Designing and implementing a pedagogical framework to coach rugby sevens athletes who transition from 15-a-side: A collaborative action research approach

Jevon Groves

Director of Studies: Dr. Kevin Morgan

Second Supervisor: Dr. Kerry Harris

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Table of contents

LIST OF FIGURES

List of Tables

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Abstract

To date, there is no published research that considers the pedagogical challenges in coaching rugby union players to transition between the 15-a-side and 7-a-side game. For an emerging country like Hong Kong, where participant numbers in rugby are limited, it is a necessity for players to transition between 15-a-side and rugby sevens. Over a period of 12 weeks, the aim of this study was to investigate how a group of four rugby union coaches (including myself) could utilise collaborative action research (CAR) to develop and implement a pedagogical framework to assist players' transition from 15-a-side to 7-a-side rugby. The pedagogical framework developed, consisted of six constructs that included clarity of rugby sevens strategies and structures; specific micro-skill development; high-speed running games; replication of match scenarios; rugby contact activities; and the use of technology. As a group of coaches, we collaboratively designed, implemented, and developed the pedagogical framework over three action research cycles. The data sources used to evolve the coaches' learning in the AR cycles included focus groups, observations, reflective diaries, and multi-media technology in the form of WhatsApp. Three areas where coaches displayed enhanced pedagogy were the utilisation of individual and collective feedback, becoming more deliberate in their planning of and reflecting on practice, and successfully employing creative pedagogies to engage the athletes. The key challenges encountered by the coaches were doubting their own decisions, feeling redundant in coaching sessions and concerns about overcoaching. At the end of the 12-week period, an overall reflective evaluation was conducted to discuss the utility of the coaches' CAR and, how it developed their knowledge and pedagogical practice. This study provides a unique pedagogical framework to coach players who transition between 15-a-side and rugby sevens and in doing so, addresses the dearth of pedagogically focused research in rugby sevens. Further, the study is the first to utilise CAR amongst a group of coaches in a rugby sevens environment to practically apply the pedagogical framework to enhance the transitional issues of players from 15-a-side to rugby sevens.

Chapter One - Introduction

1. Introduction

1.1 Personal background

The motivation for this thesis was engendered from my personal and professional background as a professional rugby sevens and 15-a-side player for ten years. I experienced first-hand the opportunities and challenges that an athlete faced when intermittently transitioning between rugby sevens and 15-a-side. Post my playing career, I transitioned from playing professional rugby to coaching rugby sevens on a full-time basis in Hong Kong. Equipped with playing experience, coaching experience, and an academic background, it positioned me with a unique perspective on the challenges of the transitioning rugby sevens player.

1.2 Setting the scene

Rugby sevens is a unique and complex field-based team sport deriving from 15-a-side rugby union (World Rugby, 2014). The very essence of the game requires seven players to "manipulate space to advance the ball across the opponents' try line to score points" (Henderson *et al*. 2018, p.49). For consistent success at international level, the discipline requires a combination of fitness and physical ability, as well as the execution of a range of fundamental technical skills to compliment tactical and strategic considerations (Higham *et al*. 2012, 2013; Hughes & Jones, 2005; Meir, 2012). International rugby sevens competitions are usually formatted so that each tournament is contested over a period of 2 to 3 days with up to six matches over that timeframe. Typically, teams are required to compete in up to three matches of 14 minutes per day with approximately three hours rest time between performances. These inherent challenges to coaching and playing rugby sevens have prompted researchers to limit their investigations to sport science for enhancing performance, whereas the pedagogical aspects of coaching have been somewhat neglected (Flatt & Howells, 2017; Marrier *et al*. 2018, Peeters *et al*. 2019; Schuster *et al*. 2018).

To date, research relating to coach pedagogy in rugby sevens is scarce. At present, the only rugby sevens specific research published is that of Light, Harvey and Mouchet (2012) who drew upon Game Sense pedagogy and Complex Learning Theory (Davis & Sumara, 2003) to provide suggestions for improving decision-making ability in rugby sevens by adopting a holistic approach to coaching. Their study suggests that improvements in decision-making will emerge from playing well designed training games, but the most important element is the pedagogy employed by the coaches. This implies that coaching pedagogy in rugby sevens is

an under explored topic worthy of research. Further, to date, there is no published research that considers the pedagogical challenges for coaches in working with athletes who are transitioning from the 15-a-side game, which is this study's unique contribution to knowledge.

Fundamental differences exist between 15-a-side rugby union and rugby sevens, namely, the numerous technical and tactical intricacies of scrum[1] and lineout [2] together with the significantly longer match period of 80 minutes compared to 14 in rugby sevens. With a total of 30 athletes on a field with the same dimensions as rugby sevens (100x70metres) the 15-a-side game can ultimately lead to more collisions which has driven research to concentrate on issues of injury prevention and concussion (Burger, Lambert & Hendricks, 2020; Cosgrave & Williams, 2019; Rafferty *et al*. 2018). As such, World Rugby (the governing body of rugby union), has a portion of their website labelled *Research and Expert Papers* with a firm focus on injury surveillance and prevention but very little on coaching pedagogy (World Rugby Player Welfare, 2020).

World Rugby divides the global game of both rugby sevens and 15-a-side into three tiers. Tier one consists of the teams in the Six Nations – England, France, Italy, Ireland, Scotland, and Wales – and those who compete in the southern hemisphere Rugby Championship – Argentina, Australia, New Zealand, and South Africa. Tier two countries include the European teams of Georgia and Romania, the North and South America nations of USA, Canada, and Uruguay, along with Namibia from Africa, Japan from Asia, and Pacific countries such as Samoa, Tonga, and Fiji. The final tier of World Rugby includes the emerging nations of Brazil, Portugal, Spain, Germany, Russia, and Hong Kong. The basis for this banded tier system relies on six assessment and performance outcomes for the men's 15-a-side game with no criteria for women or rugby sevens (World Rugby playbook 2016-2020):

1. Past performance – Men's national team, 'A' team, or under 20's;

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[1] The scrum is a means of restarting play after a stoppage which has been caused by a minor infringement of the laws (for example, a forward pass or knock on) or the ball becoming unplayable in a ruck or maul. The scrum serves to concentrate all the forwards and the scrum halves in one place on the field, providing the opportunity for the backs to mount an attack using the space created elsewhere.

[2] The lineout is a means of restarting play after the ball has gone into touch (off the field of play at the side). The lineout concentrates a selection of forwards in one place near to the touch line, so the backs have the rest of the width of the field in which to mount an attack. The key for the forwards is to win possession and distribute the ball effectively to the back line

2. Future potential – Player depth, age grade pathway;

3. Rugby World Cup campaign – Planning, coaching, culture and environment, sport science and medicine, team management;

4. High-performance programme – Leadership, daily training, environment, player base, quality of coaching, officials, sports science and medicine;

5. Budget – Planning and resourcing; and

6. Critical success factors – Features which are unique to each individual nation.

From this assessment criteria, there are numerous factors that ought to be considered. However, the depth of player participation is a significant issue for an emerging nation such as Hong Kong, resulting in an obligatory transition between both 15-a-side and rugby sevens throughout a calendar year. More details on participation numbers in emerging nations will be discussed further, following a closer inspection into the background of Hong Kong rugby.

1.3 Hong Kong rugby then and now

Rugby union has been woven into the fabric of Hong Kong dating back to the late 1870s. Players from this era were composed of British expatriates who engaged in rugby union for recreation. Rugby union and the development of the game has been, and still is, inextricably linked with the socio-economic and political development of the region (Moore, 2003). Fast forward 150 years and the manufacturing of rugby in Hong Kong has completely transformed the whole rugby backdrop with the introduction of domestic leagues and international teams for both senior and age grade men and women in 15-a-side and rugby sevens.

Domestically, the Hong Kong 15-a-side game has 61 men's teams competing in eight divisions ranging from the Premiership down to community league three. The top domestic league currently consists of six teams including:

- Bloomberg Hong Kong Scottish
- Borrelli Walsh USRC Tigers
- Herbert Smith Freehills HKU Sandy Bay
- DAC Kowloon Rugby Club
- Natixis Hong Kong Football Club

- Société Générale Valley

The Premiership season is played over ten rounds with the top four teams competing for the grand final trophy. In contrast to this, there is no domestic league for rugby sevens with only an annual tournament held every year resulting in far less participants engaging with rugby sevens compared to the 15-a-side game.

From a national performance perspective, Hong Kong is divided into two organisations. Established in 2015, the Elite Rugby Program (ERP) is the full time professional 15-a-side platform that aims to strengthen the domestic Premiership, as well as the Hong Kong national 15-a-side team that competes in competitions such as the Asian Rugby Championship[3] and World Cup Repêchage[4]. Separate to some degree, but inextricably linked, is the rugby sevens programme which, since August 2013 has been an elite sport (Tier A) at the Hong Kong Sports Institute (HKSI). The HKSI is the government's agency responsible for providing a high-quality training environment and support for high-performance athletes, particularly since the acceptance of rugby sevens as an Olympic event (2016). Under the Hong Kong Special Administrative Region (HKSAR) government's elite vote support system (EVSS), achievements of both senior and junior athletes at major international competitions are used as the selection criteria to identify high-performance sports to be supported by the HKSI for a period of four years. A performance review is conducted every two years which is aligned with the Asian Games[5] and Olympic Games, providing support for sports within the four-year cycle (Hong Kong Rugby Union, 2020a). The foundation of the HKSI's elite training system is the sports scholarship scheme which provides comprehensive support for high-performance athletes competing on the international stage (Hong Kong Sports Institute, 2020). A grant cannot be received by an athlete until they attend an international tournament (e.g., Asian Sevens Series[6], Asian Games or Olympic Games) and meet the entrance requirement under this scholarship scheme. Another major international tournament, and firmly established as

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[3] The Asia Rugby Championship, or ARC, is an annual rugby union competition held amongst national rugby sides within the Asia Rugby region (https://www.asiarugby.com/asia-rugby-championship/).

[4] The Repêchage tournament will feature four teams playing in a round-robin format with the winners qualifying for Rugby World Cup 2019 https://www.rugbyworldcup.com/news/123152).

[5] The Asian Games is a continental multi-sport event held every four years among athletes from all over Asia.

[6] The Asia Rugby Sevens Series is the premier sevens tournament for rugby in Asia and the member unions (https://www.asiarugby.com/asia-rugby-sevens-series-2/).

the World Sevens Series[7] premier event, is the Hong Kong Sevens. Since the first Hong Kong Sevens was held on the 28th of March 1976 it has grown to be synonymous with the game of rugby sevens. The iconic tournament is split into two men's competitions, the World Series teams (mainly tier one nations) and the men's qualifier[8] (Tier two and emerging nations which includes Hong Kong).

World Rugby has strict qualification rules for representative sport for countries like Hong Kong, which significantly impacts on athlete availability for sports like rugby sevens (World Rugby, 2016). Traditionally, Hong Kong Rugby has relied heavily on the expatriate population to support player numbers in both the domestic and international game. World Rugby Regulation 8 refers to the eligibility of a player to represent a national team based on either the individual, their parents or grandparents being born in that country or having residency in that country for a certain amount of time. From 31st December 2020, Regulation 8 has altered the qualification process from the usual 36-month consecutive residence to 60 months if an athlete was not born in Hong Kong and their parents, grandparents were also not born in Hong Kong. This limits the qualification of expatriates on residency grounds, potentially resulting in less players available to compete internationally, forcing a smaller qualified base of athletes to transition between rugby sevens and 15-a-side. An additional limiting factor restricting athlete availability for the Hong Kong sevens programme is the fact that to play in Olympic sanctioned tournaments, such as the Asian Games or Olympic qualifying events, athletes must hold a HKSAR passport which is only issued to permanent residents (after seven years of residency) or players who hold Chinese citizenship. The reason for investing in expatriate rugby players stems from the perception that traditionally they are more talented and experienced players based on their country of origin where rugby is predominately their number one national sport. In contrast to this, football, basketball, swimming, badminton, table tennis and running all have the most participants from Hong Kong nationals, leading to a decrease in both the numbers and ability of the local population to participate in rugby sevens. Out of 506 secondary schools both local and international in

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[7] The HSBC World Rugby Sevens Series consists of 10 tournaments held around the world. There are 15 'core' teams who participate at each round with the 16th team being an invitational team (https://www.world.rugby/sevens-series/series-info).

[8] Since the 2012-13 season a promotion/relegation system from the series came into effect. Qualification to become a core team takes place in Hong Kong (https://www.world.rugby/sevens-series/series-info).

Hong Kong there were only 37 schools that participated in rugby sevens in 2019 (HKSSRC, 2020).

In 2016, World Rugby published playing figures for the global game. Taking the men's qualifying tournament for the World Sevens Series as an example, together with Hong Kong, the top seeded countries in this competition included Russia, Germany, Chile, and Japan. Figure 1 shows the player numbers for registered senior male rugby players in those countries.

Figure 1. Male rugby players from top seeded countries in the World Sevens series qualifying tournament
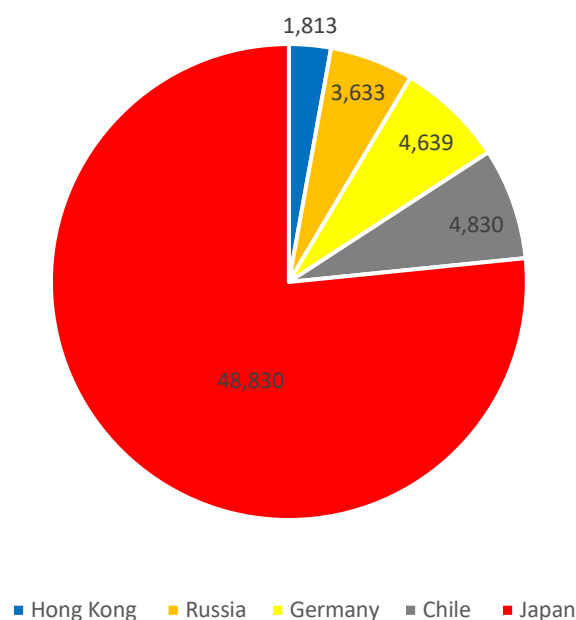
This highlights a significant disparity in the senior male playing populations of these competing nations, resulting in a much greater necessity of transitional athletes (from 15-a-side to rugby sevens) for Hong Kong compared with the other tier two or emerging nations in this competition. Regardless of its small playing population, Hong Kong is required to compete in a multitude of international competitions throughout a calendar year across both rugby sevens and 15-a-side with currently only 60 fulltime professional athletes, 28 from rugby sevens and 32 from 15-a-side (Hong Kong Rugby Union, 2020b). In 2019, there were 12 international rugby sevens tournaments (Figure 2), three international 15-a-side competitions and six months of the domestic league, leaving only one month of rest for the

athletes. Moreover, not all athletes would play every tournament and where there was conflict in terms of scheduling, tournaments would be prioritised based on the importance of the outcome. For example, the Asian Games or Olympic tournaments, where funding is paramount, take precedent over domestic league or 15-a-side international competitions.

Figure 2. 2019 tournament schedule
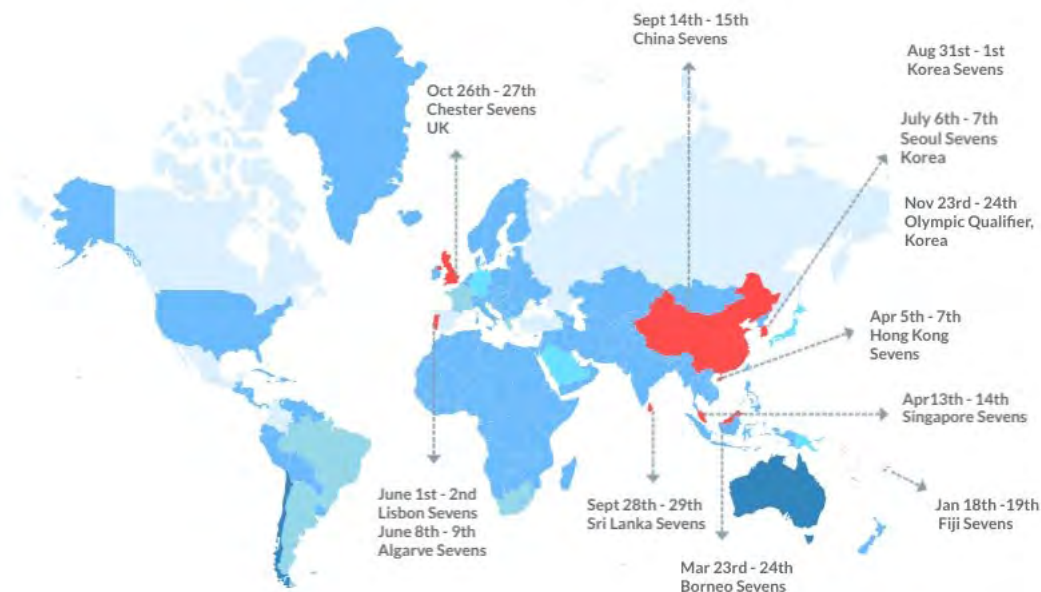
It could be argued that rugby sevens and 15-a-side rugby in tier one nations may have been viewed as dichotomous with variations on rules and styles of play (Staff, 2019) and with players beginning to specialise in either 15-a-side or rugby sevens (Higham *et al*. 2013). However, it is still a necessity for many tier two and emerging countries (particularly Hong Kong), to have athletes who can transition between both sports in order to be able to compete internationally. In light of this context and the extensive research being limited to the sports scientific components of rugby sevens and 15-a-side (Flatt & Howells, 2017; Marrier *et al*. 2018; Peeters *et al*. 2019; Schuster *et al*. 2018), it leaves a dearth in pedagogically focused research for sports coaches engaged with transitional rugby athletes.

1.4 A coach's role in athlete transition

It has generally been accepted that sports coaching is a complex, dynamic, situated, multifaceted and inherently ambiguous process (Potrac, Jones & Armour, 2002). It can be viewed as a social, relational, and pedagogical practice within a cultural context (Cassidy, Jones & Potrac, 2015). Pedagogy in this sense, can be a problematic process that incorporates the interaction between how one learns, how one teaches, what is being taught (Lusted, 1986) and the context in which it is being taught (Cassidy, Potrac & McKenzie, 2006). Interestingly, the professionalisation of coaching has been the catalyst for numerous categories of coach, particularly in rugby union. Specialist coaching roles in rugby include defence coach, attack coach, kicking coach, forwards coach, backs coach, scrum coach and the more recently coined term transitional coach (Williams, 2018). A transition coach in this context is tasked with managing athlete development with a view to ensure a pathway from age grade rugby to represent senior regional or international teams.

Everri (2014) used the work of Breunlin *et al.* (2011) in education, to distinguish between transitions such as pupils starting and finishing school years, which correspond to a macro level transition while smaller movements constitute micro transitions characterised by everyday interactions. In a similar fashion, transitional research in sport has focused on the macro transition of athletes from junior to senior competition (Alfermann & Stambulova, 2007; Wylleman & Reints, 2010). Key findings from this research highlight distinct transitions from a chronological, psychological, psychosocial, and academic perspective. By taking this macro concept of transition, it leaves a paucity of research to inform sports coaches on the smaller micro transitions that can occur, with one such example being the intermittent transition of rugby sevens and 15-a-side athletes throughout a season.

Transition is a complex process, and a better understanding of that complexity is necessary to inform those responsible for coaching those particular athletes (Hollings, Mallett & Hume, 2014). To gain a better understanding of this complexity, it would be useful for coaches to look at transitions in three categories. Firstly, Normative transitions being predictable and anticipated and part of a sequence such as entering and exiting a certain stage. For example, moving from junior to senior, amateur to professional based often on a definite sequence of age related biological, social, and emotional events or changes generally

related to the socialisation process (Baltes, 1987; Wapner & Craig-Brey, 1992). Career termination is the clearest example of a normative and even inevitable transition.

Secondly, Non-normative transitions have no set pattern, making them more complex in nature. For athletes, these non-normative transitions may include a season ending injury, the interchanging of coaches, selection and non-selection issues and unanticipated termination from the team which is commonplace in elite sport. Consequently, the "low predictability of non-normative transitions explains why athletes might find these more difficult to cope with" (Stambulova et al. 2009, p.398).

Thirdly, and more recently, a new category of quasi-normative transitions has been introduced as transitions predictable for particular types of athletes (e.g., Olympic Games) with a possibility to prepare for in advance (Schinke et al. 2015; Stambulova, 2016; 2020). Although qualification is required, the major quasi-normative transition that Hong Kong rugby sevens athletes and coaches experience would be competing in the Asian Games.

As a complex process, the transition between 15-a-side and rugby sevens has characteristics of normative, non-normative and quasi-normative transitions. The normative and quasi-normative can be considered a macro concept as they allude to the scheduling of tournaments and events. Having to cope with injuries, selection issues and the different relationships between the changing of coaches can be considered the non-normative micro-transitions that can create a difficult environment to perform and in which a coach and coaching pedagogy can play a significant role. This highlights not only the need for rugby coaches to recognise the transitional challenges from an organisational and sports science perspective, but also to combine that with flexible coaching pedagogy to enhance the transition between both rugby sevens and 15-a-side.

Within the Hong Kong Sevens program, I am the assistant men's coach and responsible for coaching team defence, contact area (ruck)[9] and set piece[10], positioning me at the heart of engaging with athletes who intermittently transition from the 15-a-side game on a regular basis. This presents the opportunity to collaborate with other coaches within the same

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[9] A ruck is formed if the ball is on the ground and one or more players from each team who are on their feet close around it. Players must not handle the ball in the ruck and must use their feet to move the ball or drive over it so that it emerges at the team's hindmost foot, at which point it can be picked up.

[10] Set piece refers to restarts methods of rugby, including scrum, lineout, free kicks, and kick offs.

environment, gaining different perspectives, with the intention of creating more pedagogically focused research into rugby sevens.

1.5 A brief introduction to action research

Action research (AR) is a framework that unravels everyday problems experienced by practitioners in the field producing an opportunity for actionable knowledge (Cohen & Manion, 1994). One fundamental aim of AR is to problem solve through enhancing communication and collaboration amongst groups making their organisational environments function more effectively (Hart & Bond, 1995). Collaborative action research (CAR), which is a type of AR involves "climates of inquiry in communities of practice, often with different stakeholders functioning as co-researchers" (Mitchell, Reilly & Logue, 2009, p.345). Consequently, AR provides a valuable method of inquiry for this study into transitional rugby athletes.

Considering all the aforementioned, the aim of this study was to investigate how a group of rugby union coaches can utilise CAR as a means to develop and implement a pedagogical framework to assist players' transition from playing the 15-a-side to the 7-a-side game. The specific objectives were to:

1. Develop an innovative and dynamic transitional coaching framework in rugby sevens;
2. Explore the opportunities and challenges for coaches in developing and using the framework; and
3. Evaluating the utility of coaches' CAR to develop their knowledge and create pedagogical change.

This research will further build upon and advance CAR studies in sports coaching. Initial AR studies in sports coaching looked at developing interactive, situationally specific learning opportunities that can make a long term, sustainable impact on coaching practice (Jones, Morgan & Harris, 2012; Nash, 2015; Trudel, Culver & Werther, 2013). More recent studies have adopted investigations using an AR design in sports such as Hockey, Rugby Union and Volleyball (Clements & Morgan, 2015; Chapron & Morgan, 2019; Santos & Morgan, 2019). This study will provide specific value to researchers and practitioners in developing a

contemporary insight into coaching pedagogy, particularly regarding transitional athletes in rugby, with the wider implications applicable to other team sports who experience similar coaching dilemmas.

In terms of structuring the thesis, following the introduction, a more comprehensive and critical review of the literature related to the study will be presented. This includes five areas used to frame the study: i) transitions; ii) sports coaching; iii) coach learning; iv) reflection; and v) reflexivity along with action research. Additional literature review sections will be added during the AR cycles which reflects the evolving nature of the AR process. The methods will follow the main literature review, which will then lead into the results, discussion, and finally the conclusion.

Chapter Two – Literature Review

2   Literature Review

2.1 Introduction

The following chapter is divided into five sections that focus on the literature used to frame the study and to guide the initial baseline phase. The first section critically examines the existing sports transition research, comparing and contrasting this literature to the coaching of transitional rugby sevens athletes. The second section will explore how sports coaching as pedagogy has evolved. The third section investigates the types of learning coaches may experience and the connections to AR. Section four positions research on reflective and reflexive practices under a critical lens to analyse the contested nature and potential links to coach learning and the AR process. Lastly, the final section will illustrate how AR paradigms have been used as a foundation of professional development and therefore, can be an adopted method in the enhancement of coach learning and pedagogy to achieve the aim and objectives of this study. Consistent with the evolving nature of AR (McNiff, 2013), further literature is reviewed between the AR cycles, focusing on additional areas that emerged out of the AR cycles.

2.2 Transitions – Macro vs Micro

Transitions are an inevitable part of human experience, and the concept has been related to a variety of subject matters during the last six decades. This includes life span development (Erikson, 1963); occupational planning (Hopson & Adams, 1977); educational processes (Newman *et al*. 2000); social support (Cutrona & Russell, 1990), and the processes of aging (social gerontology), retirement and dying (thanatology) (Cumming & Henry, 1961; Kübler-Ross, 1969). Historically, pioneer sports transitional research has focused on athletic retirement and used theoretical frameworks of social gerontology and thanatology to explain this phenomenon (Wylleman, Lavallee & Alfermann, 1999). Although these theories were instrumental in stimulating research into career transition, they were criticised for portraying this type of transition as an inherently negative event assuming that retirement needs serious adjustment when it might not necessarily be the case (Gordon & Lavallee, 2012). This prompted researchers to consider the termination of athletic careers as a transitional process, rather than a singular event, with Schlossberg's (1981) Model of Human Adaption to

Transition coming to the forefront. Schlossberg and colleagues proposed (Charner & Schlossberg, 1986; Schlossberg, 1981, 1984) that this model has three major sets of factors that interact during a transition, including:

a) The characteristics of the individual experiencing the transition (e.g., psychosocial competence, gender, age, previous experience with a transition of a similar nature);
b) The perception of the particular transition (e.g., role change, affect, occurrence of stress); and
c) The characteristics of the pre- and post-transition environments (e.g., the evaluation of internal support systems, institutional support).

Although the transition out of elite sport became a well delineated topic of study as reflected by numerous publications (Lavallee, Sinclair & Wylleman, 1998; Lavallee, Wylleman & Sinclair, 1998), little attention was paid to the broad range of transitions that athletes may face during their sporting career. One unique example from this study being athletes combining two sports, for example, playing professional rugby sevens and 15-a-side rugby.

In the early 2000s, an observable shift occurred in the literature which emphasised the whole career approach, focusing on a range of transitions during an athletic career in addition to retirement or career termination (Durand-Bush & Salmela, 2001). This observable shift provided a catalyst for progressions in athletic career transitional theory to include the whole person, emphasising the intersection of developmental task stages, and challenges relevant to children, youths, and adults (Stambulova *et al*. 2009; Wylleman & Lavallee, 2004). These modern frameworks embody a holistic, lifespan and multi-level approach to best capture the athlete's experience. Wylleman, Lavallee and Alfermann (1999) proposed a developmental model that (a) takes a 'beginning-to-end' perspective and (b) reflects the developmental, as well as the interactive, nature of normative transitions at athletic, psychological, social, academic, and vocational levels.

Objectively, transitions normally come with a set of specific demands (related to practice, competitions, communication, and lifestyle) that athletes must cope with to be successful in their sport or to adjust to, post career (Alfermann & Stambulova, 2007). Alternatively, they can be viewed subjectively and are "associated with stress and uncertainty about whether the situation will change for the better or the worse" (Stambulova *et al*. 2009,

p.398), resulting in a perceived personal and social disequilibria (Wapner & Craig-Brey, 1992). Considering the aforementioned it seems researchers have principally focused on the identification of predictable and sequential transitions which are normative in nature with Wylleman and Lavallee (2004) an example of this, paying less attention to the occurrence of non-normative transitions which may be harder to manage successfully.

Successful transition takes place when the athlete can develop and effectively use all the necessary resources such as previous experiences, knowledge and understanding along with a positive attitude to overcome transitional barriers (Stambulova *et al.* 2009). Stambulova *et al.* (2009) cogently described "transitional barriers to include all internal and external factors interfering with effective coping of specific competencies, interpersonal conflicts, and difficulties combining sports with other aspects such as work or study" (p.399). Having touched upon causal factors of transition such as age and physical ability when moving from junior to senior, or amateur to professional, there may be developmental factors manifesting themselves during athlete transition. Regarding developmental factors associated with the transition process, researchers have shown that athletic identity, that is, the degree to which an individual identifies with the athlete role can have a significant effect on the quality of adjustment (Brewer, Van Raalte & Linder, 1993). Coaches need to understand that "identities ascribed to individuals become one further element among a broader constellation of factors that have to be brought into alignment in the struggle to shape the outcomes of the organisation" (Schofield, 2003, p.333).

Participation and continued development in competitive sport can have a significant influence on the way self-identity develops (Brewer, Van Raalte & Petitpas, 2000; Lupo *et al.* 2017). An athlete's maturing of self-identity is vitally important and, depending on the level of development, the effects can be both positive and negative. Benefits of positive athletic identity include "adherence to and involvement in sport and exercise, development of athletic skills, sense of self, and confidence" (Gordon & Lavallee, 2012, p.12). However, Bussmann and Alfermann (1994) stressed that only 14 out of 51 national elite junior athletes made it to senior level as negative perceptions of self-identity may have been a contributing factor in dropout of the sport. Conversely, there are potential risks of strong athletic identity relating to difficulties athletes may experience during career non-normative transitions associated with deselection, injury, and athletic career termination (Murphy, Petitpas & Brewer, 1996; Pearson & Petitpas, 1990). It has been suggested for coaches to gain a better

understanding of how transitions affect athletes, explorations of identity could come through a narrative approach (Ronkainen & Ryba, 2019).

For athletes to overcome the impact of non-normative transitions, supportive relationships can play a significant role during the sporting career (Wylleman & Lavallee, 2004). Rees and Hardy (2000) highlighted the importance of social support to high level performers by significant others. Unquestionably, a coach is part of the athlete's social network, playing a vital role in the successful transition of the athlete in the environment they create, behaviours they display and socio-pedagogical influences.

Having stage like models to describe athletic transition suggests that athletes' careers and transitions are linear and not diverse and more importantly, "these models have not been systematically tested" (Park, Lavallee & Tod, 2013, p.42). To discern the nonlinearity of sport transitions, Stambulova, Ryba and Henriksen (2020) proposed the athlete career discourse (ACD) to combine the body of knowledge about transitions for practitioners and researchers. One major conceptualisation that underpins the basic premises of the ACD is the cultural praxis of athletes' careers (Stambulova & Ryba, 2013; 2014). The scope of work of the ACD and the cultural praxis of athletes' careers is too vast to cover in detail within this thesis, however, the following provides the basic tenets that would be most applicable to sports coaching.

During cultural transitions (athletes moving from one country to another) there is a *pre-transition phase* whereby a person can efficiently prepare and minimise shock upon arrival "by means of networking, information gathering, and emotional support" (Stambulova, Ryba & Henriksen, 2020, p.15). Rugby coaches can adopt similar concepts. For example, to an athlete who transitions from 15-a-side to rugby sevens, coaches can organise a network of players to interact with upon arrival, provide written or visual information in a form of a playbook and keep in regular contact via multimedia or face to face meetings if possible.

Organisationally, research has indicated that environments are most successful in supporting athletes when efforts of different parts of the environment are integrated and when there is recognition of the need for coherent messages and optimal support from different stakeholders (Harwood & Knight, 2015; Henriksen & Stambulova, 2017; Knight, 2016; Martindale & Mortimer, 2011). This stresses that for coaches to create favourable environments for the transition of athletes, it is imperative the organisations involved

endeavour to co-operate. Disregarding a supportive environment may lead to the athletes' inability to cope with the demands of transitions resulting in elevated stress, compromised mental health, burnout, and dropout (Stambulova, Ryba & Henriksen, 2020). Henriksen et al. (2018) discovered interventions that have been successful in dealing with sports transitions which could be adopted by coaches. These include a thorough assessment of athletes' needs, a whole person approach, following the athletes in different contexts over time and including significant others. Moreover, the research has suggested that coaches providing opportunities to encourage a set of competencies for athlete transition such as "empowerment, cooperation and meaningful relationships" (Stambulova, Ryba & Henriksen 2020, p.18) has significantly helped the athletes.

In summary, transitional research has been focused largely on a macro level, particularly, the movement from one event to another with an example being from 15-a-side to rugby sevens. Consequently, little attention has been paid to the micro %or daily interactions that the athlete will face, with a coach playing a pivotal role in the ability to transition effectively. The lack of theoretical or practical research into the micro transition of athletes ultimately leaves coaches at a disadvantage in terms of social, cultural, and pedagogical learning.

2.3 Sports coaching as pedagogy

Since the pioneering work of Jones' (2006) and his conceptualisation of the 'sports coach as educator', coaching has been positioned at the interface of teaching and learning. Coaching has also been recognised as a social, non-linear process, characterised by complexity and ambiguity (Jones, Bowes & Kingston, 2010; Jones, Edwards & Viotto Filho, 2016; LeBed & Bar-Eli, 2013). In addition, sports coaching is a highly contested activity rooted in numerous relational networks involving actors who are constantly intertwined in negotiation and exchange (Crossley, 2015; Jones, Edwards & Viotto Filho, 2016). As interest in sports coaching as pedagogy increased, Nelson, Groom and Potrac (2016) text entitled 'Learning in sports coaching' came to the forefront of providing a broad range of pedagogical viewpoints to help navigate the complexity of coaching.

Factors that contribute to the complexity of sports coaching include distinctive temporal and contextual components. Jones (2019) highlighted the temporal nature of the coaching trajectory. In terms of the coaching act, it draws on the past the present and the future and cannot be considered as separate. Despite the non-linearity of coaching, there does appear to be an ordered nature. This relates to coaches structuring their practice days around certain performance components. However, the undoubted order of this is constrained by the contingency of context. Context constantly drives coaching to be "reconfigured, re-negotiated or repaired into a different order by coaches" (Jones, 2019, p. 354). To make sense of the context and the coaching within it, reflective and reflexive practices have been discussed as a key part of sports coaching and pedagogy. With this in mind, reflection and reflexivity have been discussed and critiqued in a separate section of the literature review. Coaches, practitioners, and academics alike have drawn heavily upon social constructivism where learning occurs through interactions between people and learning theories to make sense of coaching pedagogy.

Sfard, (1998) proposed that educational research is 'caught between' two metaphors for learning: the acquisition metaphor and the participation metaphor. The acquisition metaphor focuses on the learner's 'development', 'internalisation' or 'construction' of knowledge and concepts (Taylor, Noorloos & Bakker, 2017). In contrast, the participation metaphor focuses on the learner's 'membership' of a community and on their capacity for interaction and the perspective of learning as something you 'do' (Sfard, 1998). The central focus of the acquisition metaphor is "the individual mind and what goes 'into it'", whilst the central focus of the participation metaphor is "the evolving bonds between the individual and other" (Sfard, 1998, p.6). Indeed Sfard's (1998) metaphors have provided a useful tool for coach learning and education (Gilbert & Trudel, 2006). However, there is a complex tension between the acquisition and participation metaphors for learning which appear to still not be adequately resolved (Mason, 2007).

As mentioned, coaching is a very social act and typically coaches would not be isolated in a sporting environment. Lave and Wenger's (1999) idea of learning within 'coaches' communities of practice' (CCoP) has relevance for how learning can take place. A CCoP has been described as "a group of people (coaches) who share a common concern, set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis" (Wenger *et al.* 2002, p.4). One critique of CCoP is

that it has been proposed not as a pedagogical technique but rather a tool for theorising or thinking about learning (Wenger, 1998). This is adequate if coaching was just theoretical, however for practitioners a fundamental component of coaching is applying what is theorised or problematised into practice and this is where AR provides a crucial difference between a CCoP.

Increasing attention has been directed towards another constructivist theorists, Lev Vygotsky, and his social historical perspective. Much of Vygotsky's theories focused upon children and due to his early death and translation of his work from Russian to English, his work has been interpreted and applied in many ways. This re interpretation, or neo-Vygotskian approach expands his ideas in other areas such as sports coaching. Vygotsky suggested that optimal learning of higher mental functions occurs in the 'Zone of Proximal Development' which was explained as "the distance between the actual development (of a child) as determined by individual problem solving and the level of potential development, as determined through problem solving under adult guidance or in collaboration with more capable peers" (Vygotsky, 1978, p.86). The ZPD can comprise of two different zones, 'objective' and 'subjective', in the analysis of psychological development, which, in relation to coaching, refer to the subsequent understanding and demonstration of actions required to play the sport. The 'objective' ZPD is not specific to any individual but reflects the psychological functions that need to be formed during a given age period for the next age period to be formed. The subjective zone is called 'subjective' to indicate that one is speaking about the development of an individual person in relation to the objective, historically formed period of future development (Chaiklin, 2003, p. 49). Higher mental functions are grounded in the notion of mediation because humans internalise forms of mediation provided by the environment they are situated within (Wertsch, 2007). Jones, Edwards and Viotto Filho (2016) utilised Leot'ev's (1978) activity theory to provide examples of coaches' use of mediating 'tools' to develop consciousness and meaning within athletes. Forms of mediation in coaching could range from the symbolic to the material which may include using certain language, cones, whiteboards, and utilising technology.

The whole idea of ZPD suggests that after the learner receives support or tutelage from someone in a more capable position in that certain context, the learner internalises the new idea and, consequently, will be likely to perform independently in the next similar problem-solving situation (Wink & Putney, 2002). From a ZPD perspective, to understand how

learning is socially mediated, Vygotsky described a theoretical concept of imitation (Vygotsky, 1978). Vygotsky was cautious about the misinterpretation that imitation was not mindless copying but an act presupposing a degree of understanding. Imitation can be considered as a process that defines the nature of collaboration between the learner and the more capable other and could be used to assess the levels of the ZPD.

A concept that has been related to Vygotsky's ideas surrounding the ZPD, mediation and imitation, is the metaphor of scaffolding. Early research presented scaffolding as support provided by a teacher to a student when performing a task to accomplish what they cannot do alone (Wood, Bruner & Ross, 1976). More recently, scaffolding is considered a pedagogically focused, fluid framework shaped by context, whereby coaches' actions are simultaneously directive and contingent upon emergent performances (Jones and Thomas, 2015). For coaches, to develop understanding and improve subsequent athlete performance, scaffolding must occur within an appropriately constructed ZPD (Thomas, Bailey & Engeness, 2021). Vinson and Parker (2019) suggested that if coaches have a better understanding of the social dynamic of the cultural settings the more likely they are to provide a suitable scaffold for athletes learning. Thomas, Bailey and Engeness (2021) discovered that scaffolding merges the social and the pedagogical, whereby the agency of the athletes and a coach is of a transformational nature reflecting the dialectical interplay between the process of continuous building and enacting of their agentic capabilities.

To support scaffolding for athletes, coaches could adopt concepts from another field of educational study that has been applied to sports coaching which is Noddings' (1984) work in describing and theorising care(ful) action. A vital construct is that caring occurs within connections and relationships (Jones, 2019). Noddings (2003) described the meaning of care to involve a state of engrossment, a regard or inclination toward that something or someone. However, much like the pedagogical relationship the caring relationship is often ambiguous and duplicitous (Johnson, 2000). With numerous athletes within a sport's environment, the distribution of care may become an issue for coaches, presenting difficult conscious decisions which can be laden with conflict and guilt (Jones, Bailey & Santos, 2013). Despite these challenges for coaches Noddings (2003) echoed a call for coaches to really care they must possess an impassioned and realistic pedagogical commitment.

What is clear in this small section discussing sports coaching as pedagogy is that there is no unified theory to coaching but "a general sensibility connected by overlapping themes"

([Gardiner, 2000, p.207](#)). What coaches need to understand is that with no unified coaching theory it will be impossible to know and understand everything. This presents a unique challenge in that athlete and coach learning becomes parallel. Coaches must strive for continuous improvement and learning whilst providing the same opportunities for their athletes.

2.4 Coach learning

The purpose of the next section is to present an overview of the different types of learning that coaches may experience and to discuss the beneficial relationship between AR and coach learning. Using Coombs and Ahmed's ([1974](#)) framework of *formal, non-formal and informal learning,* Nelson, Cushion and Potrac ([2006](#)) were the first to identify this concept of learning within sports coaching. However, caution must be taken by making this distinction between the different types of learning, since they are not "mutually exclusive as many coaches engage in formal, non-formal and informal methods simultaneously" ([Walker, Thomas & Driska, 2018, p.702](#)).

Formal learning would typically appear as coach education programmes organised by sports governing bodies. Such traditional coach education may not have the desired effect on the development of coaches' practice ([Jacobs, Claringbould & Knoppers, 2016](#); [Mallett *et al*. 2009](#); [Stone *et al*. 2020](#)). Formal coach education has predominantly been delivered systematically and has been accused of serving the agenda of the sports' governing bodies or coach developers and not the coach ([Chapman *et al*. 2019](#); [Cushion, Griffiths & Armour, 2019](#); [Stodter & Cushion, 2019](#)). These formal educational programmes have tended to be delivered over short periods of time, usually spaced out over months or even years, with little or no follow up resulting in limited opportunities to facilitate the integration of new knowledge into coaching practice ([Knowles *et al*. 2001](#); [Nash & Sproule, 2012](#)). Coaches often view official coach education courses as merely a tick box exercise or lacking practice-based knowledge in actual coaching contexts ([Nash, 2015](#); [Potrac & Jones, 2010](#)). Nash and Sproule ([2012](#)) produced findings that suggested formal coach education provided sport specific content but lacked other aspects such as pedagogy. In similar fashion with the research into rugby sevens, the curricular content of such formal courses has tended to favour bio-scientific disciplines, frequently neglecting the social sciences ([Jones, 2000](#)). Subsequently, it has been argued that

coaches often leave with an understanding of sport science, with small amounts of technical and tactical awareness of their sport but little appreciation of the pedagogical and socio-cultural aspects relating to the coach's role in the coaching process (Cassidy, Jones & Potrac, 2004). Further, formal learning environments with professional coaches, may limit information sharing due to the fear of divulging team tactics (Occhino, Mallett & Rynne, 2013).

Non-formal learning occurs in any organised educational activity conducted outside the framework of the formal system, such as conferences, workshops, or seminars (Cushion et al. 2010). Although formal and non-formal learning share many similar characteristics, non-formal learning differs in some respects as it presents a particular subgroup (e.g., professional coaches) with alternative sources to those of the formalised pathway (typically short courses delivering on a specific topic). Potentially, formal, and non-formal coaching courses may not account for coaches' constant attempts to steer events through "continuous decision making related to iterative planning, observation, evaluation and reactions to contextual 'goings on'" (Santos, Jones & Mesquita, 2013, p.2). Although, it could be argued formal and non-formal coach learning is beneficial particularly at an early stage of coach learning (Walker et al. 2018), it would be difficult for this type of coach learning to fully prepare coaches in a complex team sport such as rugby sevens, as coaches will be confronted by numerous unforeseen dilemmas and paradoxes (Bjørndal & Ronglan, 2019. For example, they must balance collective versus individual needs, praise teamwork or reward individual performances explicitly, balance short term versus long term needs even if there is player turnover, focus on creativity or pragmatic outcomes along with dealing with player availability for some competitions and not others (Bjørndal & Ronglan, 2019).

When faced with these coaching dilemmas it is often the knowledge developed through informal learning that coaches experience which becomes the most influential to practitioners (Nelson et al. 2006). Informal learning is considered as the "lifelong process by which every person acquires and accumulates knowledge, skills, attitudes and insights from daily experiences and exposure to the environment" (Coombes & Ahmed, 1974, p.8). An argument for the advantages of Informal learning is the unrestricted nature as it can encompass a wide range of information sources to support coach practice including books, conferences, journals and social networking sites (Bailey et al. 2018; Stone et al. 2020; Stoszkowski & Collins, 2017).

If informal learning provides the necessary skills for coaching, it would be beneficial for coaches to engage with AR as an informal, but systematic method of inquiry to improve practice. AR is a framework that unravels everyday problems experienced by practitioners in the field providing an opportunity for actionable knowledge (Cohen & Manion, 1994). Cushion, Armour and Jones (2003) suggested that it is largely through experiences as a group that collective understandings begin to develop and the shared meaning about coaching starts to take shape. CAR provides the platform to problem solve through enhancing communication and collaboration amongst groups making their organisational environments function more effectively (Hart & Bond, 1995). This collaborative aspect of AR relates to what Cushion *et al.* (2003) proposed, in that informal learning occurs through engagement in *informal learning networks*, which are groups of likeminded individuals who connect to exchange information, ideas, skills and resources. If coaches were to engage with CAR in their organisations, there is potential to actively create situations where they can learn from each other, which is an important component in the development and learning of coaches (Cushion, 2001; Salmela, 1996; Smith, 2008; Walker *et al*. 2018). AR can support informal learning by providing the methods to overcome coaching issues by harnessing the skills of reflecting in, reflecting on, and acting reflexively to technical, practical, and critical issues (Nelson *et al*. 2006). Linked to informal learning and derived from education, Beck (2017) explains there is a type of informal AR conducted by teachers in the normal course of 'good teaching'. It is AR in the fact that it meets two criteria; practitioners attempting to improve practice and occurring in cycles. However, it is deemed informal as it does not involve specific planning and systematic data gathering. The benefit here is that coaches can conduct AR to solve problems in their organisations without the perceived formalities that AR may have.

2.5 Reflection and reflexivity

Developing a pedagogical framework, exploring the opportunities and challenges of implementing the framework and evaluating CAR, requires the coaches to reflect upon themselves and their interactions with others. Therefore, the following section will provide a brief background to reflection and reflexivity, informing the reader about the advantages and potential pitfalls of reflective practice within sports coaching and its relevance to AR.

Reflective practice has become increasingly popular as a framework for learning and engaging in it, is a seemingly essential characteristic of professional competence (Cassidy, Jones & Potrac, 2015; Cushion, 2018; Moon, 2004). Reflection is well established in the health professions such as nursing, whereby they utilise the benefits of reflecting *on* practice for continuing development and reflecting *in* practice to ensure its safety and effectiveness, placing reflective practices firmly within their training and education programmes (Mann, Gordon & MacLeod, 2009). Schön (1983) delineated the nuances of reflection-in-action and reflection-on-action. He described reflection-in-action as an unconscious reflective process that happens instantaneously during an event when one is required to solve a problem. On the other hand, Schön described reflection-on-action as taking place after the event and is seen as a more deliberate process. A good deal of reflection is reflection-on-action, where a retrospective view at what has happened can move from being a review of the past to a living practice that anticipates issues and generates emergent learning (Koners & Goffin, 2007).

A multitude of areas have utilised a reflective stance such as art (Roberts, 2001), engineering (Adams, Turns & Atman, 2003) and education (Larrivee, 2000). Reflection is ensconced securely in the vocabulary of learning and professional development in sport (Huntley *et al*. 2014), permeating into the domains of coaching and coach education (Cassidy, Jones & Potrac, 2009; Cushion, 2018; Hall & Gray, 2016; Nelson, Groom & Potrac, 2016). Reflective practice can refer to many facets, including analysing one's own methods, challenging the validity of presuppositions, while assessing the appropriateness of knowledge (Mezirow, 1990). Further, it can incorporate problem solving into learning by applying critical theory to examine such practice (Nelson, Groom & Potrac, 2016).

Reflection *in* practice can be referred to as reflexivity, which describes a process in which researchers or coaches are conscious of and reflect on ways in which their questions, methods and subject position might impact on the study or coaching context (Landridge, 2007). Finlay (2002) suggested that reflexivity has the potential to be a valuable tool to:

1. Examine the impact on the position, perspective and presence of the researcher or coach;
2. Promote rich insight through examining personal responses and interpersonal dynamics;
3. Open unconscious motivations and implicit biases in the practitioner's approach; and

4. Evaluate the process, method and outcomes adopted.

Reflexivity can be considered as "introspection, as intersubjective reflection, mutual collaboration, as social critique, and discursive deconstruction" (Jones, 2019, p.328). Although there is a clear advantage of coaches adopting a reflexive lens to provide a deep inward gaze into every interaction (Ryan, 2005), caution may be required, as a researcher or coach can fall into an "infinite regress of excessive self-analysis and deconstructions at the expense of focusing on the research participants and developing understanding" (Finlay, 2002, p.212).

Few would query that coaches should not practice without "questioning their values, beliefs and ideas, and engage with a process to develop their knowledge to make sense of their experiences" (Cushion, 2018, p.82). Even so, many merely pay lip service to it as reflection has become an ambiguous and axiomatic term frequently dismissed as a common part of coaching practice without looking at both the reasons why and how it manifests within coaching (Cushion, 2018). Making sense of experiences, the differing understanding and application of reflection varies greatly, often using the term to suit the context within which it is being used. Ironically, not questioning reflection within sports coaching neglects the very premise of reflection itself. What is often the case for coaches' reflective practice is the "familiar is not necessarily the known" (Gardiner, 2000, p.5).

Literature in coaching has focused predominantly on the instrumental actions of reflection and its development from a theoretical perspective which can neglect "temporal, emotional and contextual challenges of one's reflective practice" (Hall & Gray, 2016, p.25). Problems encountered by coaches in this regard may be as simple as finding the time to reflect, maintaining a narrow focus on the negatives and lack of support from peers and mentors (Knowles *et al*. 2001). Despite the perceived benefits of having access to peers and mentors (Hughes, Lee & Chesterfield, 2009; Johns, 1995), the discourse of reflection can be adjusted by the subtle and persuasive exercise of power (Gilbert, 2001). This potentially limits its scope for challenge and change in the fear of diverging from someone else's version of normal (Denison, Mills & Jones, 2013). A chief consideration is the extent to which reflection can serve to reinforce, rather than challenge existing beliefs and assumptions, particularly when conducted in isolation. Knowles *et al.* (2001) suggests that personal reflection is often

thought to be "limited by our own knowledge and understanding, therefore sharing experiences with others can create a forum for facilitating an interchange of views" (p.188).

Bleicher (2014) articulated that reflection is the "lynchpin to sustainable change in practice" (p.804). Therefore, in line with using CAR as a means for collective systematic evidence-based reflection, it can provide specific mechanisms where coaches have opportunities to verbalise their thinking and pedagogical knowledge. Cope *et al.* (2020) adopted a CAR approach as a method to "support coaches in thinking in a more critically reflective manner, with the ultimate aim of bringing change to their practices" (p.3). Although, not all investigations of reflective practice during AR are in an organised setting, as researchers have commented on sharing being facilitated through discussions during day-to-day interactions (Bulman, 1994; Scanlon & Chernomas, 1997). To support the benefits of group reflection, Dixon, Lee and Ghaye (2013) proposed a notion of *pedagogy of abundance*, characterised by a more expansive and embracing view of reflective practices. This is conducted through a greater focus on coaches' strengths, talents and attributes and more effective use of shared learning via modern information and communication technologies (e.g., Clements & Morgan, 2015). As pointed out by Cushion (2018), reflective practices should be "understood as social and embodied (practical, physical, emotional as well as cognitive)" (p.91), which is often through deconstructive processes. While reflection in sports coaching has often been associated with this deconstructive process, arguments have been postulated that there needs to be more "reconstructive insight into the nature and direction of coaches' reflections" (Jones & Hemmestad, 2019, p.2). Ennals (2014) deemed that "much of what we learn must then be expressed through action" (p.257), a concept akin to Dewey's (1910) forward thinking reflection or inference which is a key feature that AR can provide sports coaching.

2.6 Utilising action research in sports coaching

AR has been predominantly used in educational research methods in contemporary contexts relating to a teacher's professional development. AR in education typically involves small scale investigative projects within the teacher's own classroom, consisting of several phases which often recur in cycles of planning, action, observation, and reflection (Richards & Lockhart, 1996). Additionally, AR has been used as a modality to introduce critical pedagogies

by teachers in higher educational settings (Baptist & Nassar, 2009; Guy Wamba, 2011; Humphries-Mardirosian, Belson & Lewis, 2009; Taylor & Pettit, 2007).

The positive impact of adopting AR paradigms in educational settings has paved the way for other professions to mimic such approaches, including the professional development of sports coaches. Ahlberg, Mallett and Tinning (2008) adopted a technical AR framework to develop an individual's coaching practice by improving the self-determined motivation of elite youth players via the assistance of a facilitator. Technical AR involves taking an existing theory and applying it to practice (Holter & Schwartz-Barcott, 1993). The study by Holter and Schwartz-Barcott (1993) expressed improvements in practice from the viewpoint of outsiders or facilitators and even from the participants themselves. However, this may create inauthentic conditions where participants accept the legitimacy of practice on the authority of the facilitator rather than their own analysis (Carr & Kemmis, 1986). This lack of reflexive practice by the researchers leaves themselves vulnerable to accusations around their unconscious bias. In the Ahlberg *et al.* (2008) study, it is evident that small improvements into the coaches' practice can be made with a six-week AR process. However, questions remain as to the lasting effect of pedagogical change over a small period.

Similarly, Evan's and Light (2008) attempted to evaluate the impact of a change in coach pedagogy over an eight-week period. The study utilised CAR to develop a more player-centred pedagogy by changing relevancy of training to replicate match conditions and involve players in decision-making, particularly around training content. Within this study, a sport pedagogue with expertise in pedagogy and theories informing them, assisted an experienced rugby coach. The main approach that the sport pedagogue introduced to the coach was Games Sense (den Duyn, 1996; 1997). At its most basic level, Game-Based Approaches (GBAs) (e.g., Game Sense) use questioning to stimulate thinking and tactical understanding of players with self-guided learning. Findings revealed that utilising CAR offered a "useful means of self-directed coach development in which academics in coach education can make a valuable contribution toward both coach development and the groundings of research in the day-to-day practices of coaches" (Evans & Light, 2008, p.36). Additionally, it was concluded that AR is a continuous collaboration with all participants within each cycle reflecting critically. This can improve future practice and enhance learning, allowing for a better understanding of the process of reflection and subsequent decision-making on the next course of action. As sports coaching is littered with numerous issues, the CAR approach can support coaches by providing

systematic pedagogical solutions to complex coaching problems. Moreover, the limitation to Evan's and Light (2008) study is similar to that of Alhberg *et al*. (2008) in that it has a technical orientation to AR and fails to engage the whole coaching environment by just restricting the participants to one coach.

Clements and Morgan (2015) used CAR to develop coach learning within a national talent development system. They adopted a technical orientation by implementing the TARGET framework (task, authority, recognition, grouping, evaluation, and time) through a researcher and coach, to six head coaches, to enhance learning and the motivational climate for development athletes. A mastery motivational climate includes self-referenced or collaborative tasks, democratic leadership, recognition of effort and improvement, groups of mixed ability with individual evaluation and sufficient time for learning to take place (Braithwaite, Spray & Warburton, 2011; Keegan *et al*. 2010). The results of the study encouraged the interaction of coaches to discuss everyday issues with additional support from an online platform permitting communication from a distance which pointed to a possible future direction of the AR paradigm. The benefits for a coaching group adopting such a research paradigm allows for the co-generating of knowledge through collaborative communication, utilising the diversity of experiences within a group as a catalyst for enrichment (Greenwood & Levin, 2003). Other findings suggested the possibility of CAR being used as an alternative to formal coach education, as it is flexible in nature and can be applied to most contexts to identify and develop coaching practice (Clements & Morgan, 2015). Additionally, it can support coach learning through the active adaptation of their existing knowledge and practice in response to contextual experiences, shared knowledge, and critical reflection. However, the technical nature of this AR study focuses on the utility of one pedagogical framework (TARGET) rather than evolving from the coaches' own practice which may limit the findings.

Chapron and Morgan (2019) have recently adopted a more practical AR orientation to their research to circumvent limitations in previous research findings. In this approach practitioners investigated their own issues, rather than the issues which they are asked to investigate, as found in a technical approach. Kincheloe (1991) describes this as a process of articulating their own concerns, planning strategic action for change, monitoring the problems and effects of changes, while reflecting on the value of such change. Although change is a fundamental construct of AR, it relies on the participants motivation for that

change to occur (Bleicher, 2014). This was discovered by Chapron and Morgan (2019), with Chapron adopting a dual role as head coach of an elite rugby academy and lead action researcher. The aim of the study investigated how AR could influence change within a coaching group in relation to collaborative planning, reflection, learning and pedagogic practice. The initial benefit of this dual role provided an opportunity for the coach to take stock of the current situation by discussing it with others and coming up with a joint solution which in turn created foresight into challenges ahead (Kemmis & McTaggart, 2005). As the AR study progressed it was made clear by the authors that the dual role became difficult to manage, as underlying power relations emerged with reference to coaches' contracts and personal reflections. This raised questions about the authenticity of fellow coaches' interviews if this element of power had some control over them. Despite pressure of time constraints, the main findings from this research discovered that through the AR paradigm it is possible to change coaches' pedagogical practice by injecting new knowledge such as problem-based learning (Jones & Turner, 2006), critical discussions and planning.

Santos and Morgan (2019) adopted a similar but contemporary practical approach to AR by developing athletes' creativity through the application of pedagogical principles reported in jazz related literature in coaching volleyball. Findings from this study highlighted that 'privileging creativity' (Kenny, 2014) can be a tool to develop strategic and tactical knowledge raising awareness of athletes' own decision-making. Kenny (2014) refers to privileging creativity as changing the athletes' concept of creativity by "maintaining challenges in playing and building knowledge through leadership and collaboration" (p.7). The authors suggested that because of improved communication, which became more frequent, clear, and concise, the participants level of decision-making improved when confronted with the emergent challenges of the game. Finally, borrowing the concept of *motifs* (stocks of music that can be applied to a wide range of musical contexts), it was adapted to volleyball as a 'playbook' of strategies to provide a framework for the participants to solve the challenges of the game (Sawyer, 1999). Although this study outlines a first-person practical AR orientation it notes that the design has the potential to emancipate the individuals from the inhibiting socio-cultural pressures (Rearick & Feldman, 1999). Emancipatory AR "arises from a critical perspective that seeks to uncover the societal structures that coerce and inhibit freedom" (Rearick & Feldman, 1999, p.335). Limitations to Santos and Morgan's (2019) study indicate the timescale of fourteen weeks may not be enough for a long-lasting impact of

change, the relatively low experience level in sport due to the age range of the participants (10-14 years) and the lack of collaboration with other coaches.

Despite the utilisation of AR in educational and some of the abovementioned coaching domains, there continues to be sparse AR in rugby union coaching, specifically rugby sevens. The challenges to conducting AR in a rugby sevens environment may include, limited timeframe (e.g., Evans & Light, 2008); long lasting impact to change (e.g., Santos & Morgan, 2019) and theory rather than practice driven (e.g., Clements & Morgan, 2015). Additionally, in these studies the process of AR is not always clear and does not expose the participants to the messiness and uncertainty of the methods used (Goodnough, 2008; Nyanjom, 2018). For that very reason, AR is further explained and justified in the following methods section.

Chapter Three - Methods

3   Methodology

In this chapter, the first section outlines the research paradigm and my ontological and epistemological positioning. This is followed by the AR approach and the justification of the qualitative methodology employed. The next section presents my voice, positionality and the participants involved in the study. The ethical considerations required then lead onto the procedures and AR cycles themselves, before explaining and justifying how the data was generated using the methods of focus groups (FG), observations, reflective diaries, and the use of multimedia. The final two sections explain how I ensured quality and rigour in my research, moving onto the data analysis process.

3.1 Ontological and epistemological positioning

This AR study positions itself within the critical inquiry research paradigm with an interpretive standpoint and a transformational purpose. Consistent with Carr and Kemmis' (1986) criteria for critical AR, this study utilises subjective inquiry into participant's interpretations and a relativist ontological perspective. Terry *et al*. (2017) expressed a relativist perspective as an ontological position where there is no external reality discoverable solely through the research process, instead, versions of reality are created in and through research. The researcher cannot look through the participant's words to find evidence of the psychological or social reality that sits behind them, rather the participant's words become the focus of the research. The researcher interprets how these words produce realities to capture an understanding that language does not simply mirror the 'world out there'. It is instead used to construct realities querying taken for granted knowledge.

While ontology concerns itself with what exists, epistemology involves interpreting how a person understands that world and their existence within it (Sparkes, 1992). In what has been referred to as an extended epistemology (many ways of knowing), AR distinguishes four kinds of knowing, reflecting different ways in which we deal with and act within the (coaching) world (Heron, 1996; Chandler & Torbert, 2003):

1. Experiential knowing means direct encounter, a face-to-face meeting through participative empathic resonance with a being (Heron & Reason, 1997);

2. Presentational knowing – the knowledge expressed in our giving form to this experiential knowing through language, images, music, painting and the like;

3. Propositional knowing – the knowledge distilling our experiential and presentational knowing into theories, statements, and propositions; and

4. Practical knowing – the knowledge that brings the other three forms of knowing to full fruition by doing appropriate things skilfully and competently.

Coghlan (2019) stresses the form of knowledge that AR aims to produce is practical knowing – "the knowing that shapes the quality of your moment-to-moment action" (p.54). The next section explains how that knowledge is generated through AR.

3.2 Action research approach

Coghlan and Brannick (2005) explained the framework of AR proceeds through a "cyclical process of consciously and deliberately: planning; taking action; evaluating the action, leading to further action and so on" (xii). Kurt Lewin is widely attributed with coining the term AR (Hart & Bond, 1996; Rapoport, 1970). Lewin described AR as a way of generating knowledge about a social system while, at the same time, attempting to change it (Hart & Bond, 1996). Therefore, the primary reason for the use of AR rather than other forms of research is simply to solve a problem (Dunstan-Lewis, 2000; Gummesson, 2005). It is to find a solution to a problem and effect change to the environment or practice through participation, collaboration and reflection, centring on the participants and managing the day-to-day problems they face (Mckernan, 1996; McNiff, Lomax & Whitehead, 1996; McGaughey, 2007). The principal purpose of AR is to unearth ways to improve practice, thereby creating knowledge (McNiff & Whitehead, 2010). The *action* in AR refers to the careful thinking of the circumstances you are in, how you got there and why the situation is as it is (social, cultural, and historical perceptions) and, crucially, acting upon these thoughts. The *research* component in AR involves data gathering, reflection on the action shown through data, generating evidence from the data, and making claims to knowledge based on conclusions drawn from authenticated evidence (McNiff, 2013). Problematic to action researchers and coaches that are not familiar with AR is that the cyclical fashion is not always linear in nature with numerous interconnected parts, it can move forward, backward and in all directions at once (Gummesson, 2005; McGaughey, 2007).

Practical AR articulates personal concerns, monitors the problems, plans strategic action for change while reflecting on the value and consequences of the change achieved (Kincheloe, 1991). Traditionally, the reflective opportunities offered by AR are founded within reflection cycles (Lewin, 1946). Reflection is a fundamental process to the AR methodology (Kemmis & McTaggart, 1988; Robertson, 2000). Reflective practices during AR are how tacit knowledge is surfaced (Polanyi, 1958; Schön, 1983), providing the beginning for the next AR cycle. For this reason, practical AR can be an iterative spiral of intertwining cycles (Kemmis & McTaggart, 2005), compelling a researcher to modify this structure to the project's specificity (Cohen, Manion & Morrison, 2007; McNiff, 2016). AR has a flexible and emergent nature that can be applied in various ways, allowing for adjustments that are responsive to lived experiences during the research process (Chandler & Torbert, 2003; Kemmis & McTaggart, 1988; Marshall, 2011).

Praxis is 'doing action' and forms the reasoning behind adopting the practical approach – "it remakes the conditions of informed action and constantly reviews action and the knowledge which informs it" (Carr & Kemmis, 1986, p.33). The practical orientation is dialectical, with elements of theory and practice regarded as mutually constitutive, not separate, or distinct and used to enhance or change practice (Carr & Kemmis, 1986). Farrow, Baker and MacMahon (2013) identified a considerable gap in sports coaching between cutting edge research and real-world application. Within the dialectical approach the boundaries between theory and practice fade away because theory is lived in practice and practice becomes a form of 'living theory' (Whitehead, 1989). Additionally, for this to occur, an understanding of practice is necessary along with an in-depth comprehension of the social and historical context that influences it (Kemmis & McTaggart, 2005). Practice is a socially established human activity which shapes and is shaped by practice architectures (Kemmis *et al.* 2013). Practice architectures consist of 'sayings, doings and relatings' of actors involved in the practice, which together form and are formed by the history and traditions of the given practice. 'Good' AR recognises the historical evolution of action as a general macro-level phenomenon and as micro-level continuity of historical action; therefore, action never ends, and the researcher should pay attention to the differing contexts, traditions and methods adopted (Heikkinen, Huttunen & Syrjälä, 2007).

3.3 Qualitative methodology

Critical inquiry during AR is sympathetic to qualitative research methods that take reality to be subjectively "constructed and sustained through meanings and actions of individuals" (Sparkes & Smith, 2014, p.50). Gadamer (1975) postulated the aspiration to achieve rational understandings is illusory, with human understanding never simply *given* in any perception or observation but always prejudiced by an interpretive element that determines how perceptions and observations are understood. In other words, researchers cannot detach themselves from the research; they inevitably become personally engaged and as such, findings are influenced by their perspectives and values (Al-Saadi, 2014). Acknowledging subjective interpretations often proves difficult for researchers, therefore, it is important that within critical inquiry during AR, researchers are committed to actively involve participants in the quest for transformational change (Carr & Kemmis, 1986; McNiff, 2016; Sparkes & Smith, 2014). When subjective interpretations are expressed in AR, they can be laden with contradictions and power relations with researchers producing high-sounding rhetoric about democracy and the rights of people in the decision-making process. On the contrary, they systematically rule people out of that decision-making process for personal gain (McNiff, 2013) or project their own needs onto participants (Watson, 1999). Tekin and Kotaman (2013) discussed that during AR there is no "hierarchical order between researcher and participant" (p.89), viewing them as equal partners because engagement and critical inquiry by all participants are key to success. The success of AR is predominantly about change, however, to portray the social aspect of AR as non-hierarchical is misleading because as research suggests, the "conceptualisations of power are omnipresent to social life" (Jones, 2019, p.46). To bring these types of issues to the researcher's attention qualitative methods sometimes argue for the researcher to adopt a degree of 'bracketing' (Husserl, 1983). Although, bracketing can often be paid superficial attention by researchers (Gearing, 2004), it requires researchers to acknowledge historic beliefs and assumptions through memorandums, interviews, group discussions and reflexive journals (Tufford & Newman, 2010). However, it would be hard to argue against Rose (1985) who declared "there is no neutrality. There is only greater or less awareness of one's biases" (p.77). A potential solution can be found in Coghlan (2019) who suggested that action researchers use "experience, intelligence, judgement and decisions in your organisation to engage with others to come to a shared co-generating of

actionable knowledge" (p.62). Consequently, individuals who are knowledgeable about coaching transitional rugby sevens athletes will provide the "cultural arena or experience to be studied" (Rubin & Rubin, 1995, p.66).

3.4 Voice, positionality, and participants

To acquire a clearer understanding of one's biases from different perspectives, Coghlan (2019) proposed that integrative AR "incorporates all three voices or audiences: first, second and third person" (p.7). First person research addresses the ability of the researcher to foster an inquiry approach to his or her own life (Reason & Torbert, 2001). This can be divided into two perspectives, 'upstream' where the researchers purpose becomes the source of the motivation; and 'downstream' which involves the critical examination of day-to-day behaviour. First person AR was utilised by using organisational knowledge and studies of rugby sevens for personal and professional development relying on my own pre-understanding (insider knowledge of the rugby sevens organisation). Second person research endeavours to create participants as both co-researchers generating ideas, designing, and managing the study; and, co-subjects, by actively participating in the study (Reason & Torbert, 2001). Second person AR was also demonstrated by focusing on practical issues of concern of the rugby sevens organisation in collaboration with other coaches. Third person research aims to create a wider community of learning by sharing the findings of the study (Reason & Torbert, 2001). An active form of third person research is through the 'writing up' process.

To address the aim and objectives, a second person AR paradigm was the primary method adopted. Second person AR involves creating communities of inquiry with one another in which participants are willing to explore the possible incongruities between what is said and what is done (Chandler & Torbert, 2003) and "through face to face dialogue, conversation and joint action" (Coghlan & Brannick, 2014, p.8). Kanuha (2000) classed this as *insider research*, which is conducted with populations of which they are also members sharing an identity, language, and experiential base with the study participants (Asselin, 2003).

This research project comprised of four professional male coaches (including myself) who were responsible for the senior national men's and women's rugby sevens teams. All had either international or professional playing experience within rugby union along with professional coaching experience ranging from 4 to 18 years (Table 1).

Table 1. Participants' age, playing and coaching experience

Coach	Age	Coaching Experience	Playing experience
Jevon	32	4 years	International
Simon	50	16 years	International
Sam	38	18 years	Professional
Arran	29	4 years	Professional

This group was purposively sampled for their experience with coaching in a transitional rugby environment which provides "information rich cases" (Gray, 2018, p.215). As mentioned in the AR approach, my positionality was that of an *insider* not only taking on the role of lead researcher but also combining that with my primary job as assistant coach to the men's sevens team. It must be stressed that contrary to traditional research, this AR study made me an active intervenor and participant rather than a neutral observer in the rugby sevens organisation, making and helping things happen including designing and implementing the pedagogical framework (Coghlan, 2019).

3.5 Ethical considerations

Practical AR combines activities based on morals and ethics, interactions between groups and producing action in an environment (Grundy, 1987; Habermas, 1971). AR is grounded in the philosophy of practical knowing, focusing on the everyday actions of human living. It is driven by choices as people decide what to do together with what they consider valuable as they ponder what courses of action are open to them to make decisions that they choose to act upon (Brydon-Miller & Coghlan, 2018). Therefore, it is important to conduct AR in a way that "goes beyond merely adopting the most appropriate research methodology, by conducting it in a responsible and morally defensible way" (Gray, 2018, p.70). This study aimed to achieve this and was approved by the university's ethics committee with participants given a detailed information document outlining the aim and objectives (Appendix 1). Following this, consent forms were obtained, and coaches were reminded that their involvement was voluntary, and they were free to withdraw at any time without repercussion (Appendix 2). Although, not directly involved in the study, consent forms were requested from all athletes (Appendix 3). Anonymity and confidentiality were assured by pseudonyms (Oliver, 2003), with all data

safely stored and encrypted, accessible only to the research team. Although the use of pseudonyms was used to give a degree of anonymity to the coaches, it was clearly expressed that as it was a small group of coaches being investigated, and the geographical location of the research will be disclosed, the participants may still be identified. This was accepted by the coaches, and all were comfortable to proceed with the study.

Further to traditional ethical considerations outlined, the involvement of professional players and coaches carries its own unique set of challenges. Potentially any intervention utilised from the AR cycles could adversely affect players performance if stretched beyond their capabilities (Currie & Sumich, 2014). For this purpose, before any implementation of action by the coaches, pedagogical tact was demonstrated whereby careful consideration was paid to the impact on player performance (Van Manen, 2017). There are no clear guidelines on the use of multimedia in research (Mars, Morris & Scott, 2019). Prior to the study, the use of multimedia was discussed, and it was agreed that sending messages would be conducted in a moral and ethical manner, echoing other AR studies (Rhodes & Brook, 2021). My dual role of researcher and coach had some additional struggles in respect of the "loyalty tugs, behavioural claims and identification dilemmas" (Brannick & Coghlan, 2007, p.70). Specifically, when responding to participants or analysis of data from the perspective other than researcher (Asselin, 2003), as coach in my case. For this reason, I utilised a strategy of inviting a critical friend to discuss the data adding a valuable perspective. From an ethical viewpoint all coaches' names were discussed using pseudonyms and conversations were all confidential. Further supporting that the procedures of conducting insider AR in my own organisation can become political at times, which required me to build positive relationships and trust with people who operated at different organisational levels (Coghlan, 2019).

Additionally, I understood that there would be a power relationship between myself as lead researcher and the other participants. To gain a better understanding and be able to manage the power relations throughout the study, I constantly reflected and considered my position in relation to what was demanded of the coaches for the AR process and their main role as sevens performance coaches. As all the participants, including myself, were all professional coaches, we were ultimately judged and employed on results. From this perspective, I was reflexively aware of my context comprehension, self-awareness, and professional judgement when conducting the study and engaging with the participants (Thomas *et al.* 2013).

3.6 The procedures of planned change through action research

The AR study was conducted during a 12-week period between January and March 2020 (Table 2), with an initial introductory session followed by six bi-weekly focus group (FG) meetings planned to inform the next cycle. The FG meetings lasted approximately an hour and were held in a classroom in the facility the coaches all worked to provide familiarity and comfort. The feeling of safety is crucial with the learning of adults (Knowles, Holton & Swanson, 2015) and feeling threatened will prevent the intended transformational learning (Rogers, 1969).

Despite the original plan of six bi-weekly FG's, only three AR cycles (five FG's) were completed, with an additional reflective evaluation (Figure 3) due to unforeseen global COVID-19 circumstances that lead to a complete closure of the training facility (Table 2). A reflective evaluation was implemented to discuss the utility of the CAR process in line with objective three. Despite the disruption to the study, it was felt, and agreed with the supervisory team, that the FGs, observations and reflections up to that point in time provided sufficient data to achieve the aim and objectives of the study.

Figure 3. Timeline of focus groups and action research cycles
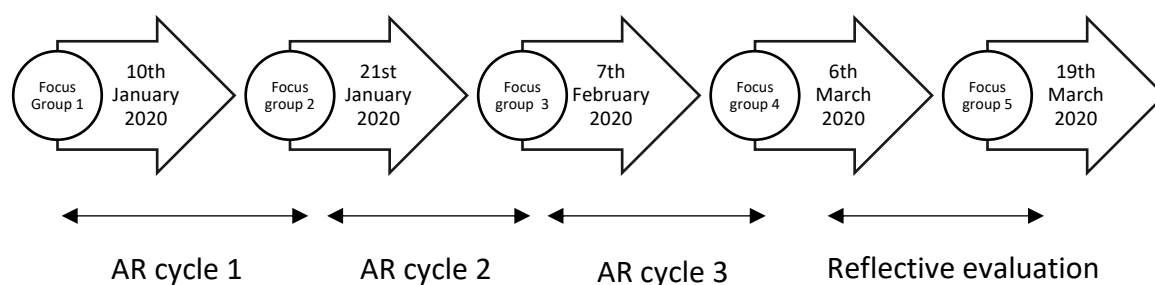
Table 2. Timeline of AR study

2020	January				February				March					April			
Week Starting	6	13	20	27	3	10	17	24	2	9	16	23	30	6	13	20	27
Hong Kong 7s	Training	Training	Training	Chinese New Year	Training	Training	Chile	Uruguay	Rest	Training	Training	Training		Hong Kong Sevens	Rest		
15s Club season		RD 9 Premiership	RD 10 Premiership	Chinese New Year	Grand Championship semi-final	Grand Championship final	Off-season										
Elite Rugby Program 15s	Training	Training	Training	Chinese New Year	Training	Training	Rest		Asian Championship preparation								
Action research study	Focus Group 1		Focus Group 2	Chinese New Year	Focus Group 3				Focus Group 4		Focus Group 5	(Hong Kong Sports Institute closure)					

Firstly, an introductory meeting with the coaches was conducted, outlining the AR process, the study aim and objectives, and providing a forum to discuss any reservations. As coach and researcher, through my own experiences and pre-understanding (Coghlan, 2019), I had ideas to ignite the discussion. From there the flow of the conversations generated the pedagogical principles that the coaches felt assisted them and the players in the challenging intermittent nature of transitioning between 15-a-side and rugby sevens. Following the first FG meeting, on-field and off-field organisational and pedagogical constructs were agreed that formulated the framework for the subsequent AR cycles. The coaches felt that the following six areas based on their delivery would prove to be valuable to the transition of athletes from 15-a-side to rugby sevens:

- Clarity of rugby sevens strategies and structures
- Micro-skill development specific to the game
- High-speed running games
- Replication of match scenarios
- Rugby contact activities
- Use of technology

Another unique feature of AR is that the "cyclical process is both fluid and grounded in creative action rather than being a series of well-defined steps that are rigorously adhered to" (Drummond & Themessl-Huber, 2007, p.438) (Figure 4). Between AR cycle one and two the pedagogical constructs were put into practice on-field with all four coaches engaging collaboratively. At the end of each cycle, a collaborative reflective discussion between the coaches and myself as lead researcher collectively agreed on the identification of themes from the data that would guide the next cycle of AR and the on-going pedagogical practice. To support the action undertaken in these AR cycles, I researched observations and feedback in sports coaching as this emerged as a key area of development from gathering baseline data. Consequently, I researched observations and associated theories discussed by Niklas Luhmann (2002a) and presented this to the coaches. We then interpreted and applied some of Luhmann's theories to our own practice which was discussed during the FG's.

During this period, several athletes continued playing 15-a-side club rugby (Table 2). Following the last 15-a-side game of the season, the men's rugby sevens players and coaches travelled to South America for an international tournament. The third AR cycle was conducted during an international men's sevens tournament in South America for a period of three weeks which divided the coaches into two separate groups relying on reflections and observations from both a training setting (women's coaches stayed in Hong Kong) and performance setting (men's coaches travelled to South America). Similarly, to support the coaches in the third AR cycle, I researched and presented notions of creativity within sports coaching. The reason for this was creativity emerged as another significant area for the coaches to develop in the reflection phase of AR cycle two. The fourth FG meeting was conducted at the beginning of March which lay the foundations for a reflective evaluation of the overall AR process. Considering the ongoing global pandemic situation, the fifth FG meeting was pre-emptively moved forward to try and discuss the main aspects of objective three in the research. The foresight being that no more data collection could occur as the training facility, where we conduct our practice, could potentially shut down due to government restrictions (the training facility shut down due to COVID-19 on 22nd March 2020).

Figure 4. An adapted version of Lewin's (1946) model of action research
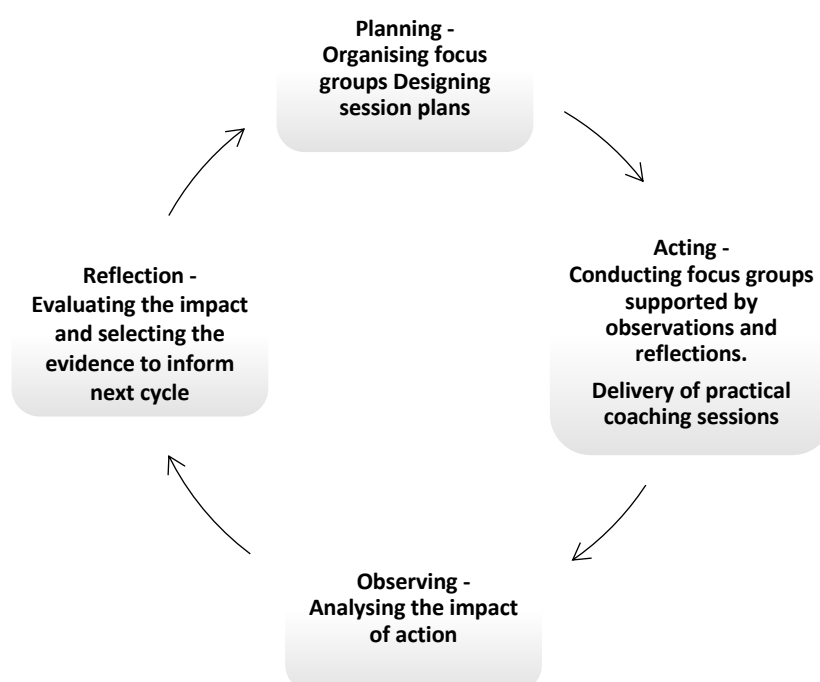
3.7 Data generation

To develop an in-depth understanding of the complexity and multi-faceted nature of individual and group experiences within the coaching environment, I used several data collection methods and sources consisting of FGs, observations and reflective diaries with additional multimedia support (Goodnough, 2008). The multi-method approach was utilised to "capture a more complete picture of the processes involved" (Culver *et al*. 2003, p.7).

3.8 Focus groups

A focus group (FG) is essentially an "organised discussion among a selected group of individuals with the aim of eliciting information about their views" (Gray, 2018, p.460). This creates an environment where the "evolving conversations encourage relationship building and professional growth" (Rearick & Feldman, 1999, p.344). The FG meetings were critical to the AR process and consequently informed the next cycle with an additional generation of theoretical and craft knowledge that could be integrated to construct effective learning scenarios to assist with many real-life problems that occurred (Harris, 2011; Jones, Kingston & Stewart, 2011). Although, in keeping with the aim and objectives of the study and in line with the AR paradigm, the FG meetings did not follow a rigid script or pattern and were more semi-structured in nature (Purdy, 2014). For me as the researcher, the aim and objectives acted as a true north which guided the natural meandering of conversations towards possible solutions (Patton, 2002). The group was then subtly guided back to the original starting point as not to get lost in a labyrinth of coaching problems. All FG meetings were recorded and transcribed verbatim which allows for highly contextual and detailed evidence of coach learning and engaging with the transitional process both retrospectively (when coaches were reflecting upon their pedagogical practices) and in-situ (when coaches were engaging with the FG).

3.9 Observations

Individual observations were undertaken by me at various venues associated with the participants' working environment. The majority took place at a shared sports training facility aside from a two-week international men's rugby sevens competition. The advantages of a

shared training facility provided accessibility into the environments and the scheduling of training allowed for practical coaching of selected sessions and observation of others. Additionally, my in-situ presence during the planning, applying and reflection stages of coaching sessions did not limit my inquiry just to coaches' cognitive representation of their practice discussed in the FG (Cushion & Partington, 2016). Conscious of my insider AR perspective, an air of vigilance was adopted during observations of events, with brief field notes recording the unfolding action. Observing practice and then recording what is seen seems relatively straightforward, however, the difficulty lies in noting what is seen from a very complex landscape such as coaching, in a linear format such as field notes. Although no conscious effort was made to strategically write field notes there was a correlation with what Wolfinger (2002) described as *salience hierarchy*. In this the observer starts by looking at events that emerged as most note-worthy, the most interesting or the most telling and linked primarily to the aim and objectives of the study. Wolfinger (2002) points out that a person must "exercise discretion in deciding what should be documented in their field notes" (p.87) because when identifying certain phenomena and interests not everything observed can be recorded. This provides the coach with something tangible to observe in the myriad of information, with the field notes serving as a framework for a more detailed reflective diary. Typically, during the practice, handwritten notes were recorded on the session plan (Appendix 4).

3.10   Reflective diaries

Keeping a diary maintains a proper record of the researcher's thinking and helps develop a reflexive stance during the evolution of the interventions and personal commentaries (Koshy, 2010; Miles, Huberman & Saldaña, 2013). For coaches, journaling has potential to "clarify the initial experience by removing it from the clouds of subjective feeling that may obscure it" (Nyanjom, 2018, p.635). However, from a coaching perspective, writing down one's reflections and combining these with experiences can result in deep learning about oneself (Boud, Keogh, & Walker, 1985; Gough & Scott, 2007). My daily diary entries provided detailed descriptions, functioning as a recording of past events and more importantly as a reminder for future action contributing to the development and unfolding of AR cycles (Kemmis & McTaggart, 2005). The entries reflected the personal struggles and constrictions present

during the entire AR journey, such as managing and motivating a coaching group, the concern of affecting player performance and improvisations due to cancellations of training and tournaments (Appendix 5). As each coaching session was video recorded and viewed by the coaches, it provided a link from real time coaching to reflective practice. All practice sessions were shared with players and coaches via an online platform called Hudl (Appendix 6) (use of technology).

Despite the coaches involved in the AR process also being asked to record their own written reflections, there were only two that submitted material to the data collection. This resonates with a similar AR study conducted by Voldby and Klein-Døssing (2019) in which they discovered that coaches were apprehensive submitting written reflective logs. To some degree the FG acted as a reflective forum for the coaches even though there was a lack of individual written reflections.

3.11   Multimedia

The technological advances of digital multimedia platforms enhanced communication, explanations, and shared learning opportunities. Support for a multimedia approach has been used in AR studies such as Clements and Morgan (2015); Embury (2015); Stowell and Cooray (2017). WhatsApp (www.whatsapp.com) is a cross platform messaging and voice over IP service that allows users to send text messages, voice messages, make voice and video calls, share images, videos, and documents securely. For accessibility and convenience, a WhatsApp group was created for me and the coaches to frequently organise FG meetings, share information about the AR study and summarise key findings to inform the next meeting (Appendix 7).

3.12   Data analysis and evidence

To generate evidence to achieve the aim and objectives of this AR study, a set of procedures were followed to allow systematic data analysis (McNiff, 2016). Thematic Analysis (TA) is a method for identifying, analysing, and reporting patterns (themes) within data (Braun & Clarke, 2006). A theme captures something important about the data in relation to the research question, representing some level of patterned response or meaning within the data

set (Braun & Clarke, 2016). TA encourages a researcher to take a rigorous and systematic approach with the ability to be fluid, recursive and reflexive aimed at making meaning from the data which may be context bound, positional or situated. Reflexive thematic analysis acknowledges the researcher's centrality, assumptions and philosophical stance in the questioning and querying of the data.

The first step in data analysis consisted of careful organisation of the data, namely, the reflective diaries and FG transcripts, to permit the data to be coded and analysed. This was an iterative and recursive process during the data collection phase to reduce the plethora of data gathered with the research aim and objectives acting as the 'golden thread' visible throughout (McNiff, 2016). The next step consisted of the immersion into the data set by repeatedly reading the data to develop familiarity whilst simultaneously searching for meanings and patterns to provide a deeper understanding. A mixture of inductive and deductive analysis was utilised to generate themes. Inductive analysis is a process of coding data without trying to fit it into pre-existing coding frame, or researcher's analytic preconceptions (Braun & Clarke, 2006). Deductive analysis or top-down approach brings in existing theoretical concepts that provide a foundation for *seeing* data (Terry *et al*. 2017).

In the first coding of AR cycle one, initial deductive pre-coding of the data was conducted based around the first objective of coaches' establishing a pedagogical framework that assisted in the athlete's transition between 15-a-side and rugby sevens. Coded segments were then collected for a more detailed second cycle by condensing and integrating the first cycle codes into more coherent categories and themes (Aurini, Heath & Howells, 2016). Table 3 illustrates an example of the first and second coding process. After AR cycle one, as the coaches implemented the pedagogical framework in practice, ideas and patterns began to inductively emerge from the data collected and analysed (reflections, observations, and FG) which related to objectives two and three. To get a richer and more nuanced reading of the data coding, two research supervisors were asked to provide advice in the analytical process.

Data analysis was conducted using NVivo software package which provides tools and functions for managing, exploring, and finding patterns in the data set. In the process of data analysis, themes were reviewed and defined to further shape, clarify, or dismiss, to evaluate whether they were meaningful and useful to capture what the data revealed (Braun & Clarke, 2006).

Table 3. Example of analysis

Raw transcript	Coding	Theme
'We spoke briefly, we have to do some kind of clarity of game plan because we will only have them for a week before Hong Kong'	Limited time before competition so players need to have an idea of the game plan	Clarity of sevens rugby strategies and structures

Utilising the mapping tool of NVivo enhanced my ability to understand themes in relation to each other, create boundaries, restrict excessive recursive reviews, and visually display how the themes work together to tell a story (Terry *et al.* 2017). Using the mapping tool, evidence was sought by defining and naming pertinent themes by identifying the essence of what the theme was about and corroborating it with the aim and objectives of the research (Appendix 8). Furthermore, reflexive TA was implemented with theoretical knowingness (deliberate process related to design, method, ontology, and epistemology) and transparency, striving to be fully cognisant of assumptions that inform decisions (Braun & Clarke, 2019). Similar to Mouchet and Duffy (2020), who illustrated that with qualitative research and data generated in a broad fashion such as FGs, the inclusion of a single quote from one coach may be imperative despite any recurrence of that specific theme emerging within the data. Consequently, a single quote from a coach may be used as a theme to achieve the aim and objectives of the study.

3.13   Ensuring quality in the action research process

Since there is no prescribed framework that can work universally for action researchers it becomes the responsibility of the researcher to set the quality standards relative to their context and demonstrate how these standards apply to study outcomes (Feldman, 2003). Within the data collection process, the transcriptions from the FGs were the main source of data, which were transcribed verbatim (using www.temi.com). Recognising coaches are all liable to self-delusion, making factual errors and acknowledging personal bias, there were regular meetings with the supervisory team to inspect the research and identify any

assumptions that may underpin data analysis (McNiff, 2013). Additionally, in acknowledging my potential for bias, I invited a critical friend to inspect the research and identify any assumptions (McNiff, 2016). His experience in both an academic and practical sense provided a fresh perspective on the project whilst sharing a similar esoteric understanding. Zuber-Skerritt and Fletcher (2007) articulate that quality and rigour in AR can be achieved through triangulation of data through multiple methods and perspectives to provide evidence for every actionable knowledge claim. In this AR study, examples of this were displayed using a reflective diary (first person), coaches being active and collaborative participants (second person) and facilitating focus groups (third person). Whilst this study utilises qualitative inquiry into practitioners' interpretations from a relativist perspective, the judgment of quality is considered through a list of characteristics as opposed to a preordained and universal standard (Sparkes & Smith, 2009). This approach allows readers to draw their own conclusions on the quality of the research by considering characteristics such as the worthiness of the topic; rigour applied in the collection and analysis of data; the credibility of researcher; participants, critical friends or validation groups and its potential contribution to sports coaching.

Chapter Four – Results and Discussion

4   Results and discussion

This chapter is divided into three sections; section one will outline the design process of the pedagogical framework, section two will investigate the implementation of the framework and section three will discuss the CAR process. Findings are presented under the higher order themes generated by the data analysis which align with the overall aim and objectives of the study. In the first section, to guide the reader the themes surrounding the pedagogical framework will be divided into sub-headings with evidence provided then discussed.

4.1   Section one – Gaining baseline information to develop a pedagogical framework for coaching transitional athletes

During the initial introduction in the first FG, the study was framed by sharing my own pre-understanding and experiences of playing professional rugby sevens and 15-a-side rugby simultaneously, progressing from playing professionally to coaching players who experience the same transitional challenges. To set the scene, the participants discussed personal and professional challenges that a coaching group in Hong Kong face by having athletes who compete in rugby sevens and 15-a-side domestically and internationally. A brief explanation of how AR can combine with practice concluded the introduction.

Coaches stressed their concerns with the transitional nature of the athletes, particularly in relation to how the athletes are viewed. Whether as a development athlete or performance athlete for the benefit of the organisation or the player themselves. This was emphasised by Simon who posed the question to the group:

Do you believe both sets of coaches think about the other environment? For example, we coach our players sevens skills, are we thinking just for our environment or are we thinking about general player development? I think we develop the player as a whole which would subsequently benefit 15-a-side. (FG 1, 10.01.20).

An additional observation by the coaches was which version of the game did the athletes themselves identify with. As indicated by Sam, "*rugby sevens in its purest is the game and then when the players go to 15-a-side, it's just a bit more structure within it and more of an identity*" (FG 1, 10.01.20).

From the outset the coaches were concerned with the challenges of the constant alternating between rugby sevens and 15-a-side. In this phase of the year, the players would train with the rugby sevens during the weekdays and with their 15-a-side clubs in the evenings twice a week, culminating in a competitive 15-a-side game on the Saturday (Table 2).

4.1.1 Clarity of sevens rugby strategies and structures

This schedule would continue between January and March (Table 2), only following this period were the athletes available on a full-time basis training purely for rugby sevens which resulted in limited time to prepare for an international rugby sevens competition. This was a concern acknowledged by all the coaches, notably Sam, "*we spoke briefly with the players, we have to organise some clarity around a game plan because we will only train a week before Hong Kong*" *(FG 1, 10.01.20).* Understanding Sam's concerns, I conveyed my experience of having interactions and conversations with transitional athletes over the last four years during which time, several competitive cycles of playing 15-a-side and rugby sevens occurred with numerous discussions on what the players feel helped them transition back into the sevens style of play:

> *In terms of clarity, the players mentioned on-field walkthroughs or whiteboard explanations of patterns or principles helps the transition. Low intensity and player led because they can't operate at high intensity all the time and sometimes it's about thinking, learning, and understanding of plays. (FG 1, 10.01.20).*

Due to lack of preparation time the coaches agreed that clarity of sevens rugby strategies and structures were important to play international rugby sevens but stressed that having the necessary skills to execute these principles of play was equally important.

4.1.2 Micro-skill development specific to the game

It was agreed that clarity of sevens rugby strategies and structures was a key pedagogical construct when dealing with athletes who transition regularly and when there was limited time prior to competition. This restricted timeframe provided a distinct problem for the coaches and the more time the athletes spent in a 15-a-side environment the more significant the impact on rugby sevens specific structures and skills. An example of this from a skill

perspective was demonstrated by Arran who mentioned, *"the 15-a-side players who were away in November returned and were performing a 360° roll to present the ball, however in sevens that is penalised" (FG 1, 10.01.20).* When asked about how he would manage the contradictory impact of this skill transferring from the 15-a-side environment, he illustrated a need to, *"isolate fundamental sevens skills in micro-skill activities to then be focused upon in high-speed running games" (FG 1, 10.01.20).*

4.1.3 High-speed running games

Despite these problems arising from the transitional athletes, it was indicated by all coaches involved that Game-Based Approaches (GBA) formulated a large majority of training to develop the necessary skills for rugby sevens. Furthermore, the Hong Kong rugby sevens coaches utilised the term high-speed running games (HSRG) as an adaption of Game-Based Approaches. These were games with certain focus areas promoting different skills, tactics or decision-making but guided from a physical perspective, mainly by global positioning systems (GPS). Simply, the GPS monitored the distance and intensity of running the players accumulated in certain sessions and whether this related to the physical demands experienced in an actual game. The coaches emphasised that HSRG were important to develop aspects of rugby sevens whilst obtaining a physical conditioning effect particularly when using games that players are familiar with, as demonstrated by Sam:

> *It's important to have some consistency utilising the high-speed games to develop offloading skills, like Fiji touch (Appendix 9) and if we keep changing what we do then our group won't cope. If we can have a nice bank of high-speed games, they know exactly what the session is about and you're going to get your high-speed meters in. (FG 1, 10.01.20).*

The coaches favoured having a list of HSRG that they could use and rotate to achieve a certain objective for the session, maintaining challenge but also having a degree of familiarity.

4.1.4 Replication of match scenarios

The coaching group discussed how other pedagogical approaches interlink, specifically, using clarity of sevens rugby strategies and structures to enhance the quality of HSRG. This was mentioned by Arran who expressed, "*we are conducting games once we feel they have got clarity of rugby sevens strategies and structures" (FG 1, 10.01.20).* The conversations about HSRG revealed that the coaches adopted them as a method to encourage the technical and tactical understanding of the players (Appendix 10). However, there were concerns about how the coaches could replicate game like scenarios experienced in tournaments which have been unsuccessfully managed by the players. This was an issue experienced by Simon:

> *We discussed with the men post Hong Kong Sevens. We had players who were in certain scenarios that created significant problems. Reasons for this indicated towards the pressure of the occasion or they lacked the experience from training or playing. For example, we're level on points with the last kick of the game and we did not choose the right option. (FG 1, 10.01.20).*

This generated debate as the coaches felt it was difficult to replicate the unique match conditions and were concerned about how to ensure the players understood what to do in a specific scenario. Arran inquired about how this can be achieved, having had experience himself in a tournament where some of his players understood while others clearly did not, "*after you've conducted the scenarios in training, how much do you follow that up to check for understanding" (FG 1, 10.01.20).* Responses to this question outlined the checking of understanding through dialogue with the players on the practice field and additional video analysis to visually clarify and feedback to the whole group. Further pedagogical ideas were then discussed in relation to what aspects of practice could elicit this type of pressure and relate it to tournaments. Suggestions included the use of a hooter to simulate the start and end of a game, coaches acting as referees to put time constraints on the kickers (as they only have thirty seconds to take a kick-off or conversion in a rugby sevens match, or the ball is turned over to the opposition).

The conversation then developed to how to reward, or provide a consequence, to the scenarios described as this was realistic to a match. One suggested example where coaches could display the reward or consequence in a certain scenario related to kick offs in rugby

sevens *"we can design kick off scenarios where the players only have one attempt and if unsuccessful there are no repeats. Implement towards the end of the session when the players are fatigued, adding to the pressure" (FG 1, 10.01.20).* It was acknowledged by the coaches that not everything would be executed successfully by the players and that errors would occur, with coaches even purposefully designing games and scenarios in training to overload the players above match demands:

> *If we are discussing a real match, maybe two errors are acceptable. However, during training over 60 minutes, maybe six to eight errors are acceptable as we are overloading them. We acknowledge there may be more error than success, but we need to find the balance for learning. (FG 1, 10.01.20).*

4.1.5 Rugby contact activities

As the discussions surrounding errors occurred, the conversations naturally progressed to variations in contact and collisions experienced in both games as this was an area that was most susceptible to errors and turnovers (World Rugby, 2020). One experience I shared in respect of the contact element of the game was:

> *When discussing with the players, they acknowledged that the instances of contact differ in 15-a-side to sevens, purely on the frequency. They have more collisions in 15-a-side than in sevens. How do we coach the variation in contact? For example, looking in more detail at the changes in tackle type, the changes in ball presentation. (FG 1, 10.01.20).*

The group had similar views on the type of contact that an athlete may experience when playing both rugby sevens and 15-a-side and importantly recognised that it was a facet of the game that needed careful consideration because of the impact it has on performance outcomes, along with player safety, in international sevens competitions (Burger, Lambert & Hendricks, 2020). Arran explained this by claiming *"there has to be some specialist type activities that compliment certain contact skills such as micro-skills especially for contact area and tackling" (FG 1, 10.01.20).* However, Arran did express that *"I think the players need to be comfortable with the principle of all types of tackles as every collision in rugby is different"*

(FG 1, 10.01.20). The coaches agreed with this, with Sam expressing if the foundation of rugby principles is in place it would offer a smoother transition between the two sports *"having certain principles of contact in place, tackling, ball carrying, contact area, then yes, it is a variation in sevens but it is aligned with our fundamental principles of the game" (FG 1, 10.01.20).* It is interesting to note that the coaches agreed upon the slight variations and nuances that needed to be coached through micro-skills and games for contact, however, the fundamental principles or essence of rugby sevens and 15-a-side is the same. They also established that, if framed as such, it would assist in the transition, a point raised by Arran who suggested that his approach is:

> *I present it as part of their development regardless of transitioning between sevens and 15-a-side. For example, decision-making at the contact area is still a skill that needs to be learnt and revisited. Whether it's sevens or 15-a-side the principles shouldn't change. (FG 1, 10.01.20).*

Additionally, the coaches discerned the position and level of experience of the player also determines the ability to transition effectively. This was raised after a question posed by Simon, *"is it harder for forwards to transition between rugby sevens and 15-a-side than the backs?" (FG 1, 10.01.20).* Having coached and spoken to senior players on this matter and using my own experience as a player I responded to this question first:

> *The backs perceive it's an easier transition because the majority play similar positions in both games, for example it's typical for an outside half in sevens to play outside half in 15-a-side. The forwards struggle with the differences in the physical demands required to play 15-a-side and the vast amount of information that's needed to be learnt to play the game. For example, the extensive lineout options required in 15-a-side. (FG 1, 10.01.20).*

From the discussions the coaches outlined that if a rugby sevens athlete has previous experience, positive perceptions of transitional environments and consistency between the positions they play the transitions become less challenging.

4.1.6   Use of technology

Coaches used video analysis as a tool to both preview and review practice and games. It allowed them to present visual pictures to support the learning of the athletes in the areas of rugby strategies and structures, micro-skills, HSRG, scenarios and rugby contact. The coaches discussed that the constant transitions by the players resulted in missed training sessions for certain periods of the year. One solution was to upload video recorded rugby sevens training to a shared online platform called Hudl (Appendix 6). A unique tool of Hudl is that coaches and players can 'telestrate', whereby they can edit, draw diagrams and comment on rugby training videos remotely as demonstrated by the following evidence, *"we can upload training onto Hudl for the absent players. We can use the comments and telestration tools available to provide feedback" (FG 1, 10.01.20).*

Furthermore, the coaches discussed using video analysis to set tasks for groups of players. This was described by Arran, "*we encourage the players to review a particular aspect of defence from World Series games and then feedback to the rest of the group" (FG 1, 10.01.20)*. The coaches perceived that integrating the players in the learning process was a positive pedagogical strategy. However, it was suggested that certain players may dominate these tasks, so the group may have to be carefully selected to accommodate the shared learning experience. This was a point made again by Arran:

> *We need to structure the groups carefully because certain players can dominate the group. We do not watch the actual process of the tasks and the discussions between the players. It's more than likely going to be led by the senior players in that group. (FG 1, 10.01.20).*

This indicated many levels of interaction within the rugby sevens environment. Interactions occur between coaches, coaches with the players and the players amongst themselves. Simon suggested that the coaches could improve their observations of practice to provide feedback to encourage learning and understanding of the players along with improving coach pedagogy:

> *I don't think we observe in detail to provide feedback because only two coaches are present in both training sessions. If we are conducting practice as a pair, it's hard to*

coach within that and provide sufficient feedback to the players. Utilising four coaches can free up others to observe and provide collective and individual feedback. (FG 1, 10.01.20).

Collecting baseline data framed the initial difficulties that the coaches experienced with players dual role as rugby sevens and 15-a-side athletes. It also provided the overarching constructs of the framework from a rugby sevens perspective, namely:

- Clarity of rugby sevens strategies and structures;
- Micro-skill development specific to the game;
- High-speed running games;
- Replication of match scenarios;
- Rugby contact activities; and
- Use of technology.

Finally, to deliver the framework effectively, the coaches within the study highlighted that observation and feedback were vital pedagogical components. The following section provides a discussion on the initial difficulties of the athlete transition and the designing of the pedagogical framework.

4.1.7   Discussion of gaining baseline information

Before establishing a pedagogical framework, the coaches in the first FG meeting discussed issues in relation to the transitional process of moving between 15-a-side and rugby sevens. Although not explicitly stated by the coaches as strategies to manage the transitional process, it was clear that several pedagogical approaches were already adopted to manage the transitions.

Firstly, concerns were raised as to how the coaches in each organisation (rugby sevens or 15-a-side) failed to recognise the complex nature of the transition. This highlighted a lack of alignment between the 15-a-side and rugby sevens organisations, which has been stated as key to creating a supportive transitional environment (Harwood & Knight, 2015; Henriksen & Stambulova, 2017; Knight, 2016; Martindale & Mortimer, 2011). Additionally, Stambulova

et al. ([2009](#)) argued that by treating an athlete as a whole person, the experience of transition would be less distressing which was evidenced by Simon (FG 1, 10.01.20). For coaches, this means not labelling the player as a rugby sevens player that plays 15-a-side and vice versa, but instead treating them as a unique hybrid rugby athlete. This supports the importance of what Rees and Hardy ([2000](#)) suggested in that coaches play a significant role in creating the right environment through relationships they forge with the athletes, not just thinking of the organisations but the players themselves. Athlete identity has been associated with difficulties in the transition process in sport both causally and developmentally ([Brewer, *et al.* 2000](#); [Lupo *et al.* 2017](#); [Murphy, Petitpas & Brewer, 1996](#)). The coaches recognised that athlete identity can play a significant role in the success of the transition, *"it's like as we're always saying, rugby sevens in its purest is the game and then when the players go to 15-a-side, it's just a bit more structure within it and more of an identity" (FG 1, 10.01.20).* This can be the first step by the coaches towards what Schofield ([2003](#)) highlighted as aligning individual identity to shape the outcomes of the organisation.

Secondly, the coaches recognised that they could draw upon the knowledge of players who have previous experience with the transitional process and similar playing positions in both rugby sevens and 15-a-side. The coaches' discussion in respect of the experience and playing positions and how this can impact positively or negatively on the transition, displays similar features to that outlined by the Model of Human Adaption to Transition ([Schlossberg, 1981; 1984](#)). The key features of this model include:

a) The characteristics of the individual experiencing the transition (e.g., psychosocial competence, gender, age, previous experience with a transition of a similar nature);

b) The perception of the particular transition (e.g., role change, affect, occurrence of stress); and

c) The characteristics of the pre- and post-transition environments (e.g., the evaluation of internal support systems, institutional support).

A third pedagogical strategy emerging from the discussions which could assist the transitional process was the careful selection of players within group tasks. The coaches integrated all the players with varying levels of experience in the group tasks to support key features needed for an effective transition which are "empowerment, cooperation and meaningful

relationships" (Stambulova *et al*. 2020, p.18). Additionally, this resonates with the more experienced players acting as 'more capable others' with the coaches scaffolding the environment to merge the social and pedagogical agency of the athletes (Thomas, Baily & Engeness, 2021).

There were six pedagogical constructs that the coaches felt assisted the players during the transition between 15-a-side and rugby sevens. Firstly, clarity of rugby sevens strategies and structures was discussed as it was considered a crucial element that helped the players understand a game plan prior to a tournament. Mouchet (2014) referred to strategy in rugby as the plan or action guidelines decided upon prior to the game. For example, the set moves, or structures incorporated into a strategy when facing a certain opposition.

To be able to perform set moves it was necessary for the coaches to ensure that players had the ability to perform the nuanced rugby sevens skills as some transfer of skills from 15-a-side to rugby sevens are not interchangeable (e.g., ball presentation). Here, coaches incorporated micro-skills in the session plans as a precursor to the main session which was the use of games to improve the players' sevens ability.

Game Based Approaches (GBA) or High-speed running games (HSRG) have been suggested for coaching as an alternative way of contextualising learning within game-like activities (Light, 2004). These pedagogical methods which the coaches adopted are consistent with the use of inquiry-based game approaches such as Game Sense (de Duyn, 1997) and Teaching Games for Understanding (Bunker & Thorpe, 1982). One key feature of this approach requires the repositioning of the coach to the role of facilitator and using questions to promote opportunities for player dialogue and reflection (Cushion, 2013; Light & Evans, 2010; Roberts, 2011). Kinnerk *et al.* (2018) discovered four features of GBA: (1) Tactical development; (2) Technical development; (3) Physical activity and fitness development, and (4) Planning and designing good games.

What manifested from the discussions surrounding HSRG was the incorporation of scenarios to replicate real game situations. Utilising these scenarios within HSRG provides evidence which is also congruent to problem-based learning and guided discovery which are key features of GBA, and player centred pedagogical models (Avner *et al.* 2020). Setting a scenario related challenge during practice and clarifying the understanding through questioning and video review resonates with strategies that can positively contribute to develop athletes' critical and analytical thinking as well as decision-making, problem-solving

and self-evaluation skills (Hubball & Robertson, 2004; Jones & Turner, 2006; Ojala & Thorpe, 2015). To create realistic scenarios the coaches outlined certain pedagogical techniques such as using a hooter to simulate the start and end of a game and coaches acting as referees to place time constraints on the players. Jackson and Csikszentmihalyi (1999) regard this as simulation training, which can be a useful tool for sport. It involves replicating the competition environment in a training situation. The more the actual event can be simulated, including such aspects as crowd noise, uniforms, arousal levels, and so on, the more useful the experience. By setting certain challenges the coaches demonstrated an awareness surrounding how their practice design may contribute to mistakes. Sitkin (1992) expressed that significant learning can take place through failure or a notion he referred to as *intelligent failure*. Indeed, coaches designing practice where they expect some failure to occur can consequently engage an athletes' deeper thought processing, challenging their current practice which in turn provides the motivation to adapt and be flexible within training (Sitkin, 1992).

It would be difficult for the coaches to discuss replicating real game situations in practice without designing and implementing rugby contact activities. It was agreed that the variations in contact between rugby sevens and 15-a-side are not dissimilar, but the nuances of rugby sevens contact could be trained through certain micro-skill activities. The essence of rugby is similar between both disciplines and if the underlying principles such as ball carry, tackle and contact area were understood the players could transition effectively.

A tool to assist coaches in delivering and evaluating pedagogical methods to cope with the transition was the use of technology. Using analysis in sport, particularly professional rugby, has been widely accepted as part of the coaching process (Colomer *et al*. 2020; den Hollander *et al*. 2018; Williams & Manley, 2014). The coaches adopted Hudl (Appendix 6) to remotely interact with rugby sevens athletes when absent from training. This provided an online library of all the training that had taken place with the ability to communicate via the 'telestration' tool. Having access to illustrate on video clips and an interactive forum alongside the video reduces that external transition barrier while not being present for day-to-day coaching. Hudl can be a tool utilised by the coaches to provide information to players who may be absent from training to minimise the shock upon arrival to the rugby sevens organisation in what Stambulova, Ryba and Henriksen (2020) refer to as the pre-transition phase.

Not only utilising video feedback as a one-way process from coach to player, but the coaching group also integrated the players in the learning process by setting group tasks to preview and review opposition or training. Placing players in small groups allowed the use of problem-solving strategies to consider the intentional what and why of each video clip, which enhances player learning (O'Connor & Larkin, 2015). From a coach pedagogy perspective this suggests that the use of technology formulates a large part of mediation within rugby (Wertsch, 2007). However, concerns were raised in the configuration of the groups and the influence of certain players. As with any collection of people there are numerous clusters of social interactions, a rugby environment being no different.

Multimedia technologies such as video often communicate the actions involved better than words on a page (McNiff & Whitehead, 2010). The following (Table 4) and attached videos provide a visual representation of all the aspects of the pedagogical framework discussed by the coaches.

Table 4. Visual representation of the pedagogical framework

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┌─────────────────────────────────────────────────────────────────┐
│                  Rugby athlete from 15-a-side                     │
└─────────────────────────────────────────────────────────────────┘
                                │
                                ▼
┌─────────────────────────────────────────────────────────────────┐
│        Agreed pedagogical framework to be implemented by the coaches │
└─────────────────────────────────────────────────────────────────┘
     │          │           │            │            │          │
     ▼          ▼           ▼            ▼            ▼          ▼
┌────────┐ ┌─────────┐ ┌──────────┐ ┌──────────┐ ┌─────────┐ ┌──────────┐
│Clarity │ │Micro-   │ │High-speed│ │Replication│ │Rugby    │ │Use of    │
│of      │ │skill    │ │running   │ │of match  │ │contact  │ │technology│
│sevens  │ │develop- │ │games     │ │scenarios │ │activities│ │          │
│rugby   │ │ment     │ │          │ │          │ │         │ │          │
│strategies│ │specific │ │          │ │          │ │         │ │          │
│and     │ │to the   │ │          │ │          │ │         │ │          │
│structures│ │game     │ │          │ │          │ │         │ │          │
└────────┘ └─────────┘ └──────────┘ └──────────┘ └─────────┘ └──────────┘
     │          │           │            │            │          │
     ▼          ▼           ▼            ▼            ▼          ▼
┌─────────────────────────────────────────────────────────────────┐
│                    Transition to rugby sevens                      │
└─────────────────────────────────────────────────────────────────┘
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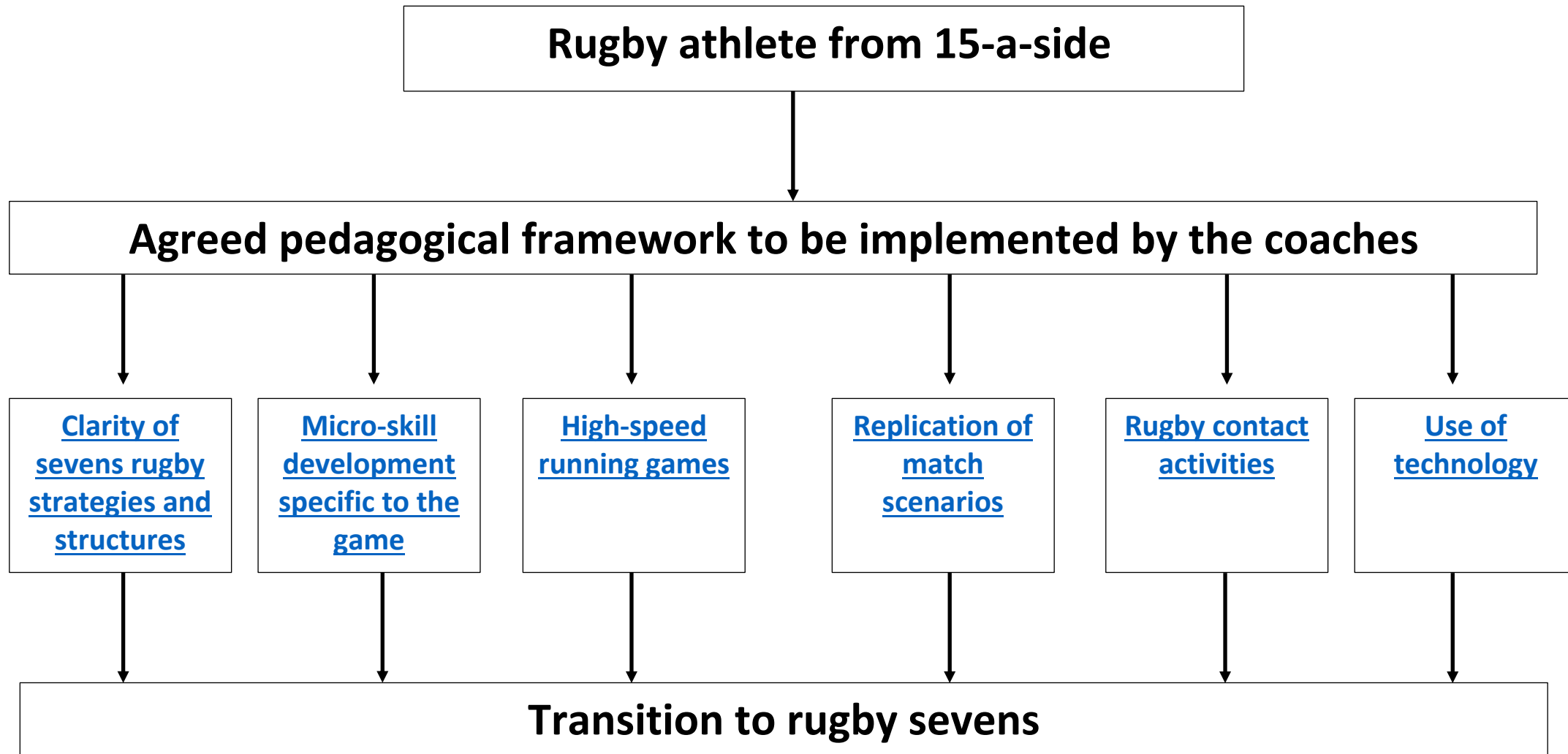
4.1.8 Researching observation and feedback to inform AR cycle one

Herr and Anderson ([2015](#)) stated that a good AR dissertation provides sufficient literature to frame the study but with the assumption that the literature review will continue as the research evolves. This ongoing search for new relevant literature is an important part of the AR process, as "the analysis takes the researcher into areas previously unforeseen" ([Herr & Anderson, 2015, p.89](#)). One unforeseen intervention proposed during the baseline FG (and one that the coaching context allowed us) was the incorporation of more coaches during practice to improve observations and feedback in the first AR cycle. To effectively deliver the framework, the coaches pinpointed observations and feedback as key pedagogical components. The following section provides an insight into my further research surrounding observations and feedback in sports coaching to facilitate this process.

If coaching is essentially built upon the intention of progressing or improving others in context, it must be "premised on being able to see or observe opportunities to act towards such a goal in the first place" ([Jones *et al*. 2013, p.276](#)). Traditional approaches characterise observation as a "perceptual skill that is dependent on information held in short term memory and a comparison of that information held in long term memory concerning similar previous experiences" ([McMorris, 2015, p.100](#)). To steer away from this individualistic notion of observation, as this was a CAR study, participant observation has been described as a form of subjective sociology where the coach (researcher) refrains from imposing his or her beliefs on respondents, instead attempting to understand their world ([Jones, Kingston & Stewart, 2011](#)). A significant sociological thinker in this area that assisted my understanding of observations, both of my own practice and the practice of others, was Niklas Luhmann (1927-1998). Minimal research has adapted Luhmann's notions of observation in a sports coaching setting until Corsby and Jones ([2019](#)). Using Luhmann's theory of observation ([2002a](#)) and Mason's ([2002](#)) *discipline of noticing* they conducted an ethnomethodological study examining the visible, tangible, and contextual details of how coach observations are accomplished in practice. They discussed the taken for granted social competencies of coaches, particularly in relation to what coaches see as part of their ongoing work. The purpose of such research lies in not only revealing the "everyday actions and awareness that allow coaches to understand the when, how and what to act upon, but what informs such decisions and actions" ([Corsby & Jones, 2019, p.349](#)).

Luhmann ([2002b](#)) perceives observation as the intertwining of two events, specifically, distinction (noting a difference) and indication (naming that difference). To observe a chaotic environment such as rugby sevens coaching, distinctions need to be made to reduce the external complexity. To do this, we need to differentiate, distinguish and make meaning of what we see. This leads onto one of Luhmann's influences, Spencer-Browne ([1969](#)), who referred to this as the *marked space* which occurs when an observer draws a distinction resulting in something emerging to the foreground against a horizon ([Ronglan, 2014](#)). However, Spencer-Browne highlighted that if an observer indicates one side of the observation the other side that is not indicated, is known as the *unmarked space*. This differentiation in simple terms and contextual to rugby could be attack and defence, whereby, for example attack is chosen (not defence) or defence (not attack). Observing a system such as a coaching environment, certain distinctions will be *noticed* to observe the phenomenon. Mason ([2002](#)) declared that at the "heart of pedagogical practice lies 'noticing' through which coaches act appropriately" (p.1) attempting to bring into light the intuitive feel that they base their decisions to act (or not) upon ([Corsby & Jones, 2019](#)). To specify what is observed in a practical coaching environment and reduce complexity and differentiate, *context markers* ([Bateson, 2002](#)) can be used to enable one to see. "Coaches' 'seeing' is located not only as a visual and interpretive act (i.e., what one sees and what it means), but also as one that is socially organised and managed and inherently linked to context" ([Corsby & Jones, 2019, p.349](#)). Context markers help an observer focus on certain observations of practice without having to randomly analyse all the information available, also referred to as a *disciplined glance* ([Keiding, 2010](#)). A simple example is a coach identifying that they want to focus on a certain aspect of defence prior to practice. A valid argument against the use of context markers is that coaches merely see what they expect to see, failing to recognise other aspects of action ([Rawls, 2006](#)). However, supporting the use of context markers is that the potential hazard of coaches being heavily ingrained within practices can obstruct coaches from not being able to differentiate and their "observations remain hidden in plain sight" ([Corsby & Jones, 2019, p.348](#)) ([Appendix 5](#)).

When a coach observes the marked space, they firstly make a distinction and name that distinction (first order observation). Secondly, the coach then reflects on his or her behaviour in making those distinctions, known as second order observations. Second order observations akin to reflexivity differentiate between first order observations and second order

observations. Second order observations are known as recursive, a method of applying a method to itself (Keiding, 2010). A second order observation can help "choose a system of reference and explore the coaching process from that particular point of view" (Ronglan & Havang, 2011, p.89). Ronglan and Havang (2011) concluded that success within coaching stems from the quality of observations, which in turn feeds action, although, "seeing a performance is not an individual act, but a social collaboration" (Corsby & Jones, 2019, p.351). To use the information gained from observations and apply it into actionable knowledge for performance, appropriate feedback needs to be expressed by the coach.

Feedback is all information resulting from an action or response which can be visual, proprioceptive, vestibular, or auditory (McMorris, 2015). Simply, it is what coaches see, feel, or hear and can come from within the athletes themselves (intrinsic) or from others (extrinsic or augmented feedback). Like coach learning, looking at feedback through a pedagogical lens it can be divided into formal and informal. Drawing upon the coach learning literature and applying to a rugby context, formal feedback would include planned team meetings or individual player performance reviews. Informal feedback consists of the everyday interactions between the coach and player either on-field or off-field in the moment, during action or after the initial action. The provision of this feedback on performance is essential to build the necessary skills and learnings (Heylings & Tariq, 2001). Feedback will instigate reflection and explanations to develop clear goals but to be effective, it must be timely and challenging (Wikeley & Bullock, 2006). "The time lapse between an athlete performing a skill and the athlete receiving feedback from the coach is called the feedback delay" (McMorris, 2015, p.102). This is a crucial time that a coach can recognise a window for immediate feedback depending on the experience of the athlete. A balancing act then comes into play for coaches in identifying the frequency of when to engage athletes to provide feedback without overloading with excessive information. For example, it is often accepted that beginners may need more feedback than expert performers as they are refining their skills. Feedback becomes less frequent as the athlete improves, which is known as the fading technique (Goodman & Wood, 2009). However, rarely is it possible for a coach not to engage in the communicative act of feedback because silence, or the decision not to act, may be as influential as verbal feedback (Ronglan & Havang, 2011).

Not only will coaches need to consider the timing of feedback but also the level of detail and challenge. From what has been mentioned, it is important that a coach can observe

and identify the athletes' attributes, skill level and temperament to provide appropriate and purposeful feedback. This resonates with Vygotsky's (1978) work surrounding the Zone of Proximal Development (ZPD) with the coach and more experienced players acting as a more capable other. The idea of the ZPD proposes that after the learner (rugby sevens athlete) receives support or tutelage from someone in a more capable position (coach/player) in a certain context (practice), the learner internalises the new idea and therefore will be likely to perform independently in the next similar problem-solving situation (Wink & Putney, 2002). In a sports coaching setting, especially in a rugby sevens environment as it typically consists of large groups of athletes, the challenge for coaches is the assessment of learning within the activity (Lajoie, 2005) to provide individual feedback amongst the collective. For coaches, observing and identifying the athlete's level of learning will in turn benefit the athlete from the provision of more "specific and personalised feedback" (Potrac & Cassidy, 2006, p.47). From a coaching perspective and highly relevant to sport, it will allow the athlete to reposition themselves through actions to the new situation and not just through verbal conformations (Thomas, Bailey & Engeness, 2021).

Caution must be adhered to particularly in a high-performance sports coaching context such as international rugby sevens, as feedback must be recognised as a complex and differentiated construct that includes many forms with, at times, quite different effects on learning (Wisniewski, Zierer & Hattie, 2020). From an athletes' perspective it shines a light on the inherently negative connotations that may be associated with feedback as a method of constantly correcting performance. Feedback, in essence, should be understandable and meaningful for the learner who receives it, effectively helping him/her to perceive the information from the environment that specifies an effective performance solution (Correia et al. 2019).

4.2 Section two – Implementing the pedagogical framework in practice: Opportunities and challenges

To guide the reader in section two, the higher order themes that were generated from the analysis of the data related to the implementation of the pedagogical framework (Table 4) are displayed at the beginning (Table 5) and highlighted in bold during the chronological narrative of the AR story. It was decided to present the AR cycles in this way; as an evolving AR story rather than thematically (as in section one of the results) for greater clarity,

coherence, and lucidity (McNiff, 2013). A detailed discussion around the findings will follow the AR story.

4.2.1   AR story – Cycle one higher order themes

Table 5. Cycle one higher order themes

Opportunities	• Coaches utilising individual and collective feedback to athletes • Coaches more deliberate in their planning of and reflecting on practice • Coaches' use of creative pedagogies
Challenges	• Coaches doubting their own decisions • Redundant coaches • Concerns about overcoaching of athletes

One significant development during the first AR cycle was the integration of all four coaches during on-field practice for both the men's and women's groups. As identified in the baseline data, the rationale underpinning this concept was that the coaches would have more freedom to observe and provide feedback to the players when implementing the pedagogical framework during coaching sessions. Although conscious of the increased workload of the coaches, the scheduling of the training sessions meant that there were sufficient breaks for coaches in between sessions.

Informed by my research surrounding the literature on observations (e.g., Luhmann 2002a) and feedback, I presented a simplified version of the key concepts to the coaching group as a starting point for the second FG meeting (Appendix 11). Having presented the new concepts to the group, I was under the impression that it may take time for the coaches to understand and make sense of them in their own practice. This was evidenced by my reflective diary entry, *"it took me some time to grasp Luhmann's concepts of observation so I will have to guide the coaches, although, it may become a little clearer when planning and coaching practically"* (Reflective diary 19.01.20). With an aim of improving observation and feedback during the implementation of the pedagogical framework, the coaches experienced some initial struggles. One such issue, experienced during the group coaching related to the amount of feedback and level of challenge provided by the coaches as commented on by Simon the head coach:

We could challenge the players more, maybe question them to elicit that learning we want. I don't know whether we're talking to them more on a one-to-one basis. Is there extra coach-athlete interaction because of the collaboration? (FG 2, 21.01.20).

During the HSRG, the coaches seemed apprehensive about applying their own pedagogy during the session because of a lack of clarity in relation to their roles. HSRG provides vast amounts of information to observe as a result of the constant interactions between players within the game. Suggestions were discussed by the coaches to become more organised with the planning of the sessions and each coach was appointed to a specific role. The aim of this was that the **coaches utilise individual and collective feedback to athletes**.

From Simon's comments, the coaches discussed the use of questioning to provide a level of feedback that is challenging but also delivered at the correct time. Simon suggested having a series of pre-made questions so the coaches could deliver immediate feedback. He suggested the coaches design questions based on what they thought needed to be improved, *"we know the objectives of the session, we know what certain player's faults are and having certain questions in mind will help provide immediate feedback for the player to put into action"* (FG 2, 21.02.20)*.* The coaches adopted the same idea from the use of technology in the group video analysis tasks for HSRG by splitting the players into teams and having them feedback and question each other during rest times. This was explained as a more flexible approach to feedback with players having the freedom to discuss the dynamic events of HSRG from their own perspective. This allowed the players to be responsible for their own feedback to encourage learning. However, the coaches expressed a need to monitor the content of the feedback as alluded to by Arran:

It's not needed for me to always feedback because I want other people to have an input. I just need to occasionally monitor to make sure it's focused and not just discussing everything with players just wanting to voice an opinion. (FG 2, 21.01.20).

Furthermore, the coaches wanted to encourage the players to have input into their own learning and feedback particularly during HSRG. This is because during a rugby sevens match the ability for the coach to intervene and provide feedback is limited to only a two-minute

half time. Sam suggested, *"trying to be consistent in using common rugby language for the players to understand. The players are pretty fatigued at half time in games, so feedback has to be understandable to produce the desired action"* (FG 2, 21.01.20). The coaches recognised that there are occasions in training for the replication of match scenarios. For example, when the players are not feeding back to each other during the rest times of HSRG, the coaches could intervene and utilise their rugby language or terminology to feedback to the players (Appendix 10). When players are feeding back to each other during the rest times, the coaches explained the subtle interventions that they adopted to monitor and direct the attention to certain areas by asking focused questions in relation to what they wanted. For example, Arran alluded to rugby contact activities by subtly mentioning an aspect of defence when the players are huddled together, *"I listen to the players conversations and casually ask what do you think of our defensive line speed and collisions in the tackle? I mention that to direct their attention to the aspects I want to improve"* (FG 2, 21.01.20). This moved the conversations to the varying levels of feedback that they demonstrated whilst coaching, with Simon stating that he draws upon his experience and intuition as a coach to get the players to focus on their performance *"I get a feeling that they may be complacent, so much like firefighters control burn to maintain the environment, I like to give the boys a few stern words to shock them and keep them on their toes"* (FG 2, 21.01.20).

After a few weeks of implementing the pedagogical framework, the coaches were frustrated with the conflict of players involvement in the 15-a-side domestic league (Table 2) which was detracting from other aspects of the framework they wanted to apply and develop. It was proving difficult implementing all aspects of the pedagogical framework during weekday rugby sevens practice with the players being involved with club training sessions and a full 15-a-side game on the weekend. Consequently, this resulted in the coaches becoming conscious that they had to be adaptable in their planning of practice sessions as evidenced by the following reflective diary entry:

We had to limit today's session because of the game on the weekend. I could recognise the players were tired and the wellness and GPS scores reflected that. I had to change what I had originally planned but I need to look after them now or we will suffer consequences building to future tournaments. (Reflective diary, 20.01.20).

Having discussed their frustrations with having to adapt to the changing contextual situations caused by the transitional nature of the athletes, the coaches continued with implementing the pedagogical framework. The following section provides a discussion on the first AR cycle.

4.2.2 Discussion of AR cycle one

Similar to Chapron and Morgan (2019) the first AR cycle allowed for the injection of new pedagogical knowledge (observation and feedback) while the coaches implemented the framework. Although the intention was to improve the coaches' ability to observe and feedback during the implementation of the pedagogical framework, they initially struggled. A potential drawback of the fast-moving AR process may have surfaced as Trenberth and Hassan (2012) identified, swift and constant change can restrict people from processing and embracing new ideas. Therefore, this positioned me as a more capable other (Vygotsky, 1978) to guide the coaches not only on the theoretical issues but on the practical collaboration. By collaborating as an increased group number of on-field coaches, the intention was to 'free up' some coaches to observe and provide feedback. It was evident that the coaches were unclear on their role when implementing the pedagogical framework during coaching sessions, for example, who was conducting the activity or game, who was observing the attack, defence, or objective of that session. This impacted on their ability to make distinctions to provide individual and collective feedback that was timely and challenging for the athletes. Practical solutions were presented by the coaches which included specific roles and planning readily available questions to challenge athletes on certain aspects that they wanted to improve relating to the use of context markers (Bateson, 2002). This was evidenced by the session plan and reflections (Appendix 10, 9th March 2020) submitted by Sam in allocating coaches to certain roles to either referee the games to replicate match scenarios, watch attacking width and depth and observe defensive structure.

Positive associations between coach questioning and player learning have been identified amongst several GBA studies (Kinnerk *et al*. 2018). Whilst coaching GBAs, research has shown that having a list of pre-planned questions can be beneficial when providing feedback (Karagiannis & Pill, 2017). Arguments could be postulated that the coaches are neglecting the emergent nature of learning by pre-planning their questions to provide feedback. However, as Wisniewski, Zierer and Hattie (2020) recognised, feedback is complex, has differing learning effects and comes in many forms. A subsequent pedagogical method

adopted by the coaches, as an alternate form of feedback, was to be more flexible and emergent with their feedback during rest times within the coaching sessions. This also offered a differing approach to that alluded to in previous research (Cushion, 2013; Light & Evans, 2010; Roberts, 2011), shifting away from the coach being a direct facilitator of questioning in GBA to players becoming generators of their own feedback. In these situations, although not consciously made visible to the players, whilst facilitating the player feedback groups, the coaches demonstrated subtle pedagogical interventions to direct observations and feedback on areas that they wanted to improve. Jones, Bailey and Thompson (2013) used the metaphor of *Orchestration* in sports coaching and implied that steering, as opposed to controlling a dynamic interactive process, which involves much behind the scenes string pulling towards desired objectives (Arran, FG 2, 21.01.20). Jones (2019) suggested that coaches can "cajole, threaten and tease out their athlete's potentialities" (p.45). Differing from Arran's indirect behind the scenes approach mentioned during certain rugby contact activities, Simon sometimes adopted a direct threatening approach in what he termed a 'control burn' (FG 2, 21.01.20). This indicates that the 'when' and 'where' surrounding different types of orchestration become important to be most effective. This demonstrates the importance of the contextual and temporal components of coach pedagogy (Jones, 2019).

With the players providing feedback to each other during the rest periods of HSRG, it demonstrated another aspect of the pedagogical framework by replicating match scenarios. The rest times in rugby sevens are typically very short, so the coaches recognised that replicating this in the HSRG would give the players the experience of having to feedback to each other without the coach in a small timeframe before the next action. The coaches also identified that their feedback was limited to short periods during live matches; mainly restricted to two minutes at half-time. The consequence of this restricted feedback window encouraged the coaches to be clearer and more concise to ensure understanding and subsequent action from the players. To support this Sam expressed his intentions during this time by, "*trying to be consistent in using common rugby language for the players to understand*" (FG 2, 21.01.20). Jones *et al.* (2018) explain that language can be the greatest mediator in learning, but coaches need to take care with the concepts and language used to stimulate and facilitate supportive learning environments.

Henriksen *et al*. (2018) explained that coaches need to be mindful of the impact of their interventions in the contribution to a supportive environment for athletes' transition.

The coaches demonstrated this by using their intuition coupled with scientific data to adapt their sessions which were likely to fatigue the players, as evidenced in my reflective diary, "*I had to change what I had originally planned but I need to look after them now or we will suffer consequences building to future tournaments*" (20.01.20).

These interventions were signs of improved organisation by the coaches and being far more conscious of their own reflections which was prominent during the FG meetings. However, as the group reflected constructively on practical coaching issues whilst engaged in FG meetings, there was minimal individual reflections with only one reflective log entry submitted. This was evidenced by my following reflective diary entry after FG two, "*I've only had one reflective entry from the coaches so far, but I feel awkward pushing it with them, it's a delicate situation to manage*" (Reflective diary 24.01.20). As I did not raise this concern with the coaches not to discourage their enthusiasm for the study, it questioned my desire or even need for written reflective diaries when a collaborative forum can provide a critical reflective outlook. The findings suggested and possibly confirmed what Cushion (2018) stressed; that reflective practices in coaching have become uncritically taken for granted.

4.2.3   AR story - Cycle two

Despite individual reflections being limited, in AR cycle two the coaches exhibited new integration as a group by collaborating on session planning. After encountering difficulties during the first AR cycle, the coaches also became more ***deliberate in their planning of and reflecting on practice*** particularly surrounding roles, observations, and feedback because of the learning from AR cycle one. The group commented on what they perceived as visible improvements in performance from their athletes after delivering immediate individual feedback as highlighted by Sam:

> *The discussions in AR cycle one has encouraged me to think more on planning and sharing of ideas. This week we've had four coaches and been deliberate in putting that into place. Two coaches observing defence, one observing attack and one spare focusing on individual feedback. I believe we saw improvements in micro-skills, high-speed running games and the scenarios as the session progressed.* (FG 3, 07.02.20).

Improvements in this area were illustrated by the head coach allocating specific roles during the session and even noting what elements of performance he wanted to observe as displayed in the session plan (Appendix 10).

Feedback was an area that the coaches wanted to focus upon, with a conscious effort to provide individual feedback which subsequently improved the relationships between the players as demonstrated by Sam, "*what I'm noticing is there's people far more open to feedback than others. There are also others that you can tell are finding that quite awkward and might need more personal dialogue to build that relationship*" (FG 3, 07.02.20)*.* When asked to elaborate further on the organisation of coaches to provide feedback to the athletes, Arran revealed frustration about the learning process, "*it's like our players seem to fall back into that old habit, like they don't have this knowledge ingrained and you revisit skills that you spent all year doing*" (FG 3, 07.02.20). The recursive nature of rugby practice was a trying aspect of coaching even at a professional level. Here, the aim of incorporating more coaches was to provide individual feedback to ensure learning and understanding occurred. Simon acknowledged his struggle of incorporating more coaches within the sessions and managing a bigger group which lead to **concerns about overcoaching of athletes**, "*my concern with having immediate feedback is doing it too much. I've found at times we're just trying to cover everything and not really focusing on two or three points*" (FG 3, 07.02.20).

This concern regarding overcoaching and whether the coaches were offering too much feedback was just one example of the **coaches doubting the decisions** they were making. To reassure the group, I recalled the research conducted by Bjørndal and Ronglan (2019) and Santos, Jones & Mesquita, (2013) which I used as part of my literature review on coach learning. I suggested that the coaches in their study were often uncertain in advance of the decisions which may work best. In their studies they stated that the process associated with coaching is both emergent and non-linear with coaching solutions being multifarious.

Another example was that coaches were finding it difficult keeping the right distance from the activity to get a more favourable perspective whilst observing and feeding back to the players and not becoming totally immersed in practice. This was expressed by Simon, "*I'm in a bit of an ebb and flow with the training session. One minute I find myself observing practice, next I find myself getting caught up and just watching it*" (FG 3, 07.02.20)*.*

The coaches admitted that working as a newly formulated group felt uncomfortable at first, with insecurities placed upon their personal pedagogy and planning. However, as the

AR cycles progressed the coaching team became familiar with the process and it became a catalyst for idea sharing and critiquing, which was emphasised by Arran, "*I think it's good for us to work more as a group because you always believe what you're doing is the best thing, until somebody says, but I see it from this point of view actually*" (FG 3, 07.02.20). This signified that the coaches were becoming more comfortable with the collaboration resulting in more structured roles during training and the opportunity to challenge the pedagogy employed. This was an early observation I experienced with the collaboration and utilising more on-field coaches:

> *We had better integration of coaches in the session and by using more coaches it provided a different voice and viewpoint for the players. It also cast an eye on us as men's coaches, even the presence of other coaches made us sharper because sometimes I feel I miss things because I'm with the group all the time.* (Reflective diary 13.01.20).

By utilising more coaches, the risk of **coaches feeling redundant** presented an additional obstacle. This came to the forefront during conversations surrounding the collaboration as a potential limitation, with Arran stressing, "*it's one of my biggest frustrations, feeling redundant when I'm coaching sessions with somebody else. I think it's an important part of planning for the session*" (FG 3, 07.02.20). This highlighted the delicate nature of managing the coaches' role when delivering a session. I explained my own personal doubts which ironically countered those felt by the other coaches. I was comfortable in the environment with more coaches to manage the different components of the framework but felt the absence of the head coach in one session impacted on the quality:

> *The head coach was absent from training today, so I had to manage the session myself as assistant. I don't know whether it's my own insecurities, but it feels more relaxed, which I sometimes don't mind, however, the quality of the session was quite poor* (Reflective diary 02.03.20)*.*

The introduction of the pedagogical framework created some frustrations within the group, but it was noticeable that the coaches were heavily focused on HSRG. When asked about this

the response from Arran was, "*HSRG forms a large part of our training for sevens*" (FG 3, 07.02.20). I suggested to the group to fully encompass the components of the pedagogical framework which was outlined by the coaches themselves in the first FG meeting, we needed to be creative in our coaching pedagogy. Additionally, the coaches reflected and determined that certain aspects of the training had become repetitive providing even more of a rationale to be creative while using the framework.

4.2.4   Discussion of AR cycle two

With the coaches exhibiting new integration as a group by collaborating on session planning, it provided a different approach to the more traditional isolated planning that most rugby coaches experience (Chapron & Morgan, 2019; Hall, Gray & Sproule, 2016). From the beginning of AR cycle two and consistent with Bleicher (2014) who articulated that reflection is the "lynchpin to sustainable change in practice" (p.804), the coaches were able, through CAR to identify and address the issues surrounding their roles within training. This provided more clarity on what to observe and feedback upon the intricacies needed to transition from 15-a-side to rugby sevens. Vaeyens *et al.* (2008) cautioned that it is difficult to accurately recognise player improvement, however, the coaches expressed noticeable improvements in player performance from the use of immediate feedback in micro-skills, HSRG and match scenarios.

As previously mentioned, the coaches' provided each other with more clarity surrounding their roles within practice, having specific areas to focus their attention. This was highlighted by Sam who explained, "*two coaches observing defence, one on attack and one spare focusing on individual feedback*" (FG 3, 07.02.20). This not only provided credence to "seeing a performance is not only an individual act but a practically social collaboration" (Corsby & Jones, 2019, p.351), but also demonstrated the use of context markers (Bateson, 2002) to help the coaches focus on certain observations of practice without the distraction of trying to focus on all the information available.

Utilising context markers enabled the coaches to focus their pedagogy on specific areas of improvement with the overarching aim of improving the overall understanding of rugby sevens. However, the coaches experienced some challenges, for example the ability of the players to retain concepts that had been previously covered. This presented a pedagogical dilemma where coaches stressed that they had to constantly revisit features of practice to

have "*this knowledge ingrained*" (FG 3, 07.02.20). Scaffolding is a pedagogical metaphor used to describe how a learner can be assisted by another (Wood, Bruner & Ross, 1976). In this instance, the pedagogical framework acted as the scaffold for the players learning and transitioning from 15-a-side to rugby sevens. From the evidence provided (FG 3, 07.02.20), coaches need to be aware that the scaffolds of the framework can never be removed and even some parts of the framework would require deconstruction and reconstruction to present the learning in different ways (Jones & Thomas, 2015).

The consequence of the coaches' need to constantly revisit aspects of practice led to concerns about overcoaching the athletes. This typically manifested itself in the desire to provide constant immediate feedback. The overuse of verbal information and feedback has been shown to impede athlete development by overreliance and impinging on opportunities for self-regulation (Partington & Cushion, 2013). The perceived overuse of feedback towards the athletes resulted in the coaches doubting their pedagogical decisions. A reason for this was expressed by Simon who mentioned his difficulty keeping a distance during practice by describing himself just "*watching it and not observing*" (FG 3, 07.02.20). Corsby and Jones (2019) experienced similar issues in their study, whereby participants were heavily ingrained in practice, resulting in missed opportunities to deliver constructive feedback. This provides additional support for the coaches' adoption of context markers for practice to focus their observations.

It was clear that the coaches were improving their understanding of observations from a Luhmannian (2002a, 2002b) perspective and demonstrating this in practice. Examples of this included, utilising context markers for role clarity and focusing on a specific area of practice. The coaches' understanding that observation could be a collaborative act, and where they positioned themselves in relation to the practice became important to make distinctions. From a coach perspective, these distinctions were considered to be the aspects of practice that could contribute to improved athlete performance.

Despite the benefits of the on-field collaboration when delivering the HSRG it did present another challenge for the coaches, namely, the feeling of being redundant in a coaching session. Factors contributing to this feeling of redundancy could be attributed to the lack of clarity surrounding the coaches' role and the relations of power displayed in the social collaboration. As alluded to, power is omnipresent in social life and in this instance the coaching milieu. Coaches must be sensitive to the various complex and multifaceted forms of

power not only between coach and athlete but between coaches themselves if effective coaching of the pedagogical framework is to be achieved (Jones, Armour & Potrac, 2002).

It was clear that issues remained during the implementation of the pedagogical framework during AR cycle two. Coaches expressed a concern with sessions becoming repetitive and not being able to create new pedagogical ideas whilst utilising the framework. Despite the men's team travelling for an international tournament (Table 2), in FG three, the group was encouraged to be creative in their coaching without detriment to the performance of the players. The need for creative coaching had been identified by the coaches in the FGs, as previously mentioned. As a result of travelling to an international tournament the coaching group would be separate for three weeks which provided time to research areas of creativity in sports coaching to provide solutions to vary the training and fully encompass the pedagogical framework.

4.2.5   Researching creativity to inform AR cycle three

Although, I had read around creativity within sports coaching as part of the DSC prior to this study, I felt that I needed to immerse myself into the literature to find solutions to the repetitive nature of training and stimulate the coaches' thinking and practical application surrounding the other aspects of the pedagogical framework. The following section outlines various features of the literature surrounding creativity within sports coaching to guide my own practice and the practice of the coaches.

The definition of creativity has remained contested on the grounds of its complex nature (Rothman, 2014). One definition is "the interaction among aptitude, process and environment by which an individual or group produces a perceptible product that is both novel and useful as defined in a social context" (Plücker, Beghetto & Dow, 2004, p.90). Indeed, creativity and innovation do not occur in a vacuum and are rooted in social and cultural contexts such as the coaching environment (Tomassoni, Treglia & Tomao, 2018). This resonates with the application of the entire framework as it required the integration of the entire group to achieve the desired effect. Coaches must be aware that creativity is valued and evaluated differently across cultures and approaches to the game (Aggerholm, Jespersen, & Ronglan, 2011; Rossing & Skrubbeltrang, 2016). As the coaches in this study were from different backgrounds, it placed even more of an emphasis on socio-cultural influence on their ability to be creative. Having a diverse group of coaches can encourage coaches to become

'nomadic thinkers', a form of thinking that owes nothing to established models, where individuals are free to create new connections, to open up experience to new beginnings, to think differently (Jeanes & DeCock, 2005).

Along with the deep-rooted socio-cultural aspects of creativity, nowadays, there are many obstacles that shackle the creative potential of coaches and players, particularly in a place like Hong Kong. Examples include "the lack of street sport, unadjusted training, the mechanisation of play, decrease of game enjoyment and narrow game knowledge" (Santos et al. 2016, p.1). Indeed, taking all these factors into account to adopt a creative implementation of the pedagogical framework, it would require the ability to encourage original, or even reconstructed concepts with flexibility to fit into an ever-changing context whilst having a substantial degree of practical utility.

In the past, creativity has been heavily confined to the aesthetic/artistic domain associating itself with thunderbolts of inspiration bestowed only on a chosen few (Cropley, 2016). However, arguments have been postulated that creativity isn't some divine intervention but a process that can be trained given the right settings (Cropley, 2016). Although a note of caution, even with a degree of endeavour a coach must understand that creativity is not a neat and clean discrete event – one moment something is not there, the next it is, but a process which can be messy, reiterative, often moving forward, backward and side to side (Anderson, Potočnik & Zhou, 2014). What is important to understand from this is that creativity can be very situational. It is the challenging situations coaches faces which compels them to be creative. Being presented with this challenge will inevitably result in mistakes, and creative coaching isn't without its pitfalls, with risk and failure a possible by-product in the pursuit of success. Echoing Sitkin (1992), who expressed that significant learning could take place through intelligent failure, whilst catastrophic moments of failure should be avoided the small failures along the way can help navigate the journey of creativity.

Creativity has been closely linked to the theoretical distinction between divergent thinking and convergent thinking, which were concepts first proposed by Guilford (1967) and then transferred to the world of sport by Memmert and Roth (2007). For coaches, Memmert (2011) described divergent thinking as generating novel ideas which are unusual, innovative, or unique in the solution to sports related situations. In a rugby specific context, an example of divergent thinking was the introduction of the 'blitz defence' strategy in rugby. It relies on the entire defensive line moving forwards at speed, reducing attackers' time and space as

soon as the ball leaves the ruck or maul. This was revolutionary as most rugby teams at that time utilised the widely popular 'drift'[11] defence. However, teams soon started adopting a blitz defence to restrict time, space and create turnovers from the opposition. Convergent thinking or tactical intelligence is the ability to find the ideal solution to a given problem in a specific situation in sport. For coaches, this may mean reapplying what they already know in alternative ways. To use the same example, from an attacking point of view, a coach who has previously experienced the blitz defence can adopt attacking strategies such as going through (ball carry), around (pass/kick) or over (kick) to successfully counteract this type of defence. Despite what has been outlined, it's still a theoretical distinction applied in a practical sense. These views of creativity and their application cannot be completely separated as elements of both types of divergent and convergent thinking may occur simultaneously (Cropley, 2016; Santos *et al.* 2016).

As this was a CAR study, it included several coaches from different socio-cultural backgrounds. Kirton (1989) distinguished between people who prefer to solve problems by making use of what they already know and can do already (adaptors) and people who recognise and restructure what already exists (innovators). This can be related to numerous rugby coaching situations, from coaches adapting micro-skills such as the 360° roll ball presentation from 15-a-side to rugby sevens, to innovating different match scenarios. In these instances, coaches rely on their knowledge and abilities but must also be flexible with any given situation that arises due to the complexities of the game.

Having considered the cognitive aspects of creativity, along with the underlying processes, I wanted to focus on the types and levels of creativity a coach may engage in to enhance their own pedagogical learning. Taylor (1975) differentiated forms of creativity, including expressive spontaneity, technical, inventive, innovative, and emergent creativity. In a coaching context, expressive creativity involves a coach deviating from the norm, not following conventional methods which often stands alone and can be ineffective, lacking practical utility. Technical creativity incorporates repeated application of effective skills and techniques – sometimes referred to as *artisanship* (Deresiewicz, 2015). Artisanship is sometimes the simplest form of creativity, however, from a rugby perspective it can help a

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[11] This defensive strategy involves staying inside the attackers while pushing them out across the pitch and towards the touchline. Most tackles tend to be low around the legs and are side on.

coach formulate different skill activities improving catch and pass for example, a basic skill that sometimes often gets overlooked, resonating with micro-skills. Inventive creativity requires working out original solutions to challenging problems, whereby, innovative creativity introduces new general principles which can be adopted to various situations. Finally, emergent creativity reconceptualizes the whole process.

Sternberg, Kaufman and Pretz (2002) diverted their attention to the creative process and how this process could propel a field forward which may prove to be useful within sports coaching. They outlined eight propulsion phases in the creative process:

1. Conceptual replication (known is transferred to a new setting);
2. Redefinition (known is seen in a new way);
3. Forward incrementation (known is extended in an existing direction);
4. Advance forward incrementation (known is extended in an existing direction but goes beyond what is currently tolerable);
5. Redirection (known is extended in a new direction);
6. Reconstruction and redirection (new life is breathed into an approach previously abandoned);
7. Reinitiation (thinking begins at a radically different point from the current one and takes off in a new direction); and
8. Synthesis (ideas are integrated that were previously regarded as unrelated or even incompatible with each other).

As mentioned previously, creative ideas must have a degree of practical utility and this can be even more apparent the higher the level of sport, where outcomes often outweigh processes.

To highlight the messiness in the processes of creativity, Kenny (2014), Sawyer, (1992, 2006) and Seddon (2005) investigated jazz and musical collaboration. The fundamental premise of this research relies on creativity in jazz which often emerges from improvisation (Kenny, 2014) and is rooted in the interactions between members of the musical ensemble who engage in conversational exchange (Berliner, 1994). This ember ignited a 'creative synthesis' into the specifics of creative collaboration amongst sports coaches, notably, Santos (2019) and Santos and Morgan (2019). The ideas expressed, resonated with what coaches

endure frequently in their practice, with one example being meetings to discuss content, organisation and pedagogical notions of training. During these meetings one coach may initiate a concept which other coaches may use, adapt, and improvise during their practice. Therefore, collaborative creativity in a coaching context could be based on mutual understanding and participation, provided that the coaches remain open to challenge and criticism for concepts to materialise into meaningful pedagogical action.

What is useful to point out is the 'darker' side of creativity in coaching. Even if creative actions are successful and produce the desired results, the demands of professional sport view it as "todays success is very much tomorrow's history" (Jeanes & DeCock, 2005, p.8). For coaches who feel they are truly creative it can often be a process of personal and perpetual crisis, knowing that the concepts they devise may never be finished, not succeed and could be abandoned altogether. There is also an additional pitfall of getting 'buy in' from coaches and players to bring the creative concepts to life. Specifically, in professional rugby coaching, the question which can get asked is 'what value does creativity bring'? The danger in the desire to be creative, is an engineering of the creative process, one that is repeated for its own sake. Much like reflection, the creative process can have the pitfall of infinite regress, ideas for the endless repetition of permanent change, production for the sake of production, ideas for the sake of ideas (Jeanes & DeCock, 2005). This can become hazardous in professional sport, where results are paramount and there's no luxury for time to be spent on areas that provide no real value.

Conceptual tensions are embedded in coaches' beliefs and assumptions about creativity and its development. Coaches' understanding of creativity may lead to distorted and fragmented application of creative pedagogies (Rasmussen, Glăveanu & Østergaard, 2020). Moreover, despite the conjecture surrounding creativity, the coach's ability to implement creative actions will ultimately depend on how much structure they must adhere to and the agency they possess to be creative within their sporting organisations. For coaches, creativity unavoidably involves action, and thus an action situated in a social and material context (Glăveanu, 2012). Simply, in a coaching context, thinking about creativity isn't creativity unless there is action. Anchoring creativity in action allows coaches to grasp creativity as a "liberation of the capacity for new actions" (Joas, 1997, p.133).

4.2.6. AR story – Cycle three

In AR cycle three the coaches were introduced to areas of creativity via an interactive white board session (Figure 5).

Figure 5. Key discussion points around creative pedagogy
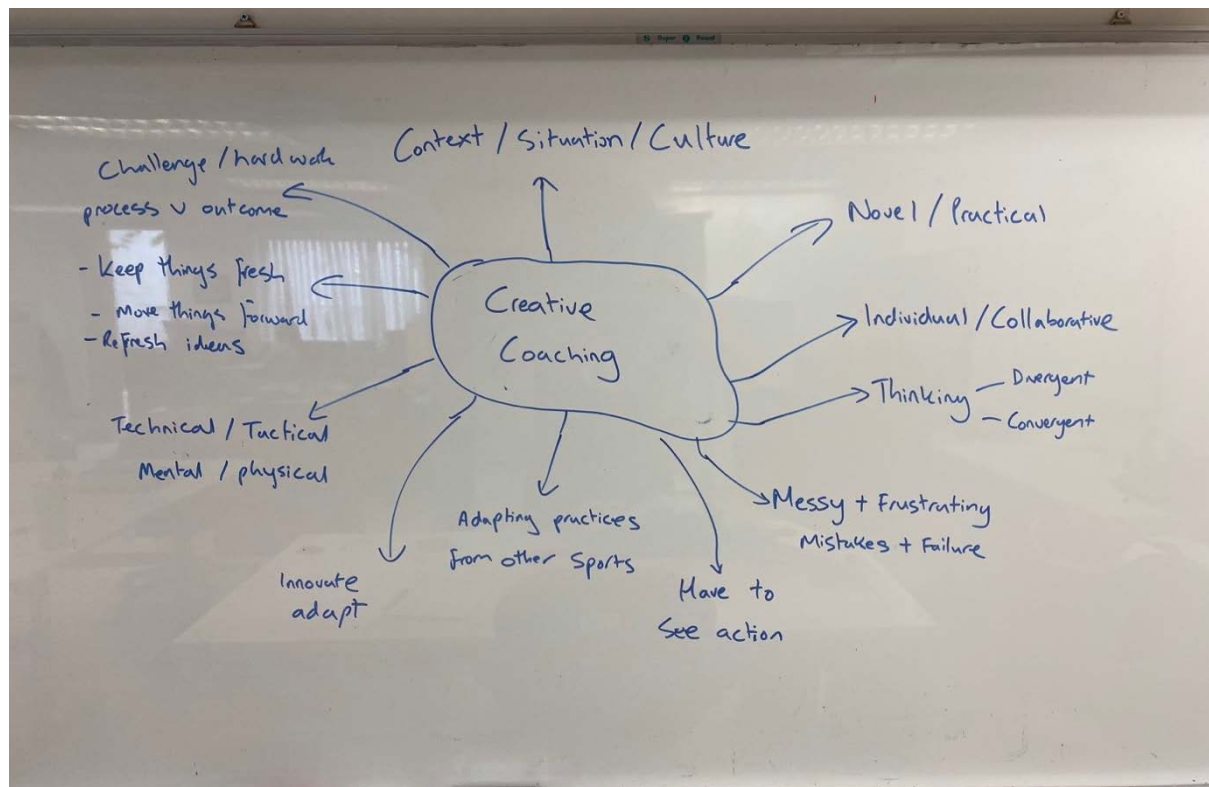
Following the men's rugby sevens team competing in an international tournament in South America, we conducted the fourth FG meeting (Table 2). A significant intervention discussed from AR cycle two were the ***use of creative pedagogies*** by the coaches, to fully encompass the implementation of the pedagogical framework. By discussing creative pedagogies amongst the coaches, it generated a renewed enthusiasm and in contrast to the theory surrounding observations, was easier to understand and practically apply. By having an interactive whiteboard session, it encouraged more engagement from the coaches rather than just me presenting as there was '*limited response from the group during my observation and feedback presentation*' (Reflective diary, 19.01.20). The benefits of the interactive whiteboard session were summed up by Sam who reflected, "*engaging us as a group and bringing creativity to the forefront of the FG it encouraged me to think and talk more about*

my practice and ways, I can challenge the players and myself. Novel and practical, I like that *sentiment"* (FG 4, 06.03.21).

As the women's coaching group remained in Hong Kong they were concentrating on micro-skill development, with one coach mentioning that he was pushing the players to not only practice skills during the session, but to spend time on developing their individual skills post session away from the coaches, *"I'm a big believer in driving extras post training and* *with the help from the analyst created a skills matrix so the players can track what they are* *working on (*Appendix 12*)"* (FG 4, 06.03.21). Coaches were displaying evidence of their own pedagogical awareness and creativity with the introduction of a skills matrix and when probed further, Sam explained the reasoning behind this:

> *We have designed it so the players can enter what skills they have practiced on the* *iPad and then it displays it as a pie chart. They can monitor any areas that they want* *to work on and how much time they are spending post training investing in themselves.* (FG 4, 06.03.21).

With the coaches displaying creative pedagogies by utilising the framework they gained confidence to administer their own unique creative style within it. This was demonstrated by Sam who expressed his coupling of micro-skills and replicating match scenarios and not using them in an isolated fashion:

> *For example, we've isolated the high ball catch, which is important for sevens when* *receiving kick offs, we can't keep isolating it, so we couple it with a scenario. We may* *even attach a reward and consequence on that as well.* (FG 4, 06.03.21).

An additional creative pedagogy used by the coaches was challenging the micro-skills of the athletes by introducing different types and sizes of balls as evidenced by the session plan submitted (Appendix 10).

As previously mentioned, the men's rugby sevens group travelled to an international tournament so the opportunities to be pedagogically creative came with the additional pressure of performance outcomes. One aspect discussed was to challenge the athletes in the team run prior to the tournament. A team run is usually a rugby session conducted a day

before competition and consists of a rehearsal of rugby strategies and structures. We discussed that from our experience as a group, these types of sessions were slow, and error strewn due to the lack of physical and mental demands. We decided to design the session to make it shorter in duration and increase the physical demand to make it contextually relevant to the tournament adopting the same thinking as we did during the HSRG. This was met with positivity from the coaching group post session, as highlighted by Simon:

I think the captains run we did was effective, we provided them with four starter plays from scrum, lineout, kick offs and free kicks. If they made an error, they moved to the next one. I think it got a good response from the group. (FG 4, 06.03.21).

I agreed that it was a positive session having spoken to the players to gather their feedback on it post session which I documented in my reflections, "*I felt the team run worked well and ironically produced less errors when demands were increased*" (Reflective diary 14.02.20). Interestingly, the coaches expressed satisfaction that when they observed the team run, which was predominantly coordinated by the players, adaptability was evident in dealing with the weather conditions. This was pleasing for the coaches involved and mentioned again by Simon:

There was a strong wind but the positives to come out of that were the players tailored the starter plays to suit the conditions. For example, they used the strong wind and executed a long kick off rather than short. We didn't ask them to do that, they did that themselves. (FG 4, 06.03.21).

The structure of the team run demonstrated several aspects of the framework functioning simultaneously, combining clarity of sevens rugby strategies and structures with the intensity of HSRG coupled with several scenario-based situations.

With concerns increasing due to the global pandemic in Hong Kong, the decision was made to pre-empt the training facility closing due to health concerns. The coaches were asked to reflect over the next couple of weeks on the CAR process and how this had contributed to their pedagogical knowledge and their experience with athletes who transition between 15-a-side and rugby sevens.

4.2.7. Discussion of AR cycle three

What differed in AR cycle three from the first AR cycle was that it was less directed by the researcher in relation to the theories of observation and feedback and focused more specifically on the concepts of creativity highlighting the "benefits of co-construction of ideas within the collaborative approach to change" (Clements, Morgan & Harris, 2020, p.11). This co-construction of ideas was evidenced by Sam's reflective diary entry (FG 4, 06.03.21). Importantly, it allowed the coaches to be able to relate to the creativity theories practically for it to make sense.

Encouraging a 'creative license' for the coaches within the pedagogical framework resulted in application of a 'skills matrix' (Appendix 12) which helped monitor the players micro-skills during post training 'extras'. The findings here demonstrate an example of coaches empowering themselves through the AR process to create their own pedagogical style (Bradbury-Huang, 2010; McNiff, 2016). Crucially, by combining the practice of rugby sevens specific micro-skills with the use of technology it not only produced a novel concept but also practical utility for both the athlete and coach.

A particular example of Sternberg, Kaufman and Pretz's (2002) 'creative synthesis' where ideas are integrated that were previously unrelated, became apparent during Sam's coupling of the micro-skills with a match scenario. Initially treated as separate, Sam displayed characteristics of convergent thinking by combining micro-skills with a match scenario to challenge the players within the framework.

To provide additional challenge, the coaches demonstrated creative pedagogies to develop micro-skills by utilising different balls during practice. This relates to the non-linear pedagogy of differential learning and moving away from the "gold standards of movement patterns" (Stone et al. 2020, p.2). Generally, differential learning uses random variability in allowing players to acquire new and functional movement patterns to encourage creative actions (Santos et al. 2018). Specifically, this approach proposes infinite variations in technique movement to ready the player to deal with the variance posed in competitive environments (Frank et al. 2008; Schöllhorn, Hegan & Davids, 2012). Differential learning provides a high improvisation demand, so for coaches this approach should be progressively introduced as the players need to 'master the basics' (Santos et al. 2016). If players are not consistent in the basics, they will rarely display creative behaviours (Ennis, 2015). Utilising differential learning to develop basic micro-skills (e.g., catch and pass) could challenge the

previous preconceptions of technical creativity or artisanship being referred to as the simplest form of creativity (Deresiewicz, 2015). This not only requires the coach to think innovatively in the design and implementation of differential learning activities of micro-skills but also challenge the repetitive nature of practice through using alternative methods.

By adjusting the team run, the coaches demonstrated creativity and innovative problem solving by restructuring what already existed (Kirton, 1989). Additionally, the change in the team run structure demonstrated two important elements of creativity in that it was new to the athletes (novel) but also practical (useful) in that it replicated match conditions (Cropley, 2016). With the coaches displaying creative behaviours in their approach to the team run it inspired the players to improvise and adapt to the weather conditions, which is thought to be crucial to creativity (Kenny, 2014). This also relates to the coaches providing structure for the players but allowing a degree of agency in the decisions made which again demonstrates practical examples of scaffolding (Thomas, Bailey & Engeness, 2021).

4.3 Section three – Exploring the utility of coaches' collaboration to develop their knowledge during the transition process

Consistent with the final objective of the study and the presentation of section two, the themes generated from the analysis of the evaluation of the CAR process are displayed at the beginning of this section (Table 6) and highlighted in bold throughout the AR story to allow for a more fluent narrative.

4.3.1 AR story – Reflective evaluation of the CAR process

Table 6. Reflective evaluation higher order themes

Improved integration of the coaching group	Recognition of how past experiences shape future practice	Managing power relations within the group

Coaches were asked to reflect upon the CAR process and express their thoughts in the final FG meeting (Table 2) to evaluate the impact of the collaboration. Having regular FG meetings provided the coaches with the opportunity to identify areas they considered worked well and

any aspects that needed improvement, thereby allowing them to gain a greater understanding of their current practice (Nash, 2015). However, true collaboration in coaching groups takes time to develop (Callary *et al.* 2014; Occhino, Mallett & Rynne, 2013). This was evidenced by the following reflective diary entry, "*I feel some coaches are more involved than others and if it continues, I will need to address the issue. However, I need to be patient to see the results of change".* (Reflective diary, 20.01.20). During the early FG meetings there were initial barriers to overcome, evidenced by my reflections on the first two AR cycles:

> *To this point, I found that the head coach observed a lot of what was said in the meetings rather than contributing. This may relate to his position of being in charge and may influence others opening up in the group. However, he is slowly opening up more as I think all the coaches are getting more comfortable with the AR process.* (Reflective diary, 07.02.20).

Although, initially met with apprehension, upon familiarity and quality planning during the collaboration it notably **improved the integration of the coaching group**. This was demonstrated by the actions of the coaches, "*we watched today's practice as a coaching group immediately post session. It is something the four of us have not done before and it provided an opportunity to scrutinise one another's coaching"* (Reflective diary, 09.03.20). As the AR process continued, the coaches eventually craved that scrutiny and it made them increasingly cognisant about practice, as revealed by Sam:

> *I like it for different perspectives and points of view, it affirms some things and challenges others. AR allows us to look at other areas of coaching like observation, feedback, and creativity. It gets you thinking when you are reflecting. I need it now to be a better coach.* (FG 5, 19.03.20).

The coaches commented on their personal development throughout the CAR process and improved their **recognition of how past experiences shape future practice**. This was an important aspect of the CAR process, particularly for researchers, as they must be conscious of how much culture and history influence the ability to encourage pedagogical change (Heikkinen, Huttunen & Syrjälä, 2007). This was highlighted by several of the coaches

including Arran, "*as a player, I always wanted to be more skilful so that shaped me conducting drills with the players, so they are technically competent*" (FG 5, 19.03.20)*.* I wanted to probe this notion further as I felt this concept was an important precursor to their change in practice and how it could shape their future coaching of transitional rugby sevens athletes, to which Arran responded, "*I think it has shaped my coaching to make core skills exceptionally good if you want to play the game. Teaching games for understanding and PE was a big influence for me and drove my early stages of coaching*" (FG 5, 19.03.20)*.* Despite admitting his lack of professional coaching experience, his background as an ex-professional player and the interactions with other teachers and coaches displaying these methods had clearly influenced his approach in engaging with the micro-skill and HSRG component of the framework. He also disclosed that the CAR process had shaped his coaching in a different capacity to what he was originally used to, "*I'm more focused and accurate because of the language, communication and questioning issues as part of the players learning process and even more so now after the information presented in this CAR study*" (FG 5, 19.03.20). This conversation was a catalyst for other coaches to share their stories about their own personal coaching influences with Simon describing his influences which stemmed from his family, being an ex-player and working as a teacher before pursuing a career in professional coaching, "*my father played so I just grew up watching rugby. I'd always wanted to be a teacher because I didn't think you could be a professional player*" (FG 5, 19.03.20). I was interested to delve a little deeper into how teaching influenced his rugby coaching because such thinking has long been explored in effective sports coaching (Jones, 2006). Simon acknowledged, "*when I first started teaching the curriculum it contained lots of drill-based exercises but what I found was the kids really enjoyed the games so that's what I continued to do*" (FG 5, 19.03.20)*.* Without the collaboration as a group of coaches, the pedagogical knowledge the coaches possessed, and their preferred coaching approaches may have never been made explicit. In turn, the coaches may not have been aware of what has shaped their practice and how they could improve it in the future using the pedagogical framework.

The coaches demonstrated that they were heavily influenced by past experiences but admitted that they had changed from mainly coaching in Europe to coaching in Asia. This was evidenced by Sam who indicated that since arriving in Hong Kong, "*I'm more adaptive and more conscious of what I'm saying and who I'm saying it to along with how it fits in with the group dynamic*' (FG 5, 19.03.20). I found the topic of group dynamics interesting and relevant

in ***managing power relations within the group***, as we were all working collaboratively. As an example of the political nature of AR in the coaching environment mentioned previously by Coghlan ([2019](#)), I asked Sam to provide examples on how he managed the power relations of the coaching group within the AR study:

> *Since this AR study has started, I've been aware of the collaboration process, not just us but everyone within my women's group. For example, the physiotherapists and strength and conditioning staff are a sort of link to the players. Some of them are closer to the players than we could ever be so they will be far more open and honest on how they are feeling. It's my job to manage that information to best effect without abusing that trust the staff have with the players.* (FG 5, 19.03.20).

I further queried how he dealt with this type of group dynamic, as I was interested in my own learning of conducting this AR study. Sam suggested that he:

> *Keeps the dialogue with everyone open and makes connections with people. It makes tough conversations easier by having a good relationship. Whether it's around selection, performance or if the behaviours aren't right you have to open that communication.* (FG 5, 19.03.20).

Upon reflection of the FG meetings the issue of managing power relations emerged in our own group dynamic. One scenario unfolded when discussing issues of dealing with COVID-19. This was evidenced in the following conversation:

> *Simon: There's a big meeting about postponing the Hong Kong sevens because of COVID-19.*
> *Arran: Have you addressed that with the players?*
> *Simon: Nothing yet, but it could be announced next Tuesday.*
> *Jevon: Is there a reason why we wouldn't tell them of the postponement?*
> *Arran: It's just addressing the elephant in the room. It could help the players understand.*
> *Simon: We need a collective approach as a department here as we must obviously be aligned with the Hong Kong rugby union.* (FG 5, 19.03.20).

It was clear from this conversation that although it was a collaborative coaching study there were numerous stakeholders influencing the outcome of the project as noted in the reflective diary after FG five:

> *Through CAR, I think we've grown closer as a group. We've had honest conversations around the Hong Kong sevens. We might not have had those prior to this study. It shows that we must deal with a lot of stakeholders to achieve what we want; however, I'm concerned that the sports institute will close soon, and we will have to stop the CAR study.* (Reflective diary, 16.03.20).

Despite getting to a point where we could have honest conversations as a group of coaches there remained difficulties with my positionality as both assistant coach and action researcher. One example of this was evident in asking for reflective logs from the coaches "*I've only had one reflective entry from the coaches so far, but I feel awkward pushing it with them, it's a delicate situation to manage*" (Reflective diary 24.01.20). This additionally highlighted a reluctance to engage with any sort of conflict that could compromise the success of the AR study, "*I don't want to keep pushing the reflections with the other coaches and having them resent the process*" (Reflective diary 07.02.20).

4.3.2   Discussion of the reflective evaluation of the CAR process

One of the central tenets of CAR is the fact that it is a whole group collaboration which provides the opportunity to identify and improve integration as a group, which is not always a smooth process. Subsequently, AR allows reflexive thinking, to provide a better understanding of the personal doubts experienced by the coaches as mentioned throughout the first and second AR cycles. As the AR cycles progressed it provided opportunities to introduce new collaborative pedagogical strategies, with one such example being the coaches viewing the video recorded training session together. It created occasions to collaboratively reflect not only on the content of the practice session but on the coaches' role within it, a notion that was presented by Knowles *et al.* (2001).

Bleicher (2014) discovered that motivation plays a leading role in changing coaches' practice but crucial to CAR is the willingness for coaches to open up and express their

experiences. An obstacle to this willingness to share can stem from a coach's frame of reference. Like practice architectures (Kemmis *et al*. 2013), frames of reference are structures of assumptions through which we understand our experiences. They encompass cognitive, philosophical, and emotional components established both implicitly and explicitly, and are composed of two dimensions: *habits of mind* and *point of view* (Mezirow, 1997). Habits of mind are broad abstract, orienting, habitual ways of thinking, feeling, and acting influenced by assumptions that constitute a set of codes. These codes may be cultural, social, educational, economic, political, or psychological. Habits of mind become articulated in a specific point of view – the constellation of belief, value, judgment, attitude, and feeling that shapes a particular interpretation (Mezirow, 1997). They are more durable than points of view, as they have had longer to embed through cultural assimilation and usually, parent's influence, making them harder to change and subsequently more likely to inform their coach practice as exemplified by Simon's extracts. Alternatively, points of view are subject to continuing change, as reflection on either content or process by which we solve problems is needed to modify our assumptions. Points of view are more accessible to awareness and feedback from others, making them more malleable in a coaching context (Mezirow, 1997). Sam displayed an example of this by asking the other coaches their thoughts on his pedagogical ideas. By opening himself up for critique it made him think more deeply about his pedagogical practice and without FGs as part of the CAR process this would not have happened. What this does highlight is that not only were the coaches deconstructing their performances through collaborative reflection but trying to reconstruct their coaching practice by discussing ideas to improve their practice (Jones & Hemmestad, 2019). This is one of the significant advantages that the cyclical process of AR has over other coach learning opportunities, as it provides coaches the chance to deconstruct and reconstruct their practice in short timeframes.

Although argued that there should be no hierarchy in AR (Tekin & Kotaman, 2013), the extracts from the reflective evaluation show that AR is susceptible to power and hierarchy. The head coach's interaction with the coaches in the conversation about the postponement of a tournament evidenced both visible and non-visible power relations. The interactions between the head coach and the other coaches indicated a hierarchy of power. Additionally, Sam described his awareness of non-visible power relations in working collaboratively whilst dealing with information received from his assistants. Morgan,

Mouchet and Thomas (2020) unearthed that players are more open to assistants and support staff but what they failed to mention, as stated in the extract by Sam, was the need for head coaches to 'tread carefully' when considering the information to act upon without compromising the support staff's relationships with the players. It supports how organisational life is characterised by the dynamic and fluid process of forging and re-forging alliances and working relationships (Cassidy *et al*. 2015). Jones (2019) conceptualised such practice as the *work of repair*; work that honours the minutiae required to fulfil the invisible social contract of coaching and the subsequent neglect that may lead to resentful rotting relationships. However, the development of mutual trust and respect between coaches takes many years to build (Mallett, Rossi & Tinning, 2008; Occhino *et al*. 2013).

Difficulties were experienced as coach and researcher during this CAR study, as on the one hand I was empathetic to the stresses and strains of coaching professionally but on the other I wanted to extract as much information as I could from the other coaches' perspectives. This at times proved difficult as evidenced by the lack of coaches written reflections. It also highlighted that there can be a level of conflict present when conducting AR studies. However, reflecting on my own practice highlighted that I could have provided a more structured reflective framework to guide the coaches to provide more insight as demonstrated in other AR studies (e.g., Chapron & Morgan, 2019; Clements & Morgan, 2015). This may have kept them more involved in the reflective process that I was asking them to engage with.

Chapter Five – Conclusion

5   Conclusion

The structure of the conclusion is to: 1) Summarise the main findings; 2) identify limitations; 3) discuss implications for practice; and 4) suggest areas for future research. The aim of this study was to investigate how a group of rugby union coaches could utilise CAR as a means to develop and implement a pedagogical framework to assist players' transition from playing the 15-a-side to the 7-a-side game.

5.1 Main Findings

The findings in this study indicate that through CAR, pedagogical ideas can be developed and applied practically. By initially piecing together pre-existing (e.g., HSRG) and abstract ideas (e.g., replication of match scenarios) into a pedagogical framework (Table 4), the coaches had a well-defined reference point to provide a supportive environment to coach transitional rugby athletes. Supportive environments have been shown to assist with the transition of athletes from one organisation to another (Stambulova *et al*. 2020). A common finding to emerge from this study was the coaches' attempt to create a player centred supportive environment by adjusting practice sessions to accommodate the players. This included: (a) modifying the content of training to suit the players fatigue levels, (b) delivery of personal feedback, (c) scheduling player coordinated clarity rugby sessions, (d) encouraging micro-skill 'extras' and, (e) orchestrating group feedback during HSRG and group analysis tasks.

Under the constraints of time, the coaches utilised clarity of rugby sevens strategies and structures within the pedagogical framework to re-introduce the principles of rugby sevens to athletes previously involved in 15-a-side rugby union. Once the strategies and structures became familiar to the players it allowed the coaches to pre-frame the content of what they wanted to pedagogically deliver during other aspects of the framework. For example, HSRG and replication of match scenarios. Clarity of rugby sevens strategies and structures was not solely coordinated by the coaches. Here, 'player walk throughs' and whiteboard sessions were also conducted by the players themselves.

Micro-skill development specific to the game of rugby sevens was utilised to focus on the nuances of rugby sevens skills such as types of passing, ball presentation and styles of rugby contact. Through CAR it allowed the coaches to reflect on the micro-skill activities adopted and improve them in creative ways. This was evident with the coaches displaying

examples of working along a pedagogical continuum involving contemporary approaches to micro-skills (e.g., differential learning in passing activities) to then moving between more traditional approaches such as repetition of techniques in passing activities (Appendix 10) (Renshaw *et al.* 2019).

Based on the findings from this study, HSRG were utilised by the coaches for several purposes to support the athletes in their transition from 15-a-side to rugby sevens. They were adopted to apply the technical and tactical components of rugby sevens in a game environment. Additionally, the coaches used them to simulate match conditions by using physical activity parameters through GPS, which is a component of GBA's outlined by Kinnerk *et al*. (2018). The findings also displayed coaches constraining certain conditions of HSRG to focus upon specific game components (Appendix 9). A selection of HSRG's was favoured by the coaches, that was rotated and altered periodically to vary the point of challenge for the athletes based upon their level of progression.

The coaches in this study also used the pedagogical framework to replicate match scenarios to simulate situations that the players' experienced during a rugby sevens game. Although difficult to fully encompass match and tournament conditions during training, the coaches discovered that applying a reward or consequence and making it explicit, errors would occur, which provided a cognitive demand upon the players. Findings show that coaches deliberately designed practice sessions to situate the players in challenging scenarios to replicate rugby sevens matches.

This study demonstrated coaches' using technology both organisationally and pedagogically. From an organisational perspective coaches connected with players via Hudl (Appendix 6) and fellow coaches using WhatsApp (Appendix 7). Technology was used to assist the coaches in their delivery and reflection on all the areas of the framework to display visual pictures and provide feedback to players. Coaches also utilised technology to encourage collaboration between the players in the rugby sevens environment. This was achieved by carefully designing and implementing group analysis tasks such as watching opposition matches and feeding back to the rest of the group any related themes. Additionally, Hudl was a tool utilised by the coaches to supply information to players who were absent from training with the aim of providing a smoother transition upon arrival back to the rugby sevens organisation. This has similar characteristics to what Stambulova, Ryba and Henriksen (2020) refer to during the pre-transition phase.

It was clear by implementing a pedagogical framework it presented opportunities for the coaches to enhance their pedagogy. Three areas where coaches displayed enhanced pedagogy were the utilisation of individual and collective feedback, becoming more deliberate in their planning of and reflecting on practice, and successfully employing creative pedagogies to engage the athletes. During AR cycle one, theory surrounding observation and feedback was introduced to the coaches. The evidence shows that the coaches' recognised the importance of timing and challenge of individual feedback to the players to develop understanding within the rugby sevens environment. Albeit an orchestrated endeavour (Jones, Bailey & Thompson, 2013), the coaches appeared to empower the athletes by actively encouraging them to regularly contribute to feedback on their own performances particularly during HSRG and analysis tasks. However, this was carefully orchestrated by the coaches as identified in the findings (Jones, Bailey & Thompson, 2013).

AR cycle two revealed that the coaches became more deliberate in their planning of and reflecting on practice. This in turn was a result of using context markers to observe training more carefully (Appendix 10). Evidence here also supports that in a rugby sevens coaching environment, observation and reflection can be a collaborative act rather than an isolated practice. Findings during AR cycle two showed that because of the regular transition between 15-a-side and rugby sevens the understanding of different constructs of the pedagogical framework needed to be constantly revisited, supporting the scaffolding notions for learning put forward by Thomas, Bailey and Engeness (2021)

The purpose of AR cycle three was to introduce creative literature to the group to enhance their pedagogy whilst implementing the framework. By introducing the creative literature, the coaches displayed creative pedagogy not previously witnessed by applying a skills matrix (Appendix 12), coupling the constructs of the framework and utilising different types of balls to improve players micro-skills (Appendix 10). Additionally, creative pedagogy was demonstrated by the coaches altering the concept of the team run. What was previously viewed as a less demanding aspect of practice was changed to increase the demand on the players to replicate tournament conditions.

Despite clear coaching opportunities with designing and implementing a pedagogical framework, several challenges were experienced by the participants. For example, during AR cycle two it became apparent that the newly formed on-field collaboration resulted in some of the coaches feeling redundant and not utilised fully during practice. This prompted the

coaches to plan clear roles to fully incorporate all the coaches on-field. The second challenge the coaches endured related to concerns about overcoaching of the athletes after being introduced to the literature surrounding feedback. Although no specific intervention to coaching practice was administered to address this issue, the coaches recognising the potential dangers of providing constant feedback to the athletes was a positive outcome. The last challenge that manifested itself whilst implementing the pedagogical framework was the coaches doubting their decision-making. This became apparent not only in AR cycle two during the on-field coaching sessions, particularly conducting HSRG but also during the FGs. However, the advantage of the FGs led to discussions surrounding the multifarious aspects of coach decision-making with the outcome of their decisions becoming exposed after the event had taken place and reflected upon during the FGs.

Following AR cycle three, the group conducted a reflective evaluation of the CAR in the fifth FG meeting (Table 2). Analysis and interpretation of the results from this FG, demonstrated improved integration as a coaching group with greater clarity on coaching roles, using context markers to guide group observations (Appendix 10) and providing opportunities to deliver immediate individual feedback to players without disrupting the flow of the session. Findings show that as time progressed throughout the CAR study, the coaches were displaying signs of being more comfortable to offer different perspectives and challenge one another on their pedagogy.

Furthermore, the improved integration resulted in the coaches being more open to discuss how their past experiences shaped their own practice. By recognising their past, the coaches were made aware of their own frames of reference (Mezirow, 1997), which influenced their pedagogical knowledge and their preferred coaching approaches. Prior to the CAR study the coaches may not have been aware of what shaped their practice and how they could improve it in the future using the pedagogical framework. Although, integration as coaches improved during the CAR process, it was evident during the reflective evaluation that managing the relations of power became important. Results support the political nature of CAR as outlined by Coghlan (2019). This was particularly evident during the interactions between the coaches and support staff during the discussions in FG five.

5.2 Limitations

Upon reflection of the AR study, numerous aspects emerged that limited its potential. Mindful that it may appear repetitive, it is worth mentioning how the global pandemic affected the potential of the study with significant impact on the timeframe. Although, much of the data was collected over this reduced period, it did pose questions about the timescale of a CAR study. Implementing a six- construct pedagogical framework over a reduced period of 12 weeks provided less of an opportunity for the coaches to look at the areas in-depth, an example of this being rugby contact activities (Table 3). Additionally, the study coincided with the time of year that was close to an international tournament and by engaging in live rugby contact activities at this time would have posed an injury risk to the players. Therefore, a more longitudinal study of the pedagogical framework may be necessary to evaluate its impact during the different phases of the year. Furthermore, the reduced timeframe and fast-moving nature of the study lessened the coaches' ability to put into practice their newfound pedagogical knowledge of observation, feedback, and creativity. Consequently, this could have contributed to the coaches' experiences of doubt, redundancy, role ambiguity and instances of overcoaching. The literature researched and injected into the AR cycles was a direct result of what the coaches felt would improve their pedagogy while implementing the framework. However, upon reflection this could have limited the coaches' research of pedagogical knowledge in other areas of coaching such as decision-making, language, questioning and checking for understanding, which were some examples hinted at during the study and could have been explored further if the scope of the study allowed.

5.3 Implications for future practice

In relation to the implications for future practice, it was evident from this study, that coaches who adopt a CAR approach can practically apply pedagogically conceptual ideas in a sports setting. A significant benefit of CAR is that it not only provides a reflective forum, but it also allows coaches or researchers to inject new pedagogical theories which are contextual to the nature of the coaching environment. The cyclical nature of AR also provides coaches with opportunities to see their own development in practice, something which can be absent in formal coach learning situations. For example, during this AR study the coaches were introduced to creative literature and had the opportunity to implement and reflect upon it

during the discussion in the next cycle. My dual role of researcher and coach provided an opportunity to practically demonstrate acting as a more capable other (Vygotsky, 1978) by introducing and explaining research surrounding areas of pedagogy during the AR cycles. By introducing these pedagogic notions, coaches displayed improvements in their coaching practice and developed their own creative style within that. Some examples from this study were developing a skills matrix, introducing differential learning in micro-skills, and designing a more challenging team run.

Noticeable during the CAR process was as coaches became familiar with each other, the more they craved the feedback and critique of their coaching practice, which manifested itself into a powerful learning environment. This helped manage the uncertainty of coaching practice, discussing the problems rather than ignoring them, like Jones and Hemmestad's (2019) study with handball coaching. It became evident during the coaches' discussions surrounding the uncertainties of coaching practice, that there were issues of managing power relations. Despite inevitable instances of power within the group and by myself, CAR allowed a dialogical relationship which appeared to reduce power imbalances by re-positioning the coaches from objects absorbing information to co-constructors of actionable knowledge in the learning process (Cope et al. 2020). Consequently, by displaying a level of vulnerability and sharing as evidenced in my reflective diary (02.03.20), it can erode power barriers and provide security for the coaches, leading to a greater investment in creative practices (Jones, 2019).

Recent evidence shows that providing coaches with an opportunity to discuss coaching issues specific to practice (i.e., reflective conversations during FG meetings) and supporting them in their learning to think more critically about their coaching, can change practice (Cope et al. 2020). Like educational practices (Messiou, 2006; 2018), collaboration between all those involved seemed to be crucial in providing a 'voice'. This was another strength of the CAR, as the coaches had input into all aspects of designing and implementing the pedagogical framework, something which again can be absent in other formal coach learning situations.

A consideration when engaging in a CAR study is the type and number of participants utilised. From this study the total number of coaches was four, including myself as the researcher, which resulted in rich contributions and better integration. More participants may not necessarily mean a higher quality of data, as a larger group of coaches may pose problems

from a management perspective and dilute the richness of the coaching experiences. In this CAR study, the coaches, all being ex-players, shared an identity which in turn helped with the understanding of the day-to-day language and meaning used (Chapron & Morgan, 2019; Occhino *et al.* 2013). As discovered by Mouchet and Duffy (2020) differences in language and meaning might constitute an obstacle in collaborative work, whether in the functioning of coaching staff or in the implementation of education and development programmes. It is understandable that a shared identity may not always be possible within CAR, and variety can be beneficial in research, but for this study the familiarity as former rugby players provided a gateway to be honest with the critique of coaching practices and wider coaching issues in the search for improving pedagogy.

Lyle (2018), in his paper *the transferability of sports coaching research,* noted the failure to conduct in situ intervention studies to accommodate the particularity of real-world issues of context and application. Furthermore, coaches valorising the use of CAR can and will provide the solutions to address these widespread issues in research. By designing and implementing a pedagogical framework and evaluating the collaborative process, it is important to consider what works in one context may be unhelpful in another, therefore it is crucial that any framework aiming to aid practice is flexible, contextualised, and co-created (Vaughan *et al.* 2019). AR projects are situation specific, and do not aim to create universal knowledge (Coghlan, 2019) but at the same time, extrapolation or transfer from a local situation to other situations is essential (Huxham, 2003; Eden & Huxham, 2016). Based on the findings from this study the framework presented (Clarity, micro-skill development, HSRG, scenarios, elements of contact, use of technology) could provide a blueprint for improving coach pedagogy in numerous invasion-based games.

The originality of this study lies in addressing the dearth of pedagogically focused research in rugby sevens. It utilises CAR in a rugby sevens environment to practically apply a pedagogically conceptual framework for coaches to solve the transitional issues of players from 15-a-side to rugby sevens. The individual constructs of the framework may not be new to some coaches, but the conceptualisation is. It is not a detailed in-depth look at the theory of coaching, but it is an academically and practically informed starting point to solve coaching issues. With each construct, it provides the coaches the flexibility to explore the conditions of possibility by seeing the connections between the various parts of the framework and how it relates and layers the learning. Examples emerging from this study include clarity of sevens

rugby strategies and structures informing HSRG and scenarios, micro-skills combined with scenarios and rugby contact activities . Whilst not claiming that the findings of this AR are the solution to coaching pedagogy to tackle the problems of transitioning between 15-a-side and rugby sevens, they strongly suggest that coaches collaborating, reflecting, and then working together to solve those problems can lead to a much more refined future coaching practice. Furthermore, through CAR this study explicitly identifies the effectiveness of making coach learning, observations, feedback, and creative pedagogy a collaborative rather than isolated act.

5.4 Future research

To bring this study to a close, I would like to draw your attention to several areas for future research. First, there is considerable evidence from this study for the advantages of rugby coaches engaging in CAR to design and implement a pedagogical framework and enhance coach learning. CAR offers coaches the opportunity to assess issues in their environment, collaboratively work on the issue and observe their development of practice in action.

Second, by removing the pejorative connotations creativity has in elite sport especially rugby, it can be understood as the silent but salient foundation to coach pedagogy. Based on the findings, CAR can be viewed as a creative research paradigm, propelling the field of sports coaching forward by allowing coaches to discuss the micro-structure of practice, that is, the hourly, daily, weekly activities that hold the potential to facilitate learning and performance (Davids *et al.* 2017). Developing creativity is a multifaceted challenge requiring research approaches such as CAR that incorporate, rather than isolate, interdependencies and interactions between athletes and their environment (Vaughan *et al.* 2019). The margins of performance are slim at the professional level, so coaches need to cultivate creativity as sports performance is ever evolving requiring a need for innovative and creative actions to emerge as athletes co-adapt to the behaviours of other competitors (Correia *et al.* 2019).

Third, for the coaches, creative actions may be a source of self-transformation or self-realisation, which disclose human agency and bring our powers and energies to life (Anderson, 2001). Engaging with CAR and encouraging creative pedagogies can lead to Transformative Learning (Mezirow, 1991, 1995, 1996) which is the process of effecting change in a frame of reference. Mezirow (1997) explained that the process of transforming frames of

reference by way of transformative learning is through critical reflection of assumptions, validation of contested beliefs through discourse, action upon on one's reflective insight and critical assessment, which is what CAR provides for the coaches.

Finally, not discrediting the importance of other disciplines related to rugby sevens performance, there is a desperate need to research all areas that encompass the game of rugby. Like the AR process, coaching has been described as an "ever-changing, pluralistic and unfinished process" (Jones, 2019, p.359). Consequently, the writings in this study reflect the realistic challenges and opportunities that adopting a CAR approach can provide coaches who want to seek to improve their coach pedagogy.

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Appendices

Appendix 1 – Information for coaches
Appendix 2 – Coach consent form
Appendix 3 – Athlete consent form
Appendix 4 – Session plan and notes
Appendix 5 – Reflective diary
Appendix 6 – Hudl
Appendix 7 – WhatsApp messages
Appendix 8 – Mind Mapping
Appendix 9 – Fiji touch guidelines
Appendix 10 – Women's session plan
Appendix 11 – Observation and feedback presentation
Appendix 12 – Skills matrix

Information for Coaches

Title

Designing and implementing a pedagogical framework to coach rugby sevens athletes who transition from 15-a-side: A collaborative action research approach.

Aim

The aim of this study is to investigate how a group of rugby union coaches can utilise CAR as a means to develop and implement a pedagogical framework to assist players' transition from playing the 15-a-side to the 7-a-side game.

Background

The study will take place at the Hong Kong Sports Institute over a period of 3 months. Data will be gathered within the normal coaching times without further meetings or commitment necessary. The objectives of this study are to develop an innovative and dynamic transitional coaching framework in rugby sevens, explore the opportunities and challenges for coaches in developing and using the framework and explore the utility of coaches' collaboration to develop their knowledge during the transitional process.

Research Design

Action research (AR) works through a cyclical four step process of consciously and deliberately: planning; taking action; evaluating the action; leading to further action and so on (Coughlan & Brannick, 2004). There will be six cycles of action research in this study as outlined below:

Week 1 (6.01.20) – Introductory meeting to outline pedagogical framework to coaches
AR Cycle 1 (17.01.20) - Focus group meeting
AR Cycle 2 (31.01.20) - Focus group meeting
AR Cycle 3 (14.02.20) - Focus group meeting
AR Cycle 4 (28.02.20) - Focus group meeting
AR Cycle 5 (13.03.20) - Focus group meeting
AR Cycle 6 (27.03.20) - Focus group meeting

Precise methods of data collection include reflections, audio recorded focus groups and video observations of coaching sessions. Supplementing this, a personal reflective diary will be kept by the researcher with participants asked to document their reflective thoughts.

Why You?

You have experience coaching transitional athletes and have the opportunity through this study to improve your practice.

What will happen if you join the study?

By agreeing to take part in the study, you are committing your time and effort to respond to the research aim. Therefore, your contributions, reflections, engagement and insights are fundamental to the study's success.

Are there any risks?

We do not consider there are any significant risks related with your participation in the study.

Can you leave the study at any time?
You are free to leave the study at any given time as this project does involve some time commitments on your part, and I completely understand if you do not want to take part for any reason. The study will still be continuing with other participants and will not negatively affect your experience within the coaching environment.

How we protect your privacy:
Any personal information that is not part of the data used in the study (e.g., name, email address, etc) will not be shared in the final written thesis, however names may arise as part of discussions with research supervisors. This information will not be shared wider than the supervisory group. Any quotes or observations used as part of data in the written thesis will use a pseudonym. All participant data collected in the course of the research (including personal information – e.g., contact details) will be stored on a password protected computer and handled in accordance with Cardiff Metropolitan University's data storage and handling procedures. Careful steps will be taken to make sure that you cannot be identified from any of the data collected. When we have finished the study and analysed the information, all the forms utilised to gather data will be destroyed. We will keep the form with your name and address, and we will keep a copy of the attached consent form for 10 years, as we are required to do so by the University.

PLEASE NOTE: *YOU WILL BE GIVEN A COPY OF THIS DOCUMENT TO KEEP, TOGETHER WITH A COPY OF YOUR CONSENT FORM.*

Contact Details
Jevon Groves   st20128406@cardiffmet.ac.uk
Dr. Kevin Morgan   kmorgan@cardiffmet.ac.uk
Dr. Kerry Harris   kharris@cardiffmet.ac.uk

COACH CONSENT FORM

Participant name:

Title of Project: Designing and implementing a pedagogical framework to coach rugby sevens athletes who transition from 15-a-side: A collaborative action research approach.

Name of Researcher: Jevon Groves

_____

Participant to complete this section: Please initial each box.

I confirm that I have read and understand the information document for the above study and participate in everything that I am expected to. I have had the opportunity to consider the information, ask questions and have had these answered.

I understand that my participation is voluntary and that if I have any issues, I can freely discuss such issues if needs be. Furthermore, I am free to leave the study at any point.

I agree to the use of anonymised quotes in publications

I agree to the researcher collecting data relating to my coaching practice via observation, video recording, logbooks and audio recorded interviews and focus groups.

I agree to take part in the above study and that all information provided will be anonymised.

_____   _____

Signature of Participant   Date

_____   _____

Name of person taking consent   Date

_____

Signature of person taking consent

When completed, 1 copy for participant & 1 copy for researcher site file

ATHLETE CONSENT FORM

Participant name:

Title of Project: Designing and implementing a pedagogical framework to coach rugby sevens athletes who transition from 15-a-side: A collaborative action research approach.

Name of Researcher: Jevon Groves
_____

Participant to complete this section: Please initial each box.

I confirm that I have read and understand the information document for the above study and participate in everything that I am expected to. I have had the opportunity to consider the information, ask questions and have had these answered.	
I understand that my participation is voluntary and that if I have any issues, I can freely discuss such issues if needs be. Furthermore, I am free to leave the study at any point.	
I agree to the use of anonymised quotes in publications.	
I agree to the researcher collecting data relating to my athletic practice via observation, video recording, logbooks and audio recorded interviews and focus groups.	
I agree to take part in the above study and that all information provided will be anonymised.	

_____ _____
Signature of Participant   Date

_____ _____
Name of person taking consent   Date

_____
Signature of person taking consent
When completed, 1 copy for participant & 1 copy for researcher site file

Appendix 4 – Session plan and notes

				13.1.2020 am	Plyometric & Games						
				Hit Shields		Cones	6	Tackle Bag			
				Tackle Suits		Balls	8	Bibs	1 set		
					Low						

TIME	REPS	ACTIVITY	STAFF
10		Warm up — Incorporate some skills here	KIT
15		Plyometrics	JR/Kit
10		Attack v Defence - Edge to wide attack - with a flat 7 defensive set up. (play for 4x2x90s). 2:1 work/rest. WW to ref	JG
10		7v6 attack v Defence - 2 handed touch lose possession on the edge (5x60s) 2:1 Work/rest. WW to ref	PJ
6		Individual skill development	ALL
51		– Ball presentation – Inside shoulder in defence – linespeed	

* Move around pitch more to get better view of the ball → observations – WW ref helps this

* We need to work harder on the floor → 2 movements on ball presentation

* Chat to edge defenders post session on their positioning → They should be offset more

Key focus — linespeed was pretty good and the inside shoulders in defence

        – Ball presentation → Big work on

Appendix 5 – Reflective diary
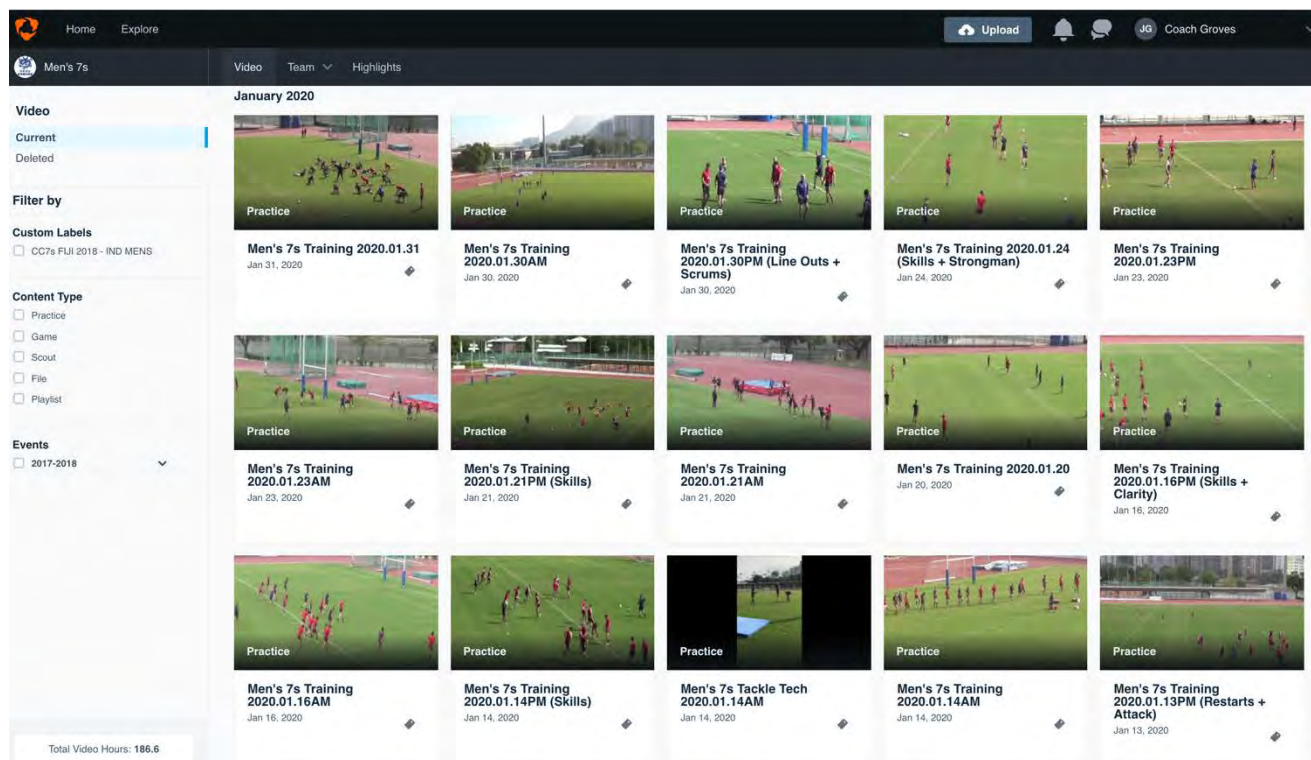
Monday 13th January 2020 – HSRG/Skills/Gym

The structure of the day started with a gym session followed by a short break and then HSRG in the morning. The first part of the HSRG session was high volume running which challenged the players skills under fatigue. In the afternoon it was a far less intense session with micro-skill development where there was an opportunity to coach more. In lower intensity sessions its easier for me to engage players to provide feedback and communicate with the players as it does not have much effect on session flow. In high intensity sessions there is a difficulty to get too involved because I'm conscious it may disrupt the rhythm of the session. I want the players to be able to handle those situations without help from me. Probably need to get some sort of skill warm-up before the HSRG session (skill primer).
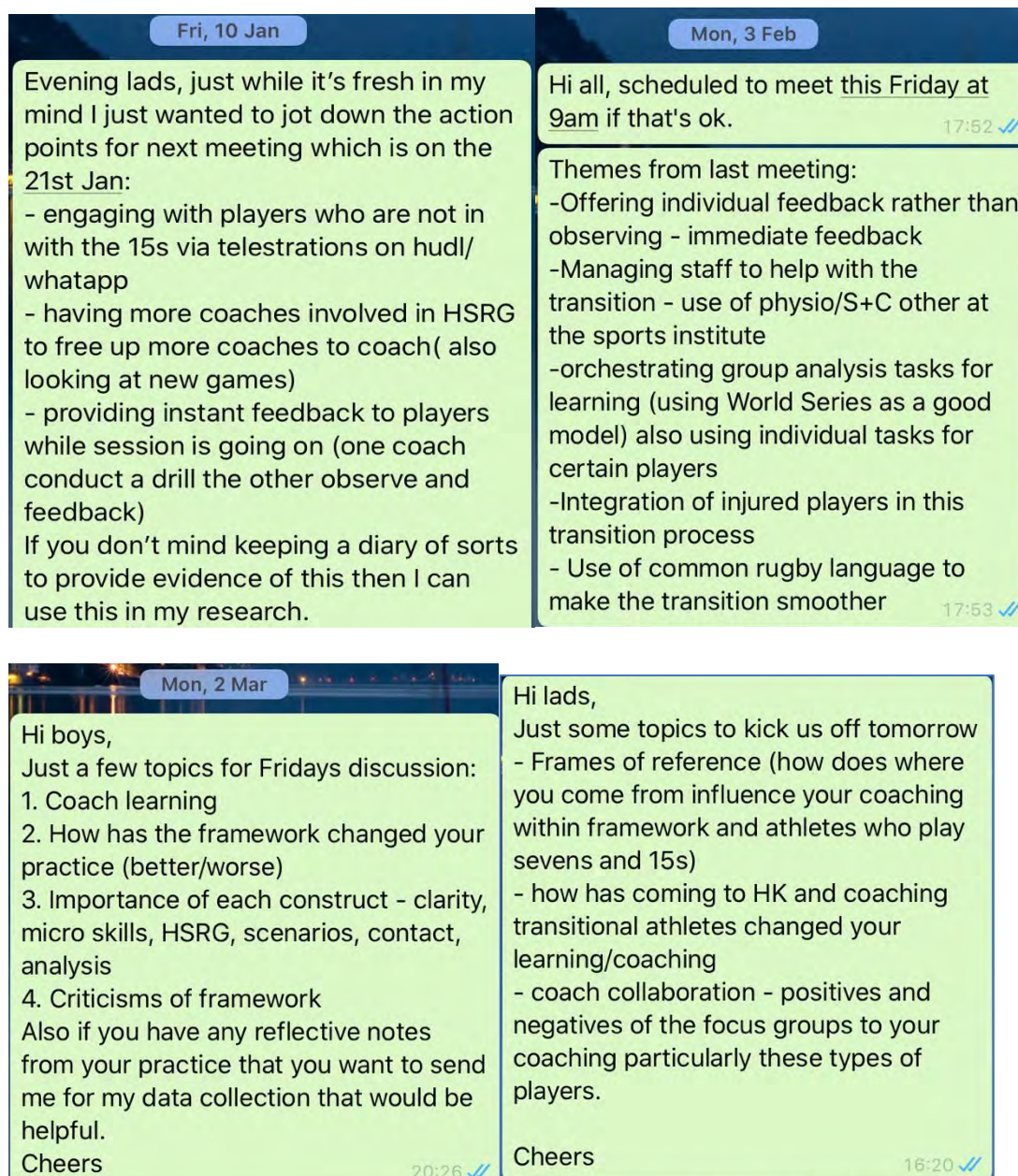
To follow the action points from the first focus group meeting we decided to incorporate another coach to conduct the HSRG, so we were not fully immersed in the games allowing us to observe specific areas. This provides me a chance to really look in detail at our defence because the usual dynamic would consist of me officiating and the head coach trying to observe and feedback on both attack and defence. Being a referee enables me to be close to the ball which helps to some degree in my observations of the contact area and level of communication on the ball, however I struggle to see the whole picture. Being so immersed in the games restricts my overall view of the training session limiting my observations and subsequent feedback to the whole group particularly to individuals. We chatted about bringing in another coach to referee for us at the first focus groups meeting to get better integration which freed us up to coach. An additional benefit is that it gave us an extra set of eyes on practice and a different voice. I feel sometimes that being so immersed in training on a daily, weekly and monthly basis, I can get blinded by seeing the same things and not noticing the difference. Having an extra coach may provide a different perspective not just on the players but also on us as coaches. I need to watch the session from a frontal and rear viewpoint when observing the defence to give me a better picture from a defender's perspective. I need to chat to edge defenders about their positioning. I think I need to highlight this visually. Also, need to remind the players on ball presentation as it is a fundamental aspect of our attacking game.
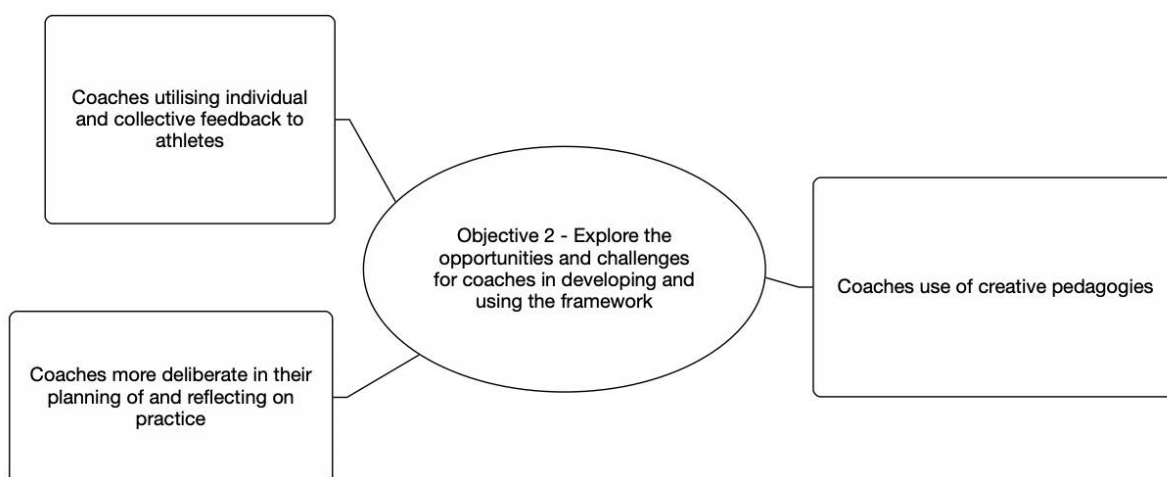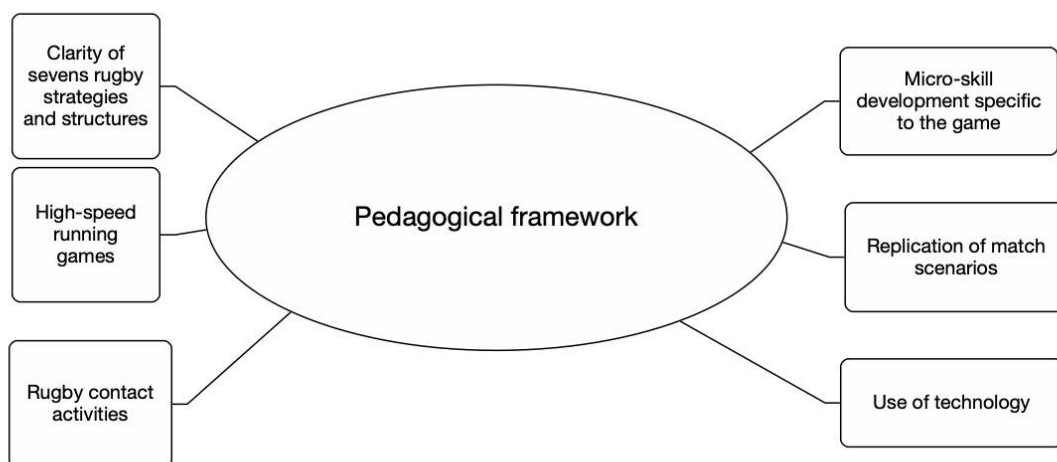
Appendix 6 – Hudl

Hudl is an online performance analysis, distribution and communication platform where matches and training can be uploaded and shared amongst players and coaches via the application.
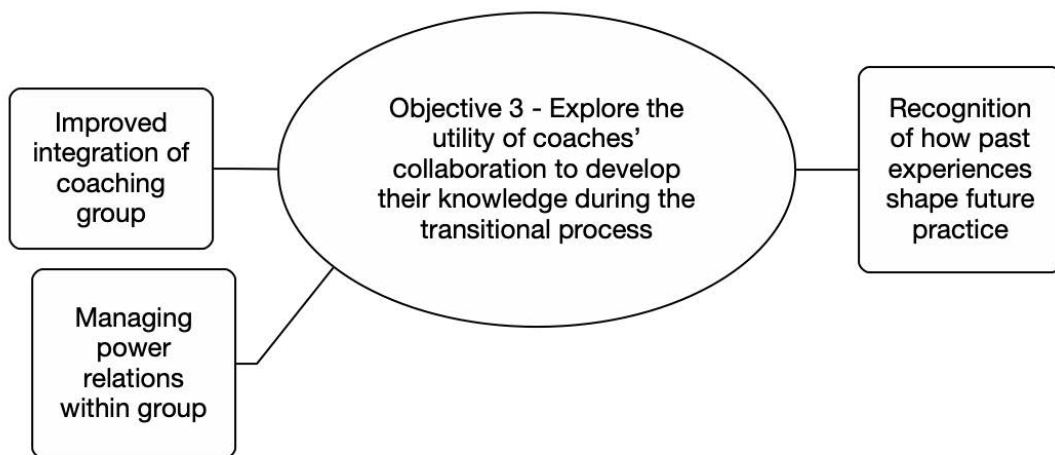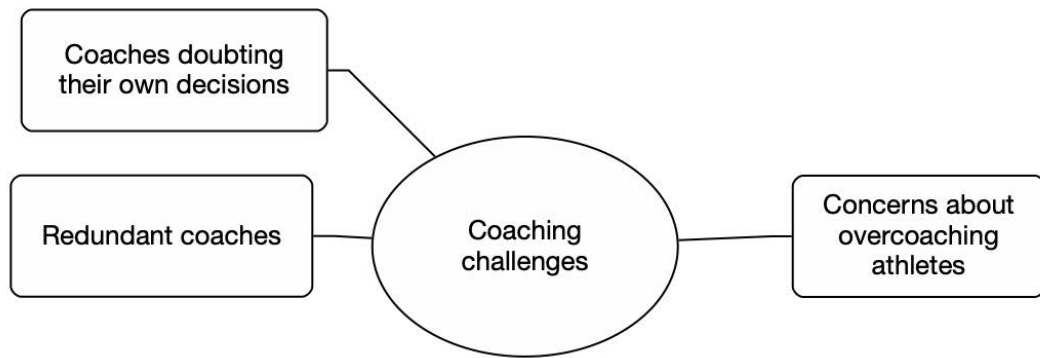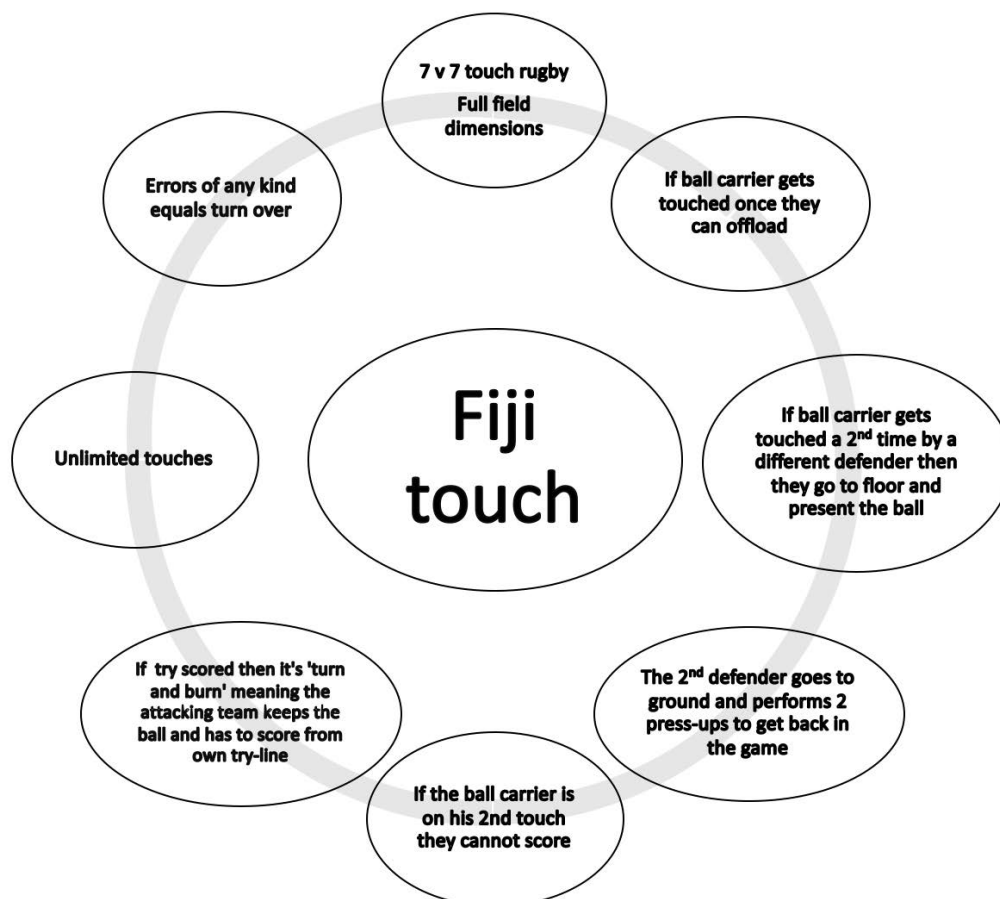
Appendix 7 – WhatsApp messages

Fri, 10 Jan

Evening lads, just while it's fresh in my mind I just wanted to jot down the action points for next meeting which is on the 21st Jan:
- engaging with players who are not in with the 15s via telestrations on hudl/ whatapp
- having more coaches involved in HSRG to free up more coaches to coach(also looking at new games)
- providing instant feedback to players while session is going on (one coach conduct a drill the other observe and feedback)
If you don't mind keeping a diary of sorts to provide evidence of this then I can use this in my research.

Mon, 3 Feb

Hi all, scheduled to meet this Friday at 9am if that's ok. 17:52

Themes from last meeting:
-Offering individual feedback rather than observing - immediate feedback
-Managing staff to help with the transition - use of physio/S+C other at the sports institute
-orchestrating group analysis tasks for learning (using World Series as a good model) also using individual tasks for certain players
-Integration of injured players in this transition process
- Use of common rugby language to make the transition smoother 17:53

Mon, 2 Mar

Hi boys,
Just a few topics for Fridays discussion:
1. Coach learning
2. How has the framework changed your practice (better/worse)
3. Importance of each construct - clarity, micro skills, HSRG, scenarios, contact, analysis
4. Criticisms of framework
Also if you have any reflective notes from your practice that you want to send me for my data collection that would be helpful.
Cheers 20:26

Hi lads,
Just some topics to kick us off tomorrow
- Frames of reference (how does where you come from influence your coaching within framework and athletes who play sevens and 15s)
- how has coming to HK and coaching transitional athletes changed your learning/coaching
- coach collaboration - positives and negatives of the focus groups to your coaching particularly these types of players.

Cheers 16:20

Appendix 8 – Mind Mapping

Clarity of sevens rugby strategies and structures

High-speed running games

Rugby contact activities

Pedagogical framework

Micro-skill development specific to the game

Replication of match scenarios

Use of technology

Coaches utilising individual and collective feedback to athletes

Coaches more deliberate in their planning of and reflecting on practice

Objective 2 - Explore the opportunities and challenges for coaches in developing and using the framework

Coaches use of creative pedagogies

Coaches doubting
their own decisions

Redundant coaches

Coaching
challenges

Concerns about
overcoaching
athletes

Improved
integration of
coaching
group

Managing
power
relations
within group

Objective 3 - Explore the
utility of coaches'
collaboration to develop
their knowledge during the
transitional process

Recognition
of how past
experiences
shape future
practice

Appendix 9 – Fiji touch guidelines

7 v 7 touch rugby
Full field dimensions

Errors of any kind equals turn over

If ball carrier gets touched once they can offload

Fiji touch

Unlimited touches

If ball carrier gets touched a 2nd time by a different defender then they go to floor and present the ball

If try scored then it's 'turn and burn' meaning the attacking team keeps the ball and has to score from own try-line

The 2nd defender goes to ground and performs 2 press-ups to get back in the game

If the ball carrier is on his 2nd touch they cannot score

Appendix 10 – Women's session plan

WOMEN's 7s COACHING PLAN

DATE & TIME: Thurs 4th March	VENUE: SI	NUM PLAYERS: 12	KIT: Balls Bib & Cones
SESSION AIMS: Micro - Skills		SESSION COMMENTS:	

Time	Drill Time	Component	Drills / exercise	Aims / key factors / terminology	Lead Coach	Comment/ Intensity
Am	5	Warm Up	On Own			
15		Unit SPlit	Fwds Lineouts	Drill, timing , delivery		
			Backs SA Lines and Kicking	9s line, Centres line, 10s line and wings position timing Isolating centre		
	10	Handling 2 groups 4 mins swap	Corner Ball Heavy Offload 2 ball game	Catch pass 15 by 15 metre space evading group are offloading 2 balls Defence can knock ball out of hands 20 offload challenge		
	10	High Ball Catch game	RollyBall	Above head jump lead knee land with 3 passes above head before. Throwing over the bar.		
			5 pass bounce game. Football bouce and compete	15 by 15 Early catch into 1v1 and crumb Catch early, tip or catch , 1st to react.		
	5	Finish with Fiji Challenge	Team Challenge	Offload blind to 2v2		
PM	25	CIA	Bread down & Tackle Tech.	Tracking , Punch wrap, chase feet , finish positively, Decisions of assist.		Intense controlled on pads
	25 6	Skills	Catch Pass offloading. 1v1	Clearance and Pivot at poles into keeping ball alive. Challenge Reference width and depth allowing for step fend option. Using change of pace.		
	6	Tactical	1plus 1 v2 Linebreak	Small game of bluffing using body positioning defender cover 4 cones		
	10		Scooting, Swinging or resetting.	Look at scooting 1v2 Context transfer above Swinging and stepping up as 1st receiver 4v3 No gainline reset come from outside in 4 v3 with a scoot bite guard		75 percent for accuaracy and understanding, Perhaps show clip of 1st receiver
				• Reflection - Bit more fun/creative game orientation to see how subconsciously they are performing our core 7s skills. • The football was a good introduction and should explore different sizes and different balls. • Team challenge of reproducing x factor skill was challenging and well received. • Good small team work and creativity. • Very much overplanned this session and enjoyed games too much but lazy week. • Serious focus on scoot position & dummy introduced but needs more time. Same way attack needs to be reviewed Catered for learners who like to do but must back up Friday!		

WOMEN's 7s COACHING PLAN

DATE & TIME: Monday Mar 9th	VENUE: SI	NUM PLAYERS: 16	KIT: Balls Bib & Cones
SESSION AIMS: Contact Wide channel.		SESSION COMMENTS: 800 metre HSM 1000m target with contacts	

Time	Drill Time	Component	Drills / exercise	Aims / key factors / terminology	Lead Coach	Comment/ Intensity
Am	20 total	Work on Time And Bloods		Group fun challenge		
		Clarity	Walk through KO & Canada	Role Accuracy	Both	
PM						
8	8	Warm Up			HC	
2 x 6 minds		Nabs	Handling & KO's		Both	AT the End
	Explain	Games	4 touch turnover Los Kos Pens/ Fks	Same way 121 tackler touch/ pancake. Can Kick Full size pitch 7v7 , Playing off 22m turn and burn and the defence must get to 22 m before entry. Rap effort. 4th touch transition.		1000 M target Johnsey Ref IM Watch attacking 4s Width & depth Will – Defence.
1	90	7v7	Lineout	Additional players defend 22 metres as 8th man. Coms with front line.		Turn and Burn defence to 22 m
2	45	7v7	Lineout	Defence Spacing, Connection, Coms, Pincer Whose on ball. Outside attack RAP, Scan & coms. Attacking the ball. Active 4 – Attached.		
3	45	7v7	KO	Set up and Roles around the kicker & coms. Rolling starts - measured.		PURE - Coms focus attention on this.
4	60	7v7	KO	Focus on Delivery now, Roles of front Lift, 9 and running lines late with Bang. Attention on cues not ball.		
Break 2mins		Fix		How was outside attack RAP and Coms	IM	
5	60	7v7	KO			Refer to video this morning.
6	45	7v7	Canada	Deception – All team movement lookf or players dropping away to run against.		
7	90	7v7	Lineout			Use Breaks to emphasise critical moment
8	45	7v7	KO			Review
Repeat Above				Repeat as above		
				Reflection – Use of extra coach to ref worked well more individual situational coaching Clarity in morning reflected in better accuracy. Small Hot review. groups leads to all it of player detail but in session awareness no trreflective. Will need to find an in between speed intensity of understanding and execution Talking remains a work on across the group. Re-alignment is focus for both groups. Possibly working at a maximum.		

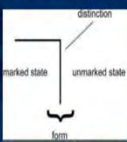**Appendix 11 – Observation and feedback presentation**

Appendix 12 – Skills matrix

HKSI MEN'S 7s SKILLS MATRIX 2020

TYPE	SKILLS	#
ATTACK	LEFT HAND PASSING (IF UNDER PRESSURE ADD "+")	1
ATTACK	RIGHT HAND PASSING (IF UNDER PRESSURE ADD "+")	2
ATTACK	BASE PASSING (IF UNDER PRESSURE ADD "+")	3
ATTACK	HOLDING DEPTH	4
ATTACK	FIXING DEFENDERS	5
ATTACK	DECISION-MAKING (2v1s, 3v2s, etc)	6
ATTACK	EVASIVE SKILLS (POWER STEP, CUT, DRAG)	7
ATTACK	FEND + OFFLOAD	8
ATTACK	BALL CARRY INTO CONTACT - DOUBLE MOVEMENT	9
ATTACK	BODY HEIGHT - SEAL	10
DEFENCE	DEFENDING 1v1	11
DEFENCE	TACKLE TECHNIQUE	12
DEFENCE	CONTACT RIPS	13
DEFENCE	TACKLE + JACKAL/BLAST	14
DEFENCE	TACKLER + 1 (TACKLE ASSIST WORK)	15
POSITION-SPECIFIC	KICK CHASE (SHORT/HALF-KICKS)	16
POSITION-SPECIFIC	KICK OFF RECEPTION	17
POSITION-SPECIFIC	ONE-MAN LIFT	18
POSITION-SPECIFIC	LINE OUT	19
POSITION-SPECIFIC	KICK (SEVEN/JOEY)	20
POSITION-SPECIFIC	RESTARTS	21
POSITION-SPECIFIC	GOAL KICKING	22

SKILLS BREAKDOWN (%)

KICK OFF/RECEPTION 25.0%
PASSING 25.0%
HOLDING DEPTH 6.3%
DEFENDING 1v1 6.3%
FIXING DEFENDERS 6.3%
FEND + OFFLOAD 6.3%
EVASIVE SKILLS 25.0%

Clarity of rugby sevens strategies and structures

Micro-skill development specific to the game

High-speed running games

Replication of match scenarios

Rugby contact activities

Use of technology