

Making the Invisible, Visible: An Exploration of Track-and-Field Coaches' Perspectives of Their Planning Processes

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Purpose: The traditional understanding of how coaches plan for sporting performance is rooted in the assumption that coaches create periodized plans underpinned by physiological principles, thereby providing scientific credibility to their work. In contrast, there remains a paucity of literature exploring how coaches understand or think about their planning practices. The purpose of this study was to generate new knowledge regarding what information coaches actually consider within their planning processes and how they actually approach the task of planning. **Method:** Using rigorous, in-depth interviews, this study examined athletics coaches' understandings of their everyday planning practices, in an attempt to contribute to narrowing the gap between academic research and real-world application. Twenty-eight highly experienced, high-performance track-and-field coaches based in England (female, n = 1; male, n = 27) were recruited. The coaches were from the throwing disciplines (n = 10) and endurance running (n = 18). Coaches were interviewed about their planning process, using a maximum of 3 semistructured interviews per coach, spaced across a full athletics season. In total, this generated 68 hours of data. **Results:** The analysis demonstrated that, while the participant coaches utilized the principles of periodization, their planning activities were not limited to this issue. The findings highlighted how the coaches conceptualized successful athletic performance in a holistic way; that is, planning is multifaceted in nature. **Conclusion:** This study presents a holistic picture of the complexity of coaches' planning, detailing the considerable time and attention given to planning for athletes' psychological, personal, and social development, to enhance athlete performance and development.

Keywords: high performance, coaching, performance development, athletics, qualitative

High-quality coaching is widely acknowledged as being an important component of high-level sporting performance.¹ In most sports, the national governing body (NGB) runs coach education programs to help develop coach's effectiveness through improving their knowledge base and session delivery.² To support the development of coaching knowledge and practice, Cushion,³ suggested that the coaching process could be modeled in 2 ways, namely models *for* coaching or models *of* coaching. Models *for* coaching focus on the idealized representation of how coaches should operate, while models *of* coaching reflect what coaches actually do in practice.

Most coach education program are broadly based upon models *for* coaching. The central doctrine of these program is that competent coaches should be able to design an effective training program that physically prepares athletes for optimal competitive performance. In the early 1960s, Matveyev developed an annual planning process, known as periodization, which consisted of systematic, sequential cycles, or phases, of training.^{4,5} The theoretical basis for periodization emerged from Hans Selye's general adaptation syndrome


model.⁶ In short, general adaptation syndrome proposed that the body adapts to stressors, for example, physiological adaptations to the physical demands of training.⁴ The success of athletes adopting periodization, combined with the presumed underpinning scientific basis, gave periodization both a creditability and legitimacy.⁷ This work gave impetus to a bioscientific approach to planning and coaching practice, whereby morphological adaptations to any given training intervention follow a predictable time course.⁸ Consequently, periodization became almost universally accepted as a planning modality and enshrined in coach education programs.^{9,10} Indeed, wider research focused on physiological adaptation has made substantial progress in describing the "what" and "how much" features of sport-specific training planning.¹¹⁻¹³

Periodization was developed to optimize athlete performance on a specified date,¹⁴ for example, the Olympics. While periodization remains the dominant approach to determining training program, over the past few decades there have been challenges to the methodology. Many sports compete across a season of fixtures rather than a single event or tournament. These competitive seasons are often long, leaving a short preparation phase that is inconsistent with Matveyev¹⁵ training principles. Traditional periodization develops multiple components of fitness simultaneously; however, some training stimuli can be incompatible, for example, strength and endurance.⁷ Furthermore, periodization details the cyclic ordering of training phases, usually within an annual cycle, consisting of variations in emphasis on specificity, volume, and intensity, to achieve optimal performance during the competition phase.¹⁶ However, most studies claiming to investigate periodization are short-term rather than covering a full training and competition cycle. In a review of periodization research, Kataoka et al.⁷ found only 2 studies that covered a period of 12 months: one on

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untrained participants, the other a retrospective analysis of elite performers. Out of the 100 studies they reviewed, 88 lasted between 4 and 18 weeks, not long enough to evaluate the sequential cycles of periodization. These short-term studies were more about programming or micromanagement, of a training program than the periodization.⁴ With the majority of studies orientated more toward programming, there appears to be an absence of evidence supporting the effectiveness of periodization.⁸

To date, the available literature on planning can be divided into 2 categories (1) knowledge *for* planning, how planning should happen, that is, periodization and (2) a knowledge *of* planning, that is, how, and what coaches actually do in practice. Much of the knowledge for planning has focused on generating bioscientific, physiological, and technical insights that can be used to underpin the development of “effective” training plans.¹⁷ The concept of periodization represents knowledge for planning that has become the mainstay of training theory within sport science and coach education programs. The underlying assumption is that coaches who work with performance-orientated athletes will use periodization as part of their planning process. Frequently, when expert coaches’ perceptions of their practices are studied, attention is most commonly placed on *what* they do, rather than *why* or *how* they do it, for example, the training or coaching process.^{18–20} In the case of planning, attention has mainly focused upon programming rather than periodization, whereby periodization is the macrolevel for example, weeks and months and planning is the microlevel, for example, sets, reps, and intensity.⁷ While this has provided invaluable information on the *what* and *how* behind the programming of athletes training, somewhat surprisingly the *why* has been largely ignored. Despite leading coaches often being innovators of training practices, ahead of the contemporary sport science knowledge, they are seldom involved in the research process.²¹ Retrospective analysis of these coaches often focuses their programming of training, rather than their planning process. Indeed, the practices, knowledge, and experience of coaches who work with consistently high-achieving athletes with regard to the entirety of planning, have received sparse attention and are not reflective of the research literature.²²

While research has advocated the use of periodization to describe and guide planning, further investigations are required to understand the processes and factors that facilitate and inhibit coaches in their planning process.²³ Thus, this study set out to investigate the planning processes of track-and-field coaches working with high-performing athletes. The aim of this interpretive study was to examine the breadth and scope of coaches planning processes, to increase our understanding of the *how* and *what* track-and-field coaches plan for, that is their knowledge *of* planning and to understand their thoughts and meaning-making in relation to their everyday approaches to planning.

Methods and Materials

Participants’ Information and Selection Process

Twenty-eight highly experienced, high-performance coaches, based in England (female, $n = 1$; male, $n = 27$) participated in this study. In collaboration with NGB staff from England Athletics, the sample of coaches were selected from 2 (endurance and throws) of the 4 coaching disciplines (throws, jumps, sprints, and endurance). These were 2 cohorts that were of most interest to the NGB at the time of the data collection. Opportunistic and purposive sampling²⁴ was utilized to support the recruitment of participants by drawing on the combined sporting networks of both the lead researcher and

the NGB officer. Second, the 2 disciplines had the greatest the number of qualified and active coaches in the United Kingdom at the time of data collection. The coaches recruited met the following criteria: (1) actively coaching in athletics, (2) held a minimum of a level 2 UK Athletics coaching qualification (coaches holding a level 2 award or above, are permitted by the NGB to plan, implementing training sessions and coach athletes independently), and (3) working with athletes toward the achievement of a performance goal. As there were no restrictions on the coaches’ age, sex, geographical location, the number, or level of athletes they were coaching, this data was disclosed voluntarily by the participants. Institutional ethical approval was gained prior to data collection.

Table 1 details the coaching qualifications held based on the UK Athletics coaching qualification pathway. Level 2 coaches are those who have specialized in a specific event, level 3 are event-specific performance coaches, and level 4 are senior coaches who may coach across more than one event group. Table 1 also provides information on the performance level of the coach’s athletes by drawing on McKay et al’s,²⁵ participant classification framework denoting tiers 1 to 5 athlete classifications; recreational, developmental, national, international, and world class, respectively. Coaches ranged in age from 36 to 77 years of age and had an average of 19 years coaching experience (range 5–50 y), at the time of the initial data collection period (Table 1). The composition of the sample included 10 coaches from the throwing disciplines and 18 coaches from an endurance running background.

Research Strategy and Philosophy

Adopting a qualitative approach to this study, allowed the research team to investigate and probe coaches on the multitudinous factors that are involved in their planning processes and to generate rich insights into the meaning-making, experiences, and understandings of the participant coaches about their planning practices.²³ The design and analysis of the study reflected the research team’s interpretivist paradigmatic position. An interpretivist research approach holds to the view that research is a subjective, interactive (or transactional), and co-constructed activity involving both the researcher and the researched.²⁶ Rather than trying to develop objective truths and predictive theories about what planning is or ought to be, we sought to explore the experiences of coaches.²⁷ Thus, we approached the analysis and interpretation of the coaches stories from a “one of many” ways rather than from a “best or right way”²⁸ (p15) to describe and implement planning processes.

Data-Generation Procedure

In-depth semistructured interviews were used to generate the dataset for this study. In-depth interviews are excellent tools for gaining rich insights into the meaning-making and perspectives of the participant coaches. Indeed, this type of interviewing allowed the research questions to remain the primary focus of the discussion, while also encouraging participants to share any other factors that underpinned their decision understandings of their everyday planning practices.²⁹ An interview guide was developed and piloted with a small sample of coaches. Following this process and the making of some minor modifications, the final interview guide comprised 6 sections. These were: (1) demographic information, (2) coaching background, (3) coaching knowledge, (4) planning knowledge, (5) experiences of planning for athletes, and (6) reflections on planning processes. The data generated were from a broader study, generating 68 hours of data, that explored how the participant coaches attempted to navigate their planning processes

Table 1 Participant Coach Information

Pseudonym	Event group	Level of coaching qualification held (UK athletics)	Highest level of athlete(s) coached	Approximate no. of years spent coaching
*EN1	Endurance	4—Senior coach	Tier 5	40
EN2 ^a	Endurance	4—Senior coach	Tier 3	30
EN3	Endurance	3—Performance coach	Tier 4	15
EN4	Endurance	4—Senior coach	Tier 4	25
*EN5 ^a	Endurance	4—Senior coach	Tier 5	5
*EN6	Endurance	5—IAAF coach diploma	Tier 5	21
*EN7	Endurance	3—Performance coach	Tier 5	15
EN8	Endurance	2—Event group coach	Tier 4	12
EN9	Endurance	2—Event group coach	Tier 4	25
EN10	Endurance	3—Performance coach	Tier 3	30
EN11 ^a	Endurance	2—Event group coach	Tier 3	15
EN12	Endurance	4—Senior coach	Tier 4	30
EN13 ^a	Endurance	2—Event group coach	Tier 2	8
EN14	Endurance	4—Senior coach	Tier 4	40
EN15	Endurance	4—Senior coach	Tier 5	50
*EN16	Endurance	2—Event group coach	Tier 4	8
EN17	Endurance	3—Performance coach	Tier 3	15
EN18	Endurance	2—Event group coach	Tier 4	15
TH1 ^a	Throwing	3—Performance coach	Tier 3	10
TH2 ^b	Throwing	2—Event group coach	Tier 4	20
TH3	Throwing	4—Senior coach	Tier 4	20
TH6 ^b	Throwing	3—Performance coach	Tier 4	14
TH7	Throwing	4—Senior coach	Tier 3	20
TH9	Throwing	4—Senior coach	Tier 3	50
TH10	Throwing	3—Performance coach	Tier 2	10
TH11	Throwing	2—Event group coach	Tier 3	10
TH12 ^a	Throwing	2—Event group coach	Tier 3	10
TH13	Throwing	3—Performance coach	Tier 4	15

Note: Since data collection, UK athletics has changed the way they describe each level of qualifications (October 2023); The highest level of athlete(s) coached is based on the participant classification framework by McKay et al.²⁵

^aCompleted one full interview. ^bCompleted 2 full interviews. No letter = completed 3 full interviews.

*Coach with athlete(s) on a funded program at the time of data collection.

and why they did this in the ways that they did, generating original insights into the previously unseen and sparsely documented social and relational aspects of coaches planning in track-and-field athletics and the interconnections between those facets.

The use of cyclical interviews over an extended period provided a number of advantages.^{30,31} These included (1) generating rich insights into the participants meaning-making in relation to their planning activities, (2) systematically examining the participants accounts over time using a variety of different probes and follow-up questions, and (3) rigorously identifying patterns and differences in the meaning-making across a substantive sample of track-and-field athletics coaches.^{30,31} We approached the data analysis process from a nonevaluative position. That is there were no best practice guidelines or framework in which we assessed the conformity of the responses about their planning. The focus was on exploring their meaning making and their understandings of their practice. The interpretation of the data did not consider there was a preferred response. Thus, we carefully designed the interview framework to ensure that questions were (1) framed in a neutral way, (2) asked about specific situations and behaviors, and (3) encouraged reflection

on their own experiences of what they intended and what they felt happened subsequently (during and between interviews) supported the interrogation of the coaches accounts for consistency and ensured that the responses were genuine reflections of their actual experiences rather than socially desirable answers. By adopting this approach to the data generation process, it afforded greater time to actively listen to, and reflect upon, the experiences of a large sample, to inform more meaningful probes, follow-up questions, and systematically examine and understand their insights into planning other potential methods of data generation (ie, questionnaires).³¹ Alongside active listening and attentiveness to participant responses, elaboration (eg, Can you tell me more about that?), clarification (eg, Could you provide an example for me?), and detail oriented (eg, Who was with you when that happened?) probes were used to secure in-depth accounts of each participant's experiences and meaning-making.^{32–34} At the close of each interview, participants were asked an open question which aimed to prevent the omission of any pertinent data that was not previously discussed within the interview (eg, “Are there any other factors, not previously mentioned, which you feel are important to your approaches to planning?”).³⁵ All interviews were conducted as

one-on-one interview using a flexible interview guide that drew on the research objectives, and analysis of any previously undertaken interviews with each participant. Each coach was invited to participate in a maximum of 3 interviews that were scheduled to occur periodically over the course of a full UK athletics season (September–August).

Each interview was recorded using a digital recorder. Transcriptions were completed as soon as possible after each interview, drawing on the intelligent verbatim approach.³⁶ The transcribed interviews were then imported into QSR-NVivo (version 12, QSR International) to assist with data organization and analysis.³⁷ In keeping with institutional ethical guidelines, pseudonyms were used; dates changed; and identifiable events, competitions, locations, place names, or people were removed from the interview transcripts to support anonymity. All participants were coded by 2 letters and a number. In total, 72 interviews were completed (face-to-face interviews, $n = 17$ and telephone interviews, $n = 55$), which generated a total of 68 hours, 25 minutes, and 42 seconds of recordings.

Data-Analysis Process

We drew upon the principles of a phronetic iterative approach to qualitative data analysis.²⁴ This approach was chosen as it supported the analysis of individual coach's experiences of, and the mechanism that have shaped the coaches perspectives planning.²⁴ During the data immersion phase, the lead author familiarized themselves with the transcripts by relistening to the audio recordings and reading the interview text to develop an in-depth, rich understanding of the coach's experience regarding planning. The lead author conducted the analysis process of moving back and forth between data generation (interviews), initial and emergent readings of the data (emic analysis), consulting relevant theory (etic analysis), and the sharing of the analytical insights with critical friends (coauthors) and the participants (during second and third interviews).³⁸ Once the recurring patterns of meaning-making (primary themes) were generated from the interviews, they were then discussed between the lead researcher and the research team to examine the interpretations and meanings. These themes were then further explored and challenged during subsequent coach interviews to, identify, and detail the most shared and recurring patterns used by the coaches to describe their perspectives on planning. The research team, acted as the "critical friends" in the analysis process, supporting the process of distilling the interview data into conceptual categories to make sense of the coaches experiences and perceptions of their planning processes to develop Figure 1.²⁴

Results and Discussion

The presentation of the findings in this paper are part of a larger study that explored how and why the participant coaches attempted to navigate their planning processes in track-and-field athletics. The key findings of this study indicated that (1) all coaches described the use of traditional periodization as part of their planning process; (2) all of the coaches engaged in a richer, more complex planning process than is depicted in the current literature; and (3) most of the coaches felt that more optimal performance benefits could be achieved by planning beyond the physical dimension. That is, they planned for far more than the physical training programs of their athletes. Through the analysis of the interview data, 3 key interconnected high-level planning themes were developed in response to the research questions (see Figure 1).

The narrative from these coaches recognized the need to take account of much broader factors and the complex and sometimes messy interplay of these competing factors in their planning. They

also recognized the important role of subjective information, such as context, interactions, and personal and sporting biographies, as valid and important—athletes are not just a passive body to be trained. Figure 1 provides further insight into the scope of the planning process that comprised each theme, indicating the connections between them and how the coaches articulated the key features that are characterized within the headline themes.

Physiological

The study did not look to examine the programming, or microlevel detail of individual sessions of how the plan was implemented. As such, concepts such as training intensity distributions³⁹ were not considered in the analysis of coaches planning processes, as it is a retrospective analysis of what was done. It therefore includes both the planned and unplanned aspects. Rather, the study examined the processes that coaches drew upon to periodize the training framework and how this was positioned used within their overall planning process to aid athlete performance and development. Thus, in the physiological theme, the coaches shared their understanding of what periodization work they do and how it sits within the broader framework of planning. This theme comprised 4 broader but interrelated elements that were part of the coach's overall perception of what their planning practice entailed: the training framework, historical athlete data, setting and determining performance goals, and their challenges to drawing on periodization to aid their planning process.

Constructing the Training Framework

As anticipated, the coaches described drawing on the concept of periodization to explain how they shape, guide, and structured their athlete's physical training across a competitive season (indoor and outdoor formats).

I try to block it out into a base-ish phase, a more specific phase, and then the competition phase. We tend to transition from one to the other—they're not specific blocks; we try and gradually move from one to the other. (EN18)

I use the framework of periodisation, but I don't really get into all this sort of macro-cycles and meso-cycles. I think, for me, it sometimes can become a little bit too confusing and a bit too complex. (EN16)

I'm going to have to work back there in terms of the blocks that I use, which is competition phase, pre-comp, special prep, and general prep. And then just once I know what that totality is, I can then break it down into how many cycles am I going to use in that period? And, within those cycles, how can I then just alter training load, dosages etc weekly sometimes, even daily depending on what is happening. (TH 1)

Historical Athlete Data

All the coaches indicated that they were systematic in the collection of historical training and racing data. The data gathered about the athlete subsequently underpinned the development and design of the training plan. This included examining the impact of any training adjustments on competitive performances. They described a period of analysis and evaluation to establish a physical profile for their athlete. For both current and new athletes, this entailed the coach reflecting on previous seasons' events and circumstances. The coaches drew on a range of objective information which included previous training diaries or programs; results from

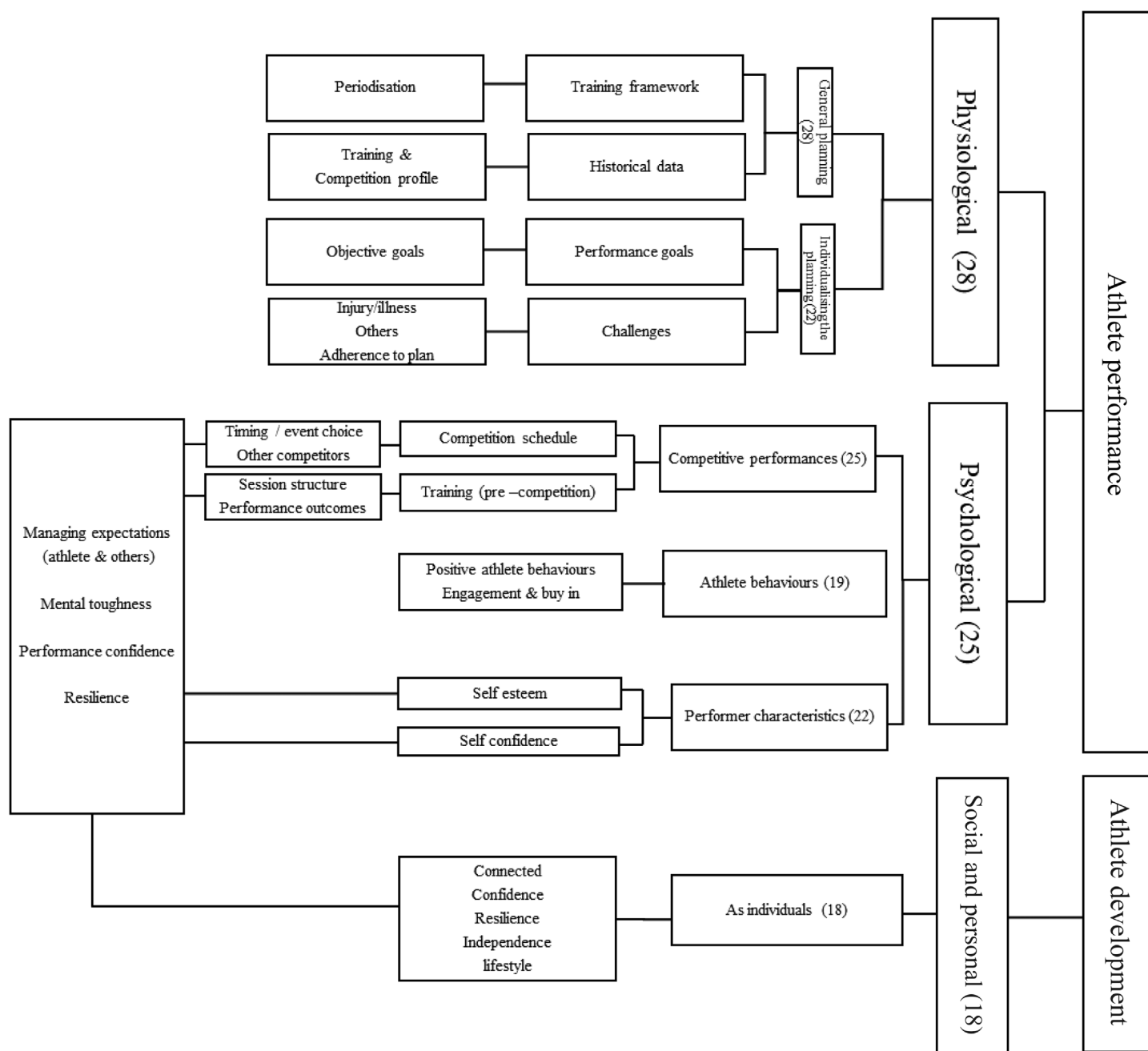


Figure 1 — The scope of coaches' planning process.

previous competitive performances for example times/distances achieved; placings; physiological testing data; and any information regarding significant illness and/or injury. By using this information, they were able to create an athlete profile which supported the development of the training framework (ie, periodized plan).

I look at what type of athlete they are ... about their track record or profile of the athletes I've got, in terms of how much training they've done before, previous injury, what they can cope with. (EN18)

The first thing is I would ask them if they've got a training diary. And then I would get the training diaries going back as far as they'd gone. I would look for patterns that occur in their training

and racing ... really scrutinize their previous training and racing ... I try to identify when they were running their best, was there any time when they look as though they were stale because they've maybe done too many races, and when injuries and illness happened, etc. And I would really analyze up to that point in time, what had made them run well or not. (EN1)

Importance of Setting and Determining the Performance Goal

The planning process for the athlete's physiology required the coach (and athlete) to decide upon the performance goal and the associated performance criteria. It was clear from the coaches that they required explicit clarity on what the reality of the chosen goal

was, for example, an outcome-focused goal with clear objective measures. These outcome goals manifested, for example, as the time or distance to be achieved, the medal to be won, or the finishing position in a designated competition.

It starts with racing. So, for me, it's always racing. So what's the target for the winter? What's the ultimate goal for the summer? . . . The training is all focused on producing that end goal. (EN14)

So if we take the Olympics as the target then I look at the date and the performances needed, then in broad brush strokes I work backwards mapping out the seasons leading up to this and a progression in distances needed. (TH13)

Challenges to Implementation of the Periodized Plan

As noted earlier, the coaches described the organization of their training plan at the macrolevel in line with principles of periodization irrespective of their discipline. However, the coaches also described how that they must be prepared to think iteratively and flexibly within that broader framework and that the training plan most likely would evolve to accommodate the athlete's needs. Thus, any detailed physical planning beyond a small number of weeks was recognized as futile. The coach frequently evaluated against their expectations and progress, and adjusted the plan based on their perceptions of what had happened.

. . . I think the bit that stuck out to me was you had to be mentally agile as a coach. You had to have that kind of—I always say golden thread, the lads take the mick out of me—but a golden thread of what you're actually trying to achieve then have (to change) or if it's slightly different, like, it's ok, because you're still trying to kind of work towards that end goal. I do have that drive for the athletes to help them reach their potential, but I'm happy to kind of meander my way through to get there. So, I'm a bit more fluid with my approach to it (planning). (TH11)

That's why I never plan individual sessions out in advance. You know, I plan it out the day of the session maybe the day before, having thought about where they're at or thinking about what happened in a race or last session. Rather than saying, "Well, you need to do this next week." (EN1)

All the coaches expressed universal acceptance that the fluid and dynamic nature of athletics meant that in reality, the training programs they set out at the beginning of each training phase were rarely completed in their entirety. The practical reality of operationalizing their plans was far from linear and unproblematic as described within traditional literature on programming training.

I used to plan months ahead for athletes. I'd do big annual plans. And then something happens in week 2 . . . I've learned it has to be really flexible because it is likely to change . . . (you) just have to kind of react to that and make changes. (TH10)

Similarly to the work Kinnerk et al.,²³ the coaches described that at a broader level, their planning process was based on the principles of periodization. Bompa and Haff¹⁶ explained that periodization is an approach in which training is divided into smaller, easy-to-manage sections. This is the "big picture" of the planning undertaken by the coaches to structure their athlete's overall season, identifying the different blocks of training in which they can emphasize various physical, psychological, tactical, and

technical goals.⁴⁰ As periodization is the generalized planning process of breaking the annual training year into smaller epochs, it is perhaps unsurprising that both endurance and throwing coaches demonstrated a shared understanding of how they planned and organized their athletes annual training, drawing on the same body of knowledge and language of periodization.¹⁶ Indeed, the coaches reflections detailed above mirrored Kiely's⁸ view that conventional periodization models are inadequate and lacking the flexibility to enable coaches to adjust and react to the dynamic, continuous and unpredictable context in which they operate. Kiely⁸ (p243) described periodization as being stuck in the "culturally persuasive planning heritage" of reductionism. The coach's reflections on their actual planning indicate that their experiences and reflections have considerably moved away from that reductionist approach to a broader conceptual understanding of what planning really is. Notwithstanding this, the reliance on periodization to describe their planning, can be understood through the legacy of periodization as a recognized, visible, and credible way to describe what they do. Pol et al.¹⁸ presented a conceptual framework advocating the need to recognize and adopt a multilayered approach (ie, the importance of the goal, athlete profile, event demands etc) to coaching and athlete performance. We found that the coaches experiences would support their assertions in the conceptual framework, in that, the planning does not mirror the linear and unproblematic process that is presented in the periodization literature.¹⁶

There is a destination and a plan is specific journey for that athlete, but I've learned that the details of the steps on that journey evolve as you progress along it—it is never as simple as the book says. (TH13)

Psychological

This theme represented the planning that was undertaken in order to facilitate the psychological development of athletes. This theme comprised 2 broader but interrelated elements that were proactively planned for competitive performances, personal characteristics of the athlete, and athlete behaviors.

As I said before, you know, getting to know the athlete and the psychology of that athlete and how their minds think is really critical, because it affects how you deal with them. (TH13)

. . . I think everybody is different . . . people react differently to training, mentally and physically. And to the number of races, the type of races to run. And I think the coach's job is to get all that mish-mash, put it together, and work out what is best physically and mentally for that runner. (EN1)

It was strongly acknowledged by all the coaches that there was a planning requirement for them, which stretched beyond the physical training program. The planning undertaken for the psychological was formal in nature, without being written down and not widely shared among key stakeholders. The coaches described how they deliberately attempted to enact strategies to support their athletes psychologically. As noted throughout the discussion below, some of these were planned well in advance and deliberately introduced at specific times within the training framework (ie, precompetition routines, training sessions, reshaping of athlete perceptions), while others were planned much closer to the time of delivery, such as how they would respond to the situations they encountered in context (ie, personal characteristics).

Competitive Performances

The analysis indicated that the coach's primary role in planning to support the development of the athlete's psychological state was to help aid successful performance. Many of the coaches articulated clearly that they felt it was imperative that the physical and psychological must be in harmony with each other to support the achievement of the athlete's goals. The psychological development of the athlete focused on the coaches attempting to support the development of areas such as resilience and mental toughness, to augment the chances of the training and competition plan being successful. One specific area identified by the throws coaches as important, was helping the athletes deal with in-competition pressure, these were planned strategies, deliberately introduced at a specific time within the training framework.

I do preparation competitions at my training base, where we simulate those competitions, so we'll do a call room scenario. They'll know about the competition beforehand. They'll only have two or three warm-up throws. And it's all about them practising for those big competitions . . . they've really changed the way they behave when the stress is on them and I've seen a lot of things I've never seen before. (TH10)

Training (Precompetition). Further planned strategies that emerged as part of the coach's toolbox to enable them to support an athlete's psychological development included session manipulation with regard to volume, presentation of performance outcomes and outputs, that is, times or distances achieved within the training session; the use of one to one discussions attempting to remove any perceived pressure felt by the athlete through concealing their own performance expectations; building belief in the athlete's ability to manage competition pressure in order to win competitions or to beat key opponents; and establishing and implementing familiar routines and the replication of competition in training to build the athletes individual resilience and confidence in their own ability to effectively cope with, and keep performing in the face of the challenges of competing and training at a high level (described as mental toughness). Again, these were planned at the macrolevel, with the coach deliberately introducing them at specific points in the year.

I use some of the sessions A bit of mental toughness really. You know, we've got a particularly steep hill in the woods that we use . . . you know, even if they're on their knees, you know, they're not going to give in. They've got that mental toughness But I think that's quite hard to develop. (EN18)

I don't tell them anything like a total lie in the sense that they're going really well when they're going absolutely rubbish, but, you know, there are times when I might just try and raise their spirits a little bit and say to them maybe it was better than it actually was or provide a rationale that is acceptable to them. (EN4)

[It's] that level of belief and level of positivity that you're building for that week before [the competition], then carries forward through to the competition that [the athletes] feel invincible . . . you might just change the weights three or four times in a training session to something that they're definitely comfortable with at that time. So they're blasting it out and it's feeling good. (TH6)

The fixed nature of major competition dates also allowed the coach to use planned and proactive psychological strategies, for

example, regarding the type and volume of training, with the interactions between coach and athlete, becoming deliberately positive in the lead up to competition, reinforcing belief in the athlete's ability, and current capabilities in attempt to provide a situation (ie, competition) specific "boost" to their athletes.

Whenever we've got a big competition coming up, the four weeks beforehand, I make sure that in his program he's got the 6, 7, 8 [weight of implement]. It's not so much that he works any better than anything else. But, for him, he believes that's the thing that does the business and that will really bring him to perform. (TH13)

If I stopped a session short, I wouldn't necessarily share the reason for that. You know . . . You're doing it because you want them to be really confident or not be too down about something . . . so you know you think about what to say and give them what they need to hear, you know, "You're flying. You're great. Let's get ready for the championships" and it's more a psychological thing to do that than a physical. (EN1)

The coaches also acknowledged that they spent time planning how to emphasize and reinforce positive messages from training and competitive situations so that any feelings of frustration, nonsuccess, setback, or failure in the athlete could be managed. For example, coach EN16 described a deliberate strategy of subtly moving the discussions with athletes from outcome (ie, the results—time or position in the race) to process goals (how those results were achieved—eg, tactical execution, commitment to the race plan etc) to attempt to remove any (perceived) pressure or to deflect the athlete's attention from areas that were not progressing as the coach expected.

But you have got to tap into that mental preparation and resilience, in terms of picking her up and lifting her psychologically to keep her involved in the sport. So the main thing, what we've actually done is focus on process goals. You know, instead of actually, basing her performance on where she comes she needs a little bit more process goals, where we can say "Well, ok. Didn't come 10th but, you know, you were being competitive." (EN16)

Competition Schedule. Coaches indicated that a feature of their planning involved making very deliberate and careful choices about the individual athlete's competitive program. They recognized that the potential impact of this could have for the athlete, and ultimately influence how successful the overall process had been. As acknowledged in the "Physiological" section, the initial identification of a specific performance goal was important in supporting their use of periodization to form the annual training plan. However, they also carefully planned the selection of the program. They considered the psychological impact of the racing program for their athletes.

as the season approaches, athletes themselves are looking for pointers about form and that can affect their confidence . . . You know, so you've got to be careful about where people race and putting them into races at the right time But they've got to have confidence in what they're doing in training. (EN5)

The track coaches spent a substantial amount of time considering and planning what races to enter their athletes into, the other athletes who might be within those competitions, and any implications of a defeat or perceived under performance.

So we've pulled back a bit on it, just pulled her out of races basically. I could have said "You're doing them" and she would have done them, but She was in tears before the north-easterns. And it's just expectations, within her family and the club and she was expecting to win . . . she doesn't want to let anyone down, you know. (EN3)

As a coach, I'm more prepared to expose [Name] to risks than I am with [Name], because [Name] psychologically can actually handle the setbacks, whereas with [Name] it can just sort of rest there for a week or two and knock her back, so then you have to rebuild her confidence up and stuff like that. It's very difficult to develop those psychological skills in the athletes. (EN16)

Personal Characteristics

The coaches also recognized that the development of an athlete's self-confidence and self-esteem were also important factors that required planning for. The coaches intentionally planned how they interacted with their athletes; however, this might be closer to the point of delivery than the competition program planning. For example, the coaches planned what they would say, how they might preset the information they had and who they could say what to, to supporting any "reshaping" of the athlete's perceptions of events, to have a more positive outcome to support maintenance of self-esteem and self-confidence.

. . . you know, as a coach then you've got to, "Well, look, to me that was worth a second and a half faster" because if you don't tell them that, they go home and write it down, it plays on their mind. "That was a crap session." You know? Well, it wasn't, but I think you've got to try and get through to the athletes as well; So it's all about mind games, coaching, a lot of the time. (EN4)

The coaches spent time planning how to emphasize and reinforce positive messages from training and competitive situations which otherwise could manifest in feelings of frustration, nonsuccess, setback, or failure. Similarly, to the earlier point regarding the planning for competitive performances, this theme appeared to focus on providing ongoing nonsituation-specific development in order to aid overall athletic performances.

I need to work with them, talk to them and manage any training so they can come out the other side in a better place you know, especially through bad times when things aren't going well . . . but it is so that when they go into the next race, that, they're in a good place and we can get it right. (EN7)

When it comes to them It's how they deal with the failures. And let's face it, in athletics, no matter how you look at it, athletics is essentially a large series of training and working very hard and feeling tired and all the other stuff that goes with that, followed by a significant number of failures, followed by—if you're really luck—a few successes. (TH10)

The coaches were also able to clearly describe experiences in which the lack of attention to supporting the psychological state of the athlete had caused negatives issues for the athlete, such as increasing the pressure the athletes felt in competitions, not achieving the results they had hoped to, or reducing the athlete's enjoyment of the sport.

And, as a coach, I was never adequately prepared for this (psychology) And it's part of your planning as well, because you have to when you create a plan A lot of coaches write a session But then you have to sit back, think about, and look at the impact that has on the athlete—it never gets spoken about, but good coaches do that too. (TH3)

Athlete Behaviors

The coaches reflected that their planning process included ensuring that there was a need for coherent ethos within their training group, harmony between themselves and the athlete, the athletes, and the expectations of behavior. This was recognized across both disciplines as an important feature of the coaches planning process.

there's kind of a common mindset here- that's probably the entry point (to the group) really. You know, if you're just playing at it, they probably wouldn't fit in with the team ethos that there is. There is nothing wrong with that, but it would be my choice to work with that athlete in a different way. (EN6)

If you want to coach athletes at a more successful level, you can't do it without having smaller groups but also, it's very important that the group, as a whole, work together in harmony (EN15)

And the thing is, within a group, you can't let an individual destroy the group. And you've got to look at the group dynamic and ensure that it is working well, it is not just about the individual. Doesn't matter who it is. (TH6)

A common strategy used to support the development of their preferred ethos, was the planned interactions with athletes within their coaching group to help set and maintain the expectations of the training group. This involved the use of both individuals and the collective group to establish what they felt was an optimal training environment (Johns et al, under review).

. . . And I can do that one-to-one or by simply sending one or two athletes out discreetly in the group. Because athletes talk within the group quite easily. And also they have observations about the other athletes within the group—that is vital in supporting my planning. (EN15)

Social Development

This theme further emphasized the breath of planning undertaken by coaches in the pursuit of developing better athletes, with planning moving beyond the boundaries of developing an athletic body and a robust performance psychology. Both personal skills and social development of individuals was characteristically described as being able to help athletes develop as individuals, for example, their ability to connect to others, understand the need for compassion with others, and take personal responsibility for their actions both within and outside the athletics arena. The nature of the coaches planning practices were characterized by a desire to help athletes achieve their sporting potential tempered by the recognition that life beyond the athletics arena could not be ignored or pushed into the background—it was a key facet to developing better athletes and performances.

the simplest answer to that would be for the athletes to be as good as they can be But actually I don't restrict that to athletics. I've had a number of athletes who have undoubtedly benefited by being athletes—or, you know, training and being

part of a coaching group and having, if you like, a coaching family—who have then benefited in their lives in other ways and 100 have gone on to do other things. (TH7)

The coaches noted the interconnected nature of many facets of their planning (Figure 1). In undertaking planning related to their athletes beyond the athletics environment, they recognized the relationship and interchange between this work. In discussing how they felt they wanted to help the athletes develop “as a person,” the coaches described aiming to help develop skills and attributes that they felt important beyond the sport, such as personal resilience in dealing with challenges across other areas of the life, self-confidence (eg, being able to engage with other people), being independent, working as part of a team and life skills, such as time management and respect.

And I’ve given them [his athletes] the example mind map of another athlete I don’t know if it’ll work but, for me, where I’m coming from is it’s helping them, it’s empowering them to take ownership of what they want to try and do And for me then to look at it, it shows me what they see as important. (TH1)

. . . But the other part (for the athlete) is about learning how to behave as an ordinary, decent human being, which is part of what we do as coaches, because we want them to be fine people rather than just fine athletes. (TH2)

You get a kid that’s shy and won’t look at you He looks at the floor. Shoulders are down. You know, he’s got no real self-confidence. And then you take him on. You get him straightened up. You get the shoulders back; you get the head up. They’re willing to look you in the eye. They’ll shake your hand. You see that whole grow-up path of Of young kids growing into adults and I enjoy giving them life-skills to cope with stress and pressure and being able to hold their own with anybody. (TH6)

Purposeful and deliberate interaction was a key part of the coach’s planning process in aiding the athletes’ personal and social development. Through asking the athlete to put suggestions and ideas forward for consideration to help guide any decisions regarding the plan, the coaches felt that they could support the athletes to start to take ownership and responsibility for the progression of their athletics career and ultimately; help them beyond athletics when making career and lifestyle choices.

They man-manage their own week, centered around their own work patterns, their schooling, or university. They can man-manage themselves. Then, their attendance to the club—I expect to see them a minimum of twice a week, sometimes three. We communicate on Skype or by telephone. And it’s got to be a two-way thing, where I have to call them about things, as much as they have to communicate to me. (EN15)

The coaches in this study recognized and intentionally planned proactively, accounting for nonphysical factors within their own coaching context (ie, psychological, and social) and attempted to effectively support the athlete’s development and performance. The complex, interacting nature and breadth of the coaches planning processes detailed in this study agrees with the conceptual framework provided by Pol et al.¹⁸ Pol et al advocated that traditional approaches to planning training (eg, periodization) have ignored that physical components are coupled with the social-

psychological nature of performance. The coach’s perception of their planning processes advocated a process encompassing the social to the biomechanical and beyond, holistically accounting for the physiological, psychological, and social factors. The planning processes of these coaches appears to provide support to Pol et al’s,¹⁸ depiction of an interacting and cyclical relationship of the performer and their environment. Furthermore, the coaches planning experiences also support the suggestion that these traditional siloed areas are relational, in that they are continuously influencing, shaping, and guiding each other within the overall scope of the coaches planning process.

The planning process that the coaches undertake is about adding “value” to the athlete across 3 broad areas (ie, physiological, psychological, and personally and socially). These coaches planned through an investigative process, encompassing the symbiotic components of the biopsychosocial performance. They articulated the multitude of interrelationships between the physical, psychological, group versus individuals (both biologically and culturally), society and the environment. That is, the coaches recognized that different facets make up an “athlete” and for the physical planning process to be operationalized and function effectively they must adopt an athlete centric focus. Unlike the planning for the athlete’s physical development, planning for psychological factors or the personal development was generally, but not always, characterized as something that could not be fully planned out in advance. Operationally, planning was sometimes short term and dependent on the coach’s ability to decode and read the athlete, situation, and the environment within the framework of their overall planning. Similarly, to Ritchie et al’s,⁴¹ work on tapering, there was one common exception within the planning for the psychological development of their athletes which allowed the coach to preplan well in advance what they wanted to do. This was in the lead up to a major competition. Coaches reported that in this situation they felt able to proactively plan to influence how the athlete thought and felt.

Hamel and Gilbert⁴² (p486) suggested that, in general, sport coaches are becoming more “sensitive to the ecology of the athlete.” The coaches explicitly recognized the importance of viewing their athletes holistically. This enabled the coaches to plan for the athletes on an individual level. Similarly to the work of Anyadike-Danes et al,²² who acknowledged the important role of nonphysical factors to maximize athlete performance, we found that coaches were cognizant that their role extended far beyond the need to improve the fitness of their athletes (ie, psychologically, socially, and emotionally) in an attempt to foster a more favorable environment in which to development athletic performance.

The coaches perceptions of the planning they undertake, has not previously been reported in the depth or volume presented here. Through engaging in multiple interviews over an extended period, with a large sample group^{31,38} rich, detailed, and expansive accounts of the breadth and complexity of the coaches planning has been interrogated in greater depth than previously represented in other planning focused research. We found that the process of planning is far from being an unproblematic and linear process. and solely concerned with the development of an athlete’s physiological capabilities (ie, the programming of training). Similarly to the work of others^{23,41,43} this qualitative, interpretivist study has been able to gain a much deeper understanding and interpretation of coaches’ feelings, thoughts, and beliefs about their planning practices.

Underneath the iceberg (the physical training plan) there’s another great big bit of ice, isn’t there? What we do as coaches is think about everything in there—we’ve got probably 20

different things under the water that they (athletes) don't even know about, maybe they do not want to know either—and probably don't even appreciate that they are there. (TH10)

Limitations and Future Research

Our study has provided valuable insights into the extent and content of coaches' planning practices; however, no study is without limitations. In the context of this study, it is pertinent to acknowledge that the perspectives presented are always those of the coaches, their reflections on their own planning practices and their individual intentions and the meanings they attached to their actions. It is important to note that we did not observe the coaches' planning process in situ. This may be viewed as a limitation of the data as we did not capture the dynamic interplay between intentions and actions in real-life situations. To counter this argument and to mitigate against social desirability in the data, it must be noted that it is not possible to record all the reality experienced by an individual. As noted in the method, through prolonged engagement in the data generation process, trust was built to allow for interrogation of, and challenge representations and intention of their planning. In addition, the recruitment and engagement of 28 participants from across the athletics coaching sector, afforded us the opportunity to see the clear insights, lines, connections/consistencies, and shared understanding between the coaches regarding how they viewed planning. The depth and rigor of our data generation process is not possible with other approaches, for example, questionnaires. Finally, in line with our interpretivist positioning, we were not looking to establish a one "truth" about planning. Thus, as noted earlier, the model presented in this paper is an attempt to present the shared understanding of what the nature of planning really entails and means to these coaches.

Additionally, the heterogeneity of the participants should be acknowledged with 18 of the 28 coaches recruited from the endurance discipline and only one female coach able to participate in the data collection process (3 females were initially recruited). The recruitment process did not target a specific sex of the participants. As this sample is generally representative of the wider coaching population in athletics (both sex and level of qualification held), it would be pertinent to explore, the experiences of female coaches who work with high-performing athletes in an attempt to develop a more nuanced understanding of their experiences. Finally, it should be acknowledged that (1) the coaches within the study were all working with high performing athletes and (2) the majority of these coaches (those outside of funded programs; Table 1) worked on their own to complete their planning and enact their preferred planning process. Future work should examine if these findings are representative of the planning process of coaches (1) at different performance levels and (2) whose athletes consistently perform at high levels. It would be of interest to explore whether the successful coaches across other sports were the ones able to see beyond the reductionist framework of periodization, that they are indoctrinated into through coach education.

Practical Applications

Within the context of understanding track-and-field athletics coaches' practice, these findings have implications for the learning and development of coaches at all levels. We acknowledge that there is a need to support coaches with knowledge acquisition related to scientific principles of training and physical adaptation. Yet, the coaches in this study recognized that the plan is only one small element to the overall concept of planning and that the physical training plan would have a much greater chance of succeeding if there is detailed planning for the wider social dynamics and

interactions that are present in coaching practice. Coach education providers should look to integrate these perspectives into their education programs to raise the awareness of these factors in their planning work. Indeed, we would suggest that their needs to be a departure from how coaches are currently educated on planning and what it entails, in order that they are better equipped to move away from viewing planning as a one-dimensional process. This would support coaches to recognize the level of engagement required to plan for more optimal performance environments and athlete development. We suggest that these findings have the potential to increase the awareness of the breadth of skills required by coaches—fundamentally changing the way planning is viewed, and what it is to be an effective coach. It may also be pertinent for mentoring programs to engage with the perspectives presented here, with the potential to encourage more nuanced thinking about planning to support positive changes in coach's practice and athlete performance. Novice coaches in particular could benefit to by being exposed to these factors within the education programs, helping to develop an awareness of the foundations on which to develop their practice. Consequently, the presentation in coach education literature, of what effective planning entails should be broadened and moved beyond purely the mechanical prescription of future training parameters, to embrace the reality described by our coaches.⁹ Finally, raising awareness of these planning processes, the importance of understanding individuals' intentions (what is planned for) and the context of their actions (why), can support the design of better training programs and influence training and performance outcomes.

Conclusions

The aim of this study was to examine the extent and content of coaches' planning practices in real-world high-performance athletics coaching environments. We found that coaches' planning extended far beyond the traditionally depicted linear process; in fact, it was far more complex and multilayered. Our results show that coaches are cognizant that planning is a more extensive process than the seemingly smooth, flawless (reductionist) process of periodization that is presented in the literature and coach education programs. Ultimately, our research suggests that while physiological considerations are important, they do not dominate coaches' planning processes as much as previously thought. This broader approach to planning to develop athlete performance provides a novel viewpoint that could influence future practices in sport science and coaching. For sport-science practitioners who work alongside coaches of high-performance athletes, embracing the novel insights from this manuscript may improve their ability to work collaboratively with coaches. In raising their awareness of other modifiable and planned variables that coaches believe could support training adaptation, positive changes in athletes' performances may be achieved.

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