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One youth soccer coach's maiden implementation of the Tactical Games Model

Iniciación de un joven entrenador de fútbol en la aplicación del Modelo Táctico de Juego

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Abstract. This paper utilizes a collaborative action research design to investigate one youth soccer coach's maiden implementation of the Tactical Games Model (TGM). Consequently, this study aims to add to the paucity of research regarding coaches use of Game-Centered Approaches (GCAs), in particular the TGM. The study took place over eight, one-hour coaching sessions, which were conducted with a U12 competitive (travel) soccer team. The coach, Ian, was a licensed soccer coach and an undergraduate physical education student who had previously been exposed to the TGM in his university coursework. Data were collected through observation of model benchmarks in three of the TGM sessions (2, 4 and 6), the completion of Post-Session Teaching Reflective Analyses (PTRA; Dyson, 1994) and three semi-structured interviews. Model benchmark data were analyzed descriptively while PTRA and interview data were analyzed using the Lexminacer text mining software to generate themes and concepts. Findings showed that model benchmark fidelity improved as the coach became more familiar with TGM in his coaching setting. The main concepts generated from the Leximancer analysis were: 'players', 'session', 'time', 'games', and 'physical', which suggests a major shift in coaching practice occurred in alignment with Light's (2013) four features of game-centered pedagogy. This current study makes two main contributions. First, it adds further contextual evidence of the benefits and challenges of incorporating TGM into other neophyte youth sports coaches' practice. Second, it serves as a methodological template for further investigations into the micropedagogies of youth sport coaches' practice when using GCAs such as the TGM.

Keywords: pedagogy; coaching; collaborative action research; leximancer.

Resumen. Este artículo presenta un estudio de investigación acción colaborativa en torno a la implementación del Modelo Táctico del Juego (TGM) llevada a cabo por un joven entrenador de

fútbol. En dicho contexto, este trabajo trata de contribuir a llenar el vacío en la investigación relativa al uso, por parte de los entrenadores, de los Enfoques Centrados en el Juego (*Game-Centered Approaches*) y, en particular, del TGM. El estudio se desarrolló durante ocho sesiones de entrenamiento, de una hora de duración cada una, con un equipo competitivo de fútbol[1] de la categoría U12 (12 años). El joven entrenador de fútbol titulado, Ian, había entrado en contacto con el TGM en el curso de sus estudios universitarios de Educación Física. Los datos fueron recogidos mediante la observación de los estándares (*benchmarks*) del modelo en tres de las sesiones (la 2, 4 y 6), la realización de la Sesión de Análisis Reflexivo de la Enseñanza (*Post-Session Teaching Reflective Analyses* –PTRA–; Dyson, 1994) y mediante tres entrevistas semiestructuradas. Los datos de los estándares del modelo fueron analizados descriptivamente; para los de la PTRA y los de las entrevistas se utilizó el programa *Lexminacer*, que descompone los textos y genera categorías y conceptos. Los resultados mostraron que la fidelidad a los estándares del modelo mejoró a medida que el entrenador se familiarizaba con el TGM en el contexto del entrenamiento. Los principales conceptos generados por el *Leximancer* fueron: 'jugadores', 'sesión', 'tiempo', 'juegos deportivos' y 'físico'. Esto sugiere un cambio importante en la práctica del entrenador en línea con las cuatro características de la pedagogía centrada en el juego propuestas por Light (2014). Dos son las contribuciones más importantes del presente estudio. Primero, aporta evidencias contextuales de los beneficios y retos que conlleva la aplicación del TGM por parte de los entrenadores neófitos en los deportes de jóvenes; y, segundo, puede ser útil como base metodológica de futuras investigaciones sobre las micro-pedagogías de los entrenadores de dichos deportes que utilizan Enfoques Centrados en el Juego, como el TGM.

Palabras clave: pedagogía; entrenamiento; investigación en la acción colaborativa; *leximancer*.

INTRODUCTION

Coaching practice is normally seen as being a linear, traditional approach where a progression of highly structured repetitive, technically-focused movement practices follows another (i.e., warm-up, explanation, skill practice, game play) that offer little representation to the game context (Light, 2005). In contrast, a social constructivist view of coaching considers it to be messy, complex, unpredictable and non-linear (Potrac, Jones, & Armour, 2002). Athlete-centered coaching (ACC) is reflective of this move away from a unidimensional, behavioristic notion of coaching to one that is multi-dimensional, holistic and empowering for athletes.

According to Kidman (2005), there are three main components of ACC: a) Teaching Games for Understanding (TGfU); b) questioning, and c) team culture. However, a critical aspect of ACC that has received little

[1] "*Travel soccer team*", en el original. En Estados Unidos, el adjetivo "*travel*", aplicado a un deporte, indica un nivel competitivo superior al del deporte recreativo. (Nota del traductor)

attention in the sport coaching literature is coach's use of tactical approaches such as TGfU and the Tactical Games Model (TGM) and their associated use of questioning. In contrast to traditional, linear and direct coaching approaches, sessions activities in athlete-centered game-centered approaches (GCAs) such as TGM, are designed with an appreciation of the context within which the technical and tactical skills are needed (i.e., the game). Players learn the technical and tactical aspects of the game by playing the game in a non-linear, athlete-centered format, for example, within small-sided and/or modified/conditioned versions of it that are developmentally appropriate to the learner (Harvey & Jarrett, 2014). In this sense, in GCAs such as TGM, the *what* (i.e. decision making) therefore comes before the *how* (i.e. skill execution) refuting the notion that quality game play cannot emerge until the core techniques are mastered a priori, additionally offering a way of linking techniques and tactics to promote skillful and intelligent performance (Mitchell, Oslin, and Griffin, 2006; Oslin and Mitchell, 2006). This link between tactics and technique is further enhanced in the TGM by the utilization of a game-practice-game format that Oslin and Mitchell (2006) argued 'assisted teachers [coaches] in lesson planning and instruction' (p. 629). Scholars further contend that player motivation is also increased through the coach's use of this session format (Mandigo, Holt, Anderson, and Sheppard, 2008).

In an example of the TGM game-practice-game format, the first phase of the session focuses on an initial game form that is modified to 'represent its advance form and exaggerated to present the students [players] with tactical problems' (Mitchell, Oslin & Griffin, 2006, p. 13). An example of representation and exaggeration in a game-form would be playing a small-sided (i.e., 4 vs. 4) game where the game is 'conditioned' to exaggerate a focus on switching play would to use four corner goals with players being able to score by dribbling the ball through any of these goals. As players play in this initial modified game form, they develop knowledge of the games rules through conditions that have been applied. Questioning by the coach then further develops players thinking about how to solve the tactical problems of the representative and exaggerated game form (Diaz del Cueto, Hernández-Álvarez, and Castejón, 2012). Mitchell et al. (2006) note that this questioning is a critical part of the practitioners' session planning. Through this skillful questioning and further game play practice, players begin to realize they need to be able to move into open space to be available for a pass. At this point, a formal

skills practice can be set up to help players work on critical elements of the techniques of moving into open space and passing, and the coach can explicitly draw the players' attention to the fact that these passing and movement off-the-ball skills are inextricably linked to helping solve the tactical problem stated at the beginning of the session. The session is concluded with a further game play portion to reinforce the need for the skills of passing and off-the-ball movement to be able to change the point of attack quickly and expose the defensive team.

A series of studies demonstrate that coaches have difficulties in operationalizing GCAs such as TGM (Cushion, 2013; Evans & Light, 2008; Harvey, Cushion, & Massa-Gonzalez, 2010; Pill, 2016; Roberts, 2011). To assist coaches' using GCAs such as TGM, Evans and Light (2008) therefore suggested a Collaborative Action Research (CAR) coach development model. In this model, a practitioner works alongside a GCA pedagogue who brings pedagogical knowledge and theoretical understanding to the coaches practice to assist them in their reflective practice, thus enabling them to navigate the challenges associated with integrating a GCA into their practice and capture a rich and unique narrative of the coach's development. This new model of coach development inherently provides a framework to deal with the complexities of coaching practice, especially when compared to formal coaching education, which has been critiqued as 'one-size fits all' and not amenable to the needs of individual coaches.

Two studies have overtly claimed to utilize a CAR model (Evans & Light, 2008; Pill, 2016) with both demonstrating the coaches' ability to integrate a GCA into their practice. In both studies, the researcher-sports pedagogue played a key role in the coaches' development through engaging them in a theoretically informed reflection on their practice. Moreover, these studies reported positive changes in player motivation, coach-player relationships, use of questioning, and positive changes in their game development. However, Pill's study in particular demonstrated difficulties the coach had in planning, designing and manipulating practice games and activities so that players were not 'just playing games' and integrated both technical and tactical skills. A recent study that used AR as opposed to CAR further noted difficulties in planning sessions that revolved around tactical problems and that were developmentally appropriate for the learners (Thomas, Morgan, & Mesquita, 2013). However, as the coach's confidence in planning grew, they became more focused on student learning through repositioning

themselves as facilitator (see also Light, 2014). This, in turn, impacted the players' game understanding and decision-making as well as their interest, involvement and motivation in sessions. Thomas and colleagues suggested that providing opportunities for coaches to collaboratively reflect on practice, similar to CAR, would enable their professional growth.

Taken together, these studies provide some positive results of using CAR. However, the studies using this model for coach development have currently been restricted to interscholastic and elite coaching programs. To fill this gap in the literature, the current study operationalized the CAR model was used in a recreational coaching setting. The purpose was in investigate the perceptions and experiences of one recreational soccer coach when integrating a GCA (the TGM) into their coaching practice over one eight-week fall season period.

1. METHODS

Collaborative action research

The study adopted a CAR model (Evans & Light, 2008; Pill, 2016), which has been developed as an extension of Action Research (AR) where practitioners systematically and critically reflect on their practice to help stimulate the development of new knowledge and understandings, which ultimately leading to improvements in teaching/coaching practice and learning (Evans & Light, 2008; Gubacs-Collins, 2007). CAR is a relevant methodology for research with coaches because it introduces a sports pedagogue who collaborates in equal partnership with a coach (Evans & Light, 2008). The coach is the 'expert' in their local context, while the sports pedagogue brings expertise in a particular domain, which in this study is in a GCA, such as the TGM (Evans & Light, 2008).

Participant

One club soccer head coach (Ian), who participated in the study, had played soccer competitively in club and college. Ian was 23-years old, and played college soccer at a Division 2 university in southeastern US. He had seven years of coaching experience at different skill levels and ages before his most recent job with his current team. Ian was a student at a Mid-

Western university in the US studying for his Bachelor of Science in physical education. During his spare time, he coached within the soccer club, and had been doing so for the past two years. He has attended numerous coaching conferences and holds soccer coach certificates in both the Ontario Soccer Association (Pre-B) and United States Soccer Federation (D License). Informed consent was received from all participants using standardized procedures for the protection of human subjects, approved by the Institutional Review Board at a large Mid-Western university in the US.

Setting

The club within which the study took place had multiple teams, both boys and girls, ranging in ages from 3 to 18 in both competitive (travel) and recreational settings in a Mid-Western US state. Ian coached the U12 boys team of 12 players. Most of the players had previous experience within a competitive (travel) setting with few players moving up from a recreational program. The team played 9v9 and participated in a league and tournament for their fall 2016 season.

Pre-study coach training

Prior to the study, Ian had completed one three-credit pedagogical methods class at his Mid-Western US university, which was specifically focused on TGM. In preparation for TGM implementation, meetings were conducted between Ian and the second author. Items covered in the meetings consisted of: establishing session content and procedures for before and after a session (i.e., unit plan, assessment report, session plan, Post-Session Teacher –Coach– Reflective Analysis; PTRA). Throughout the implementation of the TGM sessions, Ian could ask questions to the second author regarding any issues or concerns about using TGM.

TGM session delivery

A total of eight, hour-long TGM sessions were delivered over the duration of the team's fall season. The eight intervention sessions (see table I) focused on a range of tactical problems and followed a session format outlined by Mitchell, Oslin, and Griffin (2013):

1. Introduction to 'tactical problem' and 'initial game form'.

2. Questioning: Use of effective communication skills to ask participants 'why' they think the tactical problem is important to them being able to successfully play the game.

3. Instruction: Introduction to skill practice to enhance play.

4. Questioning and modification of skill practice constraints to match players' needs.

5. Game form: Utilization of modified/exaggerated game form practice.

6. Questioning and modification of game constraints to match players' needs.

7. Review of session content and 'tactical problem' with questions; provision of an introduction to the next session.

Table I. Schedule of sessions for the current study

Session Number	*Session Content*
1	Maintaining possession of the ball
2 (observed session)	Maintaining possession of the ball and attacking the goal
3	Making quick turns while in possession of the ball to attack the goal
4 (observed session)	Goalkeeping and positioning
5	Attacking the goal by receiving the ball and executing a quick shot on target
6 (observed session)	Defending the goal by marking players through pressuring and cover when on and off the ball
7	Attacking the goal through using the target player
8	Restarting play from attacking free kicks

Instruments and Data Generation

Data were collected through multiple methods. The second author collected data from Ian about his coaching practice during sessions through model benchmark analyses, while Ian also completed a PTRA for each taught session. The second author conducted three semi-structured

interviews with Ian. These are described in more detail below.

*Model benchmarks***.** Three of the eight TGM sessions were assessed using benchmarks to ensure that sessions were implemented correctly (Brewer & Jones, 2002) and not detrimental to learning outcomes (Metzler, 2011). For this study, we followed the lead of Gurvitch, Blankenship, Lund and Metzler (2008) in selecting four key 'non-negotiable' teacher benchmarks, which included: teacher uses tactical problems as the organizing center for the learning tasks, teacher begins each session with a game form to assess players' knowledge, teacher uses deductive questions to get players to solve tactical problems, teacher uses high rates of guides and feedback during situated learning tasks. 'Non-negotiable' student benchmarks utilized for model fidelity were: players are given them time to think about deductive questions regarding the technical problem, players understand how to set up situated learning tasks, players are making situated tactical decisions, game modifications developmentally appropriate (for a complete list of model benchmarks, see Metzler, 2011). Ian and the second author reviewed Metzler's (2011) TGM benchmarks after each session in the post-session conference/discussion. These discussions informed ongoing informal discussions about Ian's utilization of TGM outside of the three formally observed TGM coaching sessions, sessions 2, 4, and 6 (see table I).

To ensure inter-observer reliability, prior to the study the second author and one additional coder observed videotaped records of three invasion game TGM sessions not part of the current study using the same 3-point scale as Gurvitch et al. (2008) of 'not at all', 'ok', and 'very well'. Inter-observer agreement for the three observed sessions between the second author and one additional coder was 100%, 88%, and 100%, thus averaging 96% (Osborne, 2008).

Post-Session Teacher (Coach) Reflective Analyses

Ian completed the PTRA tool (Dyson, 1994) after each session. The PTRA tool requires a teacher/coach to respond to seven specific prompts, which include stating session goals, asking the coach for evidence of them meeting these goals, positive aspects of the session and aspects which did not go well, as well as asking the coach what changes they may make if they coached the session again.

Interviews

Throughout the eight weeks, three semi-structured interviews between Ian and the second author took place. The first interview was a biographical interview (BI), within which questions gave Ian the opportunity to reflect on his early coaching experiences, the transition from being a player to coach, aspects of his personal, familial, and coaching history, and key moments perceived to influence his thinking and practice (Jones, Armour, & Potrac, 2004). Two additional interviews focused on Ian's coaching practice to investigate the association between perceived beliefs and how these materialize in practice (Harvey, Cushion, Cope, & Muir, 2013). These interviews sought additional information specific to TGM, such as how Ian first learned about TGM, his early experiences in using TGM in his teaching and coaching practice before the study (the Interim Interview; II), and how he utilized it within the eight coaching sessions for this current study (Final Interview; FI).

Data analysis

Model Benchmarks. The benchmark chart for TGM in Metzler (2011) was used to assess Ian's TGM-focused sessions. Check marks were placed under one of the following criteria 'very well', 'ok', or 'not present' associated with one of the eight selected TGM benchmarks. Four benchmarks focused on the teacher and four focused on the players.

Interviews and Post-Session Teacher (Coach) Reflective Analyses. The Leximancer text mining software program was utilized to innovatively detect and display the level of relatedness between key concepts and generates illustrations that demonstrate the link between terms within these data (Crofts & Bisman, 2010). The Leximancer text mining of the PTRAs and semi-structured interview data leads to a visual representation of major themes from these data through cognitive mapping. A figure highlighting the Leximancer text mining process of analyzing words, concepts, and themes is illustrated in figure 1. Any occurrences of similar meaning words identified by the Leximancer text mining were manually merged into a single concept that were often the non-plural and plural versions of the words from the qualitative data (e.g., game and games, player and players, play and playing). A list of occurrences of key concepts, where the concepts appear within the data collected, and the relationships between such concepts is also created (Crofts & Bisman, 2010; figure 2). The findings

from the text mining of the qualitative data were then manually analyzed to further confirm that the words, concepts and themes were specifically linked to the original data. This manual process ensured that the research procedure could be elaborated and enhanced data interpretation.

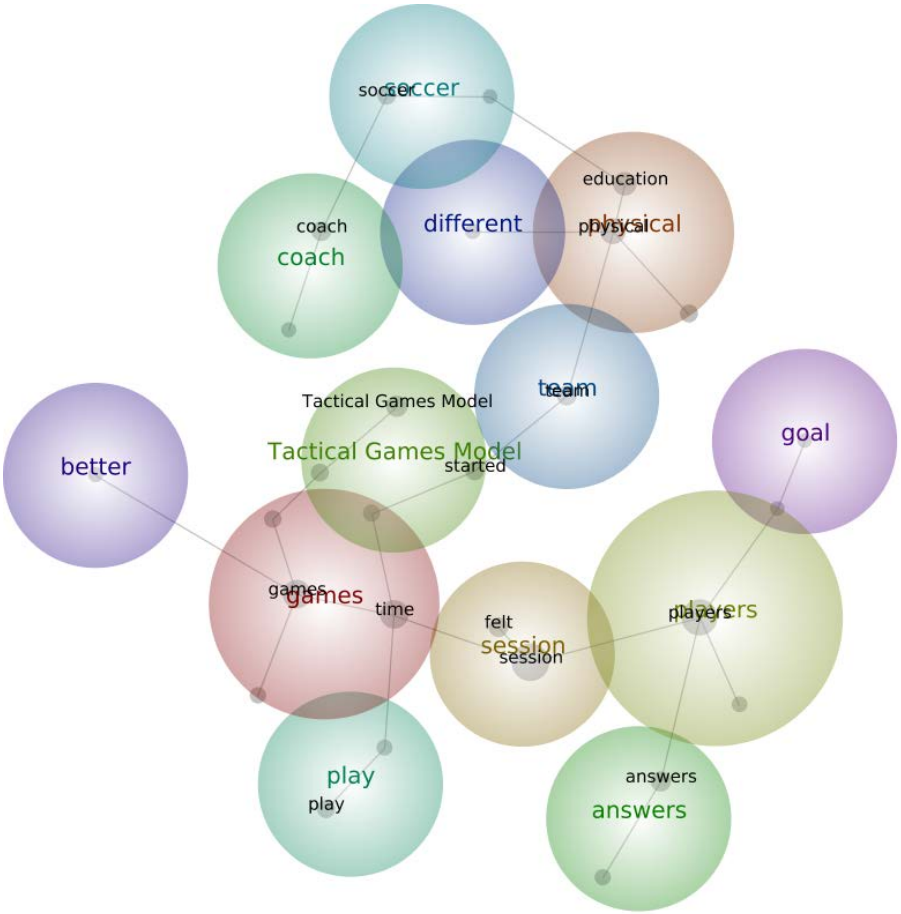

Figure 1. Thematic map generated from the Leximancer text mining process

(Figure 2, next page)

2. RESULTS

Model benchmarks

In the three observed sessions, Ian met 75% (3 of 4) of the teacher benchmarks 'very well' and the remainder 'ok' in sessions one and two, meeting 100% of teacher benchmarks 'very well' in session three. Ian struggled with questioning in the first two observed sessions (see table I). Notes from the teacher behavior assessments noted that Ian did not use enough wait time for the players to answer questions, tending to give them the answer. He improved this feature of his questioning in final observed session. Ian met 25%, 0%, and 25% of student benchmarks 'very well' in the first, second, and third observed session, respectively, being 'ok' on the remaining student benchmarks in each of the three sessions.

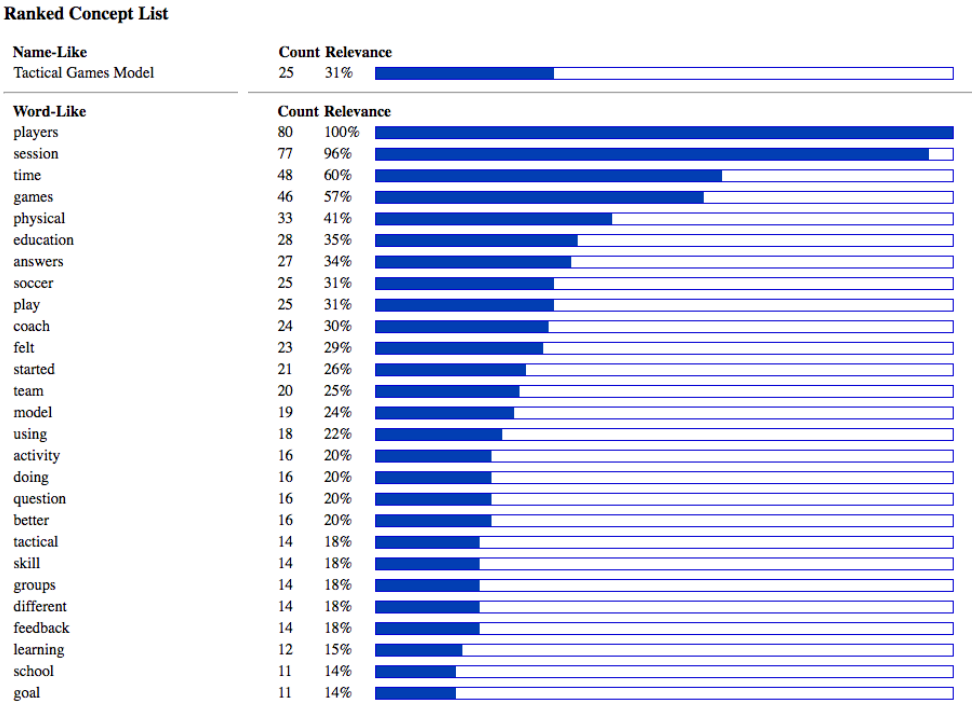

Figure 2. Concept count and relevance generated from the Leximancer text mining process

Interviews and Post-Session Teacher (Coach) Reflective Analyses

The Leximancer program develop the key themes and concepts from the PTRAs and semi-structured interviews relating to Ian's utilization of TGM. The thematic map generated by the Leximancer text-mining software demonstrated the major themes that were closely linked such as session, games and players, as well as players, session, team and answers (see figure 1). Leximancer further generated both 'name-like' and 'word-like' concepts. In the current analysis, the concept of 'Tactical Games Model' was categorized by Leximancer as a 'name-like' concept due to its word capitalization within the PTRAs and interviews. Name-like concept results revealed that the concept of Tactical Games Model had a count of 25 and a relevance of 29%. When investigating the name-like concept of TGM in more detail, it was revealed to be most closely related to the concepts of 'using', 'school', 'model', 'team', and 'felt' (for the above, see tables II and III, and figure 2).

The top five 'name-like' concepts generated by Leximancer from the PTRA and interview data were: 'players', 'session', 'time', 'games', and 'physical'. The concept of 'players' had a relevance of 100% and an occurrence of 80 within the PTRAs and interviews and was most closely related to 'groups', 'goal', 'learning', 'question' and 'answers'. The second most important 'word-like' concept was 'session', and had a relevance of 96% and an occurrence of 77 within the PTRAs and interviews. This was most closely related to 'doing', 'activity', 'tactical', 'groups' and 'feedback'. The concept of 'time' had a relevance of 60% and an occurrence of 48 within the PTRAs and interviews. This was most closely related to 'using', 'play', 'doing', 'better' and 'started'. Another 'word-like' concept revealed in the analysis was 'games', which had a relevance of 57% and an occurrence of 46 within the PTRAs and interviews. This was most closely related to 'tactical', 'model', 'team', 'using' and 'started'. The fifth most relevant 'word-like' concept was 'physical', which had a relevance of 41% and an occurrence of 33 within the PTRAs and interviews. This was most closely related to 'activity', 'education', 'school', 'soccer', and 'started' (for the above, see table III and figure 2).

(Tables II and III, next pages)

Table II. 'Name-like' concepts generated from the Leximancer text mining process

Name-like concept identified from the analysis	Closest related concept (% Relatedness)	Sample quote/s demonstrating level of concept relationship
TGM (31%)	Using (50%)	I will definitely be going back to using the Tactical Games Model during the spring season (FI).
	School (27%)	There were definitely components of it [TGM]… the smaller teams, the larger number of playing fields, the high number of games, it was shorter games but high in repetition…even though we called it fitness for life back in high school (BI).
	Model (21%)	I would definitely recommend it [the model] for other coaches that even are not familiar with the model to learn the model and then try to implement in their sessions (II).
	Team (20%)	Everyone was communicating, where when I went away from it, the last three games it seemed they did not know their roles or wanted to get away from their roles or they started playing individually and not as a team (II).
	Games (17%)	[in the] traditional model, I was I having to coach the practice the whole time, where I didn't get the chance to step back from being coach to being more of an observer…where the Tactical Games Model with the skill session and with the games, the kids knew what was happening (FI).

Table III. 'Word-like' concepts generated from the Leximancer text mining process

Major concept identified from the analysis	Closest related concept (% Relatedness)	Sample quote/s demonstrating level of concept relationship
Players (100%)	Groups (86%)	I felt that the small groups and small numbers per team really helped the kids…You could really see a player come out and become his own player (BI).
	Learning (67%)	3 of 4 learning outcomes occurred. Players understood the need to mark players through demonstration of pressuring the ball and defending space covering (Session 6 PTRA).
	Goal (64%)	Players had success when passing and receiving to maintain possession for his or her team while looking to attack the goal when in a numerical advantage situation (Session 1 PTRA).
	Question (62%)	The one thing that definitely stands out to me and was the question and answering throughout the session. Players felt they had a say what was going on or input into the training sessions (II).
	Answers (56%)	Everyone answered or everyone wanted to answer even the players that I thought maybe wouldn't want to, wouldn't want to be involved and maybe shy away a bit more. They were more open to answer and sharing their knowledge (FI).
Session (96%)	Skill (57%)	As the time went on I started to modify the skill related session to get more out of my players what I would think that would work best them (II).
	Doing (50%)	I absolutely loved it. The difference and if I look back at it now from our season I wish I kept doing it after the last session (FI).
	Activity (44%)	Earlier, I was very rigid about what the book said: to do that activity and do this. As the time went on I started to modify the skill related session to get more out of my players what I would think that would work best them (II).
	Tactical (43%)	I see that the kids are learning especially with the younger ones not only learning the technical but learning the tactical on top of it (BI).
	Feedback (43%)	Before I would constantly keep giving feedback where now my feedback is more specific and has a purpose (II).
Time (60%)	Skill (57%)	I found that the more game time we give them during the training session that one or two skills we work on in the middle of the session become more evident in the game play (BI).
	Using (39%)	It was very quick, very fast pace style training, which I saw an improvement in their play because they didn't really have that down time where they could get off task per say or lose their focus (II).

	Play (32%)	That was one thing; it was session six so it was later on in my time doing the sessions of the eight sessions. That was kind of a light-bulb moment really for me; we were getting nowhere with their answers so alright keep it in the back of your mind, play it and figure it out while you're playing then I come revisit it again (FI).
	Doing (31%)	Once we started looking at what I am doing as a coach, then that can tell me or give me information (FI).
	Better (31%)	It gave me definitely a better understanding of how I can use it as a coach and what I'm really looking for and how to modify different activities (II).
Games (57%)	Tactical (100%)	The one big thing was the cognitive awareness. In their tactical positioning on their field, what to do and what certain situations, what options for them to do in certain situations and another one (FI).
	Skill (43%)	The TGM with the skill session and with the games, the kids knew what was happening (FI).
	Model (42%)	With the small-sided game it allows you to step back (FI).
	Team (35%)	You could see that the smaller sided games were working towards the big game. Affectively they were working as a team a lot more they knew their positioning and they knew their role (II).
	Using (33%)	I started using it [TGM] only in the past year and I found that it has been working really well so far so I have been…using it more and more (BI).
Physical (41%)	Education (100%)	It wasn't until I got into college during my physical education classes in my freshman and sophomore year I was introduced to TGM (BI).
	Activity (100%)	My transitions were quicker from activity to activity because I started off with the game (II).
	School (45%)	In my physical education within elementary we actually used the sport education model quite a few times in the upper elementary (BI).
	Soccer (32%)	I was exposed to it through physical education before. I had a class that I got the opportunity to use it in a rugby setting and in that class I got to implement it, write a session for it, which helped me use it towards soccer (FI).
	Started (24%)	I used it in physical education and then in the past two years I have started to use it more within my coaching of soccer and as of right now I use it in both physical education and coaching soccer (BI).

3. DISCUSSION

Light (2014) highlights that GCAs such as TGM are focused around four key features: a) The design and manipulation of practice games and activities; b) the use of questioning, c) the provision of opportunities for dialogue, collective development and testing of solutions for tactical problems; and, d) building a supportive socio-moral environment. A discussion relative to each of these items will follow.

With respect to the first feature of GCAs, the design and manipulation of practice games and activities, Ian utilized the game-skill-game format for planning his coaching sessions around TGM, which has been suggested by the creators of the TGM that assists practitioners in both planning and instruction (Oslin & Mitchell, 2006). Results from the Leximancer text mining analysis showed that key aspects of the TGM featured in the coach's interviews and PTRAs with 'session', 'physical', 'time' and 'games' all appearing as word-like concepts. For example, the coach felt that using the game-skill-game 'session' format led to a faster paced style of training as the players could transition quickly from one activity to another and that this kept the players focused and on-task. This led to 'sessions' being 'physical'. Several coaching-focused GCA studies have noted that when games are the center for learning, sessions can create opportunities for player physical 'activity' (e.g., Miller et al., 2016) and increased practice intensity (Evans & Light, 2008; Harvey, 2009). In addition, Ian reported that using the game-skill-game format encouraged players to spend more 'time' in game play, thus enabling transfer learning from skill drills into 'games' (Harvey, 2009; see table III). Ian also noted how he could also see examples from where they had been learning in training 'games' being applied to competition match play (see table III).

However, these positive elements of the TGM format did not come without challenges. For example, results from model benchmarking showed the coach struggled with student benchmark four, the design and manipulation of practice games and activities (see table III; Pill, 2016; Thomas et al., 2013). This initial struggle with design and manipulation of practice 'games' and activities was highlighted by Ian in his interim interview. He noted that while he had initially used the 'games' and practice activities he gathered from the Mitchell et al. (2013) textbook, he realized that he needed to modify these textbook sessions to suit the needs of his learners. For example, in the first two observed sessions Ian found difficulty in setting the correct area (i.e., size and shape) for the player numbers being

utilized, as well as changing player numbers and/or game/practice modifications associated with progressing the speed of play, which is one of the key principles of play in soccer (Ward & Griggs, 2011). While the design of appropriate games and practice activities has been highlighted as a key pedagogical dilemma for practitioners who use GCAs such as TGM (Harvey & Pill, 2016), part of this dilemma can be attributed to a lack of experience in using a GCA such as TGM. Coaches such as Ian are used to linear coaching approaches, so designing games and practices that increase the variability and non-linear nature can be difficult, especially with respect to balancing the focus on the technical and tactical aspects of practice (Harvey, Cushion, & Sammon, 2015). Moreover, previous research by O'Leary (2014) noted how a physical education teacher newer to the model than a more experienced colleague (O'Leary, 2016), meant that the less experienced teacher only delivered a partial version of the Teaching Games for Understanding (TGfU) model in comparison to his more experienced colleague who delivered the full version. While Ian had studied and utilized TGM in his physical education program, this was his first longer-term implementation of it in a pedagogical setting.

The use of questioning to stimulate opportunities for dialogue, collective development and testing of solutions for tactical problems has been noted as another key pedagogical dilemma associated with practitioners' use of a GCA. Results from the Leximancer text mining analysis showed that 'players', 'session' and 'time' were key word like concepts. Ian reported gains in the players' cognitive awareness because of 'time' to play the games because he was 'using' the TGM game-skill-game 'session' structure. Examination of model benchmark data and post-systematic observation feedback provided to Ian based on benchmarking analyses showed that while Ian initially struggled with giving players time to think about answers to deductive questions and accepting yes or no answers from players, as his experience with the TGM, and questioning more specifically developed, he used the players' answers to guide his subsequent questions and/or had players test out their solutions to tactical problems during game play (Evans & Light, 2008; Thomas et al., 2013).

Ian had players in small-groups like the experienced teacher in O'Leary's (2016) study. In his early TGM sessions, Ian decided to go around each one of his four mini-teams and ask them questions separately. One of the key related concepts to the word-like concept of 'time' from the Leximancer text-mining analysis was 'play' (see table III). Ian noted how asking questions of each mini-team separately may not have been the best

use of his time as it reduced time available for learners to play the game and for him to specifically observe the games and practice tasks. Post-session feedback from the second observed session encouraged Ian to take a slightly different approach in later sessions, where he asked questions to two mini-teams simultaneously. This decision, alongside Ian using more wait time and encouraging players to test out their solutions meant that Ian asked less questions in the third formally observed session, which, in turn, encouraged players to collectively discuss, develop and test of solutions in relation to the tactical problems associated with the session (Thomas et al., 2013). This included players providing each other with concrete examples of instances that occurred in the game that they may use in future iterations of game play (Harvey, Cope, & Jones, 2016), which was observed in the third formally observed session. Overall, Ian's change in strategy regarding how he developed players' inquiry was a critical factor in improving his questioning within his TGM sessions (Harvey & Light, 2015).

Building a supportive socio-moral environment is the final component suggested for a GCA session. This was supported by the Leximancer text mining analysis which showed that a key concept in the name-like concept of 'Tactical Games Model' was 'team', which also appeared as a closely related concept in the word-like concept of 'games'. Moreover, within the name-like concept of 'players' the coach interview data showed Ian felt that 'question' and 'answers' were key factors in developing the social and moral environment. He additionally described how a wider number of players got to contribute to the discussions, and he also saw this transfer into game play where players' cognitive awareness and positioning on the field improved, as well as their ability to communicate to each other and work as a team (see table III; Evans & Light, 2008; Harvey, 2009; Pill, 2016; Thomas et al., 2013). This type of social-moral environment is important with respect to increasing players self-determined and autonomous motivation (Renshaw, Oldham, & Bawden, 2012).

3. CONCLUSIONS

This study has aimed to add to the paucity of research regarding coaches use of GCAs, in particular TGM. The paper makes two main contributions. First, the results of this study show that it is possible for a neophyte coach to cope with the increased pedagogical demands of TGM. That said, there are two enabling factors that must be acknowledged. Ian's previous experiences in being introduced to the TGM in his undergraduate

physical education is clearly a factor in his ability to deliver a partial version of TGM. In addition, the fact that Ian played college soccer and has some level of content knowledge in the subject matter being taught was a further factor**.**

The second major contribution of this paper that is worthy of note is the methodology of this paper. We would contend that the focus on collaborate action research design reported in this study offers a research framework or data collection template for other researchers to follow and implement with greater numbers of coaches and/or teachers. For example, the observation of sessions by a GCA 'expert' pedagogue coupled with the coach's continual reflections on their practice provided a context where the coach could make changes to their utilization of TGM that would not have been possible without this relationship (Evans & Light, 2008; Pill, 2016). This is of particular importance given the need for a greater number of reports 'targeted at investigating the micropedagogies of teachers [coaches] practice in TGMs …[to]…add further credibility to teacher [coach] CPL programs' (Harvey & Pill, 2016, p. 321) and develop what Green (2008) calls 'practice-based evidence'. In addition, the utilization of Leximancer data mining software to report on the qualitative findings in the study, offers a further level of nuance in the analysis not previously reported in the sports coaching research on TGM.

Despite these positive findings, there were inevitably some limitations. The first limitation is that due to his background in pedagogy from his teacher education program and his previous study TGM in a three-credit pedagogical methods class prior to the study, Ian may not be considered truly representative of all soccer coaches at similar clubs to the one he coached at. This would therefore give him a potential advantage over another coach who had not had this background. Future studies may therefore attempt to use the CAR model with a coach who was brand new to GCAs such as the TGM. The second limitation in the current study was that we only studied one coach over the course of eight, hour long TGM sessions in one fall season. It would be pertinent to conduct a longitudinal or multi-season study to investigate further developments that may occur in the coach's practice though using a GCA such as TGM. By doing this, we may find additional information that suggests different issues in using TGM occur at different points in the season. Moreover, using a multiple case-study approach would permit the season-long investigation of coaches using a TGM in multiple sports and/or in multiple different coaching contexts (i.e., elite, performance, recreational). Some form of 'delayed' baseline research

design (Harvey, 2006) may also be pertinent so that changes in coaches' practice can be compared within and between different coaching contexts. These types of investigations would allow us to document a rich source of data on coach's narratives on using GCAs such as a TGM enabling coach educators to provide greater support to coaches as they transition to GCAs such as a TGM.

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