# Coach development through collaborative action research: enhancing the learning environment within a national talent development system

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**Abstract**

Motivation to learn is an essential factor of talent being realized (Collins, Abbott, & Richards, 2011), which throws into light the essential role that the motivational climate plays in developing talent. Through collaborative action research, the aim of this study was to develop coaches' learning to enhance the learning environment within a national talent development system, utilising Epstein's (1989) TARGET framework (task, authority, recognition, grouping, evaluation and time). Results revealed that participatory collaborative action research is an effective coach development tool for coaches in order to enhance their learning and the motivational climate within their sessions. The study identified the benefits of coach development through participatory action research, revealing a highly positive response to the role that collaborative learning played in pedagogical development.

Key words: Collaborative action research, motivational climate, talent development, TARGET, coach development

## Introduction

Talent development is a dynamic, multi-dimensional process that emerges over time within an effective coaching environment (Collins, Abbott, & Richards, 2011; Farrow Baker, & MacMahon, 2013). Furthermore, there is strong agreement that motivation to learn is, above all else, an essential factor of talent being realized (Collins *et al*., 2011; Farrow *et al*, 2013; Martindale, 2015; Martindale, Collins, & Daubney, 2005; Martindale, Collins, & Abraham, 2007). This throws into the spotlight the key role that the motivational climate plays within a successful talent development environment, particularly in relation to a mastery focus, which emphasizes individual self-referenced progress.

Coaches are the most important influence on athletes' perception of the motivational climate, due to the fact that they set the practices, group participants, observe performances and give feedback, all elements that are integral to shaping the learning environment (Reinboth & Duda, 2006). Consequently, research has identified the need to focus on the role that the coach plays in the talent development process and the quality and appropriateness of the motivational environment that they create (Martindale *et al.,* 2007). This understanding is highly significant in order to ensure the continual development of coaches, particularly those who are responsible for the development of pre-elite athletes, arguably, the most important stage of the player development pathway (Martindale *et al.,* 2007; Wang, Sproule, McNeill, Martindale, & Lee, 2011).

Research into a mastery involving motivational climate, which emphasizes self-referenced progress and personal improvement, has highlighted a range of positive attributes (Braithwaite, Spray & Warburton, 2011), most notably, an adaptive achievement pattern and positive cognitive and emotional responses (Duda & Balaguer, 2007). It is essential, therefore, for coaches of talented young athletes to understand how they can create and maintain such a climate, due to the pivotal role it plays in athlete learning and motivation (Morgan & Hassan, 2015). When investigating the areas that have an influence on fostering a mastery climate, Ames (1992) identified six aspects of the learning environment and utilized the acronym TARGET, that was first identified by Epstein (1989), to represent them. The structures identified were the: Task (the structure and individual challenge of learning

activities), Authority (location of decision making), Recognition (rewards structure, or praise), Grouping (how groups are identified), Evaluation (private and individual assessment procedures) and Timing (pace and flexibility of learning). A mastery motivational climate would include self-referenced or collaborative tasks, democratic leadership, recognition of effort and improvement, groups of mixed ability with individual evaluation and sufficient time allowed for learning to take place (Keegan, Harwood, Spray & Lavallee, 2010; Braithwaite, *et al*., 2011).

Research into the intervention strategies from coaches and teachers utilising the TARGET structures have revealed that coaches can manipulate the structures to create a mastery climate, therefore eliciting more preferred motivational responses. These interventions found that coaches and teachers were successful in fostering more mastery involving behaviours, which included an increase in the setting of mastery goals, greater differentiation of tasks, and more feedback on effort and progress to individuals (e.g. Morgan & Kingston, 2008). Similarly, from a participant point of view, TARGET interventions led to an increase in mastery goals, a preference for more challenging tasks and an increase in satisfaction and positive attitude (e.g. Morgan & Carpenter, 2002). Research by Conde and colleagues (2009) that focused on interventions with basketball coaches who had received a short educational programme on Ames' (1992) TARGET principles, found that the motivational climate transmitted by the coach was predominantly mastery orientated and this improved by over 19% over the course of the programme. Similar to the proposed study, research by Cecchini *et al.,* (2014) developed an intervention programme focused on utilising the TARGET structures, with results showing that the environment could be manipulated towards a mastery involving climate by coaches. This manifested itself through numerous positive effects on the participants, such as co-operative learning, increased competence and autonomy and more self-determined motivation.

With limited research into the motivational climate, or learning environment within a performance sport setting, the focus of this study will centre around one specific stage of the development system, the talent development phase. The talent development phase focuses on the long-term development of an athlete by facilitating an environment that assists in athlete performance with an aim of

preparing an athlete appropriately for the rigors of elite sport. The environment created centres on not only the development of the technical and tactical aspects of the sport, but also the bio-psycho social elements of athlete development. The importance is then placed on providing an athlete centred learning environment that is holistic and underpinned by evidence. It has been noted that research into the design and organisation of talent development environments within sport is scarce (Martindale *et al.,* 2007) therefore, the need to define and identify an effective talent development environment for future success is imperative. Martindale *et al*., (2007) identified that there is a need for individualised development, participant ownership, autonomy and self-motivation within an effective talent development environment, all important factors that prevail within the TARGET structures (Ames, 1992).

It has been highlighted that current coach education programmes do not provide sufficient formal and informal learning opportunities to enhance and sustain coaching practice (Evans & Light, 2007; Nash, 2015; Wright, Trudel & Culver 2007; Woodman, 1993). Therefore, there is a need to investigate other means of personal development, such as action research which is about finding ways to improve practice (McNiff & Whitehead, 2010). Indeed, action research has been offered as a valuable tool to drive coach development, as it can be a used as a vehicle to engineer enhanced reflective practice within the coaching environment (Pill, 2014). This is due to the fact that the ability to identify personal strengths and development points on a regular basis allows individuals to gain greater understanding of their current practice and personal development needs (Cushion *et al,* 2003; Nash, 2015). Previous studies have shown that collaborative action research can play an important role in continual coach development when supported by an experienced sports coach who brings theoretical understanding to the collaboration. This then allows for a community of practice that permits theories to be put to the test with guidance and enhanced reflection through the sharing of knowledge and experiences (Ahlberg, Mallett & Tinning, 2008; Evans & Light, 2007; Jones, Morgan & Harris, 2012; Pill, 2014).

The aim of this study was to utilize collaborative action research to educate a group of youth coaches to improve the learning environment within a national talent development system, through the implementation of mastery TARGET structures.

Utilizing an action research methodology allowed for a systematic enquiry in the pursuit of mutual interests, in this case an enhanced motivational climate and an investigation into how the participants endeavored to achieve this through collaborative learning. The major significance of this study is based on the implementation of an action research methodology, which has received scant attention by coaching scholars to date and never (as far as the authors are aware) in combination with a focus on enhancing the motivational climate. Furthermore, the action researcher being head of performance within the context of a national talent development system adds further novelty and significance to this study. There were three distinct objectives of the research study:

1. Through collaborative participatory action research, to develop the coaches' ability to improve their coaching practice
2. To enhance the motivational climate/learning environment within their coaching sessions
3. To develop an effective and replicable continual professional development (CPD) process for coaches.

## Method

### *Design*

An interpretive epistemological approach was adopted, as the aim was to investigate how the coaches could enhance the learning environment by implementing the TARGET structures and to gain a greater understanding of their experiences, feelings and perspectives on the action undertaken. Furthermore, traditional positivist paradigms do not take into account the unique nature of action research and the many dilemmas that the researcher will face in such a fluid and changing landscape (Cohen, Manion, & Morrison 2007; Herr & Anderson, 2005)

### *Action Research*

Action research has been identified "as a powerful tool for instigating change amongst participants in their environment whilst also boosting competency through innovation" (Cohen *et al*., 2007, pp. 297). It is a practice of participation, "engaging those who might otherwise be subjects of research or recipients of interventions to a greater or lesser extent as enquiring co-researchers" (Reason & Bradbury, 2008, pp.

1). Borrowing from the work of Lewin (1946), action research was initially defined as "a method that enabled theories produced by the social sciences to be applied in practice and tested on the basis of their practical effectiveness" (Carr, 2006: 423). It focuses on discovering ways to improve practice within a specific context, therefore creating knowledge, which in turn improves learning through a better understanding of the participant's practice (McNiff & Whitehead, 2010). Despite differing perspectives, it is generally agreed that action research is a systematic learning process characterised by continuous cycles of planning, acting, observation and reflection (McNiff & Whitehead 2009; McNiff 2013; Mertler 2009). This allows for the continuous construction and testing of explanations in practice, leading to improved understanding and learning (Tsai, Pan & Chiang, 2004). Typically this manifests in "observation of current practice that is followed by data collection and synthesis that is then followed by action that forms the basis of the next cycle" (Mertler, 2009 pp. 13).

A key characteristic of action research is that it is conducted in situ, therefore, where traditional social science research does not focus on intervening in anyway in the research setting, action research by its very nature demands intervention. It is a form of on the job research that involves thinking carefully about what you are doing so it becomes critical self-reflective practice (McNiff, 2013). According to Dick (1997), drawing on Lewin's initial vision, the purpose here through critical and considered reflection is to allow both tacit and explicit knowledge to inform each other in order to better deal with complex real-life problems. It is to help people recognize practical issues as they arise and to devise pragmatic responses: to deconstruct set assumptions thus enabling a more creative dialogue with other people and the situation. In doing so, action research allows us to cope with the kind of organized complexity facing our everyday lives in the 'real' world (Allen, 2001).

It is important to note that action research must be in continuous collaboration with all participants as the cycles and then crucially reflection upon actions taken are what enhance the participants' learning, allowing an understanding of the process, reflection and informed decisions on the next course of action (Evans & Light, 2007). These cycles then allow for prolonged engagement with the research question and enhanced experience through numerous cycles helping to bridge the gap between

theory and practice. Action research is, therefore, considered a collaborative or joint enterprise; not only between facilitator and participants, but also between and among participants themselves: “the aim is to involve participants in communication, mutual understanding and consensus” (Carr & Kemmis, 1986: 199). It is therefore essential that collaborative action research is democratic, involving a large amount of talk and interaction between colleagues in an attempt to improve learning and understanding (McNiff & Whitehead 2009). It is horizontal in nature as opposed to a traditional top down investigative approach. Such cooperation enables the development and acceleration of mutual understanding particularly in relation to developing action (Oja & Smulyan 1989). This allows for the cogenerating of knowledge through collaborative communication, where the diversity of experiences within a group is viewed as a catalyst for enrichment (Greenwood & Levin, 2003). Thus collaborative action research recognizes that people learn through the active adaptation of their existing knowledge in response to their contextual experiences, and the subsequent sharing of that knowledge. Such experiences may be engagement with new knowledge, explicitly through theory or through shared discussion with others. The collaborative aspect also allows the time and provides the support required to make fundamental changes in individuals’ practice which often endure beyond the life of any research project (Oja & Smulyan 1989). In a coach development context, Evans and Light (2007) highlighted that collaborative action research can be an alternative tool to traditional formal coaches’ educational programs as it facilitates open learning and has the ability to immediately test knowledge in the working environment.

***Participants and ethics***

The research project involved the head of performance, who was the action researcher, and six head coaches who were employed in a national youth talent development programme. All coaches (5 male, 1 female) had a minimum of a United Kingdom Coaching Certificate (UKCC) level two qualification as a pre requisite, and had been operating for a minimum of two years, with only two of the coaches active for more than ten.

Ethical approval was gained from the researchers’ university ethics committee prior to the commencement of the study. All participants received an information sheet outlining the study and a consent form. Informed consent was secured from the NGB

and the participants and they were informed that they had the right to withdraw at any point, without repercussion. This was supplemented by guarantees of confidentiality on engagement with the project.

***Action research procedures***

The action research ran over three months (October to December) and during this period there was an introductory session led by the head of performance (who was the action researcher), six, three hour practical sessions that the coaches delivered to between 20 and 30 participants each (once every two weeks) and four focus groups that were planned for the end of each fortnightly cycle. Although it was planned for each cycle to last two weeks, cycle's three and four stretched to four weeks due to coach unavailability and the need to develop further resources for collaborative learning (which evolved from the action research, as explained later). The focus groups were a key feature of the participatory action research allowing participant's to interact and feed off each other bringing several perspectives to any given situation, thus enabling collaborative learning (Maykut & Morehouse, 1994; McNiff, 2013; Mertler 2009; Nash, 2015). The fourth and final focus group forum focused on experiences throughout the programme and the future direction of the coaches' delivery in relation to TARGET. The data collection phase of the action research ended in December when it was felt that sufficient data had been gathered to evidence the impact of the collaborative action research process.

Consistent with Kemmis and McTaggart's (1992) planner of action research, the initial problem that had been identified by this group of talent development coaches during a programme evaluation at the end of the previous competitive season was to improve the learning environment or motivation climate in their coaching sessions. Consequently, in the pre-season phase, the head of performance researched and planned an intervention specifically designed to improve the learning environment within their sessions. The intervention started with a three hour introductory classroom session that provided participants with a background to motivational climate theory (Ames, 1992) and specific links to the talent development environment. This was achieved by introducing the theoretical TARGET structures and discussing how they could be applied practically in the coaching sessions. This introduction involved a number of interactive group tasks with ample opportunity for

discussion and questioning around the TARGET structures. During the introduction, the coaches all agreed to complete a reflective log (see Appendix A) after each coaching session to document their experiences of implementing the TARGET structures, thus gathering information to reflect upon in order to address the initial problem (Kemmis & McTaggart, 1992). For the purpose of the reflective log, they were asked to describe how difficult they found it to implement the structures and to give examples of what was most useful and most problematic and why? This then formed the basis of their input into the next focus group forum, which allowed them to reflect on their practice and revise the plan and action in the subsequent cycles of action research (Kemmis & McTaggart, 1992). To allow the researcher the opportunity to instantly access these reflections and help prepare for the forums, they were stored electronically on Google drive, a cloud based information technology platform that automatically syncs with the coaches' 'tablet' that they had each been provided with.

As the coaches' forum was an integral part of the study, due to the collaborative learning that would be taking place at the end of each cycle, the need emerged to identify a platform that would facilitate this, whilst recognising the geographical and logistical challenges associated. Therefore, the possibility of utilising an online forum was investigated and eventually sourced through Cisco Webex (see Appendix B). This allowed for face-to-face interaction and convenience to participants, whilst providing rich sources of data with the ability to record them (McNiff, 2013). With this in mind, an online forum was planned at the end of each cycle, forming the basis of the reflection stage. This reflected the emancipatory aspect of action research which leads not only to new practical knowledge, but to new ways of creating and sharing that knowledge (Reason & Bradbury, 2008).Field notes provided a further source of data and involved keeping notes that allowed for personal reflection through the recording of events and behaviour, overheard conversations or any other informal interactions (DeWalt & DeWalt, 2011; Sparkes & Smith, 2014).

***Data sources and management***

To assist in identifying emergent unpredictable themes, action research allows for the utilisation of various data collection methods, which in turn leads to a more rich and detailed understanding of the research interest in question (McNiff & Whitehead,

2010). Methods that were utilised in this study were coach reflective logs, researcher field notes and focus group forums with the coaches. Data emerged as a result of the action reflection planning cycle and it needed to be managed and analysed effectively throughout (McNiff & Whitehead, 2010). Each cycle of the action research required the researcher to manage the various data sources that were available. This management is integral as McNiff (2013, pp. 105) identified, "You are in a web of critical thinking and action that aims to influence new ways of thinking and practice in the wider world". Emergent data was coded and then informed the direction of travel for the next cycle of action, aiming to enhance the coaches' understanding and learning (Cohen *et al.,* 2007; McNiff, 2013).

### *Data Analysis*

Due to the prescribed nature of this action research project being explicitly linked to the pre-determined TARGET structures identified by Ames (1992), data was predominantly analysed utilising a deductive analytical framework (Sparkes & Smith, 2014). To enhance the trustworthiness of the research the researcher ensured prolonged engagement with the project with persistent observation (Mertler, 2009) and utilised all forms of data collection available to triangulate results. With the considerable amount of data that was available, a thematic analysis was employed due to its flexibility and ability to provide a rich and detailed account of the data (Braun & Clarke, 2006; Sparkes & Smith, 2014).

## Results and Discussion

### *Developing coaching practice*

According to Reason and Bradbury (2008), good action research emerges over time in an evolutionary and developmental process. In addressing the first and third objectives of the study; to develop coaches' ability to improve their coaching practice, and to develop a replicable CPD process for coaches**,** the action research approach resulted in some significant initiatives and adjustments in the process of documenting reflections and sharing knowledge. The results supported the value of sharing knowledge in the development of coaching practice and dealt with the logistical issue of doing this from a distance by utilizing an online platform:

> It's been really interesting in terms of the webinars for a start. It's good that

> we don’t have to all meet in one venue, so it’s quite convenient, and it’s good to get the other coaches' opinions. You are not alone in terms of struggling with certain aspects and it’s comforting that we are all in the same boat. (Matthew, Forum - 22/11/14)

Following the first cycle of action research and the initial focus group forum, the researcher identified that there was a need to adjust the reflective log format (see Appendix C) to further develop the coaches’ reflective practice, an important aspect of the action research cycle and a central pillar of modern day practice in a number of domains (McNiff & Whitehead 2010; Nash 2015). There was a need to engineer deeper coach reflections prior to the collaborative forums, and consequently, the coaches were requested to be more prescriptive in identifying individual TARGET structures and to identify more specific practical examples from their coaching sessions. For example, in relation to the Authority structure they were asked to identify the strategies they used to foster more opportunities for player decision making opportunities, leadership roles and greater levels of responsibility in their sessions. This was unanimously well received by the coaches. In the words of Jessica (all names are psuedonyms) ‘I found it much better because you could be more specific and I found that you could get more of what you wanted out of the session’ (Forum - 19/10/14). Indeed, the results showed that as the project progressed, on the whole, reflective logs became more detailed with coaches being more specific about their experiences.

Cycle two involved a second focus group forum where the researcher suggested that recording and sharing video clips from the coaching sessions, with an audio link, would enhance the development and dissemination of the TARGET structures. This was agreed by the coaches, as they wanted some practical examples to enhance their understanding of the structures and to see how they could be better implemented in their own coaching environment. The development of these video resources also resulted in the coaches expressing a desire to meet individually with the researcher to go through the clips to aid their reflection, and to share these with the wider coaching group. This added dimension of the research design is consistent with the characteristics of action research, as it is often emergent, changeable and context specific (McNiff, 2013; Mertler, 2009).

The third action research cycle included the sharing of coaching clips during the coaches forum, a practice that has been offered as a way of helping coaches develop a more holistic and accurate assessment of coaching practices (Carson, 2008; Nash, 2015). The coaches were very positive about the additional use of the video clips in the action research process, e.g. ‘I liked the videos because they generated a lot of discussion. We do a lot of theoretical discussion but this made it more practical and gave a better understanding of it’. (Sean, Forum - 14/11/14). This point in the forum was followed by a suggestion that led to a further development of the action research process:

> I think, if we are talking about the process of how we work this, I wonder if it might be possible to put the videos into a drop box folder so we can watch them ahead of time and we can actually see what’s going on a little bit better. I think it’s (the videos) been really useful, its added a bit of context to us and taken the target structures away from the abstract and given us examples to look at. (Pete, Forum – 14/11/14)

As a direct consequence of this suggestion, it was agreed to share of all video clips via dropbox (a cloud based storage platform). Additionally, following a reflective discussion with Phil, the development of a TARGET ‘tip sheet’ (see Appendix D) was proposed and implemented, that the coaches could utilise when conducting their practice in the fourth and final cycle. The ‘tip sheet’ provided participants with an easy to use reminder of each TARGET structure when coaching, which all coaches found useful and beneficial. These new initiatives and developments were maintained in the fourth cycle of action research without any further amendments to the process.

***Coaches’ initial reactions to implementing the TARGET structures***

The second objective of this study was to enhance the motivational climate within the coaching sessions. Although this objective was generally well received by the participant coaches in the introductory session, it is important to highlight that the NGB in question had been exposed to several new pedagogical initiatives in recent years, including a 'games sense' (Light, 2013) approach and 'constraints led'

pedagogy (Davids *et al*., 2008). Therefore, it was not surprising that there was some apprehension amongst the coaches when they were first introduced to 'another theory' in the guise of TARGET:

> There was a sense in the room that some coaches were not fully engaged at the beginning. I sensed this through body language, folded arms, exasperated facial expressions, slumped in a chair, and also through an overheard comment from an assistant coach: "not another theory!"
>
> (Researchers reflective log)

This initial skepticism was to be expected, however, as Trenberth and Hassan (2012) identified, swift or constant change is an issue when managing change, too much and people do not get the chance to embrace new ideas. These initial concerns did, however, develop into positivity for the subject of motivational climate and the potential benefits to the programme and personal coaching practice. This was evidenced through a change in body language during the introductory session and through active engagement in the interactive seminar tasks by all involved. The change in the participant's attitude was an interesting occurrence as historically it has been difficult for the NGB to maintain coaches' motivation towards continual professional development sessions. Feedback gathered from coaches suggested that the practical and applied nature of the workshop at this initial session was a major positive towards this. Similarly, the mode of presentation and the manner in which it was delivered suited the situation with regards to change management. Specifically, the researcher did not deliver the session as a traditional seminar but focused on ensuring the learning space was a collaborative environment by creating ownership and ensuring everyone was actively involved in the session.

Throughout the course of the action research intervention the coaches unanimously agreed that a mastery involving climate that utilised TARGET structures was of benefit to the programme and their delivery. Concurrent with previous research into the effects of a mastery motivational climate, the coaches identified a perceived increase in athletes' motivation in terms of attitude and behavior, a preference for challenging tasks and the positive effects associated with athlete autonomy (Alvarez

*et al.,* 2012; Morgan & Carpenter, 2002; Morgan & Kingston, 2008; Reinboth & Duda, 2006).

For something they were new to implementing, the number of TARGET structures caused some concern and participants dealt with this in two ways. They either continued with attempting to embed all the structures into their coaching sessions, or on the contrary to this, they preferred to focus on specific aspects of TARGET, particularly areas that they felt they needed to develop to engineer a mastery involving climate. These results suggested that the coaches saw the TARGET structures individually as opposed to a holistic framework, which is consistent with work conducted by Morgan *et al*., (2005). This also identifies that some structures are possibly more important in fostering a mastery motivational climate than others, or a single structure could possible compensate for another. This was highlighted by Jessica: "I thought this week's session was a lot better in terms of a mastery climate as I focused on a specific part of the TARGET structure. My focus was on authority." (Jessica, Forum - 19/10/14).

***Coaches' development in implementing the individual TARGET structures***

The following section presents the coaches' experiences and development in implementing the individual TARGET structures. Not all of the TARGET structures were systematically covered in each focus group, because the emphasis was on the overall mastery climate and on which of the TARGET structures were working well, or in need of further development. In an attempt to select the most pertinent examples of coach development in implementing the mastery TARGET structures across the four cycles of action research, selected quotes are chosen to illustrate their learning journey and the 'shift' in their ability to foster a mastery learning environment over the three month intervention period. As such, the four cycles of action research are not covered systematically or individually, rather, the most salient changes in the coaches' understanding and implementation of the TARGET structures are presented.

*Task*

For the purpose of the action research, the task structure was subdivided into goals (self-referenced and individualised), design (varied, novel and multi-dimensional),

and differentiation for all participants (are all abilities suitably challenged). Starting with the task goals, individualised goal setting was highlighted as an early issue in the first cycle, where similar to previous work by Hassan (2011), the coaches realised the importance of individual goal setting in enhancing athlete's motivation through fostering personal challenge and athlete autonomy. However, reflections during the first cycle of action research showed that athletes were only sporadically engaged in the goal setting process during sessions. The coaches were comfortable with a 'traditional' coaching process where learning objectives were outlined for the practices as a group, but all except one coach, struggled to implement the shared goals between coach and athlete. When discussed collaboratively in the first focus group, a number of considerations were identified by the coaches. This included the athlete's ability to set goals due to maturity or age, and concerns over the time this would take. This was summed up by Phil who stated:

> If we are trying to be 'athlete centred' – if they are coming from the younger lot – 13, 14 years old – and we are giving them full ownership of their decision making, whereas everything in their life is put on a plate for them, is that not a bit harmful? If we are meeting them every 2 weeks and we are changing what their thought process is like, maybe we have to tone it down a bit.
>
> (Phil, Forum - 14/11/14)

These results agree with Bailey and colleagues (2010) who identified the potential danger of complete autonomy with self-directed goal setting at a young age when discussing the importance of the psychological characteristics of developing excellence (PCDE's) (Abbot & Collins, 2004) in talent development. Bailey *et al.,* (2010) discussed the importance of the coach in goal setting during the early years, where age and maturity may mean a different approach until the athlete gets older and develops autonomy over their development. During the first cycle, results showed that the coaches saw this aspect of the structure as purely athlete led with no input from the coach. However, during subsequent cycles the importance of coach support into shared goals was highlighted by Pete who stated:

> I'm reflecting on how I am dealing with this at the moment, I'm encouraging and empowering them to do it, but it is a really good point that John makes

> around little steps in goal setting. I just wonder whether I need to be a bit more supportive through the process in helping them to set those goals as a first principle. Because it is so important as a platform to build their own self-evaluation and recognition.
>
> (Pete, Forum - 14/11/14)

Task design was less of an issue for the coaches as they felt they were experienced in this area due to the work that they had been undertaking with regards to a 'constraints led' approach (Davids *et al*., 2008) to delivery. Constraints led delivery, is defined by the thought of learning as an adaptation to constraints that are manipulated within sessions through task design, the environment and the athlete themselves. Athlete behavior then emerges and adapts under these constraints through self-organisation and motor learning that then implements change to the environment (Davids *et al*., 2008). Central to this approach is the coaches' ability to test the athletes through task design to ensure they are suitably challenged with various constraints, whether that is rules, space, time or outcome. Results showed a consistent shift towards mastery, consistent with those of Keegan *et al.,* (2014), whereby if practices were varied and multi-dimensional, this would ensure a positive approach to learning and maintain engagement. This was represented by Pete in the third action research cycle, who stated: "We are trying to use a variety of tasks which are not always the same for all athletes. We also ensure that all tasks have context, are challenging and that players can see the link to the wider context." (Pete, Reflective log - 28/10/14).

Differentiation, however, continued to be an area of difficulty throughout the duration of the project, as the majority of coaches struggled to identify the need to differentiate within a practice. When discussed, participants felt this was mainly down to the grouping structure of TARGET that made differentiation for them difficult at times due to the mix of abilities within practices. This highlights the need to understand the interrelationship between TARGET structures, a question initially proposed by Ames (1992). In this instance it highlighted a potential 'additive' relationship between task differentiation and grouping within a talent development environment. The differentiation aspect of the task structure was seen as a positive experience which compensated for the motivation potentially lost through mixed ability grouping, where

it was perceived by the coaches that the most talented players were not being suitably challenged. However, implementing differentiation through the task structure was identified as an important factor to combat this:

> For me, individualisation of the task is probably one of the hardest things to do. We are quite familiar with setting broad objectives for what we want to get out of it, but trying to pass the ownership onto players, which helps with individualisation is something I need to be working harder on.
>
> (Pete, Forum - 03/10/14)

During cycle two following the first coaches' forum, results showed that differentiation did improve within the sessions. Jessica shared an experience she had whilst experimenting with differentiation in a mixed ability practice:

> I saw someone who was a little more advanced in a practice and added more challenges for them. They were only allowed 2 touches, whether that is right or wrong, that is how I tackled it, by putting more challenges on them.
>
> (Jessica, Forum - 17/10/14)

These improvements in coach learning and understanding of how to differentiate tasks continued to develop through cycles three and four, where coaches shared more ideas around differentiation, such as specific rules for individuals within a group practice, or ensuring athletes' personal goals were evaluated during each practice.

*Authority*

The course of the project saw a shift in thinking and practice with regards to the authority structure. Similar to the results presented by Hassan (2011) in relation to authority, the first cycle of action research saw the participant's struggle to empower the athletes they were working with, even though there was explicit understanding that this was crucial to athlete engagement. Experiences that emerged included, athletes expecting to be instructed all the time and not reacting well to being given more authority. These results suggest that prior to the action research the coach athlete relationship was a more controlling one, where the coaches may not have believed in the athletes' ability to take authority in their own learning. However, it

does highlight the need to give authority in stages (Hassan, 2011). Initial experiences were summed up well by Pete, who stated: "I found it pretty difficult to be honest with you. Trying to find ways to pass ownership onto players is hard. It's something I need to work really hard on." (Pete, Forum - 03/10/14).

During cycle two, after ideas for authority had been shared, the coaches gained more confidence in engineering authority by utilising strategies such as athlete leadership roles, or ensuring athletes were engaged in the decision making process with regards to practice design (playing space, rules, scoring systems etc.). This led to acknowledgement of the positive effects of authority within the session, including increased enjoyment and enhanced decision making within a practice. Matthew commented: "I gave the players the authority to change the rules and environment (playing space) which improved and maintained their engagement. Work rate and effort was maintained and intensity was good." (Matthew, Reflective Log – 26/10/14).

*Recognition*

The recognition structure of TARGET had a significant impact on the coaches' practice throughout the research cycles due to the observed increase in motivation that was evident from the athletes. Specifically, this was identified by improved engagement in the task at hand from athletes, more sustained effort and an enhanced general demeanor or attitude that emerged post recognition of effort by the coach. These findings concur with results identified by Morgan & Kingston (2008) and Hassan (2011) highlighting the importance of equal opportunity for private recognition in improving intrinsic motivation. Matthew highlighted this at the end of the first cycle, where they had been given the opportunity to experiment with the TARGET structures in their delivery for the first time: "The ability to give (the) player private feedback is so rewarding to the player and coach building a good player coach relationship. The engagement and intensities of the players was much higher." (Matthew, Reflective Log – 21/09/14).

However, this appreciation of recognition was not consistent throughout the project, as coaches wrestled with the concept of private recognition and, similar to the challenges identified by Morgan & Hassan (2015), the ability to distribute this evenly throughout the group. In the second cycle this was evident with particular concerns

about the available time to achieve this, the number of participants and the warrant of recognition. This view was voiced by Matthew who initially found this difficult to achieve, therefore losing the value of recognition as a motivational tool: “Its quite difficult to give praise to every person when you are doing a drill and some people don’t warrant feedback. They are just there and haven’t done anything that you can recognise with praise” (Matthew, Forum - 03/10/14).

This, therefore, needed addressing, and at the end of cycle 2 the next action decided by the coaching group was to generate video clips of delivery to enhance the coach learning. During the forum that concluded the third cycle, where the video clips were shared and discussed, it was identified that the coaches should perhaps consider mastery recognition as 'individual' recognition rather than 'private' in its purest sense, which led to a more comfortable approach by all coaches. Subsequently, coaches felt they did not need to ensure all feedback was private in the strictest terms. This was highlighted excellently by Shaun who stated: “Recognition was easier to provide now that I felt less constrained and this helped in particular one athlete to improve in drill two with (a) timely intervention to achieve his goal within the session.” (Shaun, Reflective Log – 16/11/14).

The final forum at the end of cycle four saw coaches continue to highlight the benefits of individual recognition in relation to skill acquisition in a talent development environment:

> They are talented but they just don’t get it first off sometimes, so you’ve got to encourage them to get there. Private recognition is a good way of doing it because they still think they are achieving something it keeps them trying to do better.
>
> (Shaun, Forum - 22/12/14)

*Grouping*

Experiences of grouping athletes into mixed ability and co-operative groups was a concept that all bar one of the coaches consistently failed to implement. Results showed that there was a lack of understanding of why to group athletes accordingly, this manifested in examples that identified grouping was somewhat intertwined with

authority. This was represented by coaches utilising grouping as an easy way to engineer authority within a session as opposed to a strategic decision in conjunction with the coach and athlete, as identified in the researcher's field notes: “After allowing the athletes to choose their own groups randomly, Phil then continues to rearrange the groups for the next 2 minutes as they all went with their friends or people that they are familiar with.” (Researcher Field Notes - 02/11/14).

Most interestingly, throughout each cycle of the action research coaches consistently identified that there was a need to group players in similar ability levels as there was a need to stretch them technically, tactically and cognitively against their peers, whilst maintaining intensity levels. e.g.: “In drill one I grouped athletes by ability to try and achieve the maximum stretch for them.” (Shaun, Reflective Log – 30/11/14).

Discussions through each cycle centred on the benefits of grouping athletes co-operatively, but the coaches' reflective logs and forums identified an issue with this. There was some evidence of coaches attempting to group athletes co-operatively, however, this was not seen as a positive aspect with regards to the programme. Matthew summed this up by stating:

> As the numbers were lower I tried to group the players by mixing the abilities. However this was not very stretching for the better players, even when they were given a chance to show leadership. Players became more engaged when placed back into groups of the same ability.
>
> (Matthew, Reflective Log – 02/11/14)

In this instance players became disengaged until they were regrouped by ability. This concurs with Keegan *et al.,* (2010) with regards to their view of ‘positive rivalry’ within a session, and the need to group athletes by ability to achieve challenge. However, these results are contradictory with those of Martindale et al (2007), who stated that an effective talent development environment should allow for mixed grouping within a session to provide peer role models.

*Evaluation*

Although coaches saw evaluation and recognition as separate constructs, as previously identified by Morgan *et al.,* (2005) they were found to be inherently linked in relation to feedback. Results showed that self referenced evaluation was important in enhancing motivation (Ames, 1992). However, consistent with the issues around recognition, coaches were concerned with the private aspect of evaluation, as this was difficult to implement in a large group due to time and the number of participants. Results also identified the role questioning from the coach plays in ensuring players are engaged in the process as they attempt to empower the athlete into self evaluation. This was sometimes represented by a public question and answer session that the coaches used, as it was considered general good practice by the coaches.

During the second cycle, the coaches discussed highlighting good play in public as an effective practice of coaching, as it was considered to be a good evaluation tool whilst also aiding the learning process for others. This led to some principles of public evaluation being identified, which at first glance identified with an ego involving climate (Ames, 1992). It was agreed that if this public evaluation occurs it is important not to keep highlighting the same athlete to avoid negative perceptions of self-competence from others in the group (Hassan, 2011). This public environment was also only found to be beneficial when athletes were motivated to give an answer, this was either out of fear of getting it wrong or just not wanting to engage, therefore highlighting the need for coaches to emphasise that making mistakes is an important part of learning. This led to a different way of thinking about these coaching interventions, where evaluation of good play was public, individual and non-comparative, leading to a shift in attitude from the coaches:

> I felt less constrained following the forum discussion and happier in myself to recognise and distribute evaluations to athletes publicly. I tried to distribute it equally and when there was something negative, phrase it in a question, allowing the athlete to self-evaluate and take control of the decision making process.
>
> (Shaun, Reflective log – 16/11/14)

Furthermore, through cycle three the results showed coaches continued to develop their evaluation strategies and rely less heavily on their public sessions for evaluation. This led them to develop practices that were as individual as possible due to the benefits already highlighted, including break out sessions where players could work on something specific to them (referred to as 'free swim'), coach movement around a practice, and bringing players out of a practice to speak one on one. Shaun summed this up by saying:

> I think they take it more personally, its one to one, 'the coach is looking at me and paying attention to me' and that's really good – especially when it's a positive so I think they benefit from it more than anything else.
>
> (Shaun, Forum - 22/12/14)

*Time*

The results in relation to time concur with that of Ames (1992), Morgan *et al.,* (2005) and Keegan *et al.,* (2010) where it was identified that the coaches realised the importance of flexible timings due to the need to allow varied time to learn. Results showed an increase in learning for the athletes and a positive association with the flexibility this structure provided, as identified by Matthew: "A rough time was set aside for each game. We only used four of the five games prepared for the session this was due to some games overrunning because of the engagement and enthusiasm." (Reflective log – 19/10/14). However, similar to previous research by Hassan (2011) during the second cycle, Pete identified a common theme that coaches had identified in terms of wrestling with how much time is adequate, as it sometimes led to inactivity from some athletes and boredom for others:

> I never seem to get through my plan, and I feel there is a tipping point with practices. There comes a point when you need to stop the urge to finish a practice. It needs to be long enough but not too long.
>
> (Pete, Reflective log – 19/10/14)

Fixed times for practices were also discussed, however, these were invariably a guide, as the coaches knew this was not a mastery involving practice. Interestingly, during cycle three the coaches' instinct was discussed as being integral to knowing

when to move a practice on, taking into account varying learning rates, which struck a chord with the group: “Varying the time of the games is the easiest aspect to combat this. I find it easy to identify when players have grasped the concept of the game and when it is time to move on.”

(Matthew, Reflective log – 02/11/14)

## Conclusions

The findings of this study are in line with those of Nash & Sproule (2009) and Jones *et al.,* (2012) who identified that networking with like-minded coaches and discussing everyday coaching issues with regards to personal development is an extremely valuable form of learning. Consistent with the findings by Pill (2014) and Evans & Light (2007) the collaborative action research allowed the opportunity for the coaches to engage with their peers in the learning process. This collaboration was found to be highly valuable as it gave the coaches confidence in knowing that were not alone in their coaching issues, whilst the forums specifically allowed them to share and reflect on their ideas. The online platform was particularly beneficial as it permitted communication between coaches from a distance, which they found to be highly beneficial and time efficient. Furthermore, the use of video clips significantly enhanced the learning of the coaches by bringing the theory to life and providing practical examples of coaching behaviours for discussion and development. A further significant contribution of this research is that, to the best of the authors’ knowledge, it was the first study of its kind to combine an action research approach with a mastery motivational climate intervention. Similar to previous intervention studies (Morgan & Kingston 2008; Conde *et al.,* 2009; Hassan 2011; Cecchini *et al.,* 2014) the results of this study showed that the coaches’ experiences were overwhelmingly positive in enhancing their ability to manipulate the learning environment. However, the process of being able to revisit and develop the intervention during the various cycles of action research permitted the coaches to manipulate their behaviours during the three month process rather than simply applying the intervention as they first interpreted it. Thus it is likely that, in accordance with Reason and Bradbury’s (2008) definition of good action research emerging over time in an evolutionary and developmental process, the intervention was stronger at the end of the process than the beginning, which has important implications for practical coaching interventions.

A further significant implication of this study is that, such a collaborative action research process could be applied to any aspect of coaching practice that groups of coaches identify as something that they want to develop or improve upon collectively. A limitation of the process was that a small minority of the coaches found it difficult to find time to complete their reflective logs on a regular basis prior to the focus group discussions, which limited their contributions to some of the discussion forums. This was effectively and sensitively dealt with by the head of performance development (the action researcher in this study), by reminding them of their collective responsibility to improvement and change practice, whilst still acknowledging the real life difficulties they encountered and the contesting demands on their time.

Finally, although the primary focus of this study was to be an applied piece of research, it is worth considering some potential implications for the theoretical aspects of the mastery TARGET structures. In particular, there were some concerns expressed by the coaches about the grouping structure and whether mixed ability groups are more mastery or ego involving, as well as the issues of differentiation that emerged. Furthermore, there were some real difficulties in providing private feedback in a sport coaching environment which led to the focus on ‘individual’ rather than purely ‘private’ feedback in sessions. Learning from the feedback given to others was also an area of discussion and concern in fostering the most effective learning environment. Such theoretical aspects are worthy of further investigation and research in sport coaching contexts.

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**Appendix A – Coaches Reflective Log (Original)**

**Hockey Centre Head Coach - Reflective Log**

After each session as Head Coach please complete the reflective log below and document your experiences of implementing a mastery motivational climate through the use of the TARGET structures.

| |
|---|
| How easy or difficult was it to take the Mastery Climate theory into practice? |
| |
| How did you implement this? |
| |
| What were the difficulties you encountered in applying the TARGET structures? |
| |
| Which parts of the structures were most useful? And why? |
| |
| How helpful was the theory in helping you address your coaching issues within the 360 programme? |
| |
| Which aspects of TARGET would you like to further explore going forward? |
| |

## Appendix B – Cisco Webex Functionality

Cisco Webex is an online platform designed to allow ease of collaboration with colleagues regardless of location. The virtual meeting place allows for the dissemination of files and video through screen sharing. There is also the capability to utilise a whiteboard for diagrams to aid in learning.


Furthermore the facility allows for the recording, both video and audio that aids in the data analysis procedure.

## Appendix C – Coaches Reflective Log (Adapted)

| 360° Hockey Centre Head Coach - Reflective Log | |
|---|---|
| After each 360 session as Head Coach please complete the reflective log below and document your experiences of implementing a mastery motivational climate through the use of the TARGET structures. | |
| **Generally how easy or difficult was it to take the Mastery Climate theory into practice?** | |
| | |
| **Can you give any examples of this?** | |
| | |
| **How did you implement the TARGET structures during the session? Please give practical examples and why.** | |
| **Task** | |
| **Authority** | |
| **Recognition** | |
| **Grouping** | |
| **Evaluation** | |
| **Time** | |
| **What were the difficulties you encountered in applying the TARGET structures?** | |
| | |
| **Which were most uesful and why?** | |
| | |

## Appendix D – Head Coaches Tip Sheet

### TARGET TIP SHEET

| | MASTERY FOCUSED |
|---|---|
| **TASK** | Goals – are they self-referenced / Are the players involved?<br>Design – is the task multi-dimensional?<br>Differentiated – are differing abilities catered for? |
| **AUTHORITY** | Who is making the decisions?<br>Is there an opportunity for leadership roles? |
| **RECOGNITION** | Acknowledgement of **improvement** and **effort** given Individually |
| **GROUPING** | What size are the groups and are they mixed ability working co-operatively? |
| **EVALUATION** | When giving feedback is it self referenced based upon improvement and effort?<br>**Non Comparative** – focused on that person only |
| **TIME** | Is the time flexible? What pace is the session moving at?<br>**No Wasted Time** |