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Developing the Triad of Knowledge in Coaching: Think Aloud as a Reflective Tool within a Category 1 Football Academy

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Developing the Triad of Knowledge in Coaching:

Think Aloud as a Reflective Tool within a Category 1 Football Academy

Date of Submission: 25/11/2020

Date of acceptance: 15/05/2021
Abstract

The current study aimed to explore the perceptions of football academy coaches on their use of a novel reflective tool (Think Aloud) and to understand if this can support the development of knowledge within coaches. Eight male coaches (M age = 36) employed full time at a Category 1 football academy within the United Kingdom took part. All coaches attended a 2-hour workshop on the use of Think Aloud (TA) as a reflective tool, with the opportunity to practice TA whilst coaching. Participants were interviewed on their perceptions of TA as a reflective tool using a semi-structured approach. Data were analysed abductively, which allowed the generation of initial codes and the involvement of the triad of knowledge (professional, interpersonal, and intrapersonal knowledge), which has been adopted within coaching and identified as an approach to developing coaching expertise (Côté & Gilbert, 2009), within the analysis process. Findings suggest all three types of knowledge can be developed through the use of TA, with sub-themes identified within each type of knowledge: professional knowledge (player and coach development, session design); interpersonal knowledge (communication, relationships); intrapersonal knowledge (biases, self-awareness, reflection). This research offers a novel perspective on coach development through the implementation of TA, with potential to support the development of coaching knowledge and expertise.

Key words: Reflection, Football, Think Aloud, Knowledge, Education
Introduction

Coaching effectiveness and the development of knowledge within this discipline is a growing area of research (e.g., Côté & Gilbert, 2009; Downham & Cushion, 2020). One definition of coaching effectiveness is “The consistent application of integrated professional, interpersonal, and intrapersonal knowledge to improve athletes’ competence, confidence, connection, and character in specific coaching contexts” (Côté & Gilbert, 2009, p. 316).

Within a coaching context, knowledge can be classified in terms of: professional knowledge (i.e., knowledge of one’s sport and how to apply this knowledge (e.g., technical, tactical, and pedagogical knowledge)); interpersonal knowledge (i.e., a coach’s ability to connect and communicate with athletes and stakeholders); and intrapersonal knowledge (i.e., self-awareness and introspection; Trudel & Gilbert, 2013). These three types of knowledge have been referred to within the teaching literature as the triad of knowledge to promote professional expertise (Collinson, 1996). More recently, the triad of knowledge has been adopted within coaching (Côté & Gilbert, 2009) and was identified as the first component necessary for developing coaching effectiveness and expertise. The second component encompasses athlete outcomes (competence, confidence, connection, character), and the third component places importance on understanding the different levels of coaching (e.g., recreational, youth development, high performance) and the appropriate strategies for each level (Côté & Gilbert, 2009). Therefore, although the development of coaching knowledge is not the only element needed to develop an expert coach, it can be regarded as an integral element in the process.

Development of professional knowledge is often emphasised over other types of coaching knowledge. Lefebvre et al. (2016) found that the majority of the 285 coach development programmes identified in a recent systematic review focused on professional knowledge. Only 18 of these programmes focused on interpersonal knowledge, and just six
focused on intrapersonal knowledge. Despite this, professional, interpersonal, and intrapersonal knowledge have been used recently in numerous coach education interventions (e.g., Berntsen & Kristiansen, 2019) and have supported the development of frameworks such as the International Sport Coaching Framework (ICCE, 2013) and the European Sport Coaching Framework (ESCF; Lara-Bercial et al., 2017). Indeed, the ESCF states that intrapersonal knowledge can be developed through “knowledge of the self and personal philosophy based on experience, self-awareness and reflection” (Lara-Bercial et al., 2017, p. 32). Further, the ESCF highlights that coaching competencies are underpinned by knowledge and reflection. In turn, this underlines the importance of reflective practice, which itself can help to develop the triad of knowledge (Irwin et al., 2004).

Within sport, reflective practice has been defined as, “a purposeful and complex process that facilitates the examination of experience by questioning the whole self and our agency within the context of practice. This examination transforms experience into learning, which helps us to access, make sense of and develop our knowledge-in-action in order to better understand and/or improve practice and the situation in which it occurs” (Knowles et al., 2014, p. 10). Reflection can be in-action, whereby the individual is thinking on their feet and reflecting *during* moments of applied practice, or on-action, where an individual retrospectively reflects on events *after* they have already occurred (Schön, 1987).

Research investigating the use of reflection for the development of coaching knowledge has explored various strategies for reflective practice, such as reflective journals (Koh et al., 2015); reflective cards (Winfield et al., 2013; Rodrigue & Trudel, 2018); and meditation (Longshore & Sachs, 2015). A common feature of these methods, however, is that they all encourage reflection-on-action. Further, educational interventions on reflective practice taught as part of coaching courses typically focus on retrospective methods of reflection, such as reflective journaling after the event, as opposed to reflection-in-action,
which occurs during the event (Gilbourne et al., 2013). Retrospective reports through reflection-on-action have been criticised for their accuracy due to memory decay (Ericsson & Simon, 1993), distortion of knowledge about the success of resolving stressful events (Brown & Harris, 1978), and personal biases that can distort retrospective reports based on perceived success or failure (Bahrick et al., 1996). Moreover, the memories people remember after an event may differ from their experience during the event (Miron-Shatz et al., 2009). That is, the remembering self is fallible and will not retain all information from an event (e.g., a coaching session or match). Instead, what is felt at the end of an event and critical moments will be recalled. This poses an issue for reflection-on-action and creates a case for the introduction of in-action reflective tools.

Some drawbacks of reflection-on-action have been mitigated by methods that support coaches to reflect in-action. Although coaches find workshops promoting reflection-on-action to be useful at the time, learning is not necessarily transferred into coaches’ practice (Knowles et al., 2006). Transfer of knowledge is an important consideration for coach education as Partington and Cushion (2013) demonstrated that coaches’ understanding of their profession does not always translate into practice. Together, this evidence suggests that although coaches strive to implement certain coaching behaviours and knowledge in applied practice, some often continue to coach in their traditional manner. However, if coaches can reflect in action, they can change behaviour in-situ and the transfer gap between traditional coach education and practice is lessened. Subsequently, this can develop their expertise.

One approach that can facilitate reflection-in-action is Think Aloud (TA). TA has been used within sport psychology research to understand cognitions in golf (Whitehead et al., 2015), tennis (Swettenham et al., 2020), and cycling (Whitehead et al., 2018). Of direct relevance to the coaching context, recent research has introduced the use of TA as a reflective development tool in coaches (Whitehead et al., 2016). During TA, participants verbalise their
thoughts throughout the task (Ericsson & Simon, 1980), most commonly wearing a dictaphone and a microphone whilst in their performance or coaching context. This allows for data on real-time cognitive processes and decision-making to be collected and is an effective way to overcome memory decay issues associated with retrospective methods, such as interviewing or reflection-on-action. Ericsson and Simon (1993) distinguished three levels of verbalisations within TA, each of which involve varying degrees of cognitive processing required to produce vocalisation. In Level 1 verbalisation, the individual is required to make no effort to communicate their thoughts as they are simply vocalising their inner speech. Level 2 verbalisation requires the individual to verbally encode and vocalise their internal representations not originally in verbal code. For example, the verbal encoding of sights and smells would be included in Level 2 verbalisation. This encoding involves additional processing but does not bring new information into the person’s focus of attention (Hertzum et al., 2009). Finally, Level 3 verbalisation requires the individual to explain their thoughts, ideas, hypotheses, or motives. Level 3 has been criticised for potentially impacting performance, although this has recently been challenged (Whitehead et al., 2015). As Level 3 verbalisation require the individual to hypothesise and explain their thoughts, this leads to the retrieval of information from long-term memory, which in turn may disrupt the natural process. However, within coaching and reflection, Level 3 verbalisation is purposefully used to cause such ‘disruptions’, as this is what can help coaches to raise awareness of their thoughts as they occur (Whitehead et al., 2016).

Whitehead et al. (2016) used TA to overcome issues of memory decay and bias within traditional reflective practice methods in the context of coach development. TA could, therefore, be an asset when developing adaptive expertise in coaching by building knowledge through reflection-in-action. Recent research on developing reflective practice in coaching has focused on Level 3 verbalisation (Stephenson et al., 2020; Whitehead et al., 2016), which
could lead to meta-cognition (i.e., thinking about thinking). Both recent studies that explored the use of TA as a reflective tool with rugby league and football coaches found similar perceived benefits amongst coaches (Stephenson et al., 2020; Whitehead et al., 2016). These perceived benefits include an increased awareness, communication, and pedagogy, which all represent different aspects within the triad of knowledge (intrapersonal, interpersonal, and professional knowledge respectively). Although Whitehead et al. (2016) and Stephenson et al. (2020) reported perceived coach development through the use of TA, with tentative links to the triad of knowledge, the explicit development of specific coaching knowledge using TA as a reflection tool has yet to be explored.

**Research Purpose**

The aim of this study was to provide evidence of how TA can be used as a tool to support reflection-in-action in football coaches and how reflection-in-action can develop the triad of knowledge within these coaches. Given that football is one of the most popular sports in the world (Krstrup & Krstrup, 2018), it is hoped that the findings from this study will resonate with coaches on an international scale. Stephenson et al. (2020) reported experiences of one, young, football coach, coaching a national (nonprofessional) league classed at an adult recreational level. This research must be expanded to explore how the application of TA for reflective practice can be beneficial more broadly within football. Further, demands in elite youth sport are high and come with unpredictable changes during adolescence, which can impact mental wellbeing (Ong et al., 2018). Youth sport is a critical phase for young athletes to develop the multitude of skills required for elite sport. The failure to cultivate these skills being a reason why some elite youth athletes do not reach a career in professional sport (Menting et al., 2019). There is therefore a need for coaches within academy settings to reflect upon their practice effectively to best support the development of youth footballers and increase their chances of long-term success. By implementing TA programmes, akin to
that delivered to rugby coaches by Whitehead et al. (2016), coaches could develop the triad of knowledge and enhance their foundation for developing coaching expertise and effectiveness.

**Methods**

**Philosophical Assumptions**

This study was guided by ontological realism (there is a single reality independent of human minds) and epistemological constructivism (knowledge is only partial and fallible), which together positioned this work within the realm of critical realism (Bhaskar, 2008; Ronkainen & Wiltshire, 2019). As such, we recognise the complexity of the social world, with knowledge of the world being socially constructed and, therefore, independent to the existence of the world itself (Ronkainen & Wiltshire, 2019). From a critical realist perspective, theory can be applied to make sense of socially constructed knowledge, although this philosophical position recognises that the objects the theory refers to have an existence beyond the interpretations of the researchers (Westhorp, 2018). Therefore, we have adopted this philosophical position as we believe there is a reality to be found regarding our research questions, but the knowledge within this reality is subjectively and socially constructed by the individuals that experience it.

**Participants**

Eight male football coaches ($M$ age = 36) with an average of 15 years of coaching took part in this study. All coaches were employed full time at a Category 1 football academy, the highest status of academy in English professional football, which works in line with the Elite Player Performance Plan (EPPP; Premier League, 2011). For the benefit of non-UK readers, the EPPP supports English youth development football, with the aim of creating a world leading academy system to increase the number and quality of home-grown players. Categories are awarded, from Category 1 to Category 4, through independent
assessment on 10 factors including productivity rates, training facilities, coaching, education and welfare provisions. Participants were recruited through opportunity sampling (Jupp, 2006) and provided consent prior to data collection. Institutional ethical approval was granted prior to the start of data collection.

**Procedure**

*Think Aloud Training*

Participants attended a two-hour coach reflection workshop designed to provide an introduction to TA. The workshop included: education on what TA is and how it had been previously used within coaching; first-hand accounts from coaches with experience using TA as a reflective tool; examples of TA reflective audio from coaches; the opportunity to practice TA whilst watching a video of a coaching session, and the opportunity to practice TA whilst coaching, with their coaching colleagues taking the role of the football players. During the educational session, the coaches were presented with research outlining that what people remember after an event may be different to how they experience the event (Miron-Shatz et al., 2009). The following information was provided to the coaches in an educational format: the remembering self will not retain all information from a coaching session or match; what happens at the end, and critical moments will be recalled; this means reflecting after the event may not be accurate; and TA can be used to mitigate these issues. The practicalities of using TA were then introduced, with examples of previous research, the development of TA reflective frameworks, and the potential impact this may have on coaching also outlined (e.g., communication, self-awareness, pedagogy; Stephenson et al., 2020; Whitehead et al., 2016).

*Interviews*

Two months after the workshop, follow-up interviews were organised with eight of the coaches individually. Three of the eight coaches had used TA within their coaching sessions prior to the follow-up interviews. While this low number was partially due to
COVID-19 lockdown restrictions within the UK at the time of the study, all coaches had experience practicing TA within the workshop. Interviews were conducted by the lead researcher via Zoom™ online video conferencing. A semi-structured interview guide (available upon request) was created. This was used to discuss participant’s initial perceptions of TA, and how they felt it could (or has already) benefitted them and their coaching team.

**Analysis**

Interviews, totalling 287 minutes (\(M = 34.7 \) minutes), were transcribed verbatim into 110 pages of data. This data was then analysed in NVivo qualitative analysis software using Braun and Clarke’s (2019) reflexive thematic analysis, meaning the researchers engaged in a “reflective and thoughtful process” (Braun & Clarke, 2019, p. 594) together when analysing the data. Moreover, the researchers took into account assumptions held by the current research to create a conscious and reflexive use of the approach and its procedures. Data were analysed abductively, themes were initially identified, and then the triad of knowledge was introduced. The final themes and sub-themes themes can be seen in Table 1.

**Table 1**

*Themes and sub-themes generated from coach interviews*

<table>
<thead>
<tr>
<th>Themes (The Triad of Knowledge)</th>
<th>Sub-Themes</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional Knowledge</td>
<td>Player and Coach Development</td>
<td>The impact of TA in supporting the development of players at the football academy through the development of coaching practice.</td>
</tr>
<tr>
<td></td>
<td>Session Design</td>
<td>The impact of TA on the ability to plan and adapt coaching sessions.</td>
</tr>
<tr>
<td>Interpersonal Knowledge</td>
<td>Communication</td>
<td>The impact of TA on the coach’s use of language and time spent talking during coaching sessions.</td>
</tr>
<tr>
<td></td>
<td>Relationships</td>
<td>The impact of TA on developing coaching relationships through sharing and discussing TA recordings.</td>
</tr>
<tr>
<td>Intrapersonal Knowledge</td>
<td>Biases</td>
<td>The impact of TA on the coach’s personal biases relating to perceptions</td>
</tr>
</tbody>
</table>
DEVELOPING THE TRIAD OF KNOWLEDGE IN COACHING

| Self-awareness | of player ability and quality of coaching sessions or matches. The impact of TA on the coach’s consciousness of their own character, thoughts, feelings, and behaviours. |
| Reflection | The impact of TA on the coach’s conscious analysis of their coaching experience leading to a change in coaching behaviour. |

Data were analysed by the lead researcher who was working at the football academy in question at the time of the research. To reduce any biases due to this, the second researcher acted as a critical friend (Smith & McGannon, 2018) and supported the reflexive thematic analysis process (Braun & Clarke, 2019). In step 1 of the reflexive thematic analysis, the research team familiarised themselves with the data; in step 2, 109 preliminary codes were generated in accordance with the research questions. At this point, initial codes were reviewed as a team and considered. This collaborative coding allows a “dialogic exchange of ideas” that support interrogation and discussion from multiple perspectives (Saldana, 2013, p. 34). In step 3, the triad of knowledge was introduced and the lead researcher searched for themes relating to the different types of knowledge across interview data, such as ‘Communication’, ‘Session Design’, and ‘Biases’. In step 4, the themes were reviewed by author one and author two. When reviewing the themes, the authors recognised it was difficult to separate the initial themes of ‘Coach Development’ and ‘Player Development’ as ultimately the development of the coach leads to the development of the player, and so we decided to condense both themes into ‘Player and Coach Development’. Additionally, this clarified what data would fit within the theme of ‘Communication’ as previously it was difficult to separate from ‘Coach Development’. Once the final themes were decided upon in step 5, interview transcriptions were reanalysed in depth for these themes.

Quality Standards and Trustworthiness
The term trustworthiness is used by qualitative researchers to describe the steps taken to improve the quality of their work (Sparkes & Smith, 2014). During the data analysis process, collaborative coding was conducted to help encourage critical reflexivity (Braun & Clarke, 2019). In addition, to facilitate critical dialogue during the analysis, the first and second author engaged in peer debriefing through formal meetings (Creswell & Miller, 2000). Specifically, the authors met to discuss and debate which codes linked to which types of knowledge. Further, some difficulties arose when themes overlapped each other for certain quotes, such as communication being viable as interpersonal knowledge and professional knowledge. Due to this, it is important to note the analysis involved a constant moving back and forth or as Braun and Clarke (2019) call it ‘a continual bending back on oneself’ (p.594), where the theory was used to make sense of the data, and critical reflections between members of the research team occurred.

Results

Interviews were analysed thematically for elements within the triad of knowledge (professional, interpersonal, and intrapersonal knowledge) that coaches perceived to have the potential to be developed through TA. The following section presents each theme and sub-themes (italicised), whilst also providing quotes from coaches to illuminate how knowledge within these areas was perceived to be developed through the use of TA. All eight coaches will be referred to hereafter by a pseudonym to protect their identity. Within the results, they will be identified as academy coach one (AC1) through to academy coach eight (AC8).

Professional Knowledge

Within the theme of professional knowledge (e.g., technical, tactical, and pedagogical knowledge), two sub-themes were generated to represent areas the coaches perceived TA to impact: player and coach development and session design.

Player and Coach Development
Player and coach development referred to supporting the development of players at the football academy through the development of coaching practices. AC3 spoke about shifting focus away from coaching behaviours and onto the behaviours of the players through the use of TA. This could allow the coaches to better understand the players’ responses to certain aspects of the game, such as reactions to mistakes:

I’d used it [TA] at the player-led festival…Then observe behaviours and look at it from a “what do they react like when they’re winning, what do they react like when they’re losing, what do they do in terms of their body language when the game’s tight or it’s quite physical?” and we just stepped back and observed it from that point of view and I had the microphone and I was just looking at a few people’s reactions to certain mistakes when a centre forward missed a shot, goalkeeper made a bad pass or he let one in. (AC3)

For AC7, they recognised the importance of understanding their own thoughts about individual players and how that impacted on player development, “you can kind of get your thoughts on how a certain individual is doing within a session as well and what you think could be improved.” (AC7)

AC1 spoke about how integral coaching skills, such as listening and time spent talking, can be identified using TA. This could, in turn, lead to changes from the coach, such as time spent talking, as they pick up behavioural cues from the players:

When you’re watching somebody else coach you’re looking at when they’re coaching and the impact on the players and are they actually listening and a lot of the time you’re watching and you observe that they’re just waiting for them to finish and they want them to shut up and move on. (AC1)

Overall, coaches perceived that player and coach development was supported through the use of TA as it could provide them with a greater understanding of the players and themselves.
The coaches felt this could allow them to improve the feedback and support they provide the players. Moreover, by using TA, the frequency and impact of coaching behaviours (e.g., use of silence, challenge vs support) could be explored and adjusted according to the players’ needs.

**Session Design**

Session design refers to the ability to plan and adapt coaching sessions. AC6 and AC8 spoke about how TA can allow coaches to remember the positive aspects of the session design rather than just focusing on the negative aspects. This is where methods of retrospective reflection may suffer due to memory decay, rather than only remembering the drills that stood out, or simply carried out at the end of a coaching session:

> It [TA] helps you to remember a lot more of the session so you can evaluate the whole thing. So I might remember the really, really poor drill that I did, you know and focus on that where actually the other three drills that I did were actually quite good, but I’m only focussing on the poor one, or vice versa, I might remember the really good one where the players did really well at it and I did some really good coaching for them and they got it, but then I might forget actually the end match, the 4 v 4, 5 v 5 at the end was quite poor but I forget about that. So I think the impact of it [TA] helps to remember what you’ve done, a lot more of what you’ve done as you can play it back.

(AC6)

Similarly, AC8 explained how TA could encourage him to reflect on the positive elements of a coaching session:

> I think the good stuff [elements of the coaching session] as well, so when the good stuff’s happening it will all be recorded “that’s great, this is working really well, he’s responded to that, this session works really well, move that out of there ‘cause I had a problem and that’s worked really well”. (AC8)
AC8 also discussed how TA could make coaches better through analysis of the effectiveness of the session design and emotions the coach may experience based on the outcome of the session. This can lead to adapting the session based on reflections-in-action to increase coaching effectiveness:

It [TA] will make them [the coaches] better, it will make them more, erm, more thoughtful in terms of the preparation, things may have been exposed in a previous session in terms of how they’ve felt about a certain thing. So if it was like, I don’t know, area size too small… that will be a priority in their mind and in their planning where they’ve felt “shit, I was panicking, this is a nightmare, it’s not working” rather than they’ll just think “leave it smaller” and then that’s it and move on to the next part of the session and the next bit when they reflect and think “I was starting to get a bit anxious, I knew it was my time to take the 16 players and the lead coach was watching me and my work was too small. Do I make it bigger now, do I change the pattern, do I put some on the outside or do I run with it?” (AC8)

TA was perceived to support session design in that it can help coaches to develop a more balanced view of their sessions. Meaning they can take in the positives as well as the negatives, whilst exploring the various emotions they may experience when coaching.

**Interpersonal Knowledge**

Within the theme of interpersonal knowledge, two sub-themes were generated which captured areas where the coaches perceived TA to have impact: communication and relationships.

**Communication**

*Communication* represented the coaches use of language and time spent talking during coaching sessions. Coaches discussed multiple facets of communication and perceived TA to be beneficial for developing an awareness and understanding of effective
communication. AC2 discussed how the use of TA and reflecting-in-action could help them to reflect on the clarity of their language during coaching and understanding from the players:

I’ve done it [TA] to myself on my own, okay, ‘so, has [player name] listened to me? Has my instruction been clear enough when I’ve said to him “be creative, do whatever skill you want and have a shot on the goal at the end”? Did I say that, was it clear enough? Did I talk too much? Was I commentating? You know, am I talking too fast? Am I talking too high? Am I talking too low? That type of stuff really. (AC2)

Likewise, coaches explained that using TA could positively impact how much coaches spoke during sessions to keep the momentum and intensity of the session going:

My first thoughts were that this tool could massively manage and maybe curb how much people talk as I think I see way too much of that. (AC1)

I think sometimes you, you not “over coach” but you kinda speak for the sake of it, in terms of trying to keep the session flowing and maybe commentating at times to try and keep the tempo referring and the intensity and the motivation for the players. (AC7)

AC3 discussed utilising a great amount of positive communication during coaching and believed that using TA could help them to build more balance into their feedback, whilst also recognising when remaining silent might be more impactful:

Commenting on, what’s your language like, what’s your tone like, are you overly critical on players, are you too positive? That’s the thing that sometimes I struggle with, I think I’m too positive at certain times, so that’s something I’m quite conscious of, trying to really balance praise and actually not saying anything sometimes to have a bit more power and impact on when I do say something. I think that can, that can help by using think aloud. (AC3)
Coaches perceived TA could support communication by increasing their awareness and understanding of effective communication. This includes aspects of communication such as clarity, tone, amount of time spent talking, use of silence, and effective questioning.

**Relationships**

Relationships refers to developing coaching relationships through sharing and discussing TA recordings. AC8 discussed the relationships coaches could build together through sharing their TA audio: “You’re building relationships as well aren’t you ‘cause you’re getting a bit more insight into how they’re [other coaches] thinking” (AC8). AC5 mentioned how hearing a coaching colleague’s feedback on their TA audio would help them to understand each other’s thought processes. This could lead to better coaching relationships, and a more cohesive coaching delivery: “If I work with [a coach colleague] as such, if I listen to his feedback “oh what’s his sort of thinking, thought process?” (AC5). AC6 reported similar interactions with their coach mentor, with the ability to share his thought processes from his coaching session leading to a better understanding from the coach mentor. Though not expressed in the interviews, this could lead to stronger relationships due to an uncensored sharing of thought processes:

I think it would help him [coach mentor] as well to understand what we’re thinking because I must admit when I was sat with [coach mentor], he was watching the match and he was providing feedback on me but then if I can, I could say to [coach name], for example, I was just trying to do that but if I find that he’s recording it as well then he’s got the evidence to say “oh [coach name] was thinking that at the time”. (AC6)

AC8 mentioned that to have a greater insight into what other coaches are thinking by using TA would provide him with a better understanding of other coaches’ self-awareness and decision making in action. Though not explicitly verbalised, having a greater understanding
of other coaches’ levels of self-awareness and behaviours could support the growth of relationships:

I would have loved to have known what was going through his mind. I asked him, I asked him obviously when we went through it but like I said “I thought [coach name] was maybe gonna do that” or I thought in the moment I know he probably wasn’t thinking that, he was just sort of probably thinking about his session or not even being self-aware that maybe things were taking as long as maybe they were. (AC8)

*Relationships* were perceived to be enhanced through the use of TA. Coaches felt that sharing their TA audio could help to build relationships and an understanding of one another’s thoughts. Further, sharing their TA audio with their coach mentor could promote a better shared understanding of their coaching behaviours and decision-making. This could support the growth of coaching relationships through an uncensored sharing of thoughts.

**Intrapersonal Knowledge**

Within the theme of intrapersonal knowledge, three sub-themes were generated which captured areas of interpersonal knowledge that the coaches perceived TA to impact: *biases*, *self-awareness*, and *reflection*.

**Biases**

*Biases* refer to coaches’ personal biases relating to perceptions of player ability and quality of coaching sessions or matches. It was discussed the use of TA could increase awareness of personal biases, allowing coaches to understand what this may look like for them whilst coaching and provide them with a more accurate representation of their coaching experience. AC1 discussed the ability to separate themselves from their emotion after a match to reduce biases, which may occur due to the result:

I suppose it’s [TA] that trying to remove as much emotion from the event as possible isn’t it? Erm, a large part of our job is writing reviews on players. So we’ll do linked
reviews on players every week and speak about their performances in the game and I
often find that some weeks, some weeks I haven’t watched the game back and I’ve
written the review and then I watch the game back and then maybe later on that day or
the next day and then my review would be completely different if I was to write it
again based on what I’ve just watched back. (AC1)

For AC5 and AC3, using TA was perceived as beneficial to recognise individual coach biases
towards players. This recognition could allow coaches to overcome player biases, preventing
them from becoming negative or inappropriate, and hindering the players’ development:

Initially when I’m talking about players and certain players and we all have, I do it
myself, we all have biases, there’s always, there’s a couple of players whether it’s in
the group that you’re working with or groups that you kind of, you see boys in those
groups and it’s something on, yeah, sometimes you’re quite negative in a way
[towards the players] that is probably inappropriate. (AC3)

I think sometimes your biases will come out a bit more in your conversations and then
when you listen back to it you think “okay, maybe I do think I am a bit too supportive
of them, maybe I should have come down on him in that situation”. I think that would
be really good, really good to practice that a bit more. (AC5)

Coaches perceived TA to increase awareness of personal *biases*, especially those that occur
depending on the result of a match, which may impact a coach’s view of a player. By
recognising biases towards individual players, coaches felt it could help them to recognise
negative or positive behaviours towards these players and adjust them accordingly.

**Self-Awareness**

_Self-awareness_ refers to the coaches’ consciousness of their own character, thoughts,
feelings, and behaviours. AC6 discussed how TA impacted their ability to recognise patterns
of behaviours and to pinpoint areas that may need improvement in their coaching practice:
Another impact I would say was to, it would help you long term, so if you can do it obviously more than once and do it quite often you might tend to get a pattern of what I do as a coach so I can see I did it on that week and I did it on that week as well where I didn’t question him, I didn’t provide any positive feedback to him... If you get that pattern you can change it can’t you, if it’s in front of you. (AC6)

AC2 touched on the importance of finding a personal balance to ensure they bring their best selves to work. To do this requires a level of self-awareness and self-analysis to be more effective at work and understand their impact upon other people. AC2 suggested this could be developed by listening back to themselves, which could be facilitated through TA and provide coaches with a more objective view on their coaching practice:

The more I listen to myself, I’ll kind of be able to, to, er, distinguish and identify how, am I thinking aloud there or am I commentating? Am I, you know, just saying what I’m seeing or am I looking back objectively and giving an objective viewpoint on the practice, the coach, my communication or is it subjective and getting affected by, er, you know, emotions or who I’m talking to or how I’m feeling that day, you know… So probably how I’m feeling as an individual, you know, what’s my night’s sleep been like, what’s my food been like? (AC2)

AC4 perceived TA to have the potential to improve awareness of language used within coaching practice and to notice if language changes due to the pressure of competition:

Does it become more demanding in a game and used, more assertive would be the word, more assertive language because of the game or are you more, are you quite the same? ’Cause really you should be the same. (AC4)

AC8 spoke about how TA could be used to provide the coach with feedback in-action to allow coaches to regulate their emotions and use of language in matches through “in game development”: 
Really interesting to record think aloud during a game ‘cause I think you’d get a real shift on emotion based on the context of what’s happening on the pitch. For them to hear that back, they’ll have an idea ‘cause they’ll think “ah yeah, I was really annoyed at that” but if they’re constantly talking and giving some feedback to themselves on what they’re thinking, what they’re seeing, play that back over the year and I think for in-game development it could be really, really good, really good. (AC8)

As such, TA was perceived to develop self-awareness by helping the coaches to understand their patterns of behaviour and how these may impact their coaching. Coaches felt awareness of language use and how this may change in different contexts (e.g., competition versus training) could be developed. Further, they perceived that this awareness could support their in-game development and regulation of emotions.

Reflection

Reflection referred to how a coach’s conscious analysis of their coaching experience could lead to a change in coaching behaviour. Here, coaches discussed the benefits of TA as a reflective tool and the ability to reflect-on-action by listening back to the TA audio. Coaches explained how they would question themselves when listening back to a TA audio recording:

So I think, for me, when I listen back to it and I’ll be asking myself “would I have questioned that there, would I have said it like that?”. So, I think there’ll be a lot [that] comes out of it [TA]… It would be interesting to look at games in sessions, so whether they differ from how people behave. (AC4)

AC8 spoke about how reflecting using TA influenced the planning and preparation of future coaching sessions and could be employed to help them overcome any issues that arose during reflection-in-action using TA:

Then afterwards that would be a key thing to reflect on and think “right, I could have done that, I should have done that, I did do that, it worked, it didn’t but then straight
away in terms of the planning and prep that’s a few things for them to think about, how this is gonna fit to get the benefits of what I want in a session”. (AC8)

AC1 felt TA was a novel reflective tool compared to other methods taught on coach education courses and emphasised that “how” you reflect can have an important impact on coaching practice:

I think it’s pretty interesting stuff ‘cause it’s quite different to most of the usual stuff you do on your, on your coach ed stuff. I’ve not really seen people go into real depth about how you reflect and stuff like that. It’s very much they tell you to reflect but I end up writing a load of rubbish on a page that I’m never gonna look at again so it’s, so it’s how you reflect to make an actual impact on what you’re doing. (AC1)

Reflection was perceived by the coaches to be developed through TA, as it provides them with a novel way to reflect-in-action as well as reflecting whilst listening back to their TA audio recordings. Coaches discussed how they would question themselves whilst listening back to their TA audio recordings. This could then support their planning for future sessions, helping them to overcome barriers and maintain the positive aspects of their coaching.

Discussion

This study aimed to explore the perceptions of football academy coaches on the impact of TA as a reflective tool and explored whether TA can be used to develop the triad of knowledge within football academy coaches. During the analysis process, the triad of knowledge (professional knowledge, interpersonal knowledge, and intrapersonal knowledge) was evident within the data. In turn, the current findings offer an insight into how reflective practice, using TA, could develop a foundation of coaching knowledge to cultivate expertise within academy football coaches.

From the findings, we suggest that all three types of knowledge could be developed through TA. Coaches discussed how professional knowledge could be developed using TA as
the process of reflecting-in-action can support player and coach development, as well as session design. This continues from previous TA research that suggests pedagogy, a type of professional knowledge, was developed following the use of TA (Stephenson et al., 2020; Whitehead et al., 2016). Further, participants expressed how a shift in focus from coaching behaviours onto the behaviours of players could occur. By having a greater understanding and awareness of player behaviours, enhanced individualised player support and feedback could occur. Individualised support is an important consideration within youth football, with many factors perceived to impact talent development (e.g., resilience, goal-directed attributes, sport-specific attributes, awareness; Mills et al., 2012). With the potential to increase awareness of player attributes and needs through the use of TA, coaches could adapt their coaching to best support the person in front of them. In line with previous TA research exploring reflective development of coaches (Whitehead et al., 2016; Stephenson et al., 2020), interview data in the current study suggests the TA process could heighten the coach’s self-awareness. Specifically, awareness as to whether a coach was talking excessively or providing exceeding amounts information, which has been found to reduce the clarity of verbal communication (Thelwell et al., 2017) and could negatively impact player development. This may be due to the need to be in control, or be a response to stressful experiences. Research suggests high pressure situations can lead to ineffective coaching and negatively affect athlete performance (Gould et al., 2001). Additionally, McCann (1997) reported athletes were able to recognise when their coaches were experiencing stress, which negatively impacted athlete confidence. Therefore, within this study, coaches reported how TA has the potential to support professional knowledge through developed coaching behaviours such as providing feedback and individualised support to aid player and coach development.
In terms of professional knowledge, the coaches identified TA to have an impact on session design by bringing awareness to the effectiveness of the session in-action, which could allow them to respond flexibly to changing conditions. With the role of an effective coach embodying adaptive expertise, they are required to perform flexibly and innovatively within coaching sessions in response to situational demands (Collins et al., 2016). This finding also reinforces previous findings reported by Whitehead et al. (2016), in rugby league, where coaches using TA as a reflective tool perceived that it aided development in coaching pedagogy as a result.

Furthermore, within professional knowledge, coaches suggested TA could allow them to remember the session more accurately. Within the interviews, one coach stated they would remember the poor drill over the successful drill. By having a more accurate representation of the coaching session by using TA in-action, coaches can prevent overlooking the successful drills that could be emphasised within their future coaching practice. As humans, we may have a negativity-bias, that means negative information can be attended to compared to positive experiences (Rozin & Royzman, 2001). Within sport, the importance of focusing on strengths has been highlighted by coaches, athletes, and parents (Gucciardi et al., 2009). This can be called a strengths-based approach, which draws on positive psychology, appreciative inquiry (AI) coaching, and strengths-based coaching (Gordon & Gucciardi, 2011). A strengths-based approach can combat negativity bias and is used within fields such as executive coaching (Gordon, 2016), elite sport (Ludlam et al., 2016), and clinical psychology (Seligman & Peterson, 2003) to achieve outcomes such as happiness and flourishing (Compton & Hoffman, 2019), increased performance (Peláez et al., 2019), and mental toughness (Gordon et al., 2017). Within AI, individuals are encouraged to focus on what works rather than what is wrong, but this has been criticised on the basis that an avoidance of negatives may distort the reality of the situation (Cram, 2010), and may be unsuitable for
neophyte coaches or during problematic coaching situations (Pill, 2015). However, this is a surface understanding of AI, as individuals do not avoid negatives when using AI but instead engage in critical reflection of failure and success (Hart et al., 2008). We can therefore see TA’s potential to reduce negativity biases and help critical reflection within coaches as they recognise the positives in their practice along with where they can develop.

Coaches perceived TA to have an impact upon interpersonal knowledge, specifically for communication with players and relationships with other coaching colleagues. TA can bring awareness to the clarity of the coaches’ communication style, such as the use of silences, asking questions, and feedback. Many coaches discussed the impact TA can have on the amount the coach talks within a session, which is noteworthy given evidence that the use of silence is the largest single behaviour elicited by professional top-level soccer coaches (Smith & Cushion, 2006). Furthermore, coaches in the current study highlighted how TA could refine the feedback they provide, for example, by not being overly positive in their feedback. It is important that positive feedback is used correctly, but positive feedback in the form of general praise can be interpreted as non-specific feedback and reduce the impact it has (Schmidt, 1991). Though research has demonstrated associations between positive feedback, feelings of relatedness, and intrinsic motivation (e.g., Hollembeak & Amorose, 2005), it is important to make sure this feedback is specific and constructive (Ntoumanis et al., 2018). Therefore, the findings illustrate how TA can raise awareness to different facets of communication and development of interpersonal knowledge. In turn, this can be reflected upon and cultivated to influence many aspects of player and coach development.

TA was perceived to influence relationships between coaching colleagues. It was discussed how the ability to share TA audio could lead to better coaching relationships and ultimately more cohesive coaching delivery for coaches working with the same team. This links to social learning initiatives, such as the community of practice approach. Here,
research has found that coaches value the ability to connect with other coaches and focus on the processes of coaching (Bertram et al., 2016), learn through engaging in a community of practice (Culver & Trudel, 2006), and share their own knowledge within the community of practice (Culver et al., 2009). Additionally, the influence of support from coaching peers has been shown to be an important factor for the development of coaches through non-formal learning situations (e.g., conferences and seminars) and informal learning situations (e.g., interactions with peers; Camiré et al., 2014). As such, TA reflections could be even more powerful when shared amongst peers to encourage a community of practice, whilst also having the potential to improve interpersonal relationships.

For intrapersonal knowledge, perceived benefits identified by coaches included the awareness of personal biases, self-awareness, and reflective practice. Coaches perceived that TA brought more awareness towards personal biases present within the coaching environment, for example biases towards certain groups of players or individuals, which may have a negative impact on the support provided to those players by the coach. It could be argued that recognition of biases is particularly important within academy coaching where the focus is on development of the player and not just the results that are produced. Additionally, some coaches discussed how they became more aware of overly supporting players and how TA as a reflective tool could identify biases within the coach’s personal behavioural style. Recognition of these behaviours is important, as the development of positive athlete attitude, motivation, and behaviour stem from the behaviours of the coach, such as a clear vision and balance of support and challenge (Arthur et al., 2012). Within this study, self-awareness included the ability to recognise patterns of behaviours in coaching practice and the ability to change or maintain these patterns of behaviours based on their effectiveness. Research shows the importance of using reflective practice to change behaviours (Gilbert & Cote, 2013) and is an integral component in shaping coaching behaviours (Cushion, 2016).
Under intrapersonal knowledge, self-awareness of the use of language was identified as an important factor of coaching practice that TA could influence. This is consistent with previous research that reported self-awareness as a perceived benefit of reflective TA in coaching (Stephenson et al., 2020; Whitehead et al., 2016). Additionally, coaches expressed that TA could bring awareness to consistent language and feedback within training and competition. Previous work has shown a shift in coach language can occur due to the outcome of a match, where during winning bouts in boxing, coaches used less controlling and internal feedback, and more positive feedback compared to losing bouts (Halperin et al., 2016). Self-awareness of personal needs and work-life balance was also discussed by the coaches, with the more they listen to themselves potentially influencing their self-awareness across other domains such as self-care and work within the coaching office. Self-awareness has been shown to predict coaching efficacy and could bring more awareness towards coach needs in terms of self-care to reduce coach burnout, a topic growing in research (Hassmén et al., 2019).

Finally, reflection was discussed within intrapersonal knowledge as a process that TA could support. The coaches expressed how they could listen back and reflect on their TA audio by asking themselves questions about coach and player behaviours, use of language, ability to adapt, what was successful, and what was not successful. Furthermore, reflection on their TA audio could influence their planning and preparation for future coaching sessions, a complex practice involving many variables (Denison, 2010), and change or maintain any aspects of their coaching identified as ineffective or effective. The coaches also emphasised the importance of how one reflects and the unique qualities of TA as a reflective practice tool, such as speaking their thoughts out loud in-action providing the option to listen back to reflections which other reflective tools, such as Gibbs’ Reflective Cycle (Gibbs, 1988), do not provide. Therefore, the findings suggest that the use of TA as a novel reflective tool can
enhance intrapersonal knowledge through awareness of one’s own thoughts, emotions, and biases to support coaches to become more self-aware.

**Practical Implications**

There are a number of practical implications from this study. Focusing on professional knowledge, coaches could use TA to record successful events, rather than being overridden by negativity-bias (Rozin & Royzman, 2001) or inaccuracy of the experiencing self (Miron-Shatz et al., 2009). In turn, it is conceivable that strengths could be cultivated and maintained by using TA as a reflective tool, although coaches are encouraged to find a balance between focusing on their strengths and uncovering weaknesses whilst using TA to create an accurate representation of their coaching.

Taking the interpersonal knowledge findings from this study, it could be suggested that coaches can use TA to build their awareness of different facets of communication, such as tone, time spent talking, clarity, and the use of silence with TA. Further, by working with a coaching colleague and sharing TA audio, this could help coaches to gain a better understanding of each other’s thought processes, strengths, and weaknesses whilst building coaching relationships. It was previously stated that coaches value learning opportunities, networking with peers, and sharing knowledge. However, coaches often perceive time and money as two barriers towards some of these learning situations (e.g., conferences, seminars; Camiré et al., 2014). Gilbert et al. (2009) suggested youth sport coaches need these opportunities to engage in continuing professional development, allowing them to create and share knowledge with coaching peers. TA could therefore be a tool through which to promote peer learning and development of knowledge without incurring the same costs in terms of time and money, as coaches can openly share their TA audio and reflections with one another, gain feedback, and support one another.
Finally, to support the development of intrapersonal knowledge, TA can support coaches to develop awareness of themselves and their biases. Self-awareness can be developed by identifying and cultivating positive patterns of behaviours in line with coaching philosophies. Specifically, the use of TA could allow an optimal balance of challenge and support to occur through the consideration of biases towards individual players and personal coaching style. Similar findings have been evident within previous research (Stephenson et al., 2020; Whitehead et al., 2016), but research has yet to identify the explicit benefits.

During reflective practice, coaches can use TA to recognise and regulate their own emotions and use of language through “in game development”. Within Hassmén et al. (2019), coaches discussed how an increased awareness of signals of stress and rumination helped during the burnout recovery process and prevention of future burnout. Therefore, TA used in these ways could develop intrapersonal knowledge and impact not only the effectiveness of the coach and subsequent player development, but the fulfilment and mental health of the individual as a coach and a person.

**Limitations and Future Directions**

Although this study has provided positive perceptions for the use of TA to develop knowledge with coaches, it is important to acknowledge its limitations. First, a limitation of this research is the lack of applied experience that the coaches had in terms of the use of TA. Given the current COVID-19 pandemic, data collection was disrupted. Nonetheless, this study does provide a novel insight into coaches’ initial perceptions of TA and suggest that it has potential for the development of knowledge within coaches; specifically, in Category 1 football academy coaches within the UK. Thus, future longitudinal research to explore the long-term impacts of reflective practice using TA within football coaching and across different settings (e.g., gender, age groups, location) is warranted. Second, the study only takes into account the personal views of the coaches participating and it is not known whether
the benefits perceived by the group of coaches will transpire when TA is applied within coaching practice. Therefore, future research should examine the development of these types of knowledge amongst coaches enrolled on a TA reflective practice course. For example, this could involve collecting TA data to analyse the content of verbalisations, which could, in turn, enable a more critical examination of the development of the triad of knowledge through the use of TA.

Conclusion

The current study has provided insight into how TA can be used as a novel reflective practice tool to develop the triad of knowledge within coaches at a professional football academy. In turn, the findings demonstrate how the use of TA has the potential to build a foundation of knowledge for coaches to then develop coaching expertise (Côté & Gilbert, 2009). Given the universal nature of reflection and coaching, TA has potential to have similar impacts on coaching internationally. Finally, the researchers hope that coaches, and those working alongside coaches, can explore the practical applications of TA discussed within this paper. We hope this will further coaching practice and the subsequent development of athletes.

References


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