

Article

Examining Intentions for Impact: Understanding What Influences the Planning of High-Level Team Sport Coaches

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Abstract: Multiple theoretical perspectives point to the need for sport coaches to be highly intentional in their practice. Semi-structured interviews were conducted with 17 high-level team sport coaches to investigate how they form intentions for impact; how these intentions influence planning for game-form activities; and how coaches judge success against these intentions. Data were subsequently analysed using reflexive thematic analysis, with eight themes being generated. Results suggest that coaches' intentions could be viewed through the various components of fidelity. In this sense, it appeared that whilst coaches were concerned with notions like action fidelity, affective fidelity and conceptual fidelity, based on the measurement tools available, the predominant intention guiding practice was the physical fidelity of session design. These findings are discussed in relation to the increasing emphasis on the use of tools such as Global Positioning System technology and the apparent absence of markers that may inform other dimensions of activity design both in the short and long term. By considering the types and relative fidelity of practice, we can consider how we are challenging performers and what this might mean for transfer of training to performance. We conclude the paper by suggesting that future research should look to develop practical tools to help the coach consider different types of fidelity experienced by athletes.

Keywords: coaching; pedagogy; games-based approach; planning; intentions for impact; success criteria; nested planning; fidelity



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1. Introduction

The relationship between the coach and an athlete, a complex prioritisation of individual and collective needs with an emphasis on learning, are at the core of the pedagogic and sociocultural process that is sport coaching [1–4]. Cushion et al. [5] suggest that the coaching process is constrained by a range of agendas including those of the organisation, the athlete and the coach. A consequence of this complexity has been the conceptualisation of coaching as orchestration, with relative agreement that the coach is engaged in a dynamic interactive process aiming towards desired outcomes without absolute control [6,7]. As an applied domain, interest in sport coaching practice continues to grow across a broad range of areas such as coach education, learning, pedagogy and expertise, ultimately with a desire to enhance practice [8,9]. Despite this breadth of work, significant gaps remain in our understanding of the expertise needed to coach different levels of athletes, particularly at the high-performance level [10]. Following a call to consider the practice of high-performance coaches, recent research has investigated coaches' activity designs, specifically the use of games-based practice within training sessions [11,12].

1.1. Intentions for Impact/Types of Thinking

Aligned with the notion that coaching is both dynamic and not fully controllable, the concept of professional judgement and decision making (PJDM) has been developed as an

approach to practice that supports decision making in the complex social circumstances of coaching [13]. PJDM is applied in several roles in sport, including sport psychology [14] and sports coaching [15]. PJDM does not seek to conceptualise the totality of sport coaching as a decision-making process; instead, it is an approach to professional practice that promotes informed decision making based on contextual factors [6]. Similarly, PJDM does not view coaching as a simple process of conscious deliberate decisions. Instead, drawing on relative consensus in the social sciences, PJDM distinguishes between more intuitive decisions (often during practice) and more deliberative decisions. This suggests a process of ongoing planning and re-planning based on ever-changing situational demands, weighting of different agendas, and progression towards desired intentions [6,16].

Planning itself has long been recognised as central to the coaching process [17,18] and evidenced as a core feature of sport coaching [8]. To this end, Abraham and Collins [15] proposed the concept of nested planning to enhance a coach's deliberate thinking. The approach entails a coach deliberately crafting a plan with a defined 'intention for impact' to represent the desired impact that coaching will have for participant or context [14]. Forming intentions for impact can be regarded as a logical step in the design and application of an effective intervention [19] and can be contrasted with planning for content or predetermined concrete learning objectives. Coaches instead use mental projection to consider the potential steps needed for this impact [14]. Abraham and Collins [15] suggest that coaches consider the socio-political and strategic intentions over the long term (macro) before deliberately planning the sub-phases (meso). Once these phases of planning are accounted for, session-to-session level activities (micro) are nested within these broader structures. One suggestion is that, on the micro level, coaches use planning to leverage the two core elements of their practice in the form of their activity design (what athletes do) and coaching style (how coaches interact with their athletes c.f. [20]) and, as a consequence, recognise the need for more intuitive action by the sport coach based on athlete need, nested within a bigger picture [21,22]. Yet, without clearly defined intentions, or a benchmark for reflection, coaches may struggle to adapt their methods to meet the dynamic demands of practice [23].

1.2. Games

PJDM presents a different perspective on practice than one that might suggest the need for a coach to use a specific set of methods. One such trend in coaching practice is the recent shift towards the promotion of constructivist-informed pedagogies [24] and the knock-on effect this is having with some of the coaching literature straying into the false dichotomy between so-called 'traditional' and 'contemporary' approaches [25]. This has led to vigorous debate regarding the use of games as part of a coach's activity design [6,12,25]. As part of this debate, an umbrella term, the game-based approach (GBA), has been adopted by practitioners to describe a variety of pedagogical approaches that put games as a focal point of practice [26]. As an alternative framing, training activities of different types have been categorised as being more "game form" or "training form" [27]. Training-form activities are classified as physical training, technique, or skills practices, while game-form activities are phases of play or small-sided/conditioned games [27]. Recent work with high-level team-sport coaches has shown that practice is influenced by a range of different theoretical positions which although on the face of it may appear ontologically incongruent, ultimately seemed to offer significant pragmatic value [12]. These findings suggest that "game-form" activity design is used in a highly individual and contextual manner. As such, coaches are presented with a challenge in developing an appropriate knowledge base to formulate intentions for impact from which to direct their game-form activities.

With some coach education focused on the development of procedural knowledge without deeper pedagogic focus, rhetoric such as "let the game be the teacher" has become prominent in the wider coaching community [28]. This has led to a number of calls for coach education to move away from "just playing games" to using a more nuanced pedagogical approach with deliberate outcomes and explicit use of tactical concepts [11,29,30]; in short,

to a greater focus on the intentions of coaches as a means of shaping adaptive outcomes for athletes.

1.3. Fidelity

The popularity and effectiveness of game-form training in sport may in part be explained by the empirical support for high fidelity or representative practice to aid the transfer of learning to performance [31,32]. Fidelity is a multi-dimensional concept corresponding to the degree of realism created, not only in terms of visual perception, but also in terms of participant-affective, physiological, and behavioural responses [33–36]. Fidelity is a well-established concept in fields such as aviation and healthcare, and different ‘types’ of fidelity have been developed as a means of delineating the impact on the participant [37,38]. More recently, fidelity has been applied to sports coaching [25]. In this sense, sport coaches might consider how their activity design might provide affective fidelity (the psycho-emotional similarity to competition), conceptual fidelity (the similarity of perceptual cognitive and problem-solving requirements), action fidelity (the similarity of the skills used in practice and skills used in performance) and physical fidelity (the extent to which training activity represents the physiological demands of competition) [33,39–41] (see Table 1). It has previously been suggested that these ‘types’ of fidelity can complement or interfere with each other [42]. This framing provides a scaffold for coaches to consider how different types of fidelity might be used to elicit different impacts on athletes. As broad examples, a training-form exercise such as an unopposed drill will likely offer very limited affective, conceptual and perhaps action fidelity. This is due to the activity lacking the emotional and problem-solving characteristics associated with competition, in addition to the lack of perception–action coupling, which might yield a low level of action fidelity [31]. Yet, depending on the nature of the sport and activity, it may be possible to initiate greater physical fidelity, depending on the intensity and design of this activity (i.e., manipulation of distance covered and recovery times). As another example, a small-sided, 3 vs. 3 game with one side attacking continuously throughout would likely have higher levels of affective fidelity than the previous example. However, conceptual fidelity may be limited due to the continuous nature of the game, while the coupling of perception and action would likely produce high action fidelity.

Table 1. Types of Fidelity.

Type of Fidelity	Description
Affective fidelity	The extent to which similar emotional responses are elicited by practice activity (e.g., stress, fear, enjoyment) as those in performance
Conceptual fidelity	The extent to which the perceptual–cognitive demands, or types of problems faced in performance, are represented in practice
Action fidelity	The extent to which skills acquired in practice are similar to those used in performance
Physical fidelity	The extent to which the physiological demands of the practice replicate those of competition

In the absence of overall guidance that might inform a coach’s intentions for impact, there is a need to better understand current practice and the planning which underpins the use of game-form training by coaches in team sport. Further, as high-level coaches remain an underrepresented cohort within the literature around coaching pedagogy, the specific aims of this paper are to consider: (a) How do high-level team-sport coaches form intentions for impact? (b) How do these intentions influence planning for game-form activities? And (c) How do coaches form success criteria within these plans?

2. Methods

2.1. Research Philosophy

Research methods were selected based on a pragmatic research philosophy. As a research paradigm, pragmatism embraces the plurality of research methods with the belief that researchers do not seek certainty in complex situations, such as those of sport coaching; rather, they look for courses of action which would move us forward in our understanding of a given phenomenon [43,44]. Given the desire to explore individual coaching experiences, an interpretivist epistemological stance was considered appropriate. As were the use of qualitative methods to enable an in-depth interpretative examination of the professional practice of team sport coaches [45]. From a pragmatic perspective offering a window on knowledge generated through reflection on action [46]. As such, we conducted individual, semi-structured interviews with our sample of coaches, to produce rich, nuanced, contextualized and specific knowledge about how coaches form intentions and determine success [47].

2.2. Participants

Following the need to sample coaches who would be able to provide informed accounts of their coaching process, the sampling criteria were designed to ensure that coaches could be justifiably considered to hold a level of expertise. We also sought a breadth of experience and a balance of coaches working in talent development and high-performance domains of practice [48]. A set of inclusion criteria, combining the recommendations of Crispen and Hoffman [49] and Nash et al. [50], was formed in order to sample an appropriate level of expertise. Coaches were therefore recruited based on the following criteria: (a) at least ten years' of experience coaching; (b) at least five years' experience working with their current level of athletes; (c) holding the highest possible coaching qualification in their respective sport; (d) if working at the talent development level, they must have a track record of developing athletes to the elite level, or if working in high performance, must have a track record of winning at the elite level. This initial recruitment was conducted through the professional networks of the research team and subsequently through snowball sampling [51]. The final samples were drawn from a range of team-based invasion sports. This allowed for a broad range of coaching experiences and coaching contexts to be explored. As interviews progressed, sampling was also guided by the notion of information power, with the recruitment of additional participants ceasing once the research team was satisfied that the contribution of new knowledge in the analysis had ceased [52]. This led to a total of $n = 17$ team-sport coaches being recruited as participants from across six sports. The sports represented included: Gaelic football ($n = 2$), hurling ($n = 2$), soccer ($n = 4$), rugby union ($n = 3$), hockey ($n = 3$), and netball ($n = 3$). Of the 17 coaches sampled, 13 were male coaches while 4 were female (see Table 2). The descriptors of Swann et al. [53] were used to illustrate the athletes' standard of performance and to demonstrate the relative 'eliteness' of the athletes that they coached [54].

Table 2. Participants.

	Sport	Sex	Level of Athlete Coached (Based on [53])	Years of Experience
Coach 1	Soccer	Female	Talent development	18
Coach 2	Soccer	Male	Top-tier professional league	24
Coach 3	Rugby	Male	Top-tier professional league	10
Coach 4	Gaelic football	Male	Top-tier league ¹	20
Coach 5	Hockey	Male	International Olympic level	26
Coach 6	Rugby union	Male	Top-tier professional league	20
Coach 7	Gaelic football	Male	Top-tier league	31
Coach 8	Hockey	Male	International Olympic level	11
Coach 9	Soccer	Male	Talent Development	14
Coach 10	Rugby union	Male	Talent Development	14

Table 2. *Cont.*

	Sport	Sex	Level of Athlete Coached (Based on [53])	Years of Experience
Coach 11	Hockey	Male	High performance	21
Coach 12	Soccer	Male	Talent Development	16
Coach 13	Hurling	Male	Top-tier league	17
Coach 14	Netball	Female	International level	20
Coach 15	Hurling	Male	Top-tier league	16
Coach 16	Netball	Female	International level	10
Coach 17	Netball	Female	International level	11

¹ Note that there are no professional leagues in Gaelic football or hurling; however, these coaches were involved in the highest levels of performance in the sport and consequently are categorised as ‘top-tier league’.

2.3. Research Design

Pilot interviews were undertaken with two coaches who met the inclusion criteria in order to prepare for the challenges likely to be faced in the substantive study [55]. Following the completion of the pilot interviews and subsequent reflection amongst the research team, questions were refined so that coaches could comment on their general use of games, and an additional section was added for coaches to reflect on specific examples from their practice. For example, the question: “what is the role of the coach during game-form activity in training?” was asked during interviews in a general section of the interview on the use of games, and later, when reflecting on the use of a specific activity used in recent training, each coach was asked: “what was your role during this game?”. Contact was made with initial participants via the professional network of the research team with email requests to participate in the study. This was followed up by the first author with a phone call to discuss the nature and purpose of the study and confirm the participant’s perception that their mediated coach education journey had emphasised the use of “game-form” training.

All coaches were interviewed individually by the first author, allowing them to relate their own experiences in an open manner. The semi-structured interviews consisted of questioning around the coaches’ use of game-form training, specifically how they form their coaching intentions and what their success criteria are in these game-form activities. The interview guide included open-ended questions, and probes were used during the interview to allow the participants to expand on their answers, in turn increasing the richness of their responses [56] (see Appendix A). This approach allowed the first author to gain an in-depth exploration of each participant’s story, rather than a systematically structured account [57], and facilitated an appropriate balance between (a) allowing participants to share their experiences in a way that best reflected their reality and (b) achieving a necessary degree of focus and consistency across the entire interview set. The interviews, ranging in duration from 58–94 min (*M* duration = 76 min), were conducted using Zoom conferencing (Zoom Video Communications, San Jose, CA, USA) and were transcribed verbatim.

2.4. Data Analysis

The interviews were analysed using a reflexive thematic analysis (RTA) approach [58,59]. According to Braun and Clarke [58] (p. 594), RTA is “about the researchers reflective and thoughtful engagement with their data and their reflective and thoughtful engagement with the analytic process”. Open coding of data was focused on deriving semantic and latent codes. Both coding and theme generation used an inductive and deductive approach. This is coherent with our purpose and underpinning epistemology, given that inductive analysis, rather than being free of theory, is simply grounded in the data [58]. It has been asserted, therefore, that a fully inductive analysis is impossible, since criteria must be used by the researcher to determine if a piece of data is meaningful enough to be coded [60]. Therefore, deductive analysis, based on existing pedagogic theories, was also employed to ensure that coding and theme generation were both linked to the data and existing pedagogic theory [58,59].

Once interviews had been transcribed, data were analysed using Braun and Clarke's six-phased approach to RTA [58,59]. To facilitate deep immersion in the data, each transcript was re-read several times, and familiarization notes were taken to ensure familiarity and understanding of the data. In the second phase, both semantic and latent codes were generated through multiple sweeps of analysis by both the first and second authors. Semantic coding is driven by coaches' explicit references to intentions or success criteria; for example: "so within eight balls, I was looking at how many times they were successful in actually reaching inside of 21 (metre line) and then how well the movement was inside" (C13). Latent coding is the categorisation of implicit meaning behind a text; for example: "are you coming up with something because it's original, or is it doing what you want it to do? I'm very much on the mindset of 'is this doing what I needed to do for the players?'". Here, Coach 9 implies that the main priority of their activity design is the needs of the players rather than simply constructing an original practice simply for the sake of creativity. Qualitative analysis software (QSR NVIVO-12) was used to assist in the structuring, organizing and analysis of raw data into their thematic hierarchies. Initial themes were generated from the codes as the third phase of analysis, though the process of coding and theme development was flexible and organic, evolving throughout the analytical process [60]. Initial themes were reviewed and refined as the fourth step before the fifth stage, which involved defining and naming themes based on shared meaning, with the third author acting as a critical friend, challenging theme generation [61]. Writing the report was the sixth and last phase, which, based on the reflexive and recursive nature of because RTA is reflexive, report writing was recursive and integrated into the analysis process as a whole [58,59].

2.5. Trustworthiness

With each of the authors having extensive experience in sport coaching, none would consider themselves to be 'outsiders' however, as no member of the team was an 'insider' in any of the specific coaching environments of the participants, we would not consider ourselves to be 'insiders' either. This positionality is addressed by the work of Dwyer and Buckle [62], who make the case for the 'space between' for qualitative researchers grappling with the overly simplistic dichotomy of 'insider' or outsider'.

Member reflections were solicited by email after the initial themes were generated [63] as part of a number of procedures which were adopted during data collection and analysis to optimise trustworthiness. A total of 11 coaches responded to the member reflections, with responses ranging from acknowledgment of themes to in-depth discussions. These reflections were integrated into the process of theme generation as a recursive step. An example of this is further refinement of the physical fidelity theme following reflections from Coach 11 on the relationship between physical loading and the phase of the season. Given the interpretive and reflexive nature of RTA, analysis was predominantly conducted by the first and second authors, with the third author acting as a critical friend to audit the analytical process by sense-checking and exploring alternative interpretations. This encouraged reflexivity by challenging interpretations of the data with a collaborative focus on rich interpretations of meaning, rather than consensus [58,64]. As a final step, constant comparison was used throughout the entirety of the analysis, both within participant interviews and across different participants [65].

3. Results and Discussion

The specific aims of this study were: (a) How do high-level team sports coaches form intentions for impact? (b) How do these intentions influence planning for game-form activities? And (c) How do coaches form success criteria within these plans? Against the first question exploring intentions for impact, four themes were generated (physical fidelity, affective fidelity, conceptual fidelity and action fidelity) while the second and third research questions examined how coaches planned for the use of game-form training and generated four themes (macro planning, meso planning, micro planning and success criteria).

3.1. Intentions for Impact

The coaches reflected on a variety of intentions for impact which accompanied their use of game-form training. Thematically, these intentions can be described in terms of the various ‘types’ of fidelity, as seen in Table 1. Achieving fidelity, or one of the subcomponents, appeared to be the overarching intention for coaches when discussing their practice.

3.1.1. Physical Fidelity

It seemed that the most prominent consideration of coaches was designing activities that allowed for a high degree of physical fidelity. That is, it seemed the most impactful feature of design was based around the guidance or direction offered by sport science staff and specifically the use of Global Positioning System (GPS) data to monitor workloads during training [66]. Desired metrics were consistently used by coaches when planning for sessions and used to inform the design of game-form training:

We use GPS units around session intensity... So I will work closely to outline what we want from the session intensity-wise, so that we know that they’re robust enough and that they can physically sustain the amount that we need from them to be able to do exactly what we’re asking of them in the game. [S&C coach] will work together with me to build games and practices that will really help us reach that.

[C17]

The multidisciplinary approach evident in the design of sessions also transferred onto the pitch, as the physical loading of players was again deemed to be one of the clearest markers of intention for game-form activity, as illustrated by Coach 4: “we will be controlled by loads. . . it comes down to time management for us and the load factors on the players. We were very controlled on the load factors to make sure that the players are fresh”. The impact of these collective intentions meant that coaches were frequently guided by feedback from GPS units and other monitoring technology used to implement specific targets: “the S&C coach would be over to me: ‘you know, they’re going over their load’ and in fairness, it’s an important factor” [C4]. For nearly all coaches, these metrics were monitored in real time with coaches framing their session design around the perceived desirable metrics for players. Typically, when players did not meet these targets, they performed supplemental running:

These are the total numbers in sprint distance, this is the individual target. This is the size of games we can play if we want to reach this target and while training, always monitoring everything to be able to say afterwards, “she didn’t hit the target. So she has to run some meters”. So just from monitoring, it’s perfect way of doing it.

[C11]

Interestingly, some coaches also spoke about the limitations of a sole focus on physical fidelity as the only moderator of training. Coach 3 exemplified this perspective: “people hear the word game and expect it’s like conditioning. That’s what they become, they’re just there to make players fit and not there to make them think or to drive a certain part of your model”. The downsides of intentions for impact being driven by physical demands, such as greater density or extensive running, was evident in the reflections of Coach 10 when describing how this led to the inability to stop and coach players during game-form practice:

They’re all (players) trying to get that physical load and that’s not the be-all and end-all but it’s a massive part of the session. We’re not going to stop the session in the middle of a three-minute block. . . You got to let the session flow.

Some coaches reflected on the necessity to maintain certain loads in session and the pitfalls of failing to achieve this in the planned activities. Coach 2 spoke about the anti-climactic nature of prescribing extra running to players who had missed physical targets in game-form activities:

I don't want to get to that point where I'm not designing practices that are giving you what you need. Great practice, but they gotta go run, because your numbers are down. . . I need to trust the science side of it, but if I can get that from a game, we all get buy-in because the last thing anyone wants to do at the end of the game when you're up here from an emotional level of play, then like "ok go and sprint 15 s over there. . . cheers like could have done that in the game".

Other participants were concerned that the focus on physical fidelity could hinder the development of players and was overly restrictive of the coaching process:

I think there's a danger that we don't quite know what players are capable of. We kind of hide behind the data and say he can't do that... Well, can he? How do we know?... My boundaries will be different to yours and I might be able to do that a little bit more and then I might become a little bit more physically robust. . . "You can only do three minutes of that and then we've got to pull him out". Rather than actually, what can you do?

[C12]

3.1.2. Affective Fidelity

Another factor that coaches reflected on was the nature of affective fidelity [36]. For example, they discussed the necessity of a level of pressure, combined with other forms of fidelity, to enable transfer to performance. As such, they explicitly used affective fidelity as a means of supporting players to perform in high-pressure moments of the game:

Everything can be contested in the game scenario. So you know they get the contest, they get the feeling of what it's going to feel like in a competitive much. I think it's hard to recreate that in a traditional drill whereas that's never the case in a game. So I think it's just that element of chaos and pressure that they get.

[C16]

Yet, despite an implicit perspective that affective fidelity seemed to encourage transfer, coaches seemed to lack a language or clarity of intention to develop an understanding of why this was used. As a result, coaches tended to reflect procedurally on tools such as scenario-based training:

So you've got a 2-0 head start, or they've got a man down and the game only lasts for three minutes. That's it. It's not next goal wins on that one. So there's a purpose to that. You can never recreate that feeling of a game but you know the reaction around a massive momentum.

[C2]

Others reflected on the value and necessity of player 'buy-in' for high affective fidelity to yield adaptive outcomes. As a result, scenarios needed to be designed to be as emotionally 'real' as possible: "I'm reminding them of the realities of our game. . . They create their own scenarios, which are just real life, real training situations, which they take really seriously anyway. So you always want to win." [C1]. This seemed to fit a pattern of perspective whereby the affective nature of games seemed to be what focused attention, the affective response being the source of greater player motivation when engaged in game-form activity [67].

3.1.3. Conceptual Fidelity

A realistic recreation of the problem-solving requirements faced by players in competition was taken into account by coaches when forming their intentions for impact. Similar to affective fidelity, conceptual clarity was considered with coaches perceiving game-form training as offering players perceptual, cognitive, tactical and strategic demands of the game. However, a lack of clarity of intention in framing these demands was evident. Here, Coach 7 exposes players to a prescribed defensive tactic but plans for players to experience this from both attacking and defensive side to enhance understanding:

If you were putting the team up against a blanket defence, you might let that run. But you know, you have seven minutes, that you want to let it run to see do they figure it out? And you might have no involvement in that at all. You just watch, just observe, we'll see; do the leaders call a tactical timeout? And when they come back in after the seven minutes, you just say, "Okay, let's take a water break and then swap the roles" and might not even question, just send them off (to repeat the game).

In addition to utilising game-form training to develop their team's own tactical style, coaches also used game-form training to prepare for upcoming competitive games with a focus on opponents and attempting to replicate their opponent's specific style of play:

So let's say we were playing (upcoming opponent), we would pick our team and the players that looked more like (upcoming opponent's) players. I would set them up as realistic as possible the way that they're going to set up (in the competitive game), and that actually was a benefit to the lads. You're trying to create... what they're likely to see the next week.

[C4]

As a feature of this conceptual fidelity, coaches used game-form training to embed tactical concepts, such as formations, shapes or structures both in and out of possession. For example, Coach 8 described the use of a game-form activity instead of a training form activity to work on some of the team's tactical concepts in an environment which is in a constant state of flux and thus requires players to adapt to conceptual demands:

So this game is really good for that, the pitch is long, because you have to defend a really big space. Everything being taken quickly forces people to set up early, run fast to position, defend, to get into defensive position really quickly, being able to face forward, make sure that actually you're always looking for the most dangerous pass to play forward and then it also puts people under pressure to play when they're tired, which is something we're really going to have to do.

[C8]

Conceptual fidelity was not limited to on-pitch actions but also included off-pitch actions. One coach used game-form practice to prepare players for their off-field actions by replicating the same protocols used in competitive fixtures in game-form training:

It's the same flow of substituting the players within the game... getting information on the bench, and go and play again, and execute. So it's more about them getting used to the way we manage to address information during a competitive game, and that's always coming off the pitch, drinking something, listening, discussing and going (back into the game).

[C11]

3.1.4. Action Fidelity

Despite being less prominent a feature of coaches' reflections, they also intended for games to expose players to high levels of action fidelity in the desire for motor patterns that were developed during training to transfer to performance; in essence, aiming for the coupling of perception and action [68,69]. An example of this is provided by Coach 5, who reflects on their intention to use game-form training as an opportunity for players to utilise a wide variety of shot types based on the context of a game which may include a limited range to shoot and pressure from defenders from multiple angles:

So receiving the ball from lots of different areas, but always with the defender there. So I've got to set the ball to the backspace to generate my shot and then as they become more proficient you can then add a much greater degree of variability. So you might create an overload number in that small space. Now, when you do that, in a small scoring space, they're having to use a wider range

of shots, depending on where the defenders coming at them from, and that you increase the degree of variability.

Action fidelity was also evident in the practice of Coach 3, who used game-form training to expose athletes to the chaotic nature of competitive games:

Very often we're trying to create something that will expose the players' skill sets and their habits holding up, maybe making them aware of the skill sets and the habits that they need to have to perform at the (elite domestic league) level and above.

This coach recognised that skilful action was the application of technical actions in a particular context [70]. Perhaps based on the tactical and performance lens through which some of the coaches focused, the notion of action fidelity seemed less of a focus for coaching intentions.

3.2. Planning

The second research question aimed to examine how coaches planned for the use of game-form training with generated themes including macro planning, meso planning, micro planning, and success criteria. Each of these themes is presented in detail with exemplar quotations.

3.2.1. Macro Planning

Coaches viewed planning as fundamental to their practice, and it was explicitly referred to at various levels, from long-term plans to the minute detail of a coaching style used in practice activities. In this sense, it appeared that coaches wanted to ensure that their session-by-session coaching reflected the bigger-picture aims of their team and organization:

The bigger picture is the way we want to play, and this is where you've got to be careful about being too reactive in individual games and isolated scenarios. You want to stick to your principles and make sure your games are all tied into your principles, your philosophy about how you want to play.

[C10]

This longer-term view of performance development was also taken by Coach 5, who discussed how intentions were formed at the macro scale and planned over years:

You look at gold medal level of performance, what it took to win prior. You break that down through some data analytics; the key phrase for me was "what it takes us to win". Rather than just copy (top-ranked team)... we would come up with some of our own key things that we would look to chase, we try and use the data to understand some targets.

This contrasted with macro planning for talent development coaches, for whom long-term planning accounted for multiple developmental stages and progression towards a longer-term aim. As a result, their planning reflected the cumulative work of an entire talent system:

We work off a yearly age-group plan. So the staff got together and came up with some kind of framework from 9's to 21's. At each developmental stage, what should you be learning and what should you be focusing on? And that learning will either be introduced or will be consolidated. What is introduced at under 12 will be consolidated under 13's.

[C9]

Furthermore, at the talent development level, coaches described planning for the individual's development in conjunction with team goals. This was not reflected by the coaches interviewed who are involved in senior programmes and perhaps pointed to the differential weighting of priority used by coaches at the developmental level:

I think certainly within (talent development level of sport) and from my own perspective, it would be a vast majority, I would say upwards of 90% would be based around long-term needs and the development pathway for that particular individual.

[C12]

3.2.2. Meso Planning

At the meso level, coaches reflected on using a bandwidth of focus across a defined period of time to allow for an appropriate focus within games-based practice and to shape player learning. Specifically, one talent development coach discussed the use of elite-level teams to shape the player curriculum:

The theming model is basically picking a theme that you're going to follow for 10 weeks. You're gonna use that theme as a vehicle to teach both team and individual ideas and concepts. So I could be theming on (elite team), I could be theming on (elite player). (The player) could be looking at one v one attacking, dribbling, putting clips in their folder of him doing that, and of (the player) doing that. . . I'll also be looking at how (elite teams) build the attack and modelling our work on that.

[C9]

Coach 3 discussed how training sessions were linked together to form a coherent meso plan. Here, this coach describes strategies for continuity between training sessions but also ensuring intra-session continuity:

When I've done it best I know the continuity I'm trying to get over six to eight weeks. The physical demands and then maybe the area that we're trying to expose them to. It probably takes a bit of reflection and a bit of thought on what those are. I then obviously got the bigger picture, then what it looks like on the level below that and then what it might look like at the micro. Then, within that priming. So we would sometimes then do almost like a layer. So we might have like a defensive segment down to like its most basic component, expose the players to that, then we might then go from that into what it might look like slightly bigger, slightly blocked, and then throw it into what it might look like in a game scenario.

[C3]

This continuity was clearly an important factor for many coaches in this cohort, and while many coaches looked to achieve this continuity through a series of on-field activities, some coaches looked beyond on-field activities as part of their meso planning. Here, Coach 15 describes the use of a tactics board and video clips to support the on-field activities done within game-form activity in training and friendly matches:

The two things we're going to try in the match tonight, we done them in a friendly match on Tuesday and we've done them in the training session on Sunday morning. Lads would have got that using the tactics board, the training session and then after them doing it in the match on Tuesday they would have gotten it on a video. So there's three different methods of seeing that and that learning environment being there.

3.2.3. Micro Planning

At the micro level, coaches spoke about maintaining continuity across the week but finding different ways to expose the players to the same ideas or concepts. Yet, and reflecting the findings presented earlier, coaches seemed to privilege the coherence of physical adaptations, based on having the concepts and language to frame physical intentions.

Coach 12 discusses the concepts used to frame physical fidelity over the course of a week, but tends toward content, rather than adaptation when referring to other forms of fidelity:

Last night was the extensive day, so bigger areas, more opportunity to press and defend over bigger distances, but also to receive and pass over bigger distances as well. So the actual block of coaching was defending the box against creating and finishing. . . Tonight we'll be at the same topics, but it will be different area size. . . Now it will be passes to create over shorter distances, quicker decisions, quicker awareness, more intensive accelerations and decelerations, shorter intervention blocks.

Perhaps given this framing, coaches tended to plan their coaching around a specific theme, judging progress based on player performance within the session, a marker of progress doubted by a variety of literature [71,72]. This framing seemed to lead coaches towards the use of part-progressive practice and a gradual layering of complexity, rather than alternative designs:

If we're working on defence, I'll try and connect the warm-up with the fact that we're wanting everybody to defend. The warm-up game would generally be something to do with having to turn the ball over and score from it. In the session, the technical skill part of the session will also be to do with their body position and that's where it'll be broken down a little bit, probably a little bit less games, but then the games probably would be reintroduced once we've gone through some of the technical skill... Then, build that up, so if we know that we want the girls defending one v one, start introducing that really quickly.

[C17]

Key to the planning of day-to-day activities was the multidisciplinary effort that goes into each weekly plan and the level of input required to achieve coherence:

We have to have a rationale. So what ends up happening is, we have a meeting at the start of the week; that's when the technical staff, the medical physio, analyst, psychologist, S&C, head of coaching and head of operations we all get together and talk about the players, the group, the individuals. The head coach leads this meeting. It allows each person to have what they would like to add in and then that shapes our planning for the week.

[C1]

This multidisciplinary approach followed through into the session itself, and coaches were tightly bound by the limitations agreed at the planning meeting: "Within those sessions, we'd have each block broke down. So we'd have 10 min warm up, 10 min skills, 10 min defence, 10 min offense. So your time was precise." [C4]. Notably, again, these limitations tended to follow boundaries of physical fidelity, perhaps a result of the disciplinary background of most input.

3.2.4. Success Criteria

Overall, coaches found it hard to articulate the success factors for the use of game-form practice at the individual level. For some, success criteria were clearly outlined and measurable, while others were less clear on what might determine success or progression towards their intentions. As one example, Coach 3 designed a game with the intention of trying to replicate a specific element of their sport with as much repetition as possible:

In the space of three minutes, you can probably get 20 to 30 breakdowns and you'd probably get an average in a game. . . you might get 120 breakdowns over an 80 min period. So you can create 20 to 30 breakdowns in three or four minutes.

[C3]

Taking a different view, Coach 1 discussed success criteria based on players navigating specific game problems that their design afforded c.f. [73]: “I’ll set the game up in terms of problems. I create the problem and have an idea of different ways we might overcome that problem, different tactics or whatever, but I try and remain really open minded with it”. The successful navigation of game-based problems contrasted with a broader coaching focus on the process rather than the outcome. Coaches perceived the outcome as being desirable but not the main focus and instead scrutinised the process through which the team or the individual engaged:

Rather than ‘has he scored a goal?’, actually has he undertook (sic) the process to be able to do that? And does he know why he’s done it? But then what if the picture changes? What if the defender is a bit bigger, or a bit quicker next time? Is he able to adapt based upon that and generate success and know why he’s generated success?

[C12]

Similar to Coach 12, rather than specific outcomes such as scoring or tackling, other coaches defined success as the team’s ability to transfer performance in game-form practice activity to competition. This could be viewed as a testing effect or retrieval practice employed by the coach:

For me, it’s like, do you see them doing this stuff in match play? If you just see them self-organizing really, really quickly and in match play, you know, it’s transferred, which is always my measure of how good the session design.

[C5]

Perhaps notably, the success criteria used by coaches seemed to subtly contrast with the intentions that they generated. Whilst many coaches focused on content to be delivered when focused on success criteria, others reflected on desirable process markers. The challenge is that, in nearly all cases, coaches lacked a conceptual framing for these intentions and the impact that was desirable beyond the physical metrics developed by disciplinary support staff. This would suggest a need for coaches to better align intentions and success criteria.

4. General Discussion

This study investigated how high-level team sports coaches form intentions for impact; how these intentions influence planning for game-form activities; and how coaches form success criteria within these plans. Coaches’ intentions were viewed through the various components of fidelity. By considering the types and relative fidelity of practice, we can consider how we are challenging performers and what this might mean for their ability to transfer skill acquisition to performance [25]. The results show that coaches seemed organisationally bound by the need to manage physical fidelity as a priority above other types of fidelity. The implication is that the development of players in areas other than that of physical preparation may be sub-optimally considered. In terms of planning, coaches displayed evidence of ‘nestedness’ in their plans with clear links between various levels of planning. One important distinction in these results lay between coaches at the pathway level and those working at the elite level of sport. Those coaching developmental athletes based much of their planning around the individual needs of their athletes while coaches at the elite level seemed to base a majority of their planning on team performance.

4.1. Coach Precision of Intent Based on Physical Markers

This weighted focus on physical fidelity reported by the coaches seemed to be at the expense of conceptual, action and affective fidelity, meaning that coaches may be missing out on a more nuanced and intricate activity design. This poses an issue when considering the impact on transfer to performance. An example is that one reason for the implementation of high-conceptual-fidelity practice is to allow players to expand their

knowledge from procedural to a deeper meta-cognitive level of thinking [74,75]. Given that the types of fidelity may represent the types of challenge presented to the athlete, an approach which prioritises the physical is likely unable to cater to the breadth of athlete development. An alternative approach could involve greater recognition of the different challenge markers we can offer players in the form of types of fidelity. This may give the coach the opportunity to frame their activity design by emphasising or de-emphasising respective types of fidelity across a session and, as a consequence, aiming for appropriate fidelity based on intention within a single session and across a block of time, much as is standard practice in physical performance [76]. An example might mean that “activity A” is designed with ‘above-game’ physical fidelity in mind and may result in low levels of other types of fidelity, while the next activity may be designed with high conceptual fidelity in mind, deliberately manipulating lower physical fidelity to allow time for greater reflection.

This focus on physical preparation could in part be explained by the complex nature of sports coaching previously mentioned [1–4]. This cohort of coaches were responsible for a breadth of tasks and were required to operate in a multi-faceted role and fulfil a varied selection of purposes while simultaneously being supported by either a sports science department or S&C coach whose sole responsibility is typically physical preparation of athletes. In an environment where one coach is responsible for multiple aspects of performance while another coach is exclusively responsible for one particular aspect, it is easy to see how the focus could shift to a singular aspect. In addition, given that much of the cohort were working at the highest levels of team sport, players being available to perform is of extreme importance, given the nature of elite team sport [77]. This may be deemed a greater priority than enhancing performance over the long term. Furthermore, in addition to having dedicated professionals for the planning and implementation of physical performance, it is also objectively measurable through the use of GPS and various other monitoring tools. In contrast, coaches currently lack the means by which to measure conceptual, affective and action fidelity.

4.2. Opportunities for Conceptual Framing and Measurement Support

As many of these participants displayed success criteria and intentions for impact in subtle conflict to each other, there is the potential to utilise the fidelity framework to better assist coaches in defining success criteria and aligning it with their intentions. This may be beneficial to coaches to move beyond content-based intentions and success criteria to a focus on player experience. Similarly, the fidelity framework proposed in this paper may also help coaches progress from such a strong focus on physical metrics and allow for a more rounded development of players and teams by taking into account the affective, problem-solving and skill-transfer experiences of the player in a more purposeful manner than currently seems to be the case, at least among this cohort. While framing practice activities in terms of fidelity may be of use conceptually to coaches, a future research challenge should be the design of tools to help the coach consider and measure these types of fidelity, e.g., [78]. These tools would help coaches navigate the challenges of understanding short-term observations and move beyond performance measures in the evaluation of training activity. Currently, similar measures exist within sporting contexts [79] and have been used more extensively in fields such as nursing education [80], where researchers report that the use of fidelity tools may enhance the systematic evaluation of training.

4.3. Planning and Use of Pedagogic Theory

When engaging with a planning process, this cohort of coaches clearly reflected a ‘nestedness’ to their plans [15]. The term ‘continuity’ was frequently referenced and could be seen both inter-session and intra-session, as each component of the session was linked together. The planning process was based on a clear vision of the future [81] and, depending on the main priority for the coach, typically either a development or performance outcome in competition. This provided clear evidence of deliberate thinking where coaches reverse-engineered from a desired end in mind [21] and identified what their intentions for impact

were, which in turn dictated the subsequent use of game-form training. One interesting finding was the level of planning which coaches engaged in being dependent on the level of athlete they were working with. Individual development seemed to be the main focus of planning for those coaches who were coaching in a talent development environment, as they adhered to some form of individual development plan for each player. This contrasted with coaches working with elite players whose main driver of planning, aside from a focus on physical fidelity, was team-based, with little consideration given to the individual development of players.

Missing from this planning were reflections on pedagogical considerations aimed at enhancing player learning, or a consideration of how difficulty is scheduled with reference to skill acquisition over time [82]. Notably, coaches' planning did not seem to be directly informed by well-evidenced considerations such as desirable difficulties, retrieval practice, interleaving, spacing, variability and the dialling up and down of contextual interference [83–87]. This body of work makes an important distinction between performance and learning and is supported by overwhelming empirical evidence showing that considerable learning can occur without observable short-term performance enhancement or adaptation to session demands [88,89].

5. Limitations

A clear limitation of the present work is the retrospective nature of our enquiry, whilst coaches may not have used these intentions in practice, it may be the result of retrospective meaning making. Furthermore, it is important to recognise that the findings of this study should not be used to generalise across coaching populations. The sample of coaches in this study is in no way representative of the broader coaching workforce; coaches were sampled based on their level of expertise and track record of high-quality outcomes. As a result, we ask the reader to consider transferability of findings and implications rather than broader generalisability [90]. Finally, these interviews were not triangulated with any other form of data, and while we do not consider this to be a weakness, given our positionality as interpretive researchers, triangulation could potentially present another lens of analysis.

6. Conclusions

Using reflexive thematic analysis, this study used semi-structured interviews with 17 high-level team sport coaches to investigate how they form intentions for impact; how these intentions influence planning for game-form activities; and how coaches form success criteria within these plans. Coaches' intentions could be viewed through the various components of fidelity. These results show that coaches prioritise the management of physical fidelity above all else. This appears to be at the neglect of other types of fidelity and may be in part based on the measurement tools available to coaches, with physical fidelity being easily measured and tracked through the use of GPS units monitored in real time by sport scientists. This is in contrast to the apparent absence of markers that may inform other dimensions of activity design such as conceptual, action and affective fidelity, both in the short and long term. Future research should look to develop practical tools to help the coach consider the extent and type of fidelity experienced by athletes. Furthermore, this cohort displayed a 'nestedness' to their planning and clearly planned across both the long term and the short term. Coaches of talent development athletes planned for individual considerations, while elite-level coaches focused on team performance alone. Missing from coaches' planning were well-evidenced considerations from the educational and skill-acquisition literature, such as desirable difficulties. While there were isolated instances of coaches using retrieval practice within planning, these findings suggest that enhanced understanding of these concepts may help coaches better support player learning.

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Appendix A

Question	Probes
To begin, I would like to know more about you and your work in coaching.	Give me a brief run through your career, with an emphasis on your coaching roles
How often do you use games in your typical training week?	What does your typical training week look like? Does this change depending on phase of season? Typically, how much of your training time is taken up in game-form training? Why is this amount of training time given to game-form activities?
Why do you use game-form activities in training?	Are there any specific reasons you use games? What decides the selection of game-based practices?
What are the typical outcomes for players when using game-form training?	How do games benefit players? Are there disadvantages to games-based training? How do you know this? How do you measure this? How do you maximise/mitigate these?
I'd like you to think of a game that you have recently used in training. How did you choose or design it? (Specific)	What were your reasons for playing the game? Theoretical underpinning? Trial and error? Seen someone else use it? Planned as part of a block of training? Do you use the same game across multiple sessions? What was the game built upon?
What was your criteria for success when using this game? (Specific)	How the players coped with the demands or can it be deemed a good game even if the players struggle somewhat with it? Is this normal? Have there been any occasions when you have looked for different outcomes?
Where have you found out about the use of games?	Where did you learn about using games in training? Do you do it how you were taught it, or 'by the book'? Do you mix approaches?

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