaged and thinking athletes (e.g. Denison & Mills, 2014), to interact with specific task goals and environmental information to utilise affordances to act under changing performance conditions (Seifert et al., 2013).

The ecological niche and the athlete-environment relationship

To advance our understanding of an individual's experience of soliciting and non-soliciting affordances, based upon sociocultural constraints, it is important to reconsider that affordances are not simply possibilities for action that exist in an environment to offer opportunities to an individual, but affordances can also invite or repel behaviours (Withagen et al., 2017). Therefore, the performance environment should not be viewed as a "collection of causes, but as a manifold of action possibilities" that makes behaviour possible (Withagen et al., 2012, p. 251). From this perspective, how active organisms modify their ecological

niche can influence selection pressures on certain action possibilities over others (Matthews et al., 2014), as Levins and Lewontin (1985, p. 106) noted: "The organism influences its own evolution, by being both the object of natural selection and the creator of the conditions of that selection". Player evolution and the notion of niche construction were evident throughout the current study, where the ETP coaches played an instrumental part in controlling, regulating, and modifying the ecological niche through perceptions of performance embedded in reductionist and deterministic attitudes. In the same way, as earthworms or birds shape development opportunities for their offspring, the ETP coaches passed on values, beliefs, traditions, customs, and behaviours to the players, that had a major effect on the athlete-environment relationship, through a process known as 'ecological inheritance' (Odling-Smee et al., 2013).

This conceptualisation of affordances has the potential to provide a different perspective on practice designs (for an excellent example in the sport of Rugby Union, see McKay & O'Connor, 2018), and presents an important research question regarding factors that influence bodily responsiveness to action possibilities, since "solicitations are subject-dependent, whereas affordances are not" (Dings, 2018, p. 4). Although research exploring factors that solicit actions is in its infancy, early work has suggested that key variables such as action capabilities (Warren, 1984), evolutionary history (Withagen & Chemero, 2009), sociocultural factors (Rietveld & Kiverstein, 2014), and cultural pressures (Heras-Escribano & de Pinedo, 2016) can influence an individual's engagement with the environment. This perspective leads us to the interrelated nature of a form of life, cultural pressures, and the influence of the athlete environment relationship in perceiving affordances that attract or repel solicitations. The practice environments experienced by the players in the current study consisted of affordances and information that could lead to successful engagement in practice and competition. However, the cultural pressures forced athletes to take advantage of certain

affordances over others (e.g., Ramstead et al., 2016). As Reed (1996, p. 69) suggested, "[It] is not the animal's brain that organises its world, but the evolutionary ecology of the animal that organises its brain". Evolutionary ecology in this sense relates to the evolution of individual players within the England Talent Pathway (ETP), and how cultural pressures (i.e., high levels of direct instruction, masculinity, and disciplined behaviour) shape 'selective sensitivity' to relevant affordances (Bruineberg & Rietveld, 2019). From an evolutionary perspective of the ETP, affordances to satisfy sociocultural practices were deemed more important for survival and were more likely to invite behaviour (e.g., playing safe to avoid mistakes, reproducing optimal movement patterns as instructed by a coach, and reacting only to pre-organised external features of the environment), as opposed to the skilful engagement with the other opportunities provided by the rich practice environment. So, although affordances to support skilled intentionality were available to players to help them thrive in performance (Bruineberg & Rietveld, 2014), the sociocultural practices embedded in the form of life meant that players only responded to certain affordances. This theoretical conceptualisation of affordances offers a means of explaining how the selection of a course of action is based on the engrained, traditional environmental constraints of the athlete-environment system, which determine to what extent an individual is solicited by available affordances (Ramstead et al., 2016).

Another challenge to the players actively engaging with the environment was the determinate, top-down, hierarchical model of human behaviour. Ribeiro et al. (2019) have referred to such external, top-down influences to the regulation of behaviour, as having a 'global-to-local' direction where external agents such as parents, teachers, and coaches oversee rehearsed set plays and pre-planned, coordinated collective actions, considered essential to regulate conscious thinking and action. These global-to-local tendencies were evident within the ecological niche, where wider sociocultural beliefs suggested that the

direction of interactions was dominated by a hierarchical, determinate, external influence to globally orchestrate the dynamics of player coordination during practice and performance (Araújo & Davids, 2016). Consequently, coaches designed learning tasks that enhanced predictability and reduced uncertainty through rigid role specification and the reduction of personal autonomy, with players becoming coach-dependent to satisfy global constraints. However, this environmental determinism ignored the potential of players self-organisation tendencies (athletes adapting and organising without external input in a 'local-to-global' direction), to capture the reciprocity between the athlete-environment relationship to form a deeply entwined, complex, adaptive system (Davids & Araújo, 2010).

In contrast, a Gibsonian account of human behaviour suggests that individuals do not need external input or the guidance of conscious thinking to find their way in the world; rather they act unreflectively to harness a selective openness and responsiveness to the relevant opportunities for action (affordances) (Gibson, 1979; Kiverstein & Rietveld, 2015). Interestingly, players demonstrated an openness and responsiveness to multiple affordances during self-led activities (e.g., small-sided touch games before practice started), where players demonstrated unique movements to skillfully engage with affordances, which in the coach-led session, would be actively discouraged. In this sense, highly responsive and skilful athlete behaviour is not the result of a form of life that promotes practice tasks requiring athletes to rehearse, repeat and fluently perform isolated actions devoid of environmental context. Rather, it is the degree to which individuals respond to relevant solicitations that leads to exceptional engagement whilst exploring a landscape of affordances (affordances available in an ecological niche) (Kiverstein, van Dijk, & Rietveld, 2019).

Implications for understanding the practitioner role in sport

Athletes who inhabit an ecological niche that encourages exploratory behaviours to continuously search an affordance landscape (e.g., identifying and exploiting space, engaging in interpersonal coordination to promote collaborative and creative behaviours between teammates, and using variability of actions to de-stabilise attacker-defender dyads) to solicit actions, will more likely be in a state of action readiness to be selectively open to the specific demands of a performance environment (Renshaw et al., 2019). Such ideas offer a means for designing practice tasks that can harness an athlete's responsiveness to relevant affordances. Practitioners can harness these practice designs to appeal to an individual's motivation to seek value (affordances) and meaning (information) in a performance environment (Reed, 1996). Task constraint manipulations can be employed to provide practice settings that allow athletes to unreflectively search (using implicit learning to explore functional coordination modes), discover (exploring task solutions), and exploit (exploiting inherent self-organisation tendencies in the perceptual-motor system) whilst satisfying goal-directed behaviour (Renshaw et al., 2016).

In team sports performance, this aim can be achieved by implementing tactical principles of play to constrain co-existing 'local-to-global' self-organisation tendencies to help athletes utilise relevant affordances through their continuous interactions in practice (Ribeiro et al., 2019). For example, game-based practices designed around tactical principles of play (i.e., go forward, attack space, support the ball, apply pressure, and regain possession), where athletes are constantly striving towards satisfying these specific intentions by searching and exploring the practice landscape (Fajen et al., 2008). Ribeiro et al., (2019) argued that training in team sports needed to be re-designed to be more 'affordance regulated' to capture a much more nuanced balance between pre-planned, structured actions (global-to-local direction of control) and the unstructured interactions of players with events and plays as they emerge on the field (local-to-global direction of control by players). It is this striving

that can enhance athlete-environment interactions to search for more functional movement solutions and enrich an athlete's relationship with the environment (Kiverstein & Rietveld, 2015).

Conclusion

In this study, we have considered how a form of life in a sport organisation influences athletic experiences and an athlete's engagement with available affordances of a competitive performance environment. Positioning the athlete-environment relationship as an important unit of analysis for understanding behaviour can advance our understanding of how to strengthen an individual's functional relationship with practice and competition. In this respect, our conceptualisation of affordances in a talent development programme as an ecological niche can support groups of practitioners in designing high-quality learning and development experiences. The insights provided in this study of a rugby league club, aligned to concepts in ecological dynamics, suggest that, more broadly, the aim of sport practitioners and applied scientists should be to design learning environments embedded in an environmental context that consists of value (affordances) and meaning (information) for the learners. A limitation of this study was not drawing on the athlete's experience of the ecological niche to determine factors that influence soliciting and non-soliciting affordances. To further understand these theoretical insights in preparation for sport performance, it is important to conduct similar field-based studies that combine quantitative athlete development measures (i.e., performance analysis, evaluation and assessments) with phenomenological data to provide a more rich and insightful understanding of factors that continually shape the athlete-environment relationship. Conducting research of a deeply integrated nature will also help applied scientists and practitioners determine how individuals

learn to satisfy a range of interacting constraints in the ecological context of sport performance.

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