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A Little Less Conversation; A Little More (relational) Action Please. A Fictional Dialogue of Integrating Theory into Coaching Practice

Abstract

This paper presents a fictional dialogue that supports the application of theory in coaching pedagogy. The ‘constraints led approach’ (CLA) is promoted throughout in conversation form, providing pedagogic solutions in response to the decaying performance levels of a fictitious football team. This deterioration is linked to ‘poor’ coaching and the merits of a more innovative pedagogy through a discussion between ‘manager’ and ‘coach’ are presented. Recommendations are made with particular reference to developing games players, who are skilful, perceptive and intelligent, through being able to initiate and modify actions in dynamic contexts. Substantiating a platform for both changing perceptions about coaching practice and challenging assumptions about learning. Whereby such accessibility to unfamiliar knowledge(s) can allow coaches to clearly consider possibilities for change. It is further suggested that through embracing the use of novel methodologies to consider unfamiliar theoretical territory, this demonstrates a responsibility to close and not widen a theory-practice gap. Acutely aware that when considering the wider context, current mainstream approaches to coach education are largely inefficient in overcoming a hardened realism gained in the field. Through presenting Mark (coach) as ‘theoretical negotiator’, this paper emphasizes the potency of experimenting with nuanced methods that can be part of an academic process to help shape more theoretically literate coaches.

Keywords: constraints led approach (CLA); sport coaching; coach education; coach learning; theory-practice.

Introduction

The impact of coach education has received significant attention from the academic community in recent years (for example see: Cushion & Hull, 2013; Nelson, Cushion & Potrac, 2012; Piggott, 2015; Cushion, Armour & Jones, 2003; Mallett, Trudel, Lyle & Rynne, 2009; Bush, Silk, Andrews & Lauder, 2013). Multiple criticisms have come to the fore, but in the main, it has been noted that attempts to provide sufficient learning opportunities in large scale coaching programmes through accumulating hours in practice, is at best considered dated (Piggott, 2012; Morgan, Jones, Gilbourne & Llewellyn, 2013). Despite these approaches being sanctioned by National Governing Bodies (NGB’s), this linear process of ‘brick by brick’ development is responsible for producing a specific type of coach, one considered a kind of ‘robotic practitioner’

(Cassidy, 2004). It is still unclear as to how the current content of coach education actually leads to increased coach *learning*. Furthermore how we best educate coaches' remains an ongoing cause for concern (Cassidy, Potrac & McKenzie, 2006; Townsend & Cushion, 2015). Certainly in terms of how this *learning* transfers and remains robust in the 'real world' where very little impact has been reported (Piggott, 2012; Cushion & Hull, 2013). Moreover, when the critical indices of delivery, learning and impact, a "bleak situation" is acknowledged (Nelson, Cushion, and Potrac, 2013, p.205) and a growing consensus recognises the limiting factors associated with current methods attempting to educate sports coaches (Lyle, 2002; Nelson et al., 2013). Specifically, there appears to be a distortion between what research suggests as good pedagogy, and what coaches actually choose to do in practice (Jones, Morgan & Harris, 2012; Renshaw, Davids, Phillips, & Kerherve, 2012; Low, Williams, McRobert & Ford, 2013). The aim of this paper is to open up a 'space' for a critical and theoretically informed debate about underlying issues that still account for the reported theory-practice gap (Renshaw, Davids, Phillips & Kerherve, 2012). Achieved through providing examples of how 'theory' can be legitimised and actioned through a fictional workplace conversation. With a failing coach education agenda, we are required to search for better ways to ignite what should be a potent relationship between research and practice (Kirk & Haerens, 2014).

Sports coaching research has a responsibility to demonstrate the potential to close and not widen this chasm (Trudel & Gilbert, 2006; Jones, Morgan & Harris, 2012). With a key requirement here, not only to illustrate the pedagogical implications of innovative pedagogies (Cushion, 2013), but also to recognise the importance of the methodological process applied which can support coaches through introducing theory-based concepts differently (Groom et al., 2014). Rather than being compelled to "wave theory from the balcony" (Macdonald et al., 2000, p.149), it is the separation of theory from the everyday which is unwelcome and this repeat prescription isn't defining more abstracted practitioners (Armour, 2011). We have to explore means that allow access to theoretical knowledge that can develop empirical reflections where adjustments support a more knowledgeable praxis (Jones et al., 2013). By resolving the ambiguity between key theoretical definitions and concepts, it is hoped that this has significant potential for guiding coaches toward more theoretically informed coaching pedagogies (Davids et al., 2015). Therefore, the purpose of this paper is to utilise a fictional

dialogue to present a particular view of pedagogy, the ‘constraints led approach’ (CLA) (Newell, 1986; Chow et al., 2006). With continued disconnects between theory and practice reported (Araujo, Davids, Bennett, Button & Chapman, 2012), it is felt that we need to frame coaching research in everyday pedagogical contexts infused with uncertainty and ambiguity (Jones, 2006).

In adopting a theoretical position considered to be an ‘alternative’ way to develop expert performance (e.g. Davids et al., 2015), please be reminded that when judging the merits of this paper, it is conceded that this is not a theoretical heavy review. Instead we present an ‘everyday’ spoken conversation where theory is discussed in the workplace affirmative to reconfiguring coaching practice. Particularly considering the wider coach education backdrop where the emphasis is on procedural knowledge, the skills, technique, and tactics of the game; often breaking the process down into specific components, with students shown a gold standard or perceived notions of best practice of coaching for each component (Abraham & Collins, 1998). A process best described as ‘by the book’, ‘formulaic’, and ‘dogmatic’ when examining current mainstream approaches to coach education (Piggott, 2012). It is argued that the marker of success within this context is for the coach as student to focus on shaping athletes towards ‘gold standard movement patterns’ where idealised movement patterns are presented and organised by applying rules (Araujo et al., 2010). What this perspective fails to consider is that there are ‘other’ ways to develop expertise, where ‘learners’ are provided with opportunities to modify their behaviours appropriately in the search for functional coordination solutions (Davids, Button & Bennett, 2008). A position opposed to the ‘one size fits all’ approach to movement coordination where instead expert performance is realised when learners adapt and succeed in responding to multiple environmental, task and individual constraints they are exposed to (Newell, 1986; Chow et al., 2006; Davids, Chow & Shuttleworth, 2005; Renshaw, Chow, Davids & Hammond, 2010).

This increased focus on the adaptive capacities of players through a ‘constraints-led’ approach (Newell, 1986) to coaching aligns to recent recommendations from the field suggesting that coaches want ideas to integrate into their practice (Cropley, Miles & Peel, 2012). Drawing mainly on an ecological psychology framework (Araujo, Davids & Hristovski, 2006; Davids et al., 2012), this paper addresses how such theoretical auxiliaries draw attention to the potential of coaching science, thus responding to

numerous reports of ‘poor coaching’ (Gearity, 2012; Ford, Yates & Williams, 2010). Where coaches are reported to struggle with considering alternative coaching practices where it can be easier to stay true to the ‘old ways’ (Denison & Avner, 2011). Where in a pedagogical sense, phenomenal truths manifest and powerful accumulated traditions which guide practice are accepted as more reliable than the products of science as they define and regulate a coaching habitus (Hassisan & Light, 2015). Subsequently, coaches are largely padlocked in cultural cul-de-sacs and the current coach education ‘status quo’ is not capable of breaking through with ‘cutting edge’ theory (Piggott, 2012). Unfortunately this sense of belonging to the material world is argued to be responsible for ‘caged by craft’ knowledge deficits where pedagogic discourses strongly resemble reductionist pedagogical practices strongly refuted to be instrumental to high quality learning (Davids et al., 2005; Renshaw et al., 2012; Light, 2015). In order to better support coaches to shift beyond this hardened realism, it is intended that through embracing the use of underutilized methodologies to consider unfamiliar theoretical perspectives, this process may be better served to change the perceptions of coaches allowing greater possibilities for change (Jones, 2007; Jones et al., 2012). Subsequently, through providing greater opportunities for coaches to ‘cherry pick’ knowledge(s) and get a better ‘feel’ for *theory*, a ‘fly on the wall’ workplace conversation between a Manager and incoming coach is narrated.

Background to the enquiry – A brief theoretical context

Research in expert performance, sport pedagogy and other organized coaching activities is utilising an ever increasing variety of disciplines to theorise learning. It is posited that the capacity to offer innovative and high quality practices can be enhanced through understanding pedagogical functions in a practical coaching context (Light, 2012a; Light, Harvey & Mouchet, 2012b; Davids et al., 2015). A strong basis of knowledge(s) has emerged regarding ‘game based approaches’ (GBA) stemming back over 40 years starting with what is widely conceived as the original Teaching Games for Understanding (TGfU) model (Bunker & Thorpe, 1982). Practitioners and researchers alike have argued for the integration of GBA, which in a TGfU sense, would require the coach to best determine a ‘game form’ which challenges learners in terms

of ‘what to do’ and ‘how to do’ it. Thus, it was a pedagogical approach created ‘by practitioners for practitioners’ (Butler, 2014). This empirically constructed model was introduced into pedagogical contexts mainly due to dissatisfaction with dominant technique based pedagogies (Bunker & Thorpe, 1982). Ever since, this has resulted in a rich corpus of academic work directing a distinct focus on what coaches need to do when configuring effective learning environments (Light, 2012). These principles are symbolic of a continued quest, recognised through empirical and theoretical measures highlighted in this section, to support practitioners to explore other ways. In effect, critiquing coaching practices that are largely reminiscent of a ‘molecular sport pedagogy’ (Rovengo, 1999). Clearly illustrated in practice when the ‘classic technique’ is practiced time and again allowing for idealised movement patterns to be acquired by applying rules (Araujo et al., 2010). Due to the strength of localised knowledge that persist in coaching, drills that replicate this kind of *training* form are still found to dominate at the expense of more organic *playing* forms (Partington et al., 2011; Low et al., 2013). Whereas the chaotic nature of ‘games’ result in continuous situations that direct actions shaped by environmental constraints that never materialise in the exact same way (Passos et al., 2008). Hence, it is cogently intimated that reproductive styles limit the involvement of the player to imitation, severely narrowing player opportunities to solve problems and make decisions in order to become more intelligent, thinking games performers (Renshaw & Clancy, 2009).

In sharing ‘connected’ sentiments of GBA that support the learning of ‘principles of play’ before technique (Bunker & Thorpe, 1982), the stewards of the ‘constraints led approach’ (e.g. Renshaw et al., 2015) have attempted to clarify ‘misconceptions’ which have characterised TGfU and CLA as the ‘same thing’. Whilst Renshaw et al. (2015) vehemently deny these accusations, it is conceded that they ‘look similar in practice’. Whilst we appreciate these finer points, in terms of theory, we are not about ‘flag waving’, but engaging in a process trying convince coaches to practice differently. Something is not created from nothing, and in countering the theory-practice gap, ‘games based approaches’ (i.e. TGfU) can be further propelled due to the theoretical muscle courtesy of CLA which is founded on a theory of motor control (Renshaw et al., 2015). Whilst the CLA could still be considered to be in its infancy there is a need to tread carefully, as Townsend and Cushion (2015) highlight, coaches can be suspicious of ‘new’ theory. With ‘game based approaches’ providing such a broad

heritage, there is a need to be mindful of losing sight of something which has amassed much empirical value when promoting alternative methods, aware that novel approaches don't wholly appear as just "something with pseudo-principles" (Cushion, 2013, p.72). For these reasons it is the overlapping dynamics of theory, empirical research and practice that can illuminate critical variables. Moreover, it is the complementarity features which can be of most benefit to practitioners when considering 'designs *for* learning'. Consequently, this paper is steered by the key similarity. One where learning is considered emergent, occurring through processes of guided discovery, where self-directed actions are outcome focussed and learners are required to find 'different pathways of solutions' (Renshaw et al., 2015). In practical sense, the similarities are more important than their theoretical differences. Thus, coaches are challenged to strongly consider 'how they learn', rather than 'how we coach'. In an ecological sense, the emergence of adaptive behaviours is governed by processes of self-organisation ubiquitous to physical and biological systems in nature (Davis, Sumara & Simmit, 2003; Kauffman, 1995), and appropriate learning experiences can be engineered through manipulating task and environment constraints (Newell, 1986).

An ecological dynamics perspective suggests explanations of learning derive from the "phenomena within the organism-environment synergy rather than within the organism *per se*" (Beek & Mejer, 1988, p.160) and the reciprocal arrangement that has evolved between living systems and their environments (Kugler & Turvey, 1987). Whilst this approach has not attracted scepticism, e.g. for denouncing cognition (Light, 2012), the evidence reviewed illustrates the requirement for continued efforts to increase awareness. Therefore, by drawing on a wider breadth of research, particularly from ecological psychology, this addresses how theoretical approaches could underpin teaching and coaching. In light of such growing epistemic trajectories attempting to understand pedagogy in an applied and practical sense, the development of 'non-linear pedagogy' has developed (Chow et al., 2006; Davids et al., 2005). Such increased attention in the literature regarding the issue of the performer-environment, an issue which had been seldom addressed, has been recognised and focuses on how specific variables change how a system [e.g. learner (s)] ultimately behaves (Magill, 2007). With a key construct of non-linear pedagogy being the grouping of humans as a class of non-linear dynamical systems (Smith & Thelen, 2003; Davids et al., 2008). In a

sporting context this describes players as learning through being complex adaptive systems and is underpinned by both the ‘constraints led approach’ (Renshaw et al., 2010), and Dynamical Systems Theory (Handford et al., 1997). In advocating non-linear forms of pedagogy where multiple choices evoke complex patterns of learning, it is accepted that learning is not predictable and therefore cannot be adequately explained through simplified models (Chow et al., 2006; Davids et al., 2008). Rather when conceptualising learning, players as learning systems should be given ample opportunities to explore relative properties of their performance environment (Davids, Araujo & Seifert, 2015). Coaches as critical conduits in the learning process would need to ensure their ‘role’ dovetails with recent re-conceptualisations of the coach, for example ‘pedagogue’ (Armour, 2011) or as ‘educator’ (e.g. Jones, 2006).

This goes some way to readdressing the balance where learners are encouraged to explore their learning, rather than coaches continually trying to provide deterministic learning conditions (Ford et al., 2010). The work of Memmert et al. (2010) strongly indicates that the development of creative influences, deemed essential for tactical creativity, is problematic without the exposure to playing form. As a result ‘one size fits all’ practices are hypothesised to not being conducive to richer experiential experiences. Raab et al. (2001) further acknowledge the use of game experiences where behaviours are fluid and emergent as conducive to increased levels of tactical creativity. Responding to fluctuations primes the creativity of players because they have to source solutions leading to “the generation of high-quality, original, and elegant solutions to complex, novel, ill-defined problems” (Mumford et al., 2012, p.30). Therefore in establishing a set of circumstances, a player can systematically learn from his/her environment by “observing its surroundings, reacting to it by probing, and observing the environment and subsequently evaluating the success of its reaction” (Newell, 1986, p.348). As a ‘team’, players also experience being part of a larger ‘dynamical system’, where it is suggested that this increases understanding and more meaningful tactical patterns in team play (Grunz et al., 2012). Such fertile pedagogical ground engages deeper more pronounced levels of learning (Renshaw et al., 2010), and the challenge for coaches is to convert blind action into intelligent action through developing a definitive knowledge of the player or team’s ecology (Davids et al., 2008). As such, through integrating a CLA approach effectively, coaches can orchestrate task,

environments and learners in such a way that players move into a region of self-organised criticality during practice (Newell, 1986; Davids et al., 2008).

Coaches therefore action ‘relevant properties’ through shaping conditions that encourage performer-environment interactions in order for players to create new patterns of behaviour in their individual performance landscapes (Davids et al., 2012). This paradigm shift provides a more authoritative explanation than computer metaphor inflections (Davids et al., 2008; Gibson, 1979; Handford *et al.*, 1997). Players act on information deemed as essential to shaping movement through probing the environment become attuned to their actions (Davids et al., 2015). As identified, many episodes in games situations exemplify the unique and established perceptual, motor and creative abilities of iconic sport players. This is recognised in current research where expertise has strong associations with a tightly coupled perceptual-action bonding (Renshaw et al., 2010). This ensures the activation of the neuromuscular system to activate and coordinate muscles/limbs resulting in a perception-action mutually coupled dynamical system (Handford et al., 1997). Particularly, in relation to ‘adaptive movement’ through perceiving key instructions made available through a CLA where players produce functional movement solutions through mutually constraining relations between perception and action sub-systems (Gibson, 1979). Where an appropriate practice design can allow a learning process to be configured that invites relevant actions from the players (Withagen, de Poel, Araujo & Pepping, 2012).

Renshaw et al. (2012) expand on how learning is conceptualised, explaining that “phase transitions (e.g. sudden changes) in system behaviour are most prevalent in meta-stable regions where co-evolving system components (e.g. an athlete’s emotions, beliefs, physical characteristics, knowledge) compete to modify his/her performance landscape” (p66). As coaches observe practice the actions of individuals begins to be understood in reference to their specific performance context and specific attractor landscapes evolve relative to the constraints presented. (Davids et al., 2015). This “search and assemble” process (Davids et al., 2012, p.117) is characterised in the game of football as the learning dynamics of each individual player is challenged to discover the appropriate outcome. As noted, through incorporating a CLA, the search for functional performance solutions emerges from environmental, task, and individual constraints (Newell, 1986) and players develop their expertise over time through

modifying their performance as constraints change (Davids et al., 2012; Renshaw, Davids, Glazier & Button, 2005). Despite fluctuations of movement, the same outcomes can be achieved through recognising ‘degeneracy’ as a functional property to be exploited where players continually “seek to (re)establish coordinated relations amongst limbs, joints, and environmental surfaces, objects and events in a performance environment, regulated by different perceptual variables” (Davids et al., 2015, p.138). Therefore, it is proposed that coaches are required to provide corresponding practice conditions that ultimately lead players to achieve successful performance outcomes courtesy of an assortment of coordination solutions (Davids et al., 2015) These solutions should impact upon decision making (Passos, 2008), creativity (Memmert, 2010) and game intelligence of players (Renshaw & Clancy, 2011). A strong indicator of coaching expertise is how well coaches can structure variability effectively, in such a way that guides players to these different and effective outcomes (Davids et al., 2012). Through promoting exploration continually in well-structured practices this constellation increases opportunities for developing expertise through a representative learning design (Pinder, Davids, Renshaw & Araujo, 2011).

A Hypothetical Coaching Conversation

This paper is a response to the calls for there to be more focused empirical sports coaching research that has a value laden practical applicability (Taylor & Garratt, 2010; North, 2013). Going further than this, we are mindful of the evidence-based epistemological orthodoxy threatening to neuter the political and critical potentialities of the sport [coaching] academic (Silk, Bush & Andrews, 2010). Thus we advocate a position where critical sport coaching scholars—the *bricoleurs* (Bush & Silk, 2010)—will not be afraid to deploy an expansive and flexible methodological arsenal, move beyond classic forms of representation, enter new territories of expression and produce more self-conscious texts (Bush, Silk, Andrews & Lauder, 2013). The use of fictional writing, and in particular fictional dialogue or hypothetical conversation, has gained in standing and acceptance within the field of qualitative social science inquiry as it is a method that offers both the researcher and the reader new paths of exploration and new opportunities for understanding (Selbie & Clough, 2005). Given the potentialities afforded by this form of writing, it is somewhat surprising that only a minority of

empirical sport coaching papers have utilised this genre of representation. Jones (2007) was the first to exploit this territory of expression in sport coaching, and subsequently Bush and Silk (2012) have represented their data through a reflexive conversation, and, Nelson and Groom (2012) and Roberts and Potrac (2014) have both utilised hypothetical conversations.

This paper also speaks to the call from Rynne, Mallett and Tinning (2010) of the need for the coaching workplace to be examined, as to date it has been a site that has been largely overlooked. Fictional writing allows us—the researcher and reader—to enter the coaching workplace and articulate it in a manner that deepens our understanding of this context and, according to Jones (2007, p.161), “allow the teasing-out of previous assumptions that trigger new ways of reasoning and doing”. Indeed, the very essence of this form of representation is a reciprocity between researcher and reader that seeks to challenge many taken-for-granted assumptions encountered in the coaching workplace. Emphasising this, Selbie and Clough (2005, p.117) argue that “it [fictional narrative] opens up (to its audiences and its authors) a deeper view of life in familiar contexts: it can make the familiar strange, and the strange familiar...and can provide a means by which those truths, which cannot be otherwise told, are uncovered.”

In this paper, fictional dialogue is utilised to communicate a conceptual debate in relation to sport coaching through a text that is engaging, useful, believable and meaningful (Jones, 2007). We reject traditional notions of research validity and reliability and see these as a facet of methodological fundamentalism (House, 2005) extant within sport coaching research. However, we are aware that the readers will rightly check the quality, interpretive sufficiency or plausibility of our work throughout the conversation by asking questions about the aesthetic merit, impact, communication of reality, contribution to the field, reflexivity (Richardson, 2000) and reciprocity (Christians, 2000) of the text. Thus, importantly our criteria are neither mechanical nor terminal, “they embody the emancipatory notion of praxis in which knowledge is not only about finding out about the world, but also about changing it” (Bush, Silk, Andrews & Lauder, 2013, p.123).

In terms of the fictional dialogue’s structure, following an introduction (‘Context’) and drawing on a wealth of conceptual and empirical evidence, the *new* Head Coach (Mark)

constructs the ‘theoretical’ case. The Manager (Andrew) responses are occasionally supplemented further through theory (presented in italics) to further substantiate and enlighten the given reasons proposed for the alternative approach. Multi-disciplinary theoretical articulations are offered throughout where such a conceptualisation of coaching practice can be better understood, developing coaches understanding of theory and how it applies to real-world problem solving.

Setting the scene

Manager (Andrew): (walks into his office, scowling, picks up his mobile phone and dials, after two rings receiver picks up); Hi Mark, it’s Andrew, from the club, I’ll get straight to the point (agitated). Not a great hour of my life. Just sat down with the Chairman and the Owner, [they] could not have been clearer. In a nutshell, the message is loud and simple: “*we haven’t got many games to prove ourselves*”... “They sacked Kevin (previous Head Coach) and I am lucky to be still ere’ apparently. One thing is certain, if we don’t turn it around, there are changes guaranteed. So, there it is, welcome to Parkhampton FC!

Head Coach (Mark): Well, no surprises there then (strangely humoured). That’s Pro football for you... roll on the annual sack-race eh!? Trigger happy chairmen and success hungry fans combined is a potent mix. (47 managers sacked in season 2014-2015 across 4 leagues (<http://www.theguardian.com/football/2015/jun/05/managers-sacked-more-quickly-lma>))

Andrew: Don’t I know! Get in for 12 and we can discuss training arrangements for Monday onwards. Basically we need a plan of action otherwise we’ll become the next sacrificial lambs.

Later that day, Mark arrives at the Parkhampton training complex, makes his way up to Andrew’s office, knocks twice and walks in after an abrupt invitation.

A Workplace Conversation

Andrew: Right mate, lets gawn down to the 'nitty gritty'. Pre-season starts Monday, we have a squad of 27 at the moment, quite frankly we were shit last year. Don't need to be Einstein to suggest we need to be better, much fucking better. You are the new Head Coach, I remember some of your fancy ideas when I spoke to the Chairman after you got the job (Sitting back in his chair still perplexed by being shut out of the hiring process which resulted in the hiring of young coach whose CV is quite academic). I'm all ears; share your ideas about turning it all around.

Mark (Somewhat prepared having practiced many rehearsals of rolling this dice): Sure, I've been giving this a lot of thought Andrew. As a starting point I have trawled through some video footage trying to be objective about the fault lines and this issue is the biggest threat to potential progress. Poor ball retention, suggesting that the interrelated action between skill levels and decision making was poor.

Andrew: Sound about right mate, I remember when the Champions stuffed us 4-0, we didn't hardly see the ball. Our skills and options during the game were dreadful, we gave possession up and back to them consistently. Gave the lad's a right going over after the game!

Mark: What I viewed didn't say much for the player's decision making, in terms of picking out the right pass, keeping possession, movement, and awareness of space...

Andrew (interrupts and nods in agreement): Didn't score many goals either last season. Indifferent decision making, low skill levels and no creativity, it killed us, the players got fed up, that was obvious and we were in such a rut losing game after game. I mean (continues) we WORKED HARD on skills, definitely... We would do *mostly* skill practices, drills loads of drills, practice makes perfect eh? We even broke down the skills that so they could get it, we worked really hard on skills. Skills, skills, skills were the mantra, especially when I and Kevin got bemused with the lads and the way they performed, we trained damn hard.

Mark: – Initially while I am getting my head around this, it sounds like it was mostly ‘drill type’ based technical based practices? When I say drill I mean a closed type practice with perhaps a focus on technical development, quite common really and this highlights the apparent monopoly training form, which would entail drills, have at the expense over more organic playing forms such as ‘game based activities’ (Ford et al., 2010). (Continues, as Andrew frowns and after a 2 second interlude) My question Andrew in regard to repeated practices where you use drills to do the same thing, for example dribbling around static cones up and back, is that when you think about the *game*, are such drills reflective of the unpredictability of the football contest? Is that environment stable?

Andrew (Snappily responding, the Chairman’s message still fresh in the mind): No I guess not, but they are standard practices everyone does, don’t they need the basics Andrew?

Mark (Leaving that question float around the room for a brief moment): – Maybe. But isn’t the game fluid and highly changeable? I mean don’t the conditions of the game change quickly? Don’t the players need to execute skills regardless of the changing game context? Let’s not forget the *real* environmental conditions in which the game is played. To be honest Andrew, the idea of lots of repetition and static based drills has come under increased scrutiny. Why do we preach ‘a one size fits all’ that emphasises a ‘classic technique’? I am not convinced this is the best way. I find it increasingly frustrating that this over emphasis still results in poor skills in the game and it’s difficult to continue to justify this method (Schmidt & Lee 1999; Davids et al., 2008; Davids et al., 2015)

Andrew (probing, slightly confused): So what are you saying? After all, that’s how I learnt the trade. That’s what we have done for years in football, get the basics right, No? *In identifying cognitive dissonance in the field of coaching, the challenges for developing coaching practice remain beset by a myriad of struggles where coaches remain ‘true’ to their traditional coaching methods (Denison & Avner, 2011). Acknowledging this cultural struggle, Jones et al., (2012) remind us that “coaching knowledge is constructed in context, being both the product of where it takes place, and coaches’ engagement with each situations enablers and constraints”(p.326).*

Mark: OK. Let's bring the 'basics' into our strategy this season for developing performance, as a starting point; how about considering what kind of players we want to develop at this club. What does a Parkhampton FC player look like Andrew?

Andrew (replies after pondering for a few seconds gazing at the stained photograph of the 1972 league winning side): Solid, dependable, hardworking, foot soldiers, those who give their *all* for the club.

Mark: Sure, absolutely, important characteristics agreed, but let's consider what we can do here. Last season why did the players keep giving the ball away? How tactically astute were they? How intelligent were their on-field actions? Let's imagine the impact if the players were better decision makers? How can we, as coaches at this football club, create the conditions through our coaching practices to develop these indices this season?

Andrew (chuckling): Look Mark, like most managers in the league I would *love* to have those sort of players. But the realities are this, that's not possible with the budget we have, and the kind of players that we attract and are currently in our squad? Let's face it great players are born 'great'.

Mark (Slightly aggrieved by a flawed deterministic view): Andrew, in terms of my role as coach at this club, I believe there is much potential to develop 'expertise' based on the right kind of approaches to developing players. There is great contention with the common "talent-based" view that expertise is the result of greater intellect, is pre-determined, or this attitude that players are either good or bad (Expert Performance Approach; Ericsson & Kintsch, 1995]. It is often assumed that all iconic sports stars blessed with these super genes. I would say no, not all great players are born with some magic gene, for me the power of practice is more important (e.g. Renshaw et al., 2012). When considering most of this talent bollocks, its false promises Andrew, loads of these so called 'talent programs' fail to deliver a significant number of future champions (Vaeyens, Gullich, Warr & Philippaerts, 2009).

Andrew (sternly): Are you sure? We seem to do pretty well in other sports don't we?

Mark: Undoubtedly we have had many successes, look at the Olympics (2012) and this summer's Olympics in Rio will spawn more champions. However, in trying to fathom the complexities of *learning*, how expert performance 'happens' is a lot more unpredictable than current, and I would say flawed, approaches that dominate (Renshaw et al., 2012; Araujo et al., 2012).

Andrew (reacting angrily): Look, cut the crap; what does that mean in simple speak?

Mark: Well, if we as coaches don't present coaching practices with increased capacity for learning, even those so called genetically 'gifted' athletes are in danger of not reaching their potentiality (Araujo et al., 2010). So in plain terms Andrew, yes, genetics can play a part, but let's not forget players, and OUR players, are also shaped through a variety of experiences in their training environment that can lead to expertise (Renshaw et al., 2012; Araujo et al., 2010).

Andrew: So when thinking about last season and the coaching practices utilised at the club, we done mostly drills with sometimes a little game to finish, so are you saying we have not created the conditions for players to improve? If so, what are you proposing instead?

Mark (recognising an opportunity to gain some momentum): As a coaching team, I believe that to get the best out of our players, we start to think about player development through a 'constraints led' approach (Newell 1986). As a starting point to this let's begin by reassessing our knowledge and experiences Andrew. We need to understand that a shift in our coaching philosophy will lead to improved conditions for learning for our players (Jones 2007; Light, 2012b).

Andrew (pensively mmm...): Go on...

Mark (continues, a little nervous, trying hard to focus as Andrew's face contorts): What I am proposing is that we adopt our practices to contain this 'constraints based approach' (Newell 1986; Davids et al., 2008). For us as coaches, let's not continually tell them what to do and expect them just to be performing robots (Williams & Manley

2014). The learning conditions created by us should challenge the players to adapt their behaviours, they become directed by the relations between what is intended, information they are perceiving and actions possibly, in effect they have to 'self-organise' (Davids et al., 2012).

Andrew (with a scowl on his face): Sorry, Mark I don't get that??

Mark (patiently): No worries let me have another go. So, if an aspect of our game needs developing, for example playing the ball out from the back. Rather than telling them to do this and that, maybe using a rigid drill practice with one outcome where we as coaches provide lots of instruction. We, instead, consider what are the main 'constraints' which affect the individual and team during this learning exchange and then 'add' these into a problem solving 'game' type practice. It is the manipulation of the task which then guides the players learning (Chow et al., 2006). So in this case, we may use a certain number of defenders and attackers to close down the space which scales the level of difficulty. For us, as coaches we become more 'hands off' and concentrate on 'presenting' the most realistic 'problem'.

Andrew (interested): So we set the level of challenge by adding in conditions?

Mark (promptly): Yes bang on. We manipulate the challenge so the players have to respond accordingly, they have to what I term 'self-organise'. So what the players do in a 'conditioned practice', their (re) actions, are evolving and we need to accept as coaches that the game of football is unstable, fluctuating and our training needs to reflect this (Davids et al., 2015). So we provide significantly more realistic practices.

Andrew (interrupting): So using this 'constraints based approach' we don't break skills down like we have done before?

Mark (Eagerly pouncing on this opportunity): Let me explain further through an applied example. =. For example if a coach wanted to improve the heading and volleying of their players. Rather than "breaking the skill down" into drills as you mention earlier, the coaches could set up sport specific games and then specified rules

which would increase the frequency/ opportunity for the outcome to occur, restricting goal scoring, for example, scoring purely off a cross). This will allow players to find their own solutions for the whole problem, in comparison to us just telling them and expecting this to be the answer.

Andrew: So tell me this Mark, would the player's technique not suffer?

Mark: That shouldn't be a problem. However if you are sceptical, or the players themselves feel it to be beneficial, we can also continue with some practices that promote basic functional movements alongside the 'constraints' led approach (Smith, 2014). However, through the players spending more time exposed to a 'constraints' based approach this will lead to players being better coordinated..

Andrew (Interrupting again): Really!

Mark (composed): Sure, as a hallmark of expert football performance I would say it is better for players would have an unlimited number of different coordination and movement options that lead to the same outcome. Let's face it, do players ever adopt the exact same body position when passing or shooting? So in terms of movement, players need to demonstrate a robustness where they are able to produce positive outcomes such as still pass accurately even if under pressure from a defender and off balance (Schollhorn, Mayer-Kress, Newell & Michelbrink, 2009). This process is termed 'degeneracy' Andrew (Davids et al., 2015), and links to us providing practices where players have to be adaptive in all sorts of ways as what is expected of them in the game changes. Anyway, in terms of the way you and Kevin shaped your coaching practices last year? Do you see any similarities with a 'constraints' approach?

Andrew: No it wasn't for us. We would do basic two touch warm up stuff like 'rondo' to get the boys started, then we would usually finish with a bit of a game. In terms of specific content most of our sessions were made up of drills where we looked to improve skill and technique. To be honest, we kept this format consistent, as coaches we were comfortable with this approach. *To be further critical of this approach, more opportunities could have been provided for players functions to emerge from the interaction between themselves and the environment. When considering an over*

reliance on drills, 'adaptive behaviours do not consist of control of coordinated movement per se, but is goal directed action tailored to the environment' (Corbetta & Shulman, 2002). Such practice conditions ensure that players are exposed to a rich heritage of continuous self-organisation where internal dynamics within a learner's individual complex system consists of a neurobiological system which fluctuates during learning and performance (Renshaw et al., 2010).

Mark: We could consider overhauling our coaching practices? So rather than do mostly linear forms of training e.g. a skills, drills focus, we will predominantly load sessions up with this 'constraints based' approach?

Andrew (Expressing suspicion): But what are the benefits here Mark? This all sounds a bit wishy-washy to me. Sure, change a little bit of this and that but a complete overhaul – really?

Mark: As a coach I am strongly influenced by the view that manipulating the practice environment accordingly will let our players engage in a deeper and individualised level of learning (Renshaw et al., 2010). Football and what happens in a game fluctuates, constantly changes, its fluid, players need to react to what is going on around them every movement. A 'Constraints Based' approach allows for realistic representations of what challenges players in the game. When you observe a player in the game and you think where should he be? What should they be doing? Are they executing the skill? Let's get our players attuned to what they are doing, what they see, how they react. Creating practices which produce relevant movement and decisions specific to the actual game not some modified non game specific drill (Gibson, 1979). So when things don't work out *they* find solutions because they fully appreciate their performance interactions, being tactically more astute, making improved decisions (Passos, Araujo, Davids & Shuttleworth, 2008, p.127).

Andrew (Feeling harassed): Still not sure I follow. I mean, all this business of 'finding *fucking* solutions', don't I as coach give them the tools to do the job, break it down make it easy for them?

Mark: We are *giving them the tools for the job* Andrew. Just using a different approach. Let's think about ourselves as the architects of the practice environment, responsibly educating our players to become better footballers (Jones 2006). What we need to do is layer more realistic conditions of practice in a way that shifts from a 'technique based' approach to a 'constraints' based one. Are we really doing our best if we cannot offer innovative and effective training practices that are support players to learn more? (Light, 2012a; Ford et al., 2010; Araujo et al., 2012).

Andrew (fixated on his 'new' coaching role): So you think that the 'constraints based' approach will sharpen up our players and prevent them from being so one dimensional. Let's face it, no one more than me appreciates the realities here, I vividly recall several occasions when we couldn't hold onto the ball, make basic passes, and create chances. Looking back we were an utter shambles at times. It was bullshit! So what do we do then? Just stand around watching this 'constraints' stuff? Shouldn't I be telling them what to do? Who's in charge around here? I see them doing wrong and let me tell you Mark I will let them know. *This sense of being in charge imbues coaches with a sense of self-indulgence in order to act out their expertise in what is a social activity where coaching status is only realised when they graduate to the position of unique knowledgeable source, in contrast to the 'transmogriying orchestrator' (Jones & Wallace, 2006, p55). This reoccurring theme ensures that culturally entrenched coaching practices, often distorted through social relations and dominant ideologies rapidly transcends coaching identities. It is well established that coaches hold deeply held values formed through their experiences in social and cultural contexts where philosophies of coaching are developed (Jones, Armour & Potrac, 2004; Light & Hassinin, 2015).*

Mark: How we operate as coaches would need to change. Let's consider planning differently, working differently, coaching differently. We should be spending sufficient time devising games/practices loaded with 'constraints' and 'affordances', situations thereby occur where there is a healthy mix of restrictions and opportunities in the game for players to work out. These 'work-outs' mean players have to become perceptually attuned to the performance context (Gibson 1979) and they have to 'sniff' out the right choices.

Andrew: So let's recap, as I haven't come across this before. This is better for their learning and development and you say the players will then become more skilful and better decision makers?

Mark: Let's think about the big picture here Andrew. We have a relatively young squad and we need to ensure we extend their potential as much as possible, right? This is the way to go for their long terms skill development (Davids et al., 2012). If we provide more suitable practice conditions then I think we can help extend the players skills and their decision making (Araujo et al., 2006: Passos et al., 2008). If we maintain the 'drill' based approach how do we expect players to deal with uncertainty in the game when we continually expose them to certainty? Hence, I am making key recommendations here, specifically in reference of developing our players so they are more perceptive, intelligent (Renshaw & Clancy, 2009) and can adapt to the way games can change in terms of say, tactics, injuries or the score.

Andrew (After pausing and reflecting for a number of seconds): Well, after last season I am open to suggestions and the players also commented on their skill levels being poor and tactically we were not able to adapt. If plan A and B and didn't work we were screwed. We couldn't find another way, so this stifled our ability to score and compete. So I am open to suggestions!

Mark: So I guess it's up to us as coaches to make sure we *really* begin to challenge these players in training in order for them to transfer skills and decision making to matches. If we want these kind of players, those who can comprehend meaning when the game is at boiling point, we need to be providing specific practices that represent the best outcomes for our guys (Light 2012a).

Andrew: So where do all these bright ideas come from?

Mark: We have covered quite a lot of interesting theoretical stuff at University relating to applied coaching practices....

Andrew (interrupts, whilst standing up and walks toward the window gazing outwards): Oh bloody hell! Do you expect me to be directed by a load of academics who have never coached in their life! I mean, does this stuff *really* work?

Mark (needing to react quickly yet calmly): Andrew – any theoretically led coaching approach needs to be able to transfer to the real-world task (Broadbent, Causer, Ford & Williams, 2014). In order for this transfer to occur, this approach should contain practices that are representative by containing similar perceptual, thinking and movement requirements when performing skills under pressure, just like the game itself. Andrew my ideas are complemented by research in related fields where coaching interventions have enabled athletes to refine their task-specific knowledge structures leading to them improving the processing of information and performance (Oudejans & Pjipers, 2009). Or been further successful in improving perceptual-cognitive skills in a range of real-world sporting domains, including soccer (Wood & Wilson, 2012), tennis (Smeeton, Williams, Hodges & Ward, 2005) and cricket (Hopwood, Mann, Farrow & Nielson, 2011).

Andrew: So *some* evidence that it works, but sounds like a big gamble to me, not least my career!

Mark: I appreciate that. However if we want to develop players who are more skilful and tactically astute, we need to provide practice environments where the players work out what they need to do through searching and detecting appropriate solutions and applying them in a game related context. A ‘constraints based’ approach can allow for this window of analysis that facilitates decision making in players (Passos et al.,2008).

Andrew: So let me make sense of this, you are saying we as coaches, in a way, marshal a learning process, called a ‘constraints based approach’. Where we as coaches upscale or descale the level of difficulty of a learning objective in order to challenge the players, in essence, we set the difficulty, players then have to react and learning takes place as they ‘self-organise’?

Mark (Ignoring some finer points): Spot on! Then we can move this process forward with the players and over time hand them the responsibility for creating performance

relative challenges, empower them as players to create the optimum conditions for their learning to take place.

Andrew: So informing our coaching through some basic theoretical ideas and just thinking about simple practice designs, so... if Jimmy is going to be permanently chaperoned by 2 defenders when he breaks into the last third we 'add' this in to a practice. Or the example earlier about playing out from the back, we consider how other teams set themselves up and organise the defence so that we are 'presenting this problem'. Or, say Kenny, who was man marked out of numerous games last season, we can focus on how he and the other players combat this, they find the best *solution*.

Mark: Yes, Kenny being man marked is a 'constraint' but undoubtedly this throws up an opportunity or something termed an 'affordance' for other players to capitalise. Remember the players behaviours are coupled or linked, so they need to co-adapt as a kind of sub-systems e.g. attack or defence, working together to overcome challenges (Schollhorn et al., 2012). So, to use more technical blurb, the players are all part of the larger system in effect, which has to re (organise) its own synergies and couplings (Davids et al., 2008). A more concentrated 'constraints approach' keeps challenging the players, implementing 'riddles to be solved', keeping practices somewhat consistent but adding tweaks here and there to perturb the player's responses at specific 'challenge points' of learning (Bernstein, 1967; Causer et al., 2015).

Andrew – Do you think this is why players didn't seem to improve last season, because training was mostly drill based and maybe too easy? *Conceptually this explains how players suffer 'arrested development' a by-product created by repeated practices as they train: "inside the regions of typical situations [which] stabilise the afforded actions and their coupling.... whereas... training at the bifurcation (changes in behaviour) points offers acquisition of qualitatively different performer-environment interactions and sensitization to qualitative situation changes in competition" (Davids et al., 2012, p.124 emphasis added). By designing learning activities that recognise games are unstable environments the player as a learning system can be exposed to metastability, meaning that conditions integrated should push players to create new patterns of behaviour in their individual performance landscapes (Schollhorn et. al 2009).*

Mark: So in terms of what you have usually done, lots of drills and repetition, this does not allow for these new patterns of behaviour. We are only creating habits; and not allowing the players to be *creative*. I would say there has been too much of a focus on directing player's to a singular known outcome through repeatable and predictable exercises. Think of those iconic players who always seem to have that uncanny knack of the game, or more time on the ball to shape their actions – How do they manage that? Evidence from neurology would suggest they are avoiding the burden of overthinking or a 'cognitive slog' (Eagleman, 2012). For us, let's not inflame this process by overloading players with too much explicit information (Poolton, Masters & Maxwell, 2005).

Andrew: So if this can facilitate the creative energies of our players this is much needed because we certainly need to score more goals as we were too predictable. *Memmert (2011) proposed the distinction between expert decision making and creativity may lie in the distinction between convergent thinking and divergent thinking. Memmert, Baker and Bertsch (2010) continue drawing distinctions noting that "convergent thinking refers to the ability to find the ideal solution to a given problem whereas divergent thinking is defined at the behavioural level as innovative or uniqueness of solutions to a related task" (p.4). In terms of tactical creativity expert decision making would require a general ability to find the best tactical solution in any specific situation. In adopting non-linear approaches (Renshaw et al., 2010) that replicate higher complexity levels, experimental research suggests demands relationally become more creative instead of simple. In designing appropriate learning experiences through manipulating constraints and affordances the players can "produce work that is both novel (i.e., original, unexpected) and appropriate (i.e., useful)" (Sternberg & Lubart 1999, p.3).*

Mark: So again, let's try to be more 'hands off.' A personal opinion is that these overzealous coaching methods we have discussed can be classified as 'over coaching'. Without being aware of implications, as coaches, we are suppressing natural learning processes and we need to consider what the appropriate levels of variability are and apply the correct amount (Davids et al., 2008).

Andrew (Pensively): Mmm over coaching you say. Well, we certainly barked out a lot of orders last season that's for sure, but I would say that's what they needed, they were a pile of shit.

Mark: I think we should consider a shift in terms of how authoritative we are, in my experience this has only led to players being overly reliant and expectant on their coaches, rather than be creative in seeking out solutions for themselves (Memmert, 2011).

Andrew: Well, being up front here, we repeatedly shouted instructions at players on the pitch. In hindsight, I have to say that it seemed to have little effect on increasing performance. *Several stressors, such as anxiety and fatigue, have been shown to negatively impact performance (Wilson, Chattington, Marple-Horvat & Smith, 2007). Therefore a key indicator of expert performance is the ability to regulate and control both attention and emotion (Mann & Williams 2007). A range of theoretical standpoints describe how it is often the athletes perception of the environment, their skill set and the interaction between the two which will determine the impact the stress has on performance (i.e. Biopsychosocial model; Vine et al., 2013).*

Mark: In presenting the 'problem' in a 'constraints based' approach it would be important to give the players more freedom to think for themselves and share ideas. We can scaffold 'conversations' about what they are doing, how they are playing, such social interaction and collaboration can be drawn down through this group think (Sawyer, 2007) resolving tactical problems through an embodied dialogue (Light & Fawns, 2003).

Andrew (Looking quizzical; wondering whether theory can actually deliver the empirical realities): Ok Mark, that's enough for now. Some of that makes sense, I now need to see some of this in action, sounds great in the office with your academic 'magic wand'. I want to see it out there, on the pitch, where it matters...

Mark: Well, roll on Monday...maybe it's time to take some risks as coaches in order to mature our work and the performance of the players.

Conclusion

The aim of this paper was to deploy an underutilised form of representation to highlight contemporary issues relating to coach learning; specifically the detachment between coaching practices and the underpinning theory (Nash & Sproule, 2012; Jones et al., 2012). Furthermore, looking to promote the role of key ideas and concepts that underpin theories about applied coaching practice (e.g. Newell, 1986). Where, in this fictitious case, coaching competence can be greatly informed and shaped by theoretical insights through the integration of a ‘constraints based approach’ (Renshaw et al., 2010; Davids et al., 2015). In response to an ‘age’ old problem where SCR is packaged scientifically with little consideration about how this can transfer to the practice of coaching (Trudel & Gilbert, 2006). As part of a more radical shift toward representing theory, increased focus should be on shaping practices which allow for the development of innovative, adaptive players who are able to modify behaviours appropriately when confronted with a range of constraints (Chow et al., 2006). Where it is argued that ‘traditional’ uniformed approaches to developing expertise can decay the learning process and more pertinent conditions for adaptive movement, game intelligence, decision making and creativity have been discussed. The wider remit here being that coach education programmes should reduce the focus on the descriptive, tactical, technical and biosocial aspects of the sport (Piggott, 2012), and instead adopt non-linear pedagogical principles to learning (Chow et al., 2006). In effect, overcoming ‘knowledge-deficits’ recognising that there are widespread concerns about the education of coaches in the UK where the ‘one size fits all’ approach stands accused of being largely ineffective in creating a theoretically literate coaching workforce (Nelson, Cushion & Potrac, 2012; Piggott, 2015; Cushion & Hull, 2013).

Considerations of coaching expertise have therefore been suggested to correlate with a masterful application of variance relating to constraint manipulation leading to more relevant learning experiences that can accelerate a player’s expert performance (Davids et al., 2012). Although conceding that when coaches are acculturated and confronted with the ‘nitty-gritty’ of coaching, theoretical reference points may become somewhat blurred (Jones et al., 2004). However, despite multiple critiques of a ‘modelling approach’ (Jones, Edwards & Filo, 2014) for those of us who do coach, there are better ways. A ‘constraints based’ approach is theoretically deployed, amongst other relevant

and supporting literature, to act as ‘pedagogeme’ (Bernstein, 1990), to intervene and combat a knowledge blindness central to the pedagogical intentions of the coach-learner personhood (Cushion & Hull, 2013). And, through this ‘telling’, based on a workplace conversation between manager and coach, a rich vein of knowledge stemming from a vast ‘epistemological botany’ has been presented to further raise the profile of alternative approaches to coaching practice.

When considering the essential features of creating a learning space to overcome a theory-practice divide, Maton (2014) remarks that “studies of learning that overlook *knowledge* fail to grasp one of the most significant dimensions shaping the development of actors’ form of knowing” (p.13). Yes, there are reported *knowledge* differences between TGfU and CLA (Renshaw et al., 2015), although as practitioners, we accept that these knowledge differences are “two ends of an empiricist spectrum where positivist and constructionist commonalities are more significant than differences” (Moore, 2012, p.341). Theorists, particularly those with a motor learning bent, could begin to accept that there is no magic formula where the acquisition of one set of knowledge’s is the “only and sole pathway to ‘truth’” (Bernstein 2000 p.165). Hence, the empirical basis of game based pedagogies (e.g. Butler & Thorpe, 1982) being supported by a greater scientific understandings (e.g. Davids et al., 2008) makes greater appeal. Although there is no ‘silver bullet’ in regard to what is *actually* best, and we agree that the virtues of coaching largely exist as a social activity (Jones 2006). Although in the complex and manifold world of coaching and coach education, theory can only maintain both importance and relevance if it can produce knowledge that can make a difference, particularly in galvanising a more strategic practitioner in the face of a failing neoliberal agenda (Bush & Silk, 2010; Piggott, 2015). Where ‘cutting-edge’ knowledge forms are developed from ‘above’ in [*coaching*]; accepting “it cannot come from below, in the everyday experiences of having to survive the world” (Rowlands, 2000, p.558 *emphasis added*). Strongly agreeing with suggestions that contemporary researchers and practitioners should be working more closely together when developing new pedagogical approaches (Butler, 2014).

Finally, despite some notable cases e.g. Jones et al., (2012), it appears that one of the biggest challenges facing students and academics alike within sports coaching is the acknowledgment of the value of sport coaching degrees. Mark, is created here to

embody a research aware ‘modern’ practitioner acting as ‘theoretical negotiator’. This demonstrates the heady importance of sport coaching courses in HE being able to support a transition that moulds evidenced based practitioners.

THEORY-PRACTICE GAP

Coaching research has had very limited influence on the way that coaches are trained or the content of policies and large-scale programmes (Abraham and Collins, 1998; Lyle, 2002) signifying a theory-practice gap.

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