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## It depends coaching – The most fundamental, simple and complex principle or a mere copout?

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### ABSTRACT

A growing body of literature identifies the importance of conditionality in coaching and coach education. In simple terms, the complexity and hyperdynamic nature of many coaching environments makes it increasingly unlikely that any one approach, tool or even paradigm will be appropriate to every situation. Accordingly, in this paper, we critically consider the use of Professional judgment and Decision-Making (often referred to as “it depends” coaching) as a valid approach to coaching, using three exemplar constructs backed by both literature and practical challenges. We conclude by comparing the underpinnings and logic of this approach and presenting implications for coaching practice. Our intention is to stimulate debate amongst coaches, coach developers and researchers.

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Professional judgement and decision making; coaching; planning; adaptive expertise

## Introduction – Why is “it depends” important?

*Any fool can know. The point is to understand* (Einstein)

It’s always good to start with an impressive quote, even if it’s hard to locate the exact source. Of course, like so many other modern memes, Albert probably wrote this on his website or blog! After all, that is where so much coaching knowledge is gleaned these days, even though many have highlighted the risks of using such unfiltered sources without appropriate criticality (e.g., Stoszowski, MacNamara, Collins, & Hodgkinson, 2020). One of the several concerns expressed about these social sources is the frequently absolutist nature of the advice offered. Especially as there is an increasing trend for the proponents of various philosophies or tools to present *their* answer as *the* answer; in short, a “golden bullet”. Some will provide data or opinions to support their answer, although often constructing their argument against a strawman unrecognisable to the other side of the argument. Furthermore, and of even greater relevance, the almost

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evangelical arguments fail to address the needs of the hard-pressed practitioner; as one example, the notion of traditional vs contemporary coaching (e.g., Woods et al., 2020).

As pracademics in the field of coach development (those who split their time between practice and academe) and practicing coaches, we have increasingly come to recognise the importance of what we might call conditional knowledge. This conditionality is based on the premise that knowledge will apply and work well in real-life settings *but only* under certain circumstances or contexts. As such, almost no knowledge is without conditionality; a recognition that whilst something applies, both knowledge *and* context must form part of the practitioner's planning and execution. Thus, the ability to decide on what coaching tool to use, and in what context, becomes a core skill for the coach, operationalising the Professional judgment and Decision-Making (PJDM) approach to optimise coaching impact. The concept of PJDM has proven effective in several applied domains both in and out of sport, including social work (Taylor & Whittaker, 2018), sport psychology (Martindale & Collins, 2005), strength and conditioning (Downes & Collins, 2021a, 2021b) and sports coaching (Abraham & Collins, 2011b). As an approach, at least from a UK perspective, it also underpins the newly developed Chartered Institute for the Management of Sport and Physical Activity standards for coaching high performance and coach development (CIMSPA, 2019, 2021) and the recent advanced apprenticeship for Outdoor Specialists (Education.gov.uk, 2022).

Given frequent use of the construct in both literature and practice over the last 10 years, we feel it is important to offer a current view of PJDM as applied in coaching. This is especially the case as, despite a generally positive picture and the successful application of PJDM to several performance environments, the idea has also received some negative press, particularly on social media. Authors suggest that the idea of PJDM, and the more widespread iteration use: "it depends", represent a licence to do whatever one wants. In contrast, PJDM acknowledges and caters for the complexity inherent across professional circumstances. For example, Schön (1991) used the term "swampy lowlands" to refer to the messy, confusing problems of practice in which the inherent conditionality of knowledge results in times when no *single* model has sufficient signposts to show the way (Rycroft, 2004). This contrasts with the characterisation of "it depends" as model-less and "wallowing in ambiguity . . . and capitulation to circumstance" (Garner, Roberts, Baker, & Côté, 2022, p2). As a result, there is a need to both clarify and offer an updated picture with an emphasis that PJDM and its related constructs place on the underpinning evidence for the decisions taken. That is, the basis for why particular methods are chosen and applied, plus the how and when these decisions are checked. This idea of the practitioner as an experimenter is not new (cf. Schön, 1991), though the decision-making will

usually prove a good deal more complex than many believe (cf. MacNamara & Collins, 2015).

Therefore, in this paper, we set out the arguments for PJDM (the scientific representation of it depends on coaching) as a genuine construct in coaching and, therefore, coach development. We do this through a critical consideration of three “pillars” or core constructs of PJDM. Namely, the concept of nested planning, the nature and use of knowledge in coaching, and the expression of expertise in coaching utilising a PJDM approach. In all cases, we offer both research and applied examples of how these constructs emerge from, indeed are grounded within, the idea of PJDM and “it depends”. With an emphasis on real-world applied practice, we hope this overview stimulates interest and even, perhaps, a recognition that this construct has the potential to be fundamental to good coaching and coach development, if understood and operationalised appropriately. We would also emphasise that our approach is very practically focused. Thus, whilst many of ideas underpinning PJDM have been categorised as being solely underpinned by psychological science, we clearly take account of other disciplinary perspectives (North, 2017). As coaches and coach developers, we are more interested in offering people ways in which to develop their practice than trying to present a model of what coaching is (Cushion, Armour, & Jones, 2006).

We conclude by considering what this means for coaching and coach education, proposing some criteria which might be applied to research and practice in the field.

### ***Example one – Nested planning/thinking***

Planning has long been recognised as central to the coaching process (Jones, Housner, & Kornspan, 1995) and framed as the “link between aspirations, intentions and activity” (Lyle, 2002, p. 125). Building on these early conceptualisations of planning practice, Abraham and Collins (2011b) suggested a multi-level construct, termed “nestedness” to optimise a coach’s planning and thinking processes. This approach draws, in part, on Dual System theory of decision-making (e.g., Sloman, 1996) which suggests that there are broadly two frameworks by which decision-making is organised. The first, rapid and intuitive; the second, slower and more deliberate (Kahneman, 2011; Kahneman & Klein, 2009). Taking advantage of these frameworks, Abraham and Collins proposed nested planning as a deliberate cognitive process by which a coach formulates an “intention for impact” (cf. the use of this construct in applied psychology) and uses bodies of knowledge to plan the steps necessary to achieve this outcome (Martindale & Collins, 2005). Working backwards from the desired impact, the coach first takes account of the “macro”, the athlete’s long-term needs and those of the

broader milieu, before deliberately planning for athlete experience over meso (phase) sub-phases. Finally, allowing for necessary flexibility, micro (day-to-day) level activities are nested within these broader meso and macro concerns. Consequently, by deploying nested *planning* at multiple levels, the coach can engage in nested *thinking* to make coherent decisions in their moment-to-moment coaching practice (e.g., Collins, Collins, et al., 2016).

In addition, nested planning can also act as a reference point for the effectiveness of coaching practice (cf. Lyle, 2021). This can be seen in terms of the process (was the approach taken coherent with intention for impact?), and outcome (did the intended impact transpire?). This, in turn, allows for judgements to be continually reviewed, a characterising feature of effective decision-making (Atanasov, Witkowski, Ungar, Mellers, & Tetlock, 2020). Therefore, without clear intentions, it becomes difficult for the coach to engage in effective reflective practice, either on-action, in action or on-action in context (Collins & Collins, 2020; Schön, 1991) and thus even harder to label coaching behaviours as positive or effective, a trap into which many in coaching research have fallen (e.g., Mills & Clements, 2021).

Of course, at least conceptually, this is not to suggest that coaches are omniscient. Similar to the concept of orchestration, nested thinking allows the coach to be responsive to the shorter term needs of athletes without losing bigger picture coherence (Jones & Wallace, 2006). This necessitates a cycle of planning, reflection and re-planning as situational demands change (Hoffman et al., 2014), recognising that coaching methods need to change as the situation changes and the athlete develops (Klein, 2007a, 2007b):

Our language distinguishes between planning and execution, but this distinction fails us during complex operations. Emergent goals don't fit into a distinction between planning (formulating the actions) and execution (carrying out the plan.) Planning by itself usually won't transform ill-defined goals into clear ones. Goal clarification emerges during execution. Certainly, planning up front is useful because it lets us begin to learn about the situation. The initial plan itself is a valuable guide. But once execution begins, we need to use what we are learning to replan (Klein, 2007a, p. 82)

In essence, having an overall intention allows for the flexible use of methods in the face of complex and dynamically changing challenges that characterise coaching (Moore & Hutton, 2019).

We can therefore see nested planning as analogous to the writing of a training programme, where strength and conditioning coaches (SCCs) will spend significant time considering the progression of various physical qualities in the wider athletic context. Traditionally, this would have seen SCCs using periodisation formulas in the planning process (Bompa & Haff, 2009). Yet, inflexible and procedurally driven approaches to periodisation have been subject to significant criticism (Kiely, 2011) with increasing

recognition that SCCs need to modify micro-planning based on the context of the athlete and their needs (Till, Muir, Abraham, Piggott, & Tee, 2019). In practice, this appears to be a feature of the growth of expertise in SCCs, with expert SCCs better able to respond to a range of multidimensional factors in planning (Downes & Collins, 2021a). In contrast, early-career practitioners, in many fields, are less flexible and more likely to default to theory (Downes & Collins, 2021b); in this and other coaching domains (e.g., Mees, Sinfield, Collins, & Collins, 2020).

### *Weighting of agendas*

One of the most important influences on the need for this flexibility are the multi-levelled agendas that exist at all levels of practice. Effective planning and thinking will take account of factors such as competitive schedules and the demands of the sport, that have already been identified in the literature (Lyle, 2002). The concept of nestedness also emphasises the recognition of the socio-political dynamics of the coaching situation (Burden & Lambie, 2011; Collins, 2019). In essence, the coach needs to acknowledge and cater for the politics and culture of their coaching context. These agendas might include funding demands (national funding bodies or paying club members), the norms of a sport, the performance culture and organisational demands (Fletcher & Wagstaff, 2009). A failure to cater for these potential clashes is seen by some as inevitable (e.g., Ojala & Thorpe, 2015) but we would suggest it is often just ill-considered, and thus poor, coaching or another manifestation of using one blanket approach as *the* answer (Collins, Collins, & Collins, 2016). Notably, these dynamics are just as important for the coach of young children, as for the professional football manager with tentative job security (Nash & Taylor, 2021).

Additionally, the coach needs to consider the athlete's motivational orientation (Collins et al., 2012), their metacognitive awareness of learning and development (cf. Dweck, Chiu, & Hong, 1995; Grecic & Collins, 2013), and psycho-behavioural skillset (Taylor & Collins, 2019; Toering, Elferink-Gemser, Jordet, & Visscher, 2009). As an example, the coach of a young golfer whose parents are funding coaching may need to encourage significant technical change to encourage perceptions of competence. Yet, the need for desirably difficult practice (cf. Soderstrom & Bjork, 2015), might need to be set against the motivational orientation of a casual golfer and the parental expectations of progress. In short, the nested planning will be a manifestation of adaptive expertise (cf. Mees et al., 2020), another highly desirable feature of coaching as we will show later.

Either way, there are a constellation of factors that significantly influence the coaching process (Taylor, Collins, & Cruickshank, 2021). Thus, the coach's ability to cater for, or perhaps counter, often competing agendas and perceptions of effective coaching is hardly straightforward (Taylor &

Collins, 2021). Yet as a feature of nested planning, if the coach can prioritise different agendas and help all stakeholders to better understand where their coaching fits with the overall agenda, they are more likely to engage (Abraham & Collins, 2011a).

### *Integrated nested thinking*

Given the multiple agendas inherent to the coaching process, there is increasing recognition that few coaches operate on a purely one-to-one basis with an athlete (Bjørndal & Ronglan, 2018). As a result, intentions for impact are often achieved through a process of orchestration, reflecting individualisation and differentiation rather than as an output of a single coach-athlete relationship (Jones, Bailey, & Thompson, 2013). Indeed, the nested process should aim to curate an athlete experience that is coherent, where multiple elements of their experience are mutually reinforcing rather than contradictory (Taylor & Collins, 2020). This can be seen horizontally, across a particular age/stage, or vertically, considering the stage of the athlete and their future needs. Given often competing agendas, the process of achieving coherence ideally requires integrated practice across a broad group of stakeholders, and of course, with the athlete themselves (Taylor & Collins, 2021). The ideal outcome of such a group approach to nested planning should be the generation of shared mental models (SMMs), or the “overlapping mental representations of knowledge by members of a team” (Van den Bossche, Gijsselaers, Segers, Woltjer, & Kirschner, 2011, p. 285). This process will, in turn, enhance our understanding of the broader developmental picture and the weighting of agendas across various stakeholders (e.g., parents, coaching team, interdisciplinary team) (cf. Alfano & Collins, 2021).

To enhance the process by which SMMs are generated, there may often be some level of friction or positive conflict, encouraging authentic disagreement to enhance thinking (cf. Nemeth, Brown, & Rogers, 2001). For this reason, conceptually distinct constructs like psychological safety (Edmondson, 2018) and the zone of uncomfortable debate (Bowman, 1998; Burke, 2011) *may* be of utility in enhancing the nested planning process, albeit in different ways and at different times. Perhaps critically, given the need to take action and not just talk about it, robust debate should lead to role clarity and agreed action, even if parties cannot come to universal agreement. As an additional bonus, a group approach to nested planning can also take advantage of “external” judgement and decision-making enhancement methods (Larrick & Lawson, 2021). Whilst the specific boundary conditions of constructs like the “wisdom of crowds” or “practical wisdom” remain a point of contention in the literature, there is robust evidence that seeking multiple expert perspectives will enhance decision-making (Mannes, Soll, & Larrick, 2014; Navajas, Niella,



Garbulsky, Bahrami, & Sigman, 2018). As a result, a variety of methods may enhance the planning process and development of SMM. For example, pre-mortems (Kahneman & Klein, 2009), counterfactuals (Tetlock & Belkin, 2020), red-teaming (Moore & Hutton, 2019), decision hygiene (Kahneman, Sibony, & Sunstein, 2021) and case conceptualisation (Collins, MacNamara, & McCarthy, 2016) have all been shown to enhance decision-making.

In essence, nested planning and thinking are an essential pillar of the PJDM approach, for both the individual coach and broader coaching groups. Integrated nested planning offers a range of benefits for coaching practice beyond the individual, enabling the development of SMMs and role clarity across the network of actors. In turn, encouraging the adaptable, flexible and informed use of a range of methods, coherent with a shared intention for impact.

### ***Example two – The nature and use of knowledge***

The second core construct for examination is the role of knowledge as a key indicator of expertise for practitioners, such as sports coaches, orchestrating effective learning (Abraham & Collins, 2011b; Collins, Collins, & Carson, 2016; Kirschner & Hendrick, 2020). If coaches are to operationalise PJDM against coaching intentions formulated through a process of nested planning, a considerable knowledge base is required. Therefore, the need for coaches to hold a broad base of conditional knowledge is a critical prerequisite of where coaching interventions depend on informed decision-making to best achieve the coaching intentions established (Abraham & Collins, 2011b; Cruickshank & Collins, 2013). These decisions are usually best made via a synergy of naturalistic and classical decision-making processes (Abraham & Collins, 2011b; Kahneman, 2011; Kahneman & Klein, 2009). The exact combination being dependent on the context of the decision (Collins et al., 2016.) but the key here is what the conditionality depends on! Thus, to establish the nature and use of knowledge, it is essential to explore the types of knowledge that underpin such expertise and that which must be acquired and operationalised to be able to shape effective learning environments.

### ***Types of knowledge***

Nash and Collins (2006) reviewed Anderson's work (Anderson, 1982) to understand the different types of knowledge that can be acquired and operationalised in practice. Anderson (1982) separated knowledge into two broad domains: declarative and procedural knowledge. Declarative knowledge; the knowledge of understanding "why", whilst procedural; as "doing" knowledge (Abraham & Collins, 1998b). A coach may possess one without the other; for instance, implementing a condition (rule) in a small-

sided game, copying someone else, but not understanding why that condition is most appropriate given their intentions. This, we suggest, is a potentially limiting situation and highlights the weaknesses of the predominantly proceduralised diet of many coaches. Additionally, Anderson (1982) suggested two parallel strands of procedural knowledge: broad procedural knowledge explaining where coaches would approach similar problems in a standard way (e.g., through trial and error) and specific procedural knowledge limited to a small number of situations.

Procedural knowledge tends to be built into our paradigmatic assumptions about how things work; indeed, evidence has suggested that humans, and more specifically coaches, are largely unaware of these assumptions (Hall, Cope, Townsend, & Nicholls, 2020; Streaun, Senecal, Howlett, & Burgess, 1997). Consequently, it is a coach declarative understanding, the “why” that underpins the coach’s capacity to be consistently adaptive and innovative (Abraham & Collins, 2011b). Considering this, coaches with a base of declarative knowledge who engage in metacognition may become aware of their own existing knowledge and assumptions, becoming better able to nest their use whilst planning for appropriate situations (Collins, Abraham, & Collins, 2012).

In addition, the way individuals interact with a concept will be dependent on their conceptions of knowledge (Entwistle & Peterson, 2004; Perry, 1970). Entwistle and Peterson (2004; p.408) offer simplified definition of a concept as; “a grouping of objects or behaviours which can be defined by giving necessary and sufficient conditions enabling them to be used and widely recognised”. Entwistle drew upon the work of Perry (1970) to demonstrate that conceptions of learning ranged from *dualism* – that a coach identifies knowledge as right or wrong, to *relativism* – where a coach accepts that all sources of knowledge are conditional but are willing to offer their personal evidence informed view towards a problem. Empirical evidence supporting these conceptions of knowledge has been found in coaches across a number of sports (Collins et al., 2012; Hall et al., 2020). Indeed, to reinforce this point, there is a broader trend for coaches to be prescribed strategies to try out in their coaching sessions. We would suggest that this is inappropriate, much as when you ask a physiotherapist to treat your injured knee, you would not expect them to offer a random treatment based on a clearly diagnosed issue. Nor would you want to be treated by the physiotherapist who followed a “trademark” methodology that prescribed methods that only *may* be effective in this context. Whilst we acknowledge that prescription of approach is often offered with the best of intentions, it can also (in our experience) be driven by a National Governing Body’s desire to reduce resourcing, both financially and in terms of expertise. At best, this procedurally driven approach is inherently limiting, yielding

a coaching workforce that lacks pedagogic agility and is unable to optimally meet the individual needs of participants in their performance context.

### *Prescribed or pragmatic knowledge*

At the heart of a coach's conception of knowledge is their interaction with and use of evidence. In the natural and physical sciences (e.g., physics) concepts have been developed to replace naïve conceptions with those that are scientifically accurate (Entwistle & Peterson, 2004; Thagard, 1992). Notably, however, these positivist and dualistic notions of knowledge have an inherent flaw, especially when the context renders the use of particular approach, although socially considered to be more reliable (Gelardi, Kirienko, & Sollini, 2021), to be untenable. Of course, judgement of whether use of a specific approach is scientifically accurate is extremely difficult. Scientific accuracy is a central component of evidence-based practice, which implies that a concept can be taken as fact and prescribed as a dose. Schommer-Aikins (2002) likened this to a human's initial engagement with new knowledge, where it tends to be conceived as certain, simple and handed down by an authority; in short, a naïve epistemology. In this paper, we have captured this type and application of knowledge as *prescribed* knowledge. Unfortunately, *prescribed* knowledge does not represent the realities of a coach's role as the complexities of the environment, the performer and their interaction constantly demand adaptation, reflection and intervention (Abraham, Collins, & Martindale, 2006). For instance, a football coach who prescribes knowledge to a problem setting approach, would remove direct instruction, corrective feedback, and any explicit methods of education from their coaching repertoire. Their intention would be to challenge players to discover and deliver on appropriate solutions, but challenges swiftly arise when players do not possess the relevant tactical knowledge nor competence to execute. In moments like these, a coach's failure to adapt their decision-making, and the knowledge informing it, could result in a loss of confidence, efficacious beliefs and motivation for individual players.

Of course, the nature and use of knowledge within PJDM is underpinned by a pragmatic philosophy (Cruickshank & Collins, 2017). Importantly, Shier (2017) suggests that a pragmatic interaction with knowledge claims should be subject to a wide range of critiques from competing frameworks and alternate views to assess their practical utility. Additionally, Cruickshank and Collins (2017) proclaim that pragmatic approaches in sports coaching are grounded in the idea that the value of new knowledge is assessed by the difference that it actually has on coaching practice. In essence, criticality and scepticism are essential when coaches first interact with new knowledge to consider whether somethings works; a suggestion which is best summarised by Carl Sagan (1997);

At the heart of science is an essential balance between two seemingly contradictory attitudes — an openness to new ideas, no matter how bizarre or counterintuitive they may be, and the most ruthless sceptical scrutiny of all ideas, old and new. This is how deep truths are winnowed from deep nonsense (p.304)

Therefore, at the centre of the PJDM philosophy is the deeper consideration that practical application of different theoretical perspectives can and does coexist depending on: 1) evidence that supports their use, 2) their relevance to the context in which knowledge is being applied and 3) the experience of the practitioner (Abraham & Collins, 2011b; Collins et al., 2012; Cruickshank & Collins, 2013). In short, evidence informed practice (Neelen & Kirschner, 2020). This is nicely captured by Wiliam (2016; p.63); “Everything works somewhere; nothing works everywhere”.

Consequently, we suggest that it is the expert’s ability to employ *pragmatic* nuanced forms of knowledge that are contingent to coaching if they are to demonstrate high levels of PJDM (Collins et al., 2012, 2016). For example, a youth gymnastics coach may employ directive coach behaviours (Mosston & Ashworth, 2004) alongside blocked and constant practices (Abraham & Collins, 2011a; Williams & Hodges, 2005) when teaching a 5-year-old how to perform a somersault safely. The same coach may also employ constraint-led theory within a practice by adapting the height of uneven bar to exaggerate the difficulty of a full routine for a 14-year-old gymnast preparing for a competition (Tan, Chow, & Davids, 2012). Both approaches are informed by evidence but, contrary to epistemological dogma, decisions are contingent on a deep understanding of the needs of the athlete and wider understanding of the context (Abraham et al., 2006). Thus, it is the method of coaching and appropriateness that takes priority over abiding to the constraints of a methodology put forward by a research perspective. Indeed, Collins and Collins (2019) identify that coaches are willing to apply concepts within an ecological approach but explain their application, post hoc, from a cognitive perspective.

Of course, knowledge, whether procedural, declarative, prescribed or pragmatic, can only be used if it becomes operational (Abraham & Collins, 2011b). Therefore, another key indicator of coaching expertise is an accurate congruence between a coach’s intentions (planning) for a session, adjustments (replanning) and what occurs in reality. Argyris and Schon (1974) identified the difference between *espoused theories* – what coaches believe their practice depends on and *theories in use* – what is demonstrated within their actual practice and behaviour. Clearly, if coaches are to operationalise new conceptions of knowledge, then they must reflect critically on the congruence between their espoused theories and theories in use (Cope & Cushion, 2020; Hall et al., 2020). We strongly suggest that critical reflection is enhanced through a critical friend or coach developer, who can help unlock paradigmatic assumptions from tacit

knowledge that may otherwise be overlooked (Abraham & Collins, 2011b; Collins et al., 2012).

### ***Example three construct – Adaptive expertise***

As a final exemplar, it is worth considering the nature of expertise in coaching using PJDM and the need for Adaptive Expertise (AEx) which is necessitated by the complex and hyperdynamic environments that coaches are often faced with. Logically, AEx provides a pragmatic conceptualisation of expertise in the highly conditional context of coaching (Hatano & Inagaki, 1986; Hatano & Oura, 2003). According to Pulakos, Arad, Donovan, and Plamondon (2000), AEx is multi-dimensional and relevant to particular roles and contexts. Thus, contexts and practices, such as coaching using PJDM, that require adaptation and flexibility require adaptive experts (Pulakos et al.'s, 2009; White et al., 2005). Consequently, AEx is an essential attribute allowing pedagogic agility and quick response to the needs of the performers and demands of the environments; in short, the context. In this respect, AEx enables the coach to accommodate the conditionality of coaching in practice.

Both routine and AEx demand the capacity to perform component parts of an action without error. In the PJDM approach, these small components or functional units (if coherently applied) are viewed as akin to loose parts (Nicholson, 1971), being interchangeable and capable of being configured differently depending on the context. These components are therefore applied in different ways, reapplied and reconfigured to best fit any new applications, thus creating infinite pedagogic solutions for the performer in their environment. Notably, these are much fewer and smaller than routinised and proceduralised practices would suggest in that, for some specific contexts, the basic toolkit (or range of methods that could be applicable) is quite limited. In these contexts, it is the subtlety and nuance of use that are indicative of AEx (Bransford, Derry, Berliner, Hammerness, & Beckett, 2005; Hutton et al., 2017; Pulakos et al., 2009; Trotter, Salmon, Goode, & Lenné, 2017) Of course, the more dynamic the context and application the greater the adaptability required. This only serves to reflect points made earlier about the importance of choosing the right method for the context. It is this efficiency, application and innovation to new situations that is a defining characteristic of AEx (Bransford et al., 2005; Hutton et al., 2017; Trotter et al., 2017).

We would therefore stress that adaptability is a core feature of quality PJDM practitioners. Hanson, White, and Dorsey (2005, p2) offer this useful description of adaptability: “effective change in response to an altered situation”, in essence, adaptability being the adaptive response to a changing situation applied through situational awareness and decision-

making (Endsley, 1997). Adding to this, the descriptions of Pulakos et al. (2000), Ross and Lussier (1999) and Smith, Ford, and Kozlowski (1997) offer three facets to adaptability: physical – ability to adjust to the environmental changes (situational awareness); interpersonal – adjusting interactions with others to be more effective, (response to the situational demands created by the performer) and mental – adjusting thinking to novel situations, (a willingness to create and embrace new solutions). A further three additional components; domain-specific, metacognitive, innovative skills and knowledge are identified by Crawford, Schlager, Toyama, Riel, and Vahey (2005). In fact, domain-specific and metacognitive skills are common to both adaptive and routine expertise (Carbonell, Könings, Segers, & van Merriënboer, 2016; Feltovich, Prietula, & Ericsson, 2018). The demands of the novel situations generated by a synergy of the environment and performers, and the scarcity or poor fit of available resources, routines or procedures, drives adaptability and innovation of the new (S Prasher, JC Evans, MJ Thompson, & J Morand-Ferron, 2019).

Ultimately, AEx entails recognising situations in which a routine, or procedure will not suffice, where there is a need to generate and apply a new approach. AEx addresses the novelty, complexity and dynamism via the construction of mental models cited earlier (Wineburg, 1998); a process somewhat akin to recognition primed decision-making (Klein, 1993). Pragmatically, procedures, routine and adaptability should all be utilised when approaching pedagogic challenges (Olsen & Rasmussen, 1989; Sonnentag, Niessen, & Volmer, 2012). As suggested by this paper, this may be supported via the synergy of nested decision-making processes, use of knowledge, hypothesis construction and evaluation, and solution-finding (Lin, Schwartz, & Hatano, 2005). Consequently, coaches with a high level of AEx appear willing to critically challenge assumptions and embrace new approaches (Lin et al., 2005)

Notwithstanding our points earlier regarding declarative understanding (Pennington et al. 1995; Abraham & Collins, 2011b), innovators are only adaptive experts if the innovation can be applied. Importantly, these coaches need to be empowered and enabled to operationalise their intention to act adaptively, have the process and meta-process required to retain and transport pragmatic knowledge, and operate within a coaching culture and community of practice in which innovation is valued and championed (Mees et al., 2020). Such an approach requires the coach to focus on continually acquiring new knowledge, skills, and reflection on their application. Mees et al. (2020) surmised that this might also influence how knowledge is interconnected and understood, procedurally, episodically or semantically, by the coach. Accordingly, there is a value placed on the coach's own learning, applying knowledge, and problem-solving (Bell, Horton, Blashki, & Seidel, 2012; Bransford et al., 2005). In addition, there

is a willingness to recognise challenges to that knowledge, recognise and replace assumptions, and fill skill gaps (Bransford et al., 2005; Crawford et al., 2005; Schwartz, Bransford, & Sears, 2005). These beliefs and values link adaptability and pedagogic agility with the sophisticated epistemology that sits in contrast to the naïve highlighted earlier (Schommer-Aikins, 2002). Thus, logically and consequently, we observe a greater range of coaching approaches and teaching styles.

This capacity to self-assess requires high cognitive flexibility, deep thinking skills, and metacognitive abilities (Barnett & Koslowski, 2002; Bell & Kozlowski, 2008; Stokes, Schneider, & Lyons, 2010). This standpoint enables coaches to view new situations, create and exploit analogies derived from knowledge and earlier experience, making adaptability and innovation transferable to new contexts. The ingredient components applied differently to each new situation form new responses (innovation and creativity), create new knowledge and associations (declarative, procedural, or conditional; Alexander, Schallert, & Hare, 1991), and thus new working methods. In short, both athletes and coach's develop and progress accordingly.

### **Implications for coaching**

Considering the ideas presented, we would suggest that readers not only critically consider our ideas but also work which has questioned it. In essence, using the style of criticality which pragmatic literature increasingly calls for (e.g., Stoszkowski et al., 2020).

As one example, recent research into the study of ecological dynamics, non-linear pedagogy and constraints led approaches have been openly critical of PJDM as a perspective. Instead, some authors advocate particular coaching strategies as solutions without reference to the individual or context. Offering formulaic solutions to the way coaches *should* design practice because of what (their) theory says *should* work. This we suggest, is a fundamental flaw in application, whatever ontology is employed.

Interestingly, there is a growing trend towards papers beginning by contrasting their approach to a strawman representation of what has often been called “traditional coaching”. This seems to entirely miss the point (Passos, Araújo, Davids, & Shuttleworth, 2008; Otte, Davids, Millar, & Klatt, 2020; Woods, McKeown, Shuttleworth, Davids, & Robertson, 2019; Woods, McKeown, O’Sullivan, Robertson, & Davids, 2020; 2021). Firstly, good coaching has always been adaptable and flexible, and we are unable to locate any literature that suggests otherwise. Therefore, a more accurate comparison might be with poor practice, rather than the blanket term “traditional coaching” which seems to be contemptuous of any coaching prior to 2010. Secondly, these approaches seem to encourage naïve epistemological conceptions of knowledge which are often presented

as certainties and “grand truths” from, somewhat ironically, evidence that lacks ecological validity (e.g., Correia, Araujo, Craig, & Passos, 2011; Correia et al., 2016), or are purely conceptual ideas (e.g., Woods et al., 2020; Woods et al., 2019). Thirdly, and of significant concern, the stance taken seems to preclude or even deny the experience of many successful practitioners and researchers over many years; as examples, the use of demonstrations or mental rehearsal to generate internal mental representations. Of course, these old ideas might be wrong but, at the very least, comparisons of efficacy should not be ignored on the basis of a priori theoretical positioning.

In essence, recognising the writings of Karl Popper (1968), we suggest that research should search for truth but also that this truth is always provisional and conditional. For the practicing coach, we would suggest treating evidence as contingent, in that it is always contextualised – *this* works best in *these* circumstances. Research can only contribute new knowledge for the coach to help them make sense of the practical problems they face in context. A search for paradigmatic alternatives to being adaptable and flexible in response to the situational demands seems to have missed the point of good coaching and ironically reflects criticism of “traditional” coaching. Our aim should be to present strategies that would be more optimal from a range of options (Ashford, Abraham, & Poolton, 2021; Collins, Collins, & Carson, 2021). It is not the approach, more the application that is key.

Other implications include a need to ensure that coach development explicitly considers alternative paradigms but also where each may or may not provide the best outcome. Since the early work of Mosston (e.g., Mosston & Ashworth, 2004) there has been an explicit statement that some methods work better than others against certain goals. Should this not be a principle that coach developers espouse and explore with their developpees? Finally, if the points made in this paper are even semi-valid, specifically the ideas of nestedness, use of knowledge and adaptive expertise, then coaching is a much more complex and cognitive activity than some current actions, programmes and advice would suggest.

We look forward to debate which, as Popper would have espoused, is surely the best way forwards, especially with something as important as coaching. After all, there is no doubt that quality of coaching is a key tool in addressing, not only performance but the lodestone of increased participation. In optimising either, however, it surely depends.

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