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'Teeing' Up Games for Understanding (TUGfU): a golf coach's perception and application of a game-based approach

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ABSTRACT

Despite the global appeal of game-based approaches (e.g. Teaching Games for Understanding, Game Sense), there is a notable lack of evidence regarding target sport coaches' perceptions and applications of these pedagogies. Using multiple qualitative methods including semi-structured interviews, video observations, coaching plans, reflections and visual images, this qualitative case study investigates a golf coach's (i.e. David) perception and application of a game-based approach. Through qualitative content analysis, four overarching themes were developed concerning David's perception and application of a game-based approach: 1. Biographical context; 2. Technical skill focus integrated with tactical concepts; 3. Pedagogic strategies to support learning; and 4. The joy of a game-based approach. The findings, presented as a narrative, indicate that while certain pedagogical features commonly associated with traditional game-based approaches were evident—such as the use of modified games to enhance understanding and skill development—others, like effective questioning, were less prominent. Nevertheless, the narrative suggests that David's adept application of the GBA cultivated a positive and joyful learning environment. His ability to adapt the approach fostered enjoyment not only for his learners but also for himself as an educator. This highlights the potential of a well-executed game-based approach to create a fulfilling educational experience in the context of target sports.

Introduction

A game-based approach (GBA) is a learner-centred pedagogy designed to support game under-standing, tactical, technical, physical and social skill development (Kinnerk et al., 2018). In contrast to a sport-as-technique approach, GBAs promote athlete learning through developmentally appro-priate modified games (Gil-Arias et al., 2017; Kirk, 2009). While a myriad of GBAs exist (e.g. Teaching Games for Understanding (TGfU), Game Sense, Tactical Games Model) (Jarrett & Light, 2019), there is general agreement that GBA pedagogical principles include; sampling, modification-representation, modification-exaggeration and tactical complexity (González-Víllora et al., 2021). Commonly associ-ated with a constructivist view of learning (Cushion, 2013), the pedagogue's role when adopting a

GBA is to facilitate learning by designing representative modified games that address tactical concepts or principles of play (Metzler, 2017). It is argued by simultaneously promoting cognitive strategies, such as questioning and facilitating opportunities for group discussions to promote critical thinking, learners begin to construct their knowledge and develop solutions to game-based problems (Griffin & Richard, 2023). Importantly, motor skill execution is not neglected (Thorpe, 1997); rather, it is recommended that learners practice these skills only after they have understood the purpose and context of the motor skill within the game (Werner & Almond, 1990).

Despite the widespread appeal of GBAs and the popularity of target games like golf, there is a notable lack of research evidence analysing target sport coaches' perception and application of the pedagogy (Richardson et al., 2023). Target games are classified as either opposed (e.g. curling) or unopposed (e.g. golf) (Mitchell et al., 2021; Sheppard, 2007). In unopposed target games, such as golf, players aim at a target without interference from opponents (Mitchell et al., 2021; Sheppard, 2007). Conversely, opposed target games like curling allow players to knock or block their opponent's stone (Mitchell et al., 2021; Sheppard, 2007). In contrast to other game categories (i.e. net/wall, striking/fielding and invasion games), target games are considered the least tactically complex (Werner et al., 1996), with accuracy, distance control, direction and trajectory (depending on the target game) being the primary tactical concepts that underpin these games (Mitchell et al., 2021).

Golf, one of the most popular target games globally (Launder & Piltz, 2013), has traditionally emphasised technical skill development, such as improving putting or diagnosing and correcting swing faults (Jenkins, 2021; Renshaw et al., 2020). However, alternative learner-centered approaches, such as GBAs and the constraints-led approach, have been increasingly recommended for golf coaching (Launder, 2001; Renshaw et al., 2020). Notably, the only study to date that includes a golf coach in examining the use of nonlinear pedagogies, such as GBAs, is by Vinson et al. (2016). This research revealed that coaches adopted a learner-centered approach, using game-based practices that prioritised the learner's overall development rather than focusing solely on performance-related outcomes.

In addition to the underrepresentation of target sport coaches in the GBA literature, there is also limited use of diverse qualitative methods to explore sport practitioners' experiences with this pedagogy over extended periods (Barba-Martín et al., 2020; Breed et al., 2024; Dania & Zounhia, 2017; Harvey et al., 2010; Reid & Harvey, 2014). Considering the complexity of factors that influence coaches' perceptions and application of GBAs (Richardson et al., 2023), employing multiple qualitative methods could enhance and deepen our understanding in this area. Furthermore, there is a shortage of novel approaches, such as pedagogical cases and narratives being used as alternative frameworks to present research findings (Rossi et al., 2007; Stolz & Pill, 2016a, 2016b). These approaches are considered translational in nature, offering a practical and accessible way to bridge theory and practice. By using such frameworks, researchers could provide fresh insights into sport practitioners' perceptions and application of GBAs, offering an alternative perspective that may better capture the complexities of their experiences (Cronin & Armour, 2018; Smith, 2021). Despite the widespread popularity of GBAs and the global appeal of target games, there is currently a lack of empirical evidence on how target sport coaches perceive and implement this pedagogy in real-world settings (Barba-Martín et al., 2020; Breed et al., 2024; Richardson et al., 2023). Therefore, the purpose of this study was to employ multiple qualitative methods to analyse a golf coach's perception and application of a GBA.

Methodology

Research design and case selection

An intrinsic qualitative case study formed the research design (Stake, 1995) and ontologically, the case was grounded in relativist constructionism and epistemologically informed by interpretivism.

Therefore, while the case depicts 'a construction of social reality' (Crotty, 2020, p. 54) (i.e. a golf coach's perception and application of a GBA), we accept readers of the study may interpret aspects of the findings differently than those reported due to contrasting philosophical perspectives (Guba & Lincoln, 1994).

Participant recruitment

A purposeful sampling technique (Patton, 2002) was administered to recruit a golf coach (referred to as David, a pseudonym) who is an active Professional Golfers' Association (PGA) coach and incorporates principles of a GBA in his coaching. Our aim was not to recruit a participant who was an academic 'expert' in the pedagogy, but rather to analyse the case of a coach like David, who can be viewed as a 'learner or collaborator' in the use of GBAs (Jarrett & Light, 2019, p. 565). This approach is seen as more translational and potentially more empathetic towards practitioners who are actively coaching target games in real-world settings. Ethical approval (reference number: 22/SPS/015) was granted by Liverpool John Moores institutional ethics board and formal contact was made with David via email where he provided fully informed written consent. The study was conducted in full accordance with the Declaration of Helsinki.

Data sources

Over a three-month period, data was captured by the lead author using multiple qualitative methods, including semi-structured interviews, video-recordings of David's coaching practices, coaching plans, written reflections and visual images of his practice. To address potential issues of saturation, particularly given the study's small sample size, a triangulation of methods was employed to ensure a rich and comprehensive dataset that could effectively address the research question (Mthuli et al., 2022; Rahimi, 2024). Additionally, a systematic approach was adopted for data analysis, allowing for a thorough exploration of the findings (Mthuli et al., 2022; Rahimi, 2024). Table 1 depicts the chronology and timings of the data collection process.

Semi-structured interviews

Three individual semi-structured interviews were conducted with David to iteratively ascertain his perception and application of GBAs. These interviews took place at the beginning of each month and the interview protocol was developed in line with the findings of Richardson et al. (2023) (i.e. INT 1: background and perspective of learning, INT 2: support from external sources, INT 3: pedagogical knowledge and skills and content knowledge). Each interview guide was pilot tested and included several open-ended and some closed questions which were designed to allow David to construct his answers in a meaningful but not necessarily chronological way (Bryman, 2016). With recordings of David's coaching practices being available at the time of each interview, additional probing questions about his practice were asked during the interviews (e.g. ' … I've seen you also do group work from the video footage, is that more challenging for you?'). All interviews were conducted privately and in-person at a time convenient for David and recorded using a voice recorder (Gratton & Jones, 2010). All three interviews lasted between 45-90 mins, with analytical memos

Table 1. Timeline of data capture.

Data captured each month	1	2	3	4	5	6	7	8	9	10	11	12
Reflections												
Video recorded practices												
Coaching plans												
Interviews												
Months		Month 1			Month 2					Month 3		

Figure 1. GoPro© camera.

recorded both during and after each interview. On completion, each interview was transcribed verbatim by the lead researcher in Microsoft Word© (Yeo et al., 2014).

Video data

To gain a more nuanced and naturalistic insight of David's coaching practices (Smith & Caddick, 2012), he was asked to record one coaching practice each week that he felt best illustrated his application of a GBA over the three-month period. However, due to additional work commitments or unforeseen circumstances (e.g. camera issues) it was not always possible for David to record a practice each week, which is why additional data was captured in the second month of the study (see Table 1). Overall, 12 video-recorded coaching practices typically lasting 60 mins in duration were obtained from David. To facilitate the video recording process, David was provided with a GoPro Hero 9© camera and accessories (i.e. chest mount, protective camera case, SD card and reader) so he could self-record his coaching practices (French, 2016) (see Figure 1). While GoPro© cameras are considered light and durable, it also enabled the researcher to be removed from the coaching environment and thus reduce any potential anxieties this may have caused for David and his learners (French, 2016). The following configurations were applied to the GoPro© camera; standard recording mode, 1080/30 resolution, 16–34 millimetres wide focus, 1.0× zoom and boost off. Prior to commencing the study, the camera and accessories were pilot tested by the lead researcher during a youth soccer coaching practice. As the video data was collected from David each month, he was also issued with a 256GB SanDisk Ultra© USB device to store the video data. This arrangement allowed David to delete the footage from the GoPro© camera after transferring it to the USB device, ensuring there was enough storage capacity for subsequent recordings. Additionally, this method helped mitigate the risk of data loss in the event the camera was misplaced or stolen. With David participating in an interview each month, the data from the USB device was collected from him then and transferred to the lead researcher's computer. The data was then deleted from the USB device, before being returned to David.

Coach planning and reflections

To complement each of David's video-recorded practices, he emailed his coaching plans and reflections to the lead researcher after each session. In total, 12 coaching plans and reflections were collected, each one corresponding to a video-recorded coaching practice. A coaching plan template was not provided to David, as the intention was not to constrain or influence his approach to planning a GBA practice. In contrast, the reflection document consisted of six open-ended questions

based on examples from the literature (e.g. Roberts, 2011) and findings from a systematic review (Richardson et al., 2023). These questions aimed to address several aspects of David's coaching practice, including how he perceived alignment with the GBA pedagogy, any challenges he encountered, his feelings during the practice, and what factors he believed influenced his coaching decisions. This approach allowed for a richer exploration of David's insights and experiences related to the application of GBAs.

Visual images

Visual images of David's coaching practices were extracted from the video-recorded data (i.e. print screen images) by the lead researcher and saved along with supporting memos in a Microsoft Word© document. The images served to enhance the articulation of the findings (e.g. modified games, manipulation of practice conditions), with typically four to six images obtained from each coaching practice. It is important to note, with images only providing a momentarily illustration of events, we are not claiming those included depict reality, or that additional interpretations other than those provided are not valid (Goldstein, 2007; Jones et al., 2012; Stanczak, 2007).

Ethical considerations

To protect the participant's identity, a pseudonym was used, and all data was securely stored and backed-up on the lead researcher's computer (Tracy, 2010). The coaching plans and reflections were emailed by David to the lead researcher's email account. On the day these emails were received, the documents were saved on Microsoft Word© and backed-up on the lead researcher's computer and the email deleted. Although the video data of David's GBA coaching practices were obtained each month; to reduce the risk of a data breach from the GoPro© camera becoming potentially lost or stolen, he was asked to save the data to the USB device and delete the footage from the GoPro© camera. Once saved and backed up on the researcher's computer the data was then deleted from the USB device. Finally, to maintain David's and the golf players' anonymity, distinguishable features (e.g. faces) that could potentially reveal their identity were blurred and images sometimes cropped.

Method of analysis

Qualitative content analysis (QCA) was applied using a combination of inductive and deductive approaches (Elo & Kyngäs, 2008) (see supplementary file 1). Figure 2 depicts the data analysis process.

Deductive analysis of video data, coaching plans and reflections

Each video-recorded practice, coaching plan and reflection was initially deductively analysed by the lead researcher against a modified version of the GBA benchmarks (Metzler, 2017; O'Leary, 2016). It is important to note that this stage of the analysis did not conform to systematic observation protocols. Similar to other GBA studies, the benchmarks were used as a qualitative analysis tool to identify features associated with the pedagogy (Harvey et al., 2010; O'Leary, 2016). To facilitate this process, a criteria was developed in Microsoft Excel© to record how the data aligned with each GBA pedagogic benchmark. If evidence corresponding to a benchmark was found, then a 'yes' was recorded in the relevant column. If no evidence was found, then 'not evident' was inserted. In cases where the evidence was ambiguous 'partially/potentially evident' was used. A colour-coded rating system was used for visual clarity (i.e. green = yes, red = not evident, yellow = partially/potentially evident). Additionally, memos and where appropriate, verbatim text were included in a separate column to support the analysis. During the video
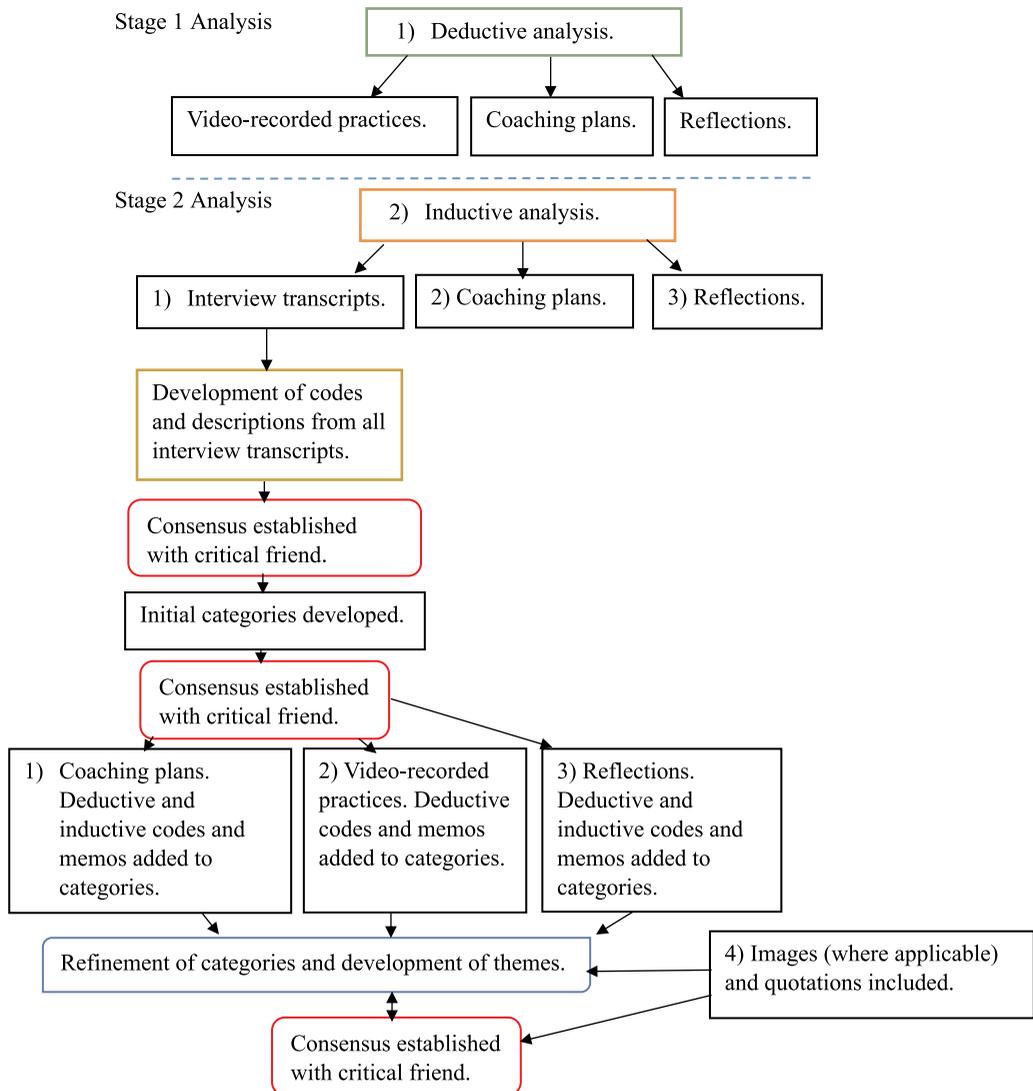
Figure 2. Flow diagram depicting data analysis.

data analysis, images (i.e. print screen) of David's practice were also captured. Following completion of the deductive analysis, a random sample ($n = 3$) of video-recorded practices, coaching plans, and reflections were reviewed and debated with a member of the research team (the sixth author) to establish consensus on the findings.

Inductive analysis of interviews, coaching plans and reflections

Interview transcripts were initially read multiple times by the lead researcher and sixth author to become fully immersed in the data (Elo & Kyngäs, 2008). To calibrate the coding process, the transcript from the first interview was openly coded collaboratively by both researchers. This involved identifying 'meaning units' (Graneheim & Lundman, 2004, p. 106) and labelling these units with either latent or sematic codes, accompanied with descriptive memos (Hsieh & Shannon, 2005). Once consensus was reached on the coding process, the lead researcher independently coded

the remaining two interview transcripts. The coaching plans and reflections were also analysed using the same inductive procedures (Graneheim et al., 2017), ensuring consistency across the data analysis process.

Categorisation of data and development of themes

The categorisation process was conducted by the lead researcher and the sixth author (see Figure 3). Throughout this process, the lead researcher maintained a reflective diary to record discussions and updates related to the dataset (e.g. development of categories) (Graneheim et al., 2017). Initially, interview data were coded to establish some 'initial' categories. Given the richness of the interview data, saturation was determined when no new additional categories could be formed from the interview codes and memos. During this stage, a category labelled 'not sure' was also included to capture any data that did not align with a primary or subcategory. Before any additional data was categorised, further reflection led to the merging, regrouping and relabelling of some data until consensus was established.

Following this, the inductive and deductive data from the coaching plans was categorised. While much of the data aligned with the existing categories, an additional subcategory labelled 'addressing technical and tactical skills' was developed. Further discussions led to some refinements to the categories (e.g. subcategory labelled 'confidence' was merged with the subcategory 'affective domain'). Once consensus was reached on these adjustments, the deductive video data was categorised. Since this data corresponded with the GBA benchmarks, the categorisation process was straight forward. For instance, all data related to the benchmark on questioning were grouped and placed in the category labelled 'feedback'. Subsequently, the deductive and inductive reflection data was categorised, following a similar process. However, no additional categories were developed from this dataset. Further reflection led to some data becoming regrouped (e.g. data from the subcategory 'self-coaching' was moved to the subcategory 'supporting learning').

Finally, visual images (where applicable) of Davids' coaching practice, along with supporting quotations were incorporated into the analysis. Additional reflection on the data led to the regrouping, renaming and reordering of categories until consensus was achieved. Although developing themes is not a requirement when conducting QCA (Lindgren et al., 2020), it was agreed that doing so would enhance the articulation of the findings and clarify the connections between the categories (Graneheim et al., 2017). After 'a comprehensive interpretation of the data' had occurred, the established categories were used to develop 'themes of meaning' (Graneheim et al., 2017, p. 33). Ultimately,

Figure 3. Categorisation of data.

consensus was reached on four overarching themes: 1. Biographical context; 2. Technical skill focus integrated with tactical concepts; 3. Pedagogic strategies to support learning; and 4. The joy of a GBA. These themes encapsulate the core insights derived from the analysis and provide a structured framework for presenting the findings.

Development of narrative

Reporting the findings as a narrative was justified on the basis that narratives can be developed from individual cases where multiple qualitative methods and QCA have been administered (Elliott, 2005; Riessman, 2008). Specifically, a structural analysis was applied to the themes as a framework to develop the narrative structure (Riessman, 2008; Sparkes, 2005). Since this was an interpretation of David's perception and application of a GBA, the narrative was considered a 'second-order narrative' (Elliott, 2005, p. 13) with the authors positioning themselves as the narrators. Throughout the narrative, 'analytical bracketing' (Sparkes, 2005, p. 207) was adopted to facilitate a transition between the roles of 'storyteller' (i.e. what happened) and 'analyst' (i.e. how it happened) (Phoenix et al., 2010, p. 6). Although the narrative did not conform to traditional literary genres (e.g. 'tragedy'), it was considered to partially align to that of a 'quest', as David's perception and application of a GBA appeared to reflect a journey (Crossen et al., 2023, p. 7); however, aspects typically associated with this genre (i.e. challenges encountered and overcome) were less pronounced.

Findings and discussion

Biographical context

David is a 51-year-old male PGA fulltime golf coach, who works in the United Kingdom (UK). Besides his PGA qualification, he possesses a diploma in sport psychology and has previously been awarded 'coach of the year' by England Golf. David has been a full-time golf coach since 2008, after being made redundant during the UK financial crash. He predominately coaches *average club golfers* (interview 1) from juniors (6–17 years old) through to adults; however, he also coaches more experienced golfers (e.g. county level) and occasionally a professional golfer. During the summer, David would spend 35–40 hours coaching golf, whereas in the winter months this would decline to 25 hours. Like many sport coaches (Battaglia & Kerr, 2022), the Covid-19 pandemic impacted the realities of coaching for David, with some of his coaching work only just returning (e.g. disability golf coaching).

Coach learning- utilising sources of support

For David to become a qualified golf coach, attaining the PGA qualification was a mandatory requirement. While the PGA course taught David about different aspects of golf (e.g. club repairs), from a coaching standpoint, David perceived it mostly developed his understanding in how to coach the technical skills affiliated to golf (e.g. putting). 'You were shown how to coach in the PGA method, so you … a set criteria of sort of a process to follow of diagnosing a golfer's swing problems and then how to correct it' (interview 1). David's perspective on this aspect of his professional development implies the PGA were focused on 'technique acquisition' (Diekhoff, 2024, p. 2), since the focus was on following a prescribed approach to developing players motor skills (Cruickshank & Swabey, 2013; Werner et al., 1996). David went on to admit, that he failed some elements of his initial PGA coaching qualification, as he had not completely followed their mandatory assessment process. This suggests his early assumptions about coaching contrasted with those of the PGA and demonstrates some initial indication of self-confidence in that he perhaps wanted to move away from the coaching approach promoted by the governing body.

Following completion of his PGA qualification, David's desire to continue learning and coaching golf was evident. He completed additional training to deliver golf to disability community groups and became part of the Golf Foundation (i.e. charity to support the participation of golf amongst

young people). The Golf Foundation not only provided David with additional opportunities to coach golf in schools but appeared to act as a 'dynamic social network' (Mallett et al., 2013, p. 467).

I would pick up feedback from my fellow pro's about certain games of mine that they've seen that I'd put on social media, and similarly with me I would say, 'oh I saw you doing that, am using that now in my coaching as well, so we kind of bounce of each other with our ideas' (interview 2).

David also expressed that he would utilise multiple sources of support (e.g. social media and attendance at conferences) to develop his coaching practice (Walker et al., 2018).

I mean I've had many occasions where I've either been looking at other pro's Twitter© pages or Facebook© posts or stuff like that, as well as going to conferences in the past where I've thought, 'oh that's a really good way of getting over that particular skill' and I'll cherry pick that one for myself, or I'll adapt it a little bit and put my own spin on it but around the same sort of principle of what they've created (interview 3).

Significant 'Others'

Experiences playing golf and attendance at PGA conferences were significant in influencing David's perception of coaching and his decision to apply a GBA (Pill, 2015). David expressed his first recollection of a GBA was during his time as a junior golfer.

Probably when I was a junior, 13–14 [years of age] playing games at the private members club in the, you know, in the Saturday, Sunday morning sessions. You know, the pro would say, 'there you go, there's an umbrella, first one to chip in wins a chocolate bar' (interview 1).

These early experiences as a junior golfer appeared to have influenced David's perception on how game-based practices can support learning.

So, without, you know, just by setting the game, the pro would instantly get you to subconsciously choose the right club, and then it was down to you then, after so many shots you started to home in and get the feel for dropping it in the umbrella (interview 1).

However, it was his attendance at a PGA conference and witnessing Kendall McWade's Instinctive Golf© concept (McWade, 2017) that led David more towards a GBA.

So, I went on one of his [Kendal's] seminars and for me that was like a little light bulb moment, I thought, 'oh this is great', this is so uncluttered way of coaching people where there not thinking of technique, there just doing a particular motion and then you stick a golf club in their hand and that motion applies (interview 1).

David personally invited Kendal to deliver a session at the golf club he coached at and went on to admit; 'he [Kendal] was quite a big influence back then, and that probably got me more away from technical stuff as well' (interview 1).

View of learning- the active listener

In contrast to a sport-as-technique approach (Kirk, 2009) David experienced during his PGA qualification, the evidence implied he adopted a person-centred learning (PCL) approach, as skills like active listening and empathy were alluded to (Nelson et al., 2014; Rowley & Lester, 2016). For instance, David expressed that when coaching new learners;

… am often asking them questions just as we go up, and I can tell by the language probably how best they're going to learn. So, if someone says, 'oh I feel like am doing this', you know, I instantly know alright this person is someone who may be learns by what, what the feel of the swing is … (interview 1).

Responding to the learner's needs on the day was another example of how David applied a PCL approach, and a reason why he also adopted a minimalistic approach to planning (see Figure 4).

So, when someone comes along for a lesson, sometimes I won't know until they sort of say to me what's being going on with their game, you know, and I will say, 'what aspect has been letting you down,' and almost like tick, tick, ticking in my head, oh right what games are goner work best to improve this particular issue. So, yes sometimes

<u>**Lesson plan for 23rd July 2022 Session 3**</u>

Client type - Individual Junior

Subject - Chipping skills - short and long

Aim of session - to improve technical skills of playing the shots as well as develop the feel for distance control.

Equipment used - Bullseye circles, slats to create zones.

<u>**Lessons Plan 6th August (session four-beginner junior)**</u>

Session 4 - 1 hour with Putting, Chipping and 1 hole play.

I'd set up two putting stations - one using parallel alignment sticks from short range to help develop control of the putter path and the second a longer putt with a slope to judge to a hole and circled area.

For chipping I'd created two hoops (one above the other) whereby the pupil had to try and elevate the shots enough to get the ball through either hoop to land the ball on the green and then for it to roll up to the target of a hole with two <u>bulls</u> eye circled areas.

Lastly the pupil played a hole from 100 <u>yards</u> so we went on the 18th hole for this final activity.

Figure 4. Example of David's coaching plans.

> *it's literally within a matter of a minute or so am already trying to think, oh right which game is goner be best for this person, rather than actually plan it beforehand* (interview 3).

David's minimalistic approach to planning highlights the realities of golf coaching, but it also implies he holds a high degree of both content and pedagogical knowledge. While his content knowledge may have helped him adapt and deliver game-based practices that deviated from his initial plan, planning for GBA practices is recommended (Pill, 2016b; Thomas et al., 2013), as inadequate planning has been reported to impact practice (Harvey et al., 2010). However, planning is also considered a time-consuming process (Ginciene et al., 2022; König et al., 2021), which maybe another explanation along with the realities of coaching golf (e.g. reacting to learner's requests on the day) to why David adopted a minimalistic approach. So, although David may benefit from additional support on planning for GBA practices, further analysis on sport practitioners' planning of the pedagogy is also required given the current dearth of evidence (Kinnerk et al., 2021).

Technical skill focus integrated with tactical concepts

The 'phronesis' of when to address technical skills

David's practice was observed to diverge from established GBAs such as TGfU and the philosophy commonly associated with team sports, which emphasises gameplay before skill practice (Mitchell et al., 2021; Pill et al., 2023). Rather than adhering strictly to these frameworks, David appeared to implement his own interpretation of the GBA, suggesting a more personalised approach to coaching that may not fully align with traditional methodologies.

> *It depends on the pupil, sometimes the technical stuff has to come first with the person, and other times the technical stuffs fine so it's moving straight on to the game-based thing to develop the skill that we're trying to do with them* (interview 3).

While David acknowledged that technical and tactical concepts could be addressed during practice, he emphasised that this depended on the learner's needs. 'It could be a bit of both really. Yeah, say it just depends on what am trying to get the person to do, or what they want to learn' (interview 1). Therefore, instead of aligning his practices to a conventional GBA, David was more concerned with

supporting the learner's needs and appeared to frame the pedagogy around this position (Nelson et al., 2014; Rowley & Lester, 2016). Although GBAs should not overlook the coaching of technical skills (Thorpe, 1997), evidence suggests that they can be developed within the pedagogical framework (Breed et al., 2024). However, the data from this case suggested David was applying a 'phronesis' approach (Standal & Hemmestad, 2010, p. 52) determining when it was appropriate to support learners with their technical skills. For instance, when coaching beginners, David expressed;

> well, that's it, in that situation it's more right, we'll have to, it's almost like a step-by-step process then, I wouldn't immediately throw them into a game because they wouldn't have the technical ability to do it in the first place (interview 3).

Though David perceives beginners will lack the technical skills required to play a game, further consideration of the pedagogical principles (i.e. sampling, modification-representation, modification-exaggeration and tactical complexity) (Griffin & Butler, 2005) would perhaps support David's knowledge in understanding how modified games can be designed to support skill development for novice learners.

Coaching technical skills

David's coaching plans and reflections predominately stated a technical skill as the focus. Examples included, '*development of technique, control of putter path and club face*', coaching plan 1. '*Chipping skills – short and long*', coaching plan 3. '*Putting skills*', reflection 1. '*Chipping skills*', reflection 3. However, there were some exceptions to this, for example, '*chipping skills – to develop distance control and accuracy using a zone-based game*', coaching plan 9. '*Chipping skills – distance control*', reflection 6. Typically, practices began with David briefly demonstrating the technical skill required for the game (e.g. putting). However, there were some exceptions to this. For instance, during a session with a county-standard player he started with a modified game (i.e. pressure putt, see Figure 5). Even in these instances, David still provided technical feedback, when necessary, thus further highlighting how a method of 'phronesis' (Standal & Hemmestad, 2010, p. 52) was applied to coaching technical skills. While the video observations of David's practices revealed tactical and technical skills were coached when required (Pill, 2015), from a fidelity standpoint, the technical skill was mostly introduced prior to gameplay (Metzler, 2017). Despite David's coaching practices initially focusing on technical skills, tactical concepts were not overlooked.

Embodiment of tactical concepts

The evidence indicates, that while relevant technical and tactical skills were often documented in David's coaching plans, practices and reflections (Metzler, 2017), his strength lay in his ability to address technical skills, while simultaneously embedding tactical concepts within the modified games played. This dual focus allowed David to create learning experiences that not only enhanced the players' technical abilities but also deepened their understanding of tactical strategies. By

Figure 5. Pressure putt.

integrating these elements, he effectively fostered a holistic approach to skill development, ensuring that learners could apply their technical skills in a meaningful context during gameplay.

> I think the main thing there is getting the pupil to kind of understand the skill, whether as I say it will be accuracy, distance control or trajectory control, and then for the game to be based around that. So, I think as I've gave that example before, you know, when am trying to work on their trajectory of the shot then it's got to be something visually for them where there either trying to get it under something or over something (interview 3).

His coaching plans and reflections alluded to the tactical concepts the game(s) aimed to address, thus highlighting how these were integrated into his practice. 'Sloping putt with bullseye – start line and distance control combination', coaching plan 8. 'The games helped to develop "feel" for distance control and accuracy leading to better scoring opportunities', reflection 9. Observations of David's practices further revealed how games were addressing such tactical concepts, with Figures 5 and 6 depicting examples of this. Finally, instances were identified where David provided tactical feedback to learners. For example, during the putting games (e.g. pressure putt), he would remind and frequently assist learners in lining up the stripe on their golf ball towards the intended target (e.g. hole) to support their accuracy control (Mitchell et al., 2021).

Pedagogic strategies to support learning

Modified games

Modified games were a predominant feature of David's coaching practices (see Figures 7 and 8). Even when outdoor play was not possible due to adverse weather conditions, David recalled how he delivered modified games indoors. 'I mean with the kid's classes I even setup with like the plastic balls, okay, where there in the locker room chipping the ball into an umbrella at the other side of the locker room' (interview 1). While David admitted he possessed knowledge of numerous games, the evidence also revealed he would design games (e.g. Mouse trap) to stimulate learners' enthusiasm and modify them when necessary to support their needs (Mandigo & Holt, 2000), thus suggesting he is considering the learners Zone of Proximal Development (ZPD) (Smidt, 2013; Vygotsky, 1962) as the following extract highlights.

> … so that's what I learnt as well, I'll create games and depending on the skill level I will try to make it either tougher or easier so it's achievable, but it does push them, so that's how I try and look at it (interview 3).

Representation

Observations of David's practices revealed they all occurred outdoors, mostly on the putting or chipping greens, occasionally the driving range and sometimes the course was used. Although Renshaw et al. (2020) are critical of practice greens and driving ranges as they considered them to inhibit necessary environmental information (e.g. gradients, wind direction), it may be argued practice greens can still provide some sources of specifying information (e.g. gradients, surface conditions,
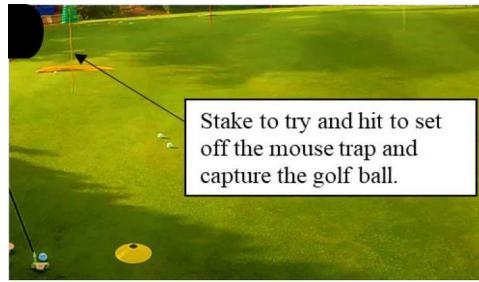

Figure 6. Bullseye.

Figure 7. Mouse trap.

distance from hole) applicable to those experienced on the course. Other principles of represen-
tation were also considered, as technical and tactical skills applicable to golf and the learner's
needs were addressed (Griffin & Butler, 2005; Mitchell et al., 2021). David also went on to explain
how practice conditions would be manipulated to exaggerate technical and tactical skills the prac-
tice aimed to address.

> *Again, I might set a game where there trying to pitch it over and drop it in like an umbrella as an example, or whether
> I want them to hit it low because am trying to teach them the skill. You know, if there stuck under a bush or under
> branches trying to hit it under, I might set some sticks and put, put almost like a crossbar and then I will lower it and
> then say the skill is like, or the game is get it under that stick* (interview 3).

Sometimes, the level of representation increased during a practice, as task and environmental
modifications initially administered to scaffold learning (Smidt, 2013) (e.g. point scoring zones,
target spots to help with direction and distance control) were removed as the practice progressed
to a short game on the practice green or course. Lastly, other modified practice conditions (e.g.
element of pressure and a point scoring system) to support with representation were also
administered.

> *He was given 10 attempts and was not allowed to move to the next rung of the ladder until he had got one ball
> within the required zone, so this also added an element of pressure as we were seeing if he could get to the 4th
> zone and complete the game before running out of balls* (reflection 6).

Figure 8. Blind slats used for a chipping game.

Manipulation of practice conditions

Further evidence implied David skilfully manipulated practice conditions to enhance representation and facilitate player learning (Griffin & Butler, 2005; Mandigo et al., 2007). Although the coaching plans sometimes lacked detail about the specific purposes behind the modified practice conditions, insights gleaned from interviews, observations and reflections provided clarification. For instance, coaching plan four explicitly outlined David's strategies for modifying practice conditions to support learning, such as adjusting distance, incorporating pressure, varying gradients and establishing target zones. This thoughtful planning demonstrated his commitment to creating a learning environment tailored to the needs of his learners, ensuring that the modified practices effectively contributed to their tactical understanding.

> *I'd set up two putting stations – one using parallel alignment sticks from short range to help develop control of the putter path, and the second a longer putt with a slope to judge to a hole and circled area. For chipping, I'd created two hoops (one above the other) whereby the pupil had to try and elevate the shots enough to get the ball through either hoop to land the ball on the green and then for it to roll up to the target of a hole with two bulls eye circled areas* (coaching plan 4).

David's coaching practices and reflections implied the modifications were developmentally appropriate and designed to support learners tactical understanding (Metzler, 2017). Although highlighted in some of the Figures (e.g. Figures 7 and 8), other purposefully selected practice conditions included the use of parallel alignment sticks to support with accuracy when putting, and a simulated stream to help represent the tactical concept of trajectory and technical skill of chipping (see Figures 9 and 10).

An additional example of David's manipulation of practice conditions occurred during a variable practice session on the driving range. He strategically placed coloured cones at various distances (e.g. 25, 75, 100 yards) and instructed the learner to chip the ball towards a specific colour, awarding points based on how close the ball landed to the designated target. This practice not only supported technical skills, such as chipping, but also emphasised tactical skills like distance control (Mitchell et al., 2021). Moreover, it incorporated the concept of 'functional variability' (Chow et al., 2016, p. 59), as learners had to adapt to the task demands (i.e. aiming for different targets) while responding to David's cues (i.e. what targets to aim for). This also further demonstrates how game-based practices addressing technical and tactical skills can be delivered on driving ranges, despite such contexts being considered as less representative (Renshaw et al., 2020).

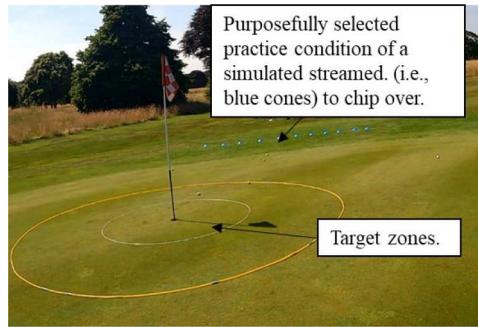**Figure 9.** Parallel alignment stick.

Figure 10. Simulated stream.

Questioning- 'better on the course'

Questioning and opportunities for tactical discussions are considered fundamental pedagogic strategies of GBAs (González-Víllora et al., 2021); however, they were scarce in David's practice. This observation aligns with the findings of Harvey and Jarrett (2014), which indicate that coaches often underutilise questioning as a feedback strategy. When asked further about his use of questioning to support learning, David acknowledged he would mostly use this feedback strategy when out on the course and with more experienced players to support their tactical awareness and decision-making (Griffin & Mitchell, 2023; Harvey & Light, 2015).

> … I try [referring to the learners] to make them think about, what's ahead of them, what are the conditions, where are the hazards, what are they trying to achieve with the hole, and where to then try to plan where to place the shot (interview 3).

David's decision not to use questioning with those he considered beginners stemmed from his perception that just hitting the ball the intended direction and keeping it in play is the priority. This implies that he is possibly more mindful of the affective domain and conscious that questioning may remove the amount of time they have playing the game, thus perhaps hindering their enjoyment. David, therefore, appears to be implying that with beginners likely possessing limited game understanding and technical skill proficiency, the use of questioning is not as necessary. Questioning is, however, suggested to support learners' declarative knowledge (e.g. tactical understanding) (Harvey & Light, 2015), therefore, David may benefit from additional support on how questioning can be applied within his GBA practices (Harvey & Jarrett, 2014).

Technical and tactical feedback

Observations of David's practices revealed several feedback strategies were commonly employed (e.g. demonstrations, augmented, intrinsic and external feedback) (Kidman & Hanrahan, 2011; Otte et al., 2020; Tobey, 1992). A common strategy observed was at the beginning of most practices whereby David would demonstrate the game and provide some advice on the technical skill required (e.g. grip, ball position), but using 'model learning' (Otte et al., 2020, p. 9) rather than prescribing a technical model. Augmented feedback (Otte et al., 2020; Tobey, 1992) was witnessed during each practice and mostly applied to support learners with their skill learning; however, there were occasions where it was used to provide tactical feedback (e.g. reminding learners to use the stripe on the golf ball to support with accuracy). However, David seemed aware of not providing too much augmented feedback to inhibit the learner's intrinsic response (Otte et al., 2020), thus encouraging learners to self-regulate their skill learning (Renshaw et al., 2020).

While external feedback (Gray, 2022) has been found to support golfers' skill acquisition and confidence when being coached a pitch shot (An & Wulf, 2023), David was observed administering

this mode of feedback in the form of comments such as; 'brush the grass' when addressing chipping, and '*one, two*' to support the skill of putting. David rarely paused practices to provide feedback, even during group practices he would observe each learner and offer individual feedback during natural gaps in play (e.g. just after playing a shot). When David provided feedback, it was considered relevant and delivered with clarity (Jenkins, 2021; Kidman & Hanrahan, 2011), which aligns with his statement that; ' … people have always said to me I've had a knack of conveying information to people in like a simple way' (interview 3). While the evidence revealed David applied multiple feedback strategies, how effective these are at supporting learning requires further investigation; moreover, additional research on the feedback strategies other coaches administer when applying GBAs also warrants further investigation.

Technology to support learning

Although the use of technology in golf (e.g. MySwing©) to provide feedback and assess performance is common (Rittenberg et al., 2022), David was critical of how this has been applied in practice given his personal experiences.

> … *like using all these blumen body sensors and all these where they stand on like pads that show you how your weight shifts. To me, and I've had people come who've had that stuff and they've said, I was just totally lost in what they were trying to get me to do. You know, they were showing me what was happening, but I had no understanding of well what, what am I supposed to do with that* (interview 1).

Saying that, David acknowledged on occasions to using a coaching app (i.e. CoachNow©) as a method to provide feedback. However, at no point was he observed stopping a practice to review the data with the learner(s). Instead, David suggested the app was used to provide learners with different modes of feedback (i.e. audio, video and written) on aspects of their gameplay they could then refer to away from the coaching session to support their independent practice (Adams, 2006).

> *I put all that footage on the CoachNow© app for them so again they can sort of see what they've learnt, what skill or game they've played to develop it, and hopefully they can just replicate that in their own practice. And if … it's interactive that as well in that a pupil could video a few weeks later one of their practice sessions, send me a few clips and say, 'how's this looking', and then I can respond back to them …* (interview 3).

Since the app enabled different modes of feedback to be recorded and communication to occur between the learners and David away from the coaching environment, perhaps this was supporting mediation and highlights how technology can be used to aid learning from a constructivist perspective (Jones et al., 2018; Smidt, 2013).

The joy of a GBA

Joy for the learners

The perception a GBA supports learners' affective domain was an underlying reason to why David applied the pedagogy (Pill, 2016a). His reflections constantly reiterated how learners were engaged and enjoyed the games. 'All participants appeared to enjoy the games and challenges', reflection 8. ' … … I just remember him being engaged with the games and enjoying trying to beat his target score that I had set for him', reflection 6. Although empirically untested, the video observations supported David's claims, as learners were rarely disengaged and enjoyment was visible (Kretchmar, 2005), with instances such as, a learner clenching his fist when completing a challenge, practice 7, and another jumping for joy, practice 1. David suggested how the affective domain would likely support autonomous practice away from the coaching environment, thus implying he wants to develop independent learners (Adams, 2006).

As the games are interactive and 'fun', I felt the participant's engagement of performing the different exercises would also create enjoyment and encourage them to practice beyond the lesson as they would be able to set up their own similar games when doing their own future practice (reflection 1).

Other reasons to why learners were engaged and enjoyed the coaching practices maybe because their ZPD was taken into consideration (Smidt, 2013; Vygotsky, 1962), and practices were valued by learners, thus supporting their motivation and enjoyment (Baviskar et al., 2009; Smidt, 2013). Despite the findings aligning with current evidence that GBAs positively impact learner's affective domain (e.g. motivation and enjoyment) (Barba-Martín et al., 2020; Breed et al., 2024; Harvey & Jarrett, 2014), how sport practitioners plan for and facilitate this requires further investigation.

Joy for David

Witnessing learners improving and enjoying the games was associated with David's sense of plea-sure from applying a GBA. 'I was happy with the delivery of the session and my participants seemed to enjoy the game-based exercises and drills', reflection 10. 'I was delighted for my partici-pant when he holed a short chip on his second run of 10 shots with his very first shot, which meant he had already beaten his first run of 10 score', reflection 3. Evidence further implied positive feed-back from stakeholders (e.g. players and parents) and David's self-confidence in his content and ped-agogical knowledge, were also reasons why he valued and enjoyed applying a GBA. 'I felt confident in the delivery of my session as most of the games and exercises I had set up are ones I had used previously', reflection 2. 'Just when my pupil commented that they really thought the "pressure putt" game was really good and were enjoying it', reflection 7. Although it has been reported encour-agement from stakeholders and colleagues can support sport practitioners' motivation in using GBAs (Richardson et al., 2023), research investigating the influence stakeholders and colleagues have on coaches' perception and application of the pedagogy is scarce.

The minimal challenges David experienced during his coaching practices could be another under-lying reason why he also enjoyed applying a GBA. Aside from minor issues such as a group of juniors being '*a bit chatty*' (reflection 12), and a young learner's limited '*attention span*' (reflection 11), David did not report significant challenges in his reflections. He acknowledged that, while coaching mixed-ability groups could be challenging, nothing discouraged him from continuing to use the GBA peda-gogy. Potential reasons for the limited challenges could be related to David's coaching experience and pedagogical content knowledge (Kirk, 2016), coupled with the small ratio of participants (i.e. between 1 and 5) that formed each session, thus possibly reducing some of the challenges (e.g. behavioural issues) that have previously been reported with GBAs (Cruz et al., 2012).

Instead of fully adhering to the philosophical or pedagogical principles of a traditional GBA, such as TGfU, David relies on his 'tacit craft knowledge'—his intuition, experiences and practical know-how (Day et al., 2024, p. 2)—to shape his understanding and application of the pedagogy. Although David's approach is not strictly aligned with any formal GBA model, it appears to give David a sense of autonomy in how he designs and delivers his sessions. By not being bound to rigid structures, he may feel more freedom and enjoyment in applying his version of game-based coaching. This flexi-bility and personal adaptation of the approach are why his practice has been labelled as 'Teeing up Games for Understanding' (TUGfU) rather than being classified under a more established model like TGfU.

Conclusion

David's perception and application of a GBA suggests he is applying a combination of 'tacit craft knowledge' (Day et al., 2024, p. 2) and 'phronesis' (Standal & Hemmestad, 2010, p. 52) in delivering his own version of a GBA (i.e. TUGfU). We do not propose that TUGfU should be categorised as another GBA; rather, by providing the first known account of how a golf coach perceives and applies the pedagogy, we aim to fill a gap in the literature and encourage golf coaches to

enhance their GBA practice. Furthermore, we hope this study provides the impetus for further research examining target sport coaches' experiences of the pedagogy.

The narrative illustrates how past experiences (e.g. PGA qualification, Kendal McWade's Instinctive Golf© concept) shaped David's assumptions about learning and coaching, ultimately leading to his decision to transition his practice towards a GBA. While David was found to apply pedagogic principles affiliated to a GBA (e.g. modified games, manipulation of practice conditions to support game understanding and skill learning), some critical elements considered fundamental to the pedagogy (e.g. questioning) were less evident (González-Víllora et al., 2021). The findings, however, suggested a learner-centred approach was adopted, as David was prepared to be flexible with his planning and had the pedagogical and content knowledge to deliver game-based practices applicable to the learners' needs.

Although technical skills were the primary focus of most practices, David integrated tactical concepts through modified games. He employed a cluster of pedagogic strategies to facilitate learning (e.g. manipulating practice conditions and external feedback). His use of technology (i.e. Coach Now© app) further promoted independent practice. For David, the joy of a GBA was observing his learners actively engaged and enjoying their coaching practice. His confidence in applying his 'tacit craft knowledge' (Day et al., 2024, p. 2) and 'phronesis' (Standal & Hemmestad, 2010, p. 52) likely contributed to his ability to create a GBA (i.e. TUGfU) that was effective for both him and his learners.

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Disclosure statement

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