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Impact of scaffolding on rugby skills: a case study of a rugby institution in Nairobi County

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IMPACT OF SCAFFOLDING ON RUGBY SKILLS: A CASE STUDY OF A RUGBY INSTITUTION IN NAIROBI COUNTY

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Declaration

I declare that this work has not been previously submitted and approved for the award of a degree by this or any other University. To the best of my knowledge and belief, the document contains no material previously published or written by another person except where due reference is made in the document itself.

Paul Tindi Odera

Signature: ……..

Date: ……...

Approval

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Abstract

The main focus of this study, was to investigate the impact of scaffolding on rugby skills based on Lev Vygotsky's theory that; learning takes place in the Zone of Proximal Development (ZPD) with the support of an expert and the learner undergoes a transformation where the responsibility, skills and expertise gradually shift from the coach to the learner. The target population were 26 male rugby players in a rugby institution within Nairobi County. The players aged 11-15 took part in a three session learning sequence of rugby. The players' evasion, passing and tackling skills were assessed using Key Factors Analysis (KFA) and Criteria Based Assessment (CBA). The results showed that an increase in the level of micro scaffolding had a positive impact on passing skills and there is a significant association between micro scaffolding and passing skills improvement. Further to this, evasion skills were affected positively by an increase in the levels of micro scaffolding. Tackling skills improved when micro scaffolding was introduced, however the relationship between micro scaffolding and tackling skills is not significant. Key recommendations were; the training of rugby coaches in Kenya on scaffolded coaching methodology, the development of a training manual unique to Kenya rugby coaches, the training of rugby coaches in teaching pedagogy, the development of World Rugby coaching manuals in Kiswahili to make it easier for coaches to scaffold and inclusion of scaffolding by the ministry of education in the training of sports coaches and teachers in the implementation of the new curriculum.

Key words: *Zone of Proximal Development, scaffolding, Criteria Based Assessment, evasion, handling, tackling, Key Factor Analysis*.

Dedication

This study is dedicated to my best friend, companion and greatest supporter; my wife. Elaine Muthoni Tindi.

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I acknowledge that this study would not have been possible without the help and support of the maker of all that is seen and unseen, the almighty God. For a guiding hand in the many challenges that I have faced in completing this study. Sincere gratitude to Strathmore University for according me the environment to conduct my research and world class facilities to further my studies; to the Dean of the school of Humanities and Social Sciences Prof Gichure, Dr. Dimba, Director of Research in the school of Humanities and Brian Njeru the Administrative Assistant and to Dr. Makhanu my supervisor; for her patience, humour, attention to detail and dedication. I thank the panel of academics who took me through a rigorous process to maintain a high standard of excellence in completing this study. Thank you to the administrators of the rugby institution, the coach, players, parents and guardians who kindly gave their children permission to take part in the study. I extend my appreciation to World Rugby and the Kenya Rugby Union for the support and access to information. My thanks goes out to the Peponi House Preparatory School Senior Leadership Team for their support and encouragement. A big thank you to my extended and immediate family, mum, Caroli, Felix, Joan, Beatrice, Esther, Florence and my niece Rita for always being there for me.

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Abbreviations

ARU: Australia Rugby Union

CBA: Criteria Based Assessment

IRB: International Rugby Board#

KFA: Key Factor Analysis

KRU: Kenya Rugby Union

NZRU – New Zealand Rugby Union

PJDM: Professional Judgment and Decision Making

RFU: Rugby Football Union

SCT: Socio Cultural Theory

TGFU: Teaching Games For Understanding

ZPD: Zone of Proximal Development

Definition of terms

Ball Carrier: The person who has the ball in their hands in a game of rugby.

Change of Pace: Deception of a ball carrier by slowing down and quickly accelerating

Criteria Based Assessment: An assessment of the skill performance using the key factors.

Evasion: Avoiding defenders using the body and feet in order to gain ground.

Handling: All the activities associated with receiving and passing a ball in rugby.

Key Factors: The breaking down of each skill into component parts that allow the assessment of performance, identification and correction of faults and develop good practice.

Micro Scaffolding: Scaffolding practice that includes leading, guiding and prompting

Scaffolding: A teacher or more experienced peer is able to provide the learner with "scaffolding" to support the student's evolving understanding of knowledge domains or development of complex skills

Side Step: The movement of a ball carrier to deceive a defender by stepping off one foot and quickly stepping off the other foot.

Swerve: The movement of a ball carrier to deceive a defender by running towards him and quickly accelerating away and round the defender.

Tackle: The skill used by a defender to prevent a ball carrier from gaining ground by using a shoulder and the arms to bring the ball carrier to ground.

CHAPTER 1

INTRODUCTION TO THE STUDY

1.1 Background

In the world of buildings and construction a scaffold is a temporary structure to support and protect the construction of a building. In the world of education, scaffolding teaching and learning is a system of temporary guidance offered to the learner by the teacher, jointly co-constructed, and removed when the learner no longer needs the support (Boblett, 2012). In the years since its introduction in the field of education and in particular child psychology, scaffolding has become popular not only amongst educators, but gained significant traction and prominence in conversations about general education and in recent times in the world of sports.

Studies by Frey & Eitzen, (1991) underline the importance of the involvement of young people in sport, particularly male children. These studies have been enhanced further by sports psychologists like David Tod who look at what motivates athletes to improve their performance (Tod, 2014). A comprehensive review of the sociology of sport in the Journal of sport and social issues spanning 25 years from 1989 to 2014 was done by Jon Dart (2014). He discovered that Rugby Union was one of the four most popular sports that have been researched after Soccer. His review also concluded that most of the research in journals were from an American, Canadian and British perspective. In the Kenyan context, boys sport is a social endeavor that the researchers strongly recommend for the emotional, cognitive and physical development of those who take part (Njororai, 1996). His research encourages parents, teachers, school administrators, politicians and local community leaders to embrace sports. The early researchers in sport sociology such as Lushen (1980) found that adults who are involved with young people view sport as an activity that the values of an institution can be reinforced, acceptable beliefs and character traits can be instilled in the youth in a much more informal setting. Rugby is a sport that contributes to the formation of desirable character traits in players through the core values of the sport. These are integrity, respect, solidarity, passion and discipline. (World-Rugby, 2018) These values are instilled in every player, teacher, match official, administrator and parent involved in the game.

1.1.1 Scaffolding

In teaching methodology scaffolding is a system of temporary support offered to the learner by the teacher and then removed when the learner no longer needs the support. In the 70's and 80'in the field of child psychology, it became popular in conversations about general education (Boblett, 2012). The teaching method developed by Vygotsky concluded that learning took place at two levels; the cognitive and the social level. Walqui (2006) states that Vygotsksian theory is based on social interaction as the basis of learning and development. A review of her work by Harraqi (2017), examines learning as a process of training and internalisation, in which skills and knowledge are transferred from the social interaction plane into the cognitive plane. Secondly, Vygotsky concluded that the primary activity space is The Zone of Proximal Development (ZPD) (Harraqi, 2017). Scaffolding has developed beyond the classroom to the world of coaching sports. Jones and Thomas' (2015) study on scaffolded coaching state that it may seem simple that the teaching method can be applied in sports, but it is a bit more complex than that. To produce a successful athlete or team a coach employs an incremental system to develop skills and the environment brings interesting and unique challenges to scaffolding methodology.

1.1.2 Performance in Sports

Coaching has been increasingly recognized as a social, non-linear process characterized by many complex facets and ambiguity (Jones, 2010), the primary role of the sports coach is to develop the technical and emotional abilities of the individual which then leads to an improvement in the performance of the team. The method involves the coach organizing practice sessions that are meant to support the technical, physical and tactical development of the individual players and the team (Cruickshank & Collins, 2015).

Obtaining optimum performance in a team is a robust exercise even for the most experienced coaches and teachers. This is because the player is engaged in a complex and interactional system. Campo et al (2016) have argued for the importance of considering not only technical, but also, tactical and psychological variables. Rugby performance can sometimes be just considered in the narrow confines of win and loss ratios. However, rugby performance is measured through the improvement of individuals and teams in their skills as well as the emotional and intellectual development of players (Greenwood, 2015). Performance in rugby and the physical

ability of a player determines achievement of excellence in the sport. The role played by coaches, parents, teachers and peers, policies of the school or government determine how well a team performs (Watkins & Montgomery, 1989).

1.1.3 Rugby Skills

The sport of rugby requires the interaction of individuals in a number of facets within the team. These facets are concentration, dispersion, attack, defence and the contest for possession. It is a game where players interact directly and concurrently to achieve an objective of scoring or preventing the other team from scoring (Greenwood, 2015). The multifaceted and complex nature of interactions means there are many skills that a player needs to master. However, this study focused on the foundations of rugby which are evasion, handling and tackling skills. World Rugby has developed a sequential check box to enable a coach to observe a skill at training and introduce intervention measures to correct the skill known as Key Factors.

In the game of rugby, evasion skills are integral for a team to achieve their objective of scoring more points than the opposition. Under this principle the objective is to move the ball forward, avoiding opponents using a side step, swerve, change of pace and a host of other skills that a player can use to evade an opponent in Rugby Greenwood, (2015).

The game of rugby is about running and passing and so passing skills are important. Individuals or teams who are able to handle the ball skillfully are more adept at achieving the objective of scoring more points than the opposition (IRB, 2014). The ball in rugby should be passed away from potential tacklers, so the team with the ball needs players running in support of the ball-carrier. This can be very hard to coach, as it doesn't just mean to run behind a player (Cheyne, 2018).

The aim of defending in the game of rugby is to prevent the opposing team from scoring more points. Whereas the player with the ball is looking to evade the opponent, the defender is the person who is looking to stop the player with the ball from gaining territory by tackling (IRB, 2014). The tackle is a contact event and a dangerous point in the game of rugby union. The Tackler attempts to prevent the Ball-carrier from gaining territory and win possession of the ball (Savage, 2015).

1.2 Problem statement

There is a lack of basic rugby skill in Kenya. Statistics taken from the Kenya Rugby Union U19 match, versus eventual runners up Zimbabwe in 2015, show Kenya attaining a 61% passing success rate, which was 20% below Zimbabwe. The handling errors show how many times Kenya dropped the ball or failed failed to catch the ball as compared to Zimbabwe (KRU, 2015).

In the 2017 U20 Africa final Kenya were playing the defending champions Namibia. Kenya missed 44% of the tackles in the match as compared to Namibia who missed 26% of the tackles. (KRU , 2018). The missed tackles are statistics that reflect how many times a player missed stopping an opponent from gaining territory in a match. A matter of concern in tackling is that it is a part of the game where many injuries occur. Recent studies from Australia and the UK have shown that 58% of injuries in rugby matches result from tackle situations, so it's essential that this aspect of the game must be performed, coached and refereed with due care and attention (World Rugby, 2018).

The solutions to address the lack of skill in the country have been to use the tradional method of coaching; setting up a drill, using a demonstration or model to copy, followed by verbal instrutions (Procter & Palmer, 2010). Although, this method has led to an increase in some retention of skills, studies by Cushion et al (2014) show that the method has not contributed to the ability to use the skills in a match situation when players are under pressure, required to think independently, recognise cues and make the correct decisions.

Vygotsky's (1978) Scaffolding states that learning takes place in the ZPD as a result of the interaction between the expert and the learners. Vygotksky's findings were supported by Goofman's (1983) interaction order theory. The ability of a coach to quickly convey their thoughts in turn triggers physical action and explains the relationship between a coach and an athlete. This interaction then produces sustained, intimate coordination of action. Scaffolding represents the modern approach to coaching team sports which looks to shift responsibility from the coaches to the learners and deal with the sometimes chaotic and non linear nature of coaching as highlited by Llobet-Martí, (2016) in his study of novice rugby players and Jones (2015) in studying sports coaching. Research in the scaffolding metaphor came up with three levels of scaffolding. Macro, meso and micro scaffolding. Jones and Rogland (2016) focused on micro-scaffolding's leading, guiding and prompting, through questioning, observing and engaging the learner in interactions. Which leads to a reduction of support once the

leaner has mastered the skill. In coaching, micro scaffolding involved replicating the different nuances and situations of 'real time' performance to challenge coaches to duplicate situations which had the same conditions as a match. They proposed that coaches scaffold their coaching by guiding and/or allowing athletes to find 'best' courses of action through prompting. (Jones & Ronglan, 2017).

1.3 Research Objectives.

The objective of the study was to assess the impact of scaffolding on rugby skills. The specific objectives were to:

i. Examine how micro scaffolding affects passing skill development in rugby players.
ii. Determine how micro scaffolding affects evasion skills development in rugby players.
iii. Assess how micro scaffolding affects tackling skills development of rugby players.

1.3.1 The Research Questions under each of the objectives are:

i. What association is there between micro scaffolding and passing skills?
ii. What effect does micro scaffolding have on evasion skills?
iii. What relationship is there between micro scaffolding and tackling skills?

1.4 Scope of the Study

The objective of the study was to assess the impact of scaffolding on rugby skills. Modern scaffolding has evolved into three levels of scaffolding; Macro, meso and micro scaffolding. This study focused on micro scaffolding and the sub scales of micro scaffolding which are leading, guiding and prompting. The study was conducted at a rugby institution within Nairobi County which has an active age grade rugby program. There are a number of rugby skills that could have been investigated given the multifaceted nature of the game. However, the study focused on passing, evasion and tackling skills. Under each of these skills the goose step, spin pass and the side tackle were chosen. What was not covered were the basic pass, swerve, side step, off load pass, foot pass, scissors pass, reverse pass, basketball pass, rear tackle, front tackle, smother tackle and clean out skills. The population in the study were male rugby players between the ages of 11-15 at the rugby institution who attend different schools within the county.

The limitations of the study were geographical as it was a challenge to conduct research at different institutions across the County. In addition, it was expensive to travel to see other coaches and have a comparative study between a coach who does not use scaffolding and one who does. The target was to assess three skills; passing, evasion and tackling. The complexity to assess each skill during the pilot, meant that it would not be possible to complete the research study with the available manpower being the principal researcher. Additionally, technology for conducting the assessment was expensive which restricted observations to be done manually instead of using software. Further to this, the number of coaches actively in involved in coaching players from different schools in the same venue were not easily available. Finally, the number of sessions to assess and train the coaches and players after intervention measures were instituted were limited as well.

1.4 Significance of the study

Rugby coaching and the application of teaching methods in the classroom and to sports coaching in Kenya is limited. The study would be of benefit to World Rugby and the Kenya Rugby Union in developing coaching manuals. The study would also be of benefit to the Ministry of education, particularly with the new curriculum which aims to produce competent learners. However; in order to do this the country needs highly knowledgeable, reflective and professional teachers, who have additional, enhanced skills and confidence in a range of modern pedagogical tools such as coaching, facilitating, and mentoring (KICCD, 2017). The Rugby Institution where the study was conducted would benefit from the results of the study, because the coach and players involved in the study would develop new ways of coaching and learning. Institutions such as The Independent Association of Preparatory Schools (IAPS), the Kenya Private Schools Association (KPSA) and Nairobi County education administrators would benefit from the study.

1.5 Chapter summary

This chapter has covered an introduction on scaffolding and the problem of lack of rugby skills in the country, comparison of handling and tackling statistics at the elite level of rugby, the general objective and specific objectives giving the variables that were investigated, the scope of the study giving the location, duration and target population are mentioned and finally, the limitations of the study were posited in the context of the challenges faced in conducting the study.

CHAPTER 2

LITERATURE REVIEW

2.1. Introduction

This chapter covers literature review of scaffolding and coaching methodology; additionally theories on key factor analysis and how each skill and how a Criteria Based Assessment was derived from the key factors; judgment theory and the TGFU model in relation to the specific objectives of the study. In addition, a conceptual framework based on the general and specific objectives was be constructed and operationalized based on the dependent and independent variables. An overview of the social context of the game of rugby union, the game of rugby in Kenya and performance environments of team sports was to be examined.

2.2 Theoretical review

About forty years after Vygotsky, researchers at Nottingham and Harvard University led by David Wood (1978), conducted research on problem solving or skill acquisition. The researchers assumed that when a learner is involved in acquiring a skill or developing new knowledge the learner is unassisted. If the social context is considered, it is treated as modelling and imitation and involves a kind of "scaffolding" process that enables a child or novice to solve a problem, carry out a task or achieve a goal which would be beyond his unassisted efforts (Wood et al, 1978). And so the term scaffolding was used in teaching pedagogy, although Vygotsky had alluded to it in his work almost half a century earlier.

Key factor analysis theory according to World Rugby (2014) takes each of the skills of the game and breaks it down into its component parts. To help players perform the skills of the game correctly, they should be aware of the key factors of the skill and aim to perform them in the correct sequence. The key factors of the tackle, passing and evasion were used to develop the levels of criteria to assess competence for each skill in the study.

Bunker & Thorpe (1982) came up with model for teaching sports through games called the Teaching Games For Understanding (TGFU) model which develops players through playing games. Butler (2014) reviewed the TGFU model and concluded that Games Concept Approach (GCA) would be a better term to use because it was more inclusive.

World Rugby's model for coaching children is closely linked to both the GCA and the TGFU models that games are extremely useful to help players to develop both their skills and game understanding through games (World-Rugby, 2017). These three models make the game of rugby a problem solving process which links to scaffolding as the learning takes place at both a cognitive and social level. The age group chosen for the study was between the ages of 11-15. The Development Model of Sport Participation (DMSP) model was developed in 1999 and gives unique characteristics of young people participating in sport. World Rugby (2017) have developed a similar model in coaching children. The stages are divided into: fun (age 6-11) child plays – coach guides, (age 12-6) child explores – coach teaches and age (15-18) child focuses – Coach Challenges. These stages are closely linked to the temporary nature of scaffolding as each stage is dynamic and is constantly changing.

2.2.1 Scaffolding

Wood et al then came up with six features of the term scaffolding. These were: (1) recruitment, or piquing the child's interest in the task. In World Rugby's (2017) Long Term Player Development model the age group chosen would be linked to the stage of fun (age 6-12) (2) reduction in the degrees of freedom; to avoid overwhelming the child by using incremental steps in the problem-solving process; This is linked to the Key factors of teaching rugby skills (3) direction maintenance, through keeping the child in pursuit of the goal; This is linked to the successful outcome of performing a skill through the development of key factors (4) critical feature marking, for drawing experience minimal angst while completing the task. This would be at the interactional level of coaching in the stages of focus and exploration in the World Rugby model; and (6) modeling, or demonstrating the solution to a step in the task, which the child imitates back in an appropriate form This is linked to Butler's (2014) study on GCA in coaching sports [Wood et al 1976; Boblett, 2012, Butler, 2014, World-Rugby, 2017]. These six features of scaffolding link to the coaching and introduction of key factors in rugby skills through the interaction between the coach and players.

Vygotsky's (1978) believed that learning took place at two levels; the first level of learning takes place at the interactional level. The second level of learning led Vygotsky to establish that cognitive development is limited to a "zone of proximal development" (ZPD). This "zone" in coaching rugby refers to the area where the player has

internalized the knowledge and skills and is able to work on their own (Jones & Thomas, 2015). The ZPD is also the area where optimal learning takes place, because the student is cognitively prepared, but requires help and social interaction to fully develop (Briner, 1999).

Figure 2.1 shows the different zones of social interaction, cognitive development and what is out of the learner's reach.

Scaffolding and the Zone of Proximal Development (ZPD)

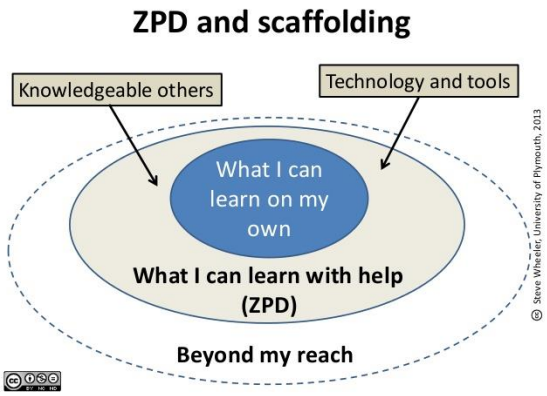


Figure: 2.1 Scaffolding and the Zone of Proximal Development (ZPD) (**Steve Wheeler University of Plymouth (2013)**

The zones above when related to coaching sports are not as straight forward as learning in the classroom. Jones and Thomas (2015) argue that game (sport)-related structures and concepts, once learned, can never be fully left behind. Looking at the zones in figure 2.1: **Beyond my reach** – The zone for new skills to be learned or new knowledge to be given, a coach assess the skill of a player in the **ZPD** – This is the interactional zone in Vygotskian theory where the support of the expert(coach) is crucial and the player is provided with new and useful tools, **What I can Learn on my own** – This is the cognitive level of learning a skill where a player has internalised what has been taught and he/she is able to develop new ways of applying the skill through the players own cognitive development.

2.2.2 Scaffolding Overview

The foundations for the teaching method were laid by Lev Vygotsky, a Russian psychologist, educator, philosopher and art critic, who lived from 1896 to 1934. In the 1980's and 1990's Vygotsky's Social Cultural Theory (SCT) became very popular in education through the work of Goofman's (1983) interaction theory which looked at social interaction in sport. Palincsar and Brown's (1984) development and study of reciprocal teaching with seventh-grade students struggling with reading comprehension and Rogoff's (1990) research in studying the different learning thrusts between cultures. These researchers represented a group of Vygotsky's successors in child psychology and learning. Scaffolding in rugby has recently been studied by (Llobet-Martí, 2016) who was studying novice rugby players and how they responded to scaffolded coaching. It is important to note that Vygotsky in his research did not propose a specific procedure for determining how to locate an individual's ZPD, nor did he specify how to perform spoken interactions within it Boblett, (2012). She argues that language is the most powerful of the artefacts in Vygotsksian theory in developing learning. In addition, culture specific artifacts such as social conventions and signs are also important. In coaching sports the social interaction of coaches is an important part of how to develop the athlete according to Cruickshank & Collins, (2015). The theory is closely related to the scaffolding methaphor as the interaction between the coach and the learner takes place in the ZPD.

2.2.3 Evolution of the game of Rugby

Rugby Union and Rugby League are the two codes of rugby. The split of rugby occurred over 113 years ago and so caused the formation of rugby union. The battle within rugby was not based upon geographical, but rather on class lines, focused on differing attitudes towards working class players by the administration of the game. In the industrial North of England many working-class men started playing the game, especially mill workers and miners. The loss of earnings that such a worker experienced, whilst playing rugby on a Saturday was considerable and so became a major inhibitor (Collins, 2016). This division of class in rugby continued until 1995 when the game of Rugby Union went professional and shed its amateur status.

Fig 2.2 shows the playing positions in a fifteen a side game of rugby.

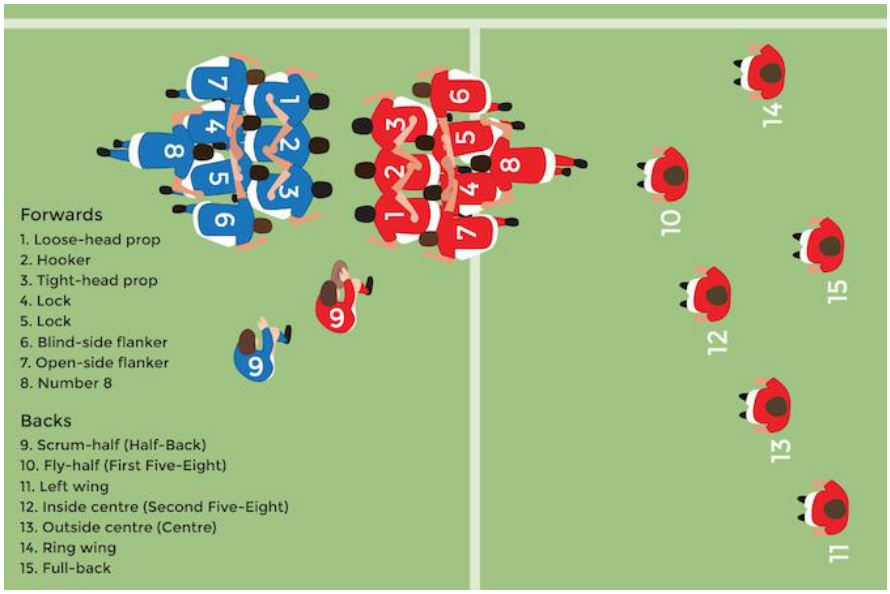


Fig 2.2 Rugby Positions (Rugby positions and numbering courtesy of Active sport)

The figure above is the fifteen-man rugby positions. At its most exciting this version of rugby when played to its full potential has every player equipped to play an active role as an attacker, defender and supporting player (Greenwood, 2015). In Kenya, Rugby and most sports was brought into the country by the colonial British government. The first recorded game in the country was in 1909 between the British officials and the settlers (Henry, 1982). Rugby symbolized white supremacy and the colour bar denied indigenous Africans access to play in private clubs or schools. As a result indigenous Africans were denied the opportunity to play representative rugby for the country (Okongo, 2019). The first school to try and field a racially mixed team was Strathmore College in 1961 (Price, 1961). Before independence, the game was played across Kenya with Shimo La Tewa in Mombasa, Kagumo Teachers College, Kisii high School and Van Ribeeks' Thompson Falls school in Thika (Henry, 1982). However, after independence rugby remained a predominantly middle to upper class sport dominated by Lenana School (Formerly Duke Of York), Nairobi School (Formerly Prince Of Wales), St. Mary's School and Rift Valley Academy. The primary schools had Banda, Kenton, Pembroke, St. Mary's, St. Andrew's Turi as the notable schools at that time (Kibisu & Onsotti, 1982). The game has now spread across Kenya and now played by people from different social classes across the country (KRU, 2018).

2.2.4 Theories and models of scaffolding

An early contribution to scaffolding is Palincsar and Brown's (1984) development and study of **reciprocal teaching** with seventh-grade students struggling with reading comprehension. Rogoff's (1990) **Guided Participation** studied the different learning thrusts between cultures. Her work on children's cognitive development represented a contribution to shaping scaffolding.

By the 90's Vygotsky's and Wood et al's (1978) scaffolding became a bit unclear and the original tenets of the theory got lost. This led Stone (1998) to step back and critically look at scaffolding and Vygotsky's work. Stone's (1998) reflections came up with three main criticisms: Cultural differences between and amongst teachers and learners had not been considered; the backgrounds in scaffolding studies were exclusively that of middle-class socioeconomic status and there was still too much importance given to the uni-directionality of scaffolding from expert to novice (Stone, 1998). In sport the world of coaching is often describe as complex and chaotic (Cruickshank & Collins, 2015) therefore the uni directionality of scaffolding diverged from coaching and learning practice. The criticisms led to the modern approach to scaffolding.

2.2.5 Levels of Scaffolding

Macro scaffolding is the whole structure of the scaffold. The macro-scaffold, is the progression of the curriculum of a course of study; this type of scaffolding relates to the order in which the knowledge needed to learn a second language is presented. Engin (2014) states that talk is crucial at the macro-level, however, physical and cultural context also play a role.

Meso-scaffolding is the second level of scaffolding. It corresponds to the structuring of a training session and the training plan for a session; tasks and activities are gradually made more complex, and thus, more challenging. Boblett (2012) in a language class progression would involve simple vocabulary work, a listening activity related to the vocabulary studied and then a speaking and listening exercise through an informal discussion. The progression would be a collaborative writing activity and then a group discussion on the topic. In a rugby session, progression can be achieved according to Greenwood (2015), by isolating a common problem like tackling, set a realistic target to solve the problem, coaching players to sharpen their technique and increase the pressure by reducing the time they have to think and how many tackles they can make in a short period of time. This is what Jones & Thomas, (2015) refer to as the

manipulation of structure and agency by the coach to create tension in training and increase or reduce the complexity of the game related problem to be solved. In Vygotsky's (1978) theory, the meso scaffolding problem of the tackle relates to the ZPD on what a leaneer can do on their own or with the help of an expert.

Micro-scaffolding is the third level of scaffolding. Micro-scaffolding, is the moment-by-moment collaborative work of building the scaffold and the interaction between the learner and the coach which includes questioning (Engin, 2014). The sub scale of micro scaffolding formed the basis of this research and the theoretical framework that the study was grounded in. At this level of scaffolding the sub scales refers to the teacher's leading/guiding/prompting -type utterances through questioning (Boblett, 2012).

The World Rugby (2014) coaching manual gives two approaches to coaching; a coach centered and a player centered approach to coaching. The approaches when applied to micro scaffolding are **leading**: coaching through drills, telling, giving direct instructions didactic, authoritarian; **guiding:** coaching through drills, Showing, technique driven, coach makes all the decisions, structured, explicit, formal and **prompting:** democratic, coaching through games, player makes decisions, questioning for understanding, individualised training, ask and listen. From

2.2.5 The scaffolding process in coaching team sports

Micro Scaffolding and TGFU are closely linked. Scaffolding is the shifting of responsibility from an expert to a learner by removing support and learning takes place in the ZPD, at an interactional and cognitive level. The TGFU looks to develop technique into skills through games by getting players to be independent minded and make decisions. The player learns at an interactional level with the coach and at a cognitive level as the skill in internalised. In the second half of the last century many teachers involved in the coaching of sport in education institutions as well as the elite level were very concerned about the lack of skill and decision making being displayed by athletes. This led Bunker & Thorpe (1982) to come up with the TGFU.

A study by Llobet-Martí, (2016) on novice rugby players where responsibility is shifted from the coach to the players when learning takes place in the ZPD is closely associated with this study. The figure below is a simplified version of the TGFU model showing the six stages of developing a technique into a skill using games.

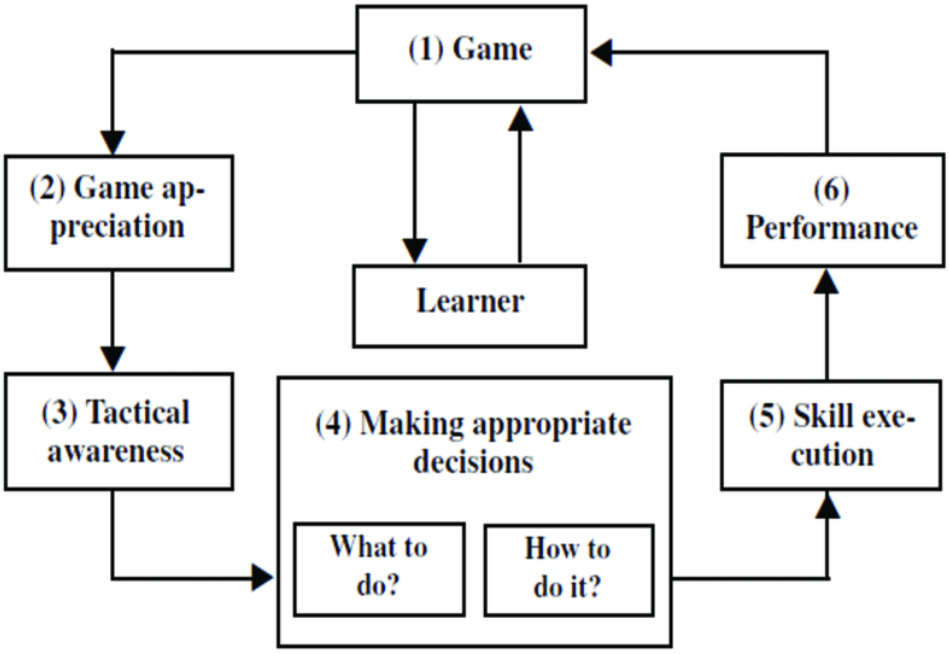


Figure 2.3 TGFU model Bunker and Thorpe (1986) Loughborough University.

World Rugby's (2017) approach to coaching children through games is a method of getting players to develop both their skills and game understanding. The model uses a whole-part-whole approach to sessions. A coach introduces a skill through a game (whole) then focuses on a particular part of the game or a skill (part) then takes the session back into a game (whole). This model is closely related to the TGFU model and the ZPD in scaffolding.

Stage 1(Game) and **Stage 2 (Game appreciation)** of the TGFU model represents the zone in scaffolding that is beyond the reach of the player. In the whole-part-whole approach this would be the introduction a training match giving the rules for the particular game. The coach at this stage can set an objective for the session and prepare

Stage 3 (Tactical awareness) – In the whole-part-whole process in rugby coaching the coach at this stage focuses on the tactical awareness of the players by looking at which skills and tactics he wants to develop within the game as well as what modifications and progressions can he make to emphasise these skills and tactics. The player is learning from the expert at the interactional level in the ZPD.

Stage 4 – Decision making – This is a critical stage of the model emphasizing the shift between interactional to cognitive learning in the ZPD. The coach asks the players the

main problem that they need to solve and develops key questions to encourage learning. Knowledgeable others, technology and tools are used.

Stage 5 – Skill execution – This stage in the whole-part-whole process of rugby coaching rugby corresponds to the cognitive internalization and a removal of the scaffold by the coach. Skill development is enhanced by new ways of execution that the player can do on his own without the scaffold from the coach.

Stage 6 – The rugby coaching model of whole-part-whole at this stage the coach reintroduces the game to the players. The key questions that the coach focuses on is what complex progressions or simple regressions can be added to the game situations to enhance the skill of every individual player. The scaffolding is faded and the outcome of the skill and tactics are assessed through the game at training. The coach and the player can then review the performance of the skill and correct errors.

2.2.6 Management and coaching

The coach as a leader makes the correct decisions based on situations according to Cruishank *et al* (2015) in the Professional Judgment and Decision Making (PJDM) model for coaches in sports. The PJDM reflects how a coach goes through chains of decision making that relate to assessing issues which require attention, identifying and evaluating different solutions, selecting suitable courses of action, and continually monitoring and modifying these courses of action. The rugby coach is no longer simply somebody who develops physical and technical attributes in players (Procter & Palmer, 2010).

The table below is a sample of a PJDM model for coaches that takes into account macro, meso and micro levels of planning.

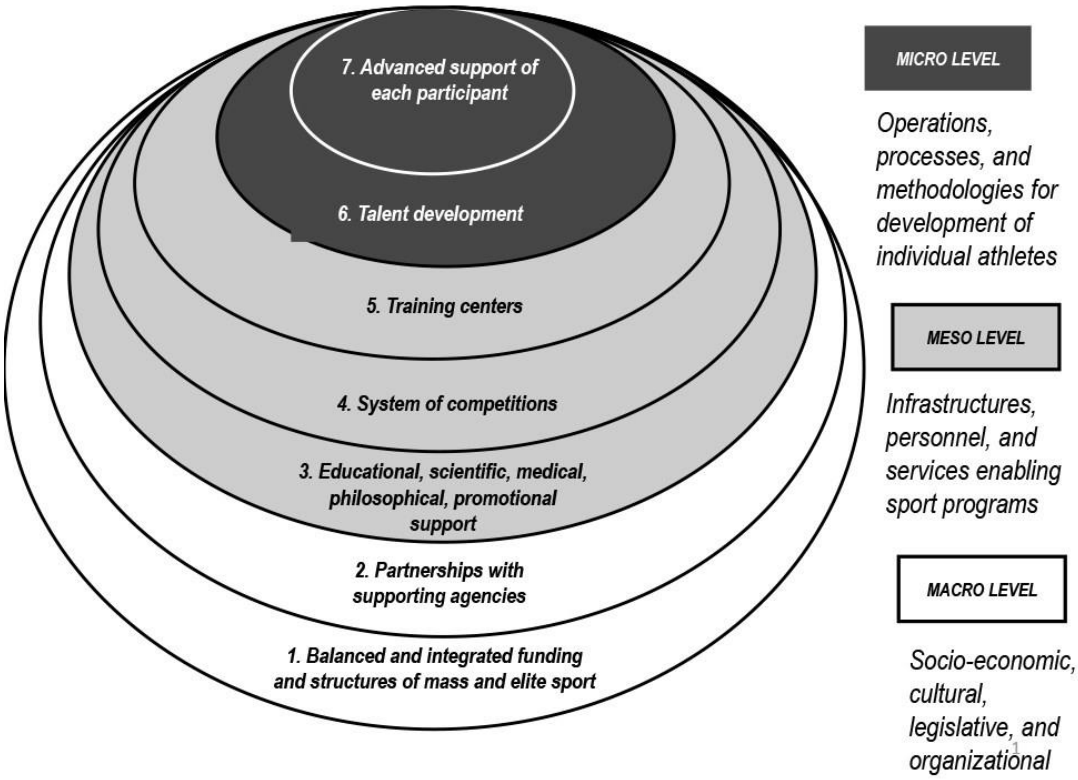


Fig. 2.4 High Performance Model (Smith and Smolianov 2005) adapted for the professional Judgement and Decision Making model

Fig 2.4 outlines how the modern rugby coach is a sports trainer, a manager and a leader at the same time. The actions in the model are at a macro level – long term and involves socio economic factors as well as cultural factors, meso level – mid term involves personnel, infrastructure and coaching programs and a micro level. The micro level being the day to day events processes and methodologies to improve skills, the meso level being monthly or quarterly events and the macro level being yearly events. In order to obtain success, the quality of the management, the leadership and the sporting instruction need to be at a high level as each event in the model has an effect from the micro, meso to the macro (Cruickshank & Collins, 2015). Scaffolding as a coaching methodology is part of the transition of the coach becoming a manager. This is because the methodology is premised on the theory that the coach needs to continue to transfer responsibility to the players, just like any manager would try and create autonomy with those they are leading (Llobet-Martí, 2016).

The environment that a team operates according to Cruicksank & Collins, (2015) determines the context as well as the assessment of performance. This performance will

be determined by the goal of the institution; primary, preparatory, secondary school; private or public; elite, social or university. A coach will be tasked to develop athletes to enjoy a sport, participate or to win matches.

Coaching in a performance environment. For those coaches involved in coaching teams under a performance remit, the focus will be heavily skewed in favour of promoting performance outcomes that are usually focused in the narrow confines of win and loss ratios much more than positive sporting experiences. Performance coaches focus more on systems and processes that enable peak performance judged by win loss rations and competitive success than individual well-being (Cruickshank & Collins, 2015). The losers in the case of this attitude to win at all costs are the players. They lose the ability to make decisions on the field and their levels of technique and skill do not progress enough to play enterprising rugby (Greenwood, 2015).

Coaching in a participatory environment. Coaches involved in coaching teams under a participatory context favour promoting a positive sporting experience over performance outcomes. As such, participation coaches are required to generally focus less on results and more on the interpretation, development, and well-being of the performers/team. Rather than winning, coaches in this setting may also often work to foster individual and interpersonal skills that benefit individuals in their sporting and wider social contexts. For example, developing resilience and teamwork that can be applied in rugby and outside the game. Coaching effectiveness is gauged against the delivery of these types of outcomes as well as how individuals generally feel about their participation (Cruickshank & Collins, 2015). The rugby institution where the study was conducted is in a participatory environment. This environment is connected to the TGFU model of coaching children rugby through games, which is in turn linked to scaffolding and the ZPD.

The performance of the players was judged by their rugby skills and not by the results from matches. Greenwood (2015) looks at how easy it is to come up with a form for analysing a skill if the assessment is from an objective point of view. E.g did the scrum half pass the ball or not? The subjectivity is the estimate of the performance quality. This can be reduced by introducing definitions of ‘good’ and ‘bad’. The analysis can be taken further and assessed through the key factors of the particular skill and a criteria developed to assess the quality of performance of the skill.

Regardless of the environment the influence of the coach on the performance of any team cannot be understated (Jones & Wallace, 2006). However, in Kenya socio economic status plays a part in determining team performance particularly of young athletes who are still in their teens. The socio-economic status determines such choices as residence, hence the neighbourhood, the leisure activities engaged in, the playing apparatus and even the kind of peer friends that one gets. (Njororai W. 1996). In Kenya sports such as rugby, were determined by access to private schools and institutions. (Njororai, 1996) Although, these factors are not a focus for this study, they are nevertheless important in understanding the socio-cultural context of rugby in Kenya and can form the basis for further research.

2.3 Empirical Review of Scaffolding

Scaffolding has not attracted the same level of interest and attention as it did in the 1980s and 1990s when its definition was further shaped and clarified for second language education (Boblett, 2012). The moment-by moment verbal co-construction between teacher and learners of the instructions for an activity was complemented by Harraqi's (2017) review of Walqui's three-level system of scaffolding; macro, meso and micro scaffolding. Micro-scaffolding, the third level of scaffolding in modern practice is an important part of this study. Although the other sub scales of Macro and Meso scaffolding are important, they were not the focus of this study. Micro scaffolding refers to the moment-by-moment collaborative work of building the scaffold. Examples of micro scaffolding practice in the classroom include questioning (Engin, 2013) and elicitation and recapping Hammond & Gibbons, (2005). In sport, Jones & Thomas (2015) linked scaffolding to the ZPD through athlete development supported by the coach who is the expert. In rugby, the World Rugby (2017) model on coaching children through games is related to the TGFU which is in turn linked to scaffolding through the different stages of coaching.

One of the latest studies on micro scaffolding and sport has been conducted by Ronglan et al (2016). He looked at the situations and dynamics that coaches need to create in their training sessions. They started from the premise that coaching takes place within a social system which is adapted from interaction order, a term developed by sociologist Ervin Goofman in (1983). Individuals interact closely, share a joint focus in both action and perception. This joint focus in combination with the individual ability to quickly

convey their thoughts triggers physical action is the relationship between a coach and an athlete. This is the condition for the sustained, intimate coordination of action of closely collaborative tasks or as a means of accommodating closely adjacent ones. Goofman's gives credibility in the area of sports coaching to the person of the coach, or who is coaching, is as important to athlete learning as the or how coaches' practice. (Jones et al, 2012).

2.3.1 Micro-scaffolding and Evasion skills

The key factors for evasion skills are: *carry the ball in both hands, run towards the nearest defenders, change the direction of movement close to them, using a side step, swerve, and/or change of pace, move into the space furthest from the defenders, accelerate to take advantage of the space that has been created* (World-Rugby, 2018). These key factors are in sequential order for a coach to observe, analyse and intervene to improve the skill of a player. The change of pace was the skill selected. Fig. 2.4 shows the movement of a player when changing direction.

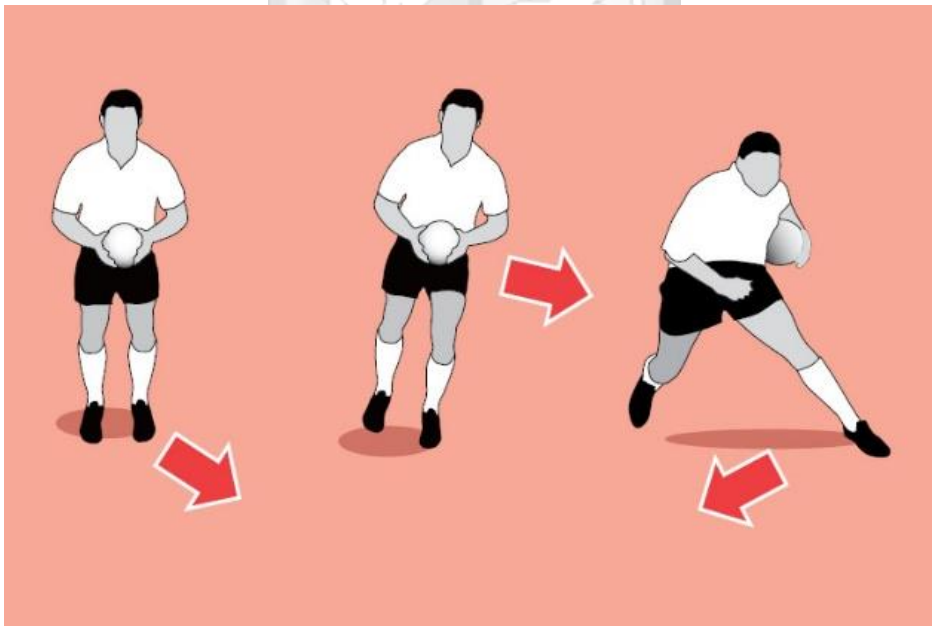


Figure 2.5 Change of pace (Dan Cottrell- Rugby Coaching Weekly 2018)

The player is holding the ball in two hands in the figure on the left. They are changing the direction of their movement when close to the defender in the middle figure. In the third figure they are accelerating away to take advantage of the space created. The

micro scaffolding levels would be through leading, guiding and prompting using the whole-part-whole process of the TGFU model to develop evasion skills.

2.3.2 Micro scaffolding and passing Skills

In the game of rugby, handling encompasses receiving a pass and then being able to make a pass. This study focused on the spin pass. Micro scaffolding at this level would involve choosing the best of the three sub scales of micro scaffolding (Jones & Thomas, 2015). The key factors for passing are; *run straight, hold the ball in two hands, commit a defender, prop on the inside leg, turn side on to the defence to face the supporting receiver, swing the arms through in the direction being passed to, use the elbows and wrists to control the speed and flight of the ball as the ball is released, follow through with the hands in the direction of the pass, pass to the 'target' area at chest height in front of the receiver, support the receiver once the pass has been completed* (World Rugby, 2014).

Figure 2.6 illustrates a drill to test and coach the spin pass.

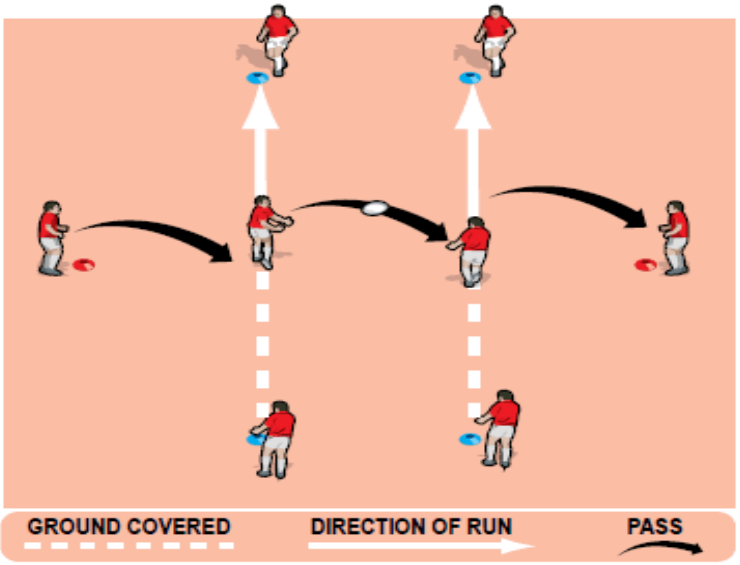


Figure 2.6 spin pass (Rugby Coaching Weekly 2018)

The figure above shows the two middles players required to make a pass as they move up the grid. They can start by walking and gradually increase their pace until they are running. The key factors are; *Run straight, hold the ball in two hands, commit a defender, prop on the inside leg, turn side on to the defence to face the supporting receiver, swing the arms through in the direction being passed to, use the elbows and wrists to control the speed and flight of the ball as the ball is released, follow through with the hands in the direction of the pass, pass to the 'target' area at chest height in front of the receiver, support the receiver once the pass has been completed* (World

Rugby, 2014). Micro scaffolding is applied using leading, guiding and prompting through the key factors of the skill. The learning takes place at the social level through the interaction with the coach. The cognitive level of learning is assessed through the application of the skill as the pressure is increased from walking to running.

2.3.3 Micro scaffolding and Tackling skills

In rugby a tackle is used by the defending team to stop the attacking team moving forward and is an opportunity for the defending team to contest for possession of the ball (World Rugby, 2018). The Key factors of the tackle are:

1. Track the movement of the ball carrier and get the feet close enough to make the tackle….2. Prepare for contact _ adopt a body position that is strong, stable and low……3. Keeping the eyes open, position the head behind or to one side of the ball carrier _ never position the head in front of the ball carrier…….4. Release the tackled player, get back to your feet immediately and contest for possession. (World Rugby, 2018).

Fig 2.6 below is the drill to test for the tackle.

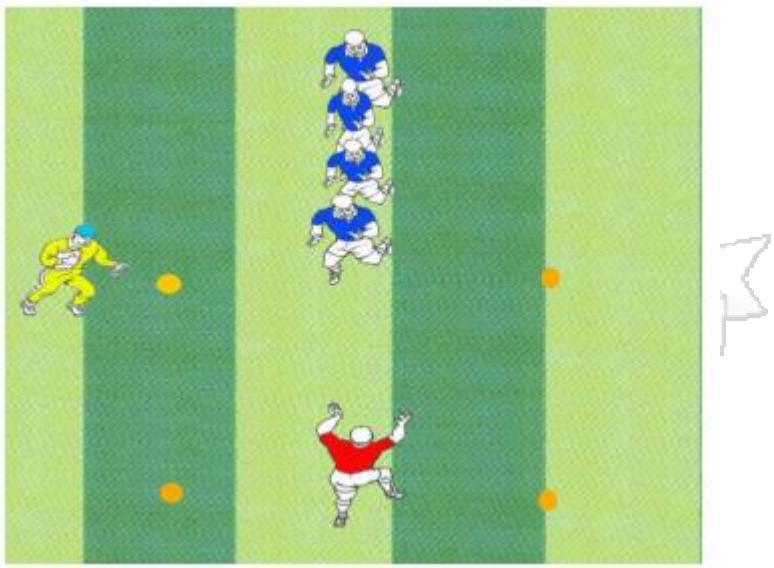


Fig 2.7 Tackling test and drill. (NZRU & RFU 2007)

The player in red is the tackler. The players in blue are lined up opposite him and they are the attackers. They start by walking towards the tackler and the pressure can be gradually increased until blue attackers are running at almost full pace falls under principle 4 of prevent territory being gained.

The tackle in rugby is found Under Law 14 of the Laws of Rugby. It can take place anywhere in the field and the following points must be fulfilled for a tackle to take place.

1. *For a tackle to occur, the ball-carrier is held and brought to ground by one or more opponents….. 2. Being brought to ground means that the ball-carrier is lying, sitting or has at least one knee on the ground or on another player who is on the ground 3…..Being held means that a tackler must continue holding the ball-carrier until the ball-carrier is on the ground* (World Rugby Laws, 2018)

Figure below shows the position of the tackler in red on the ground holding on to the attacker in yellow.

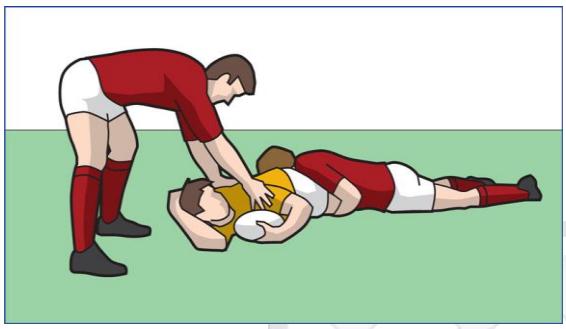


Figure 2.8 The Tackle (World Rugby 2018)

The tackler who is on the ground in has his head in the correct position behind the player with the ball and his arms are wrapped around the player who is attacking. Scaffolded teaching would need to be done in a systematic order, so that the players do not get confused. This is consistent with the six features of wood (1978) who looked at giving leaners information in a way that did not overload them with too much information at once. The statistics of 58% of rugby injuries occurring at the tackle (World Rugby 2018) challenges the use of the TGFU model by playing contact games before coaching as it may be dangerous.

Table 2.4 Criteria Based Skills Assessment (CBA)

An assessment of the skill performance using the key factors is possible. It is not difficult to come up with a battery of skills and adopt a straightforward method of marking or grading. One such way is a Criteria Based Skills Assessment (CBA) that will offer fairly reliable evidence on a player's strengths and weaknesses that can used as solid, reliable and objective judgement (RFU & NZRU, 2007). Table 2.4 shows the key factors for each skill, the observations and criteria drawn from the observations.

Table 2.4 Criteria Based Assessment for change of pace, passing and tackling

Skill	Key Factors	Criteria
Change of pace	• carry the ball in both hands, • run towards the nearest defenders, change the direction of movement close to them, • using a side step, swerve, and/or change of pace, move into the space furthest from the defenders, accelerate to take advantage of the space that has been created	1. Highly effective • Able to beat opponents consistently. • Use of the both feet. • All key factors done 2. moderately effective • Able to beat opponents half the time. • Predominately dependent on one foot, but can use the other one. • Most key factors done 3. Weak • Able to beat an opponent using this skill rarely if at all. • Some key factors done 4. Very weak • Needs to learn the skill from scratch
Spin passing	• run straight, • hold the ball in two hands, • commit a defender, • prop on the inside leg, • turn side on to the defence to face the supporting receiver, • swing the arms through in the direction being passed to, • use the elbows and wrists to control the speed and flight of the ball • as the ball is released, follow through with the hands in the direction of the pass, • pass to the 'target' area at chest height in front of the receiver, • support the receiver once the pass has been completed	1. Highly effective • Able to pass accurately to a target off left and right • Uses arms and elbows to follow through • Able to execute this under pressure • All key factors 2. Moderately effective • Sometimes not able to use the skill. • Able to pass the ball accurately half the time • Favours one side in passing • Most key factors covered. 3. Weak • Able to pass the ball rarely if not at all • Uses only one side unable to pass off the other side • Unable to use the skill under pressure. 4. Very Weak Needs to learn the skill from scratch
Tackling	• Track the movement of the ball carrier and get the feet close enough to make the tackle • Prepare for contact _ adopt a body position that is strong, stable and low • Keeping the eyes open, position the head behind or to one side of the ball carrier _ never position the head in front of the ball carrier • Release the tackled player, get back to your feet immediately and contest for possession.	1. Highly Effective • Able to move the feet and get close to opponents • Able to lead with the shoulder and wrap arms around. Correct head placement. • Able to make most if not all the tackles under pressure. • All key factors covered 2. Moderately effective • Able to move the feet but does not get close to an opponent • Able to wrap arms around, but does not lead with the shoulder, • incorrect head placement • Misses half the tackles under pressure • Most key factors covered. 3. Weak • Not able to move the feet quickly • Uses arms instead of shoulder, poor head placement • Misses all if not most tackles. • Some key factors covered 4. Very weak Needs to learn the skill from scratch.

Table 2.4 illustrates the key factors and the criteria that has been developed from the key factors for each skill. The criteria allows for a more object analysis of the skills and how scaffolding affects each of the skills. In the absence of such a criteria than the evidence from the study would have been subjective and lacking accuracy.

2.8 Conceptual Framework

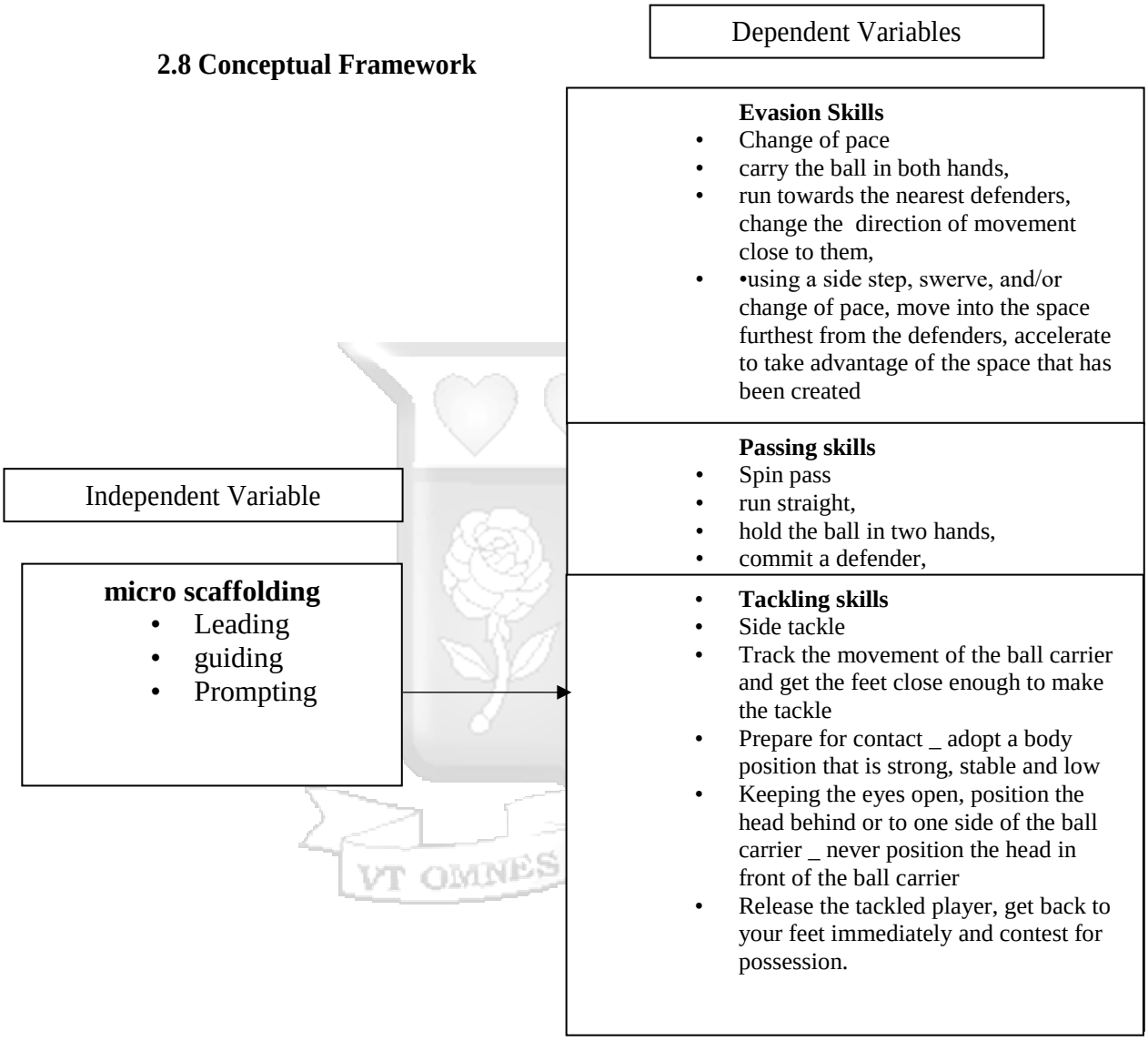


Fig 2.8 Conceptual framework

The independent variable in the study was micro scaffolding with the subscales being leading, guiding and prompting. The dependent variables were evasion, passing and tackling. Under evasion the skill studied was the change of pace, passing had the spin pass and tackling skills were determined by the side tackle. Each of the dependent variables had key factors that influence the level of skill.

Table 2.6 Operationalization of variables

Objective	Variable	Measurements	Data collection	Data Analysis
Examine how micro scaffolding affects passing skill development in rugby players.	• Micro scaffolding	Qualitative data	Interview Observation	Correlation
	• Evasion skills	Quantitative data	Observation	Descriptive
Determine how micro scaffolding affects evasion skills development in rugby players.	• Micro scaffolding	Qualitative data	Interview Observation	Correlation
	• Passing skills	Quantitative data	Observation	Descriptive
Assess how micro scaffolding affects tackling skills development of rugby players.	• Micro scaffolding	Qualitative data	Interview Observation	Correlation
	• Tackling skills	Quantitative	Observation	Descriptive

The table gives the objectives of the study and the variables that determine the outcome of each objective. Micro scaffolding data was qualitative in nature and collected using interviews and observations. The rugby skills data was quantitative and collected through observation and a criteria for each skill was formulated based on the key factors.

Table 2.7 Summary of literature and Research Gap

Author	Title	Findings	Research Gap
Lev Vygotsky's (1976)	Mind in society. In The development of higher psychological processes	Learning is at two levels; the first level at the interactional level and the second level at the cognitive development is limited to a "zone of proximal development" (ZPD).	The exact location of the ZPD was not clear and left for further research.
Butler Joy (2014)	TGFU – Would you know it, if you saw it? Tacit knowledge from the founders	successful TGfU teachers are more likely to focus on Nurturing and developing than on transmitting content.	Academic principles of game sense not applied
Jones & Thomas. (2015).	Coaching as 'scaffolded' practice: further insights into sport pedagogy.	Macro, meso and micro levels of scaffolding in sport	Fading scaffolding in sports is a challenge in the application of scaffolding to developing athletes.
World Rugby (2018)	Key Factor Analysis	Sequential order of how a skill should be performed to achieve the outcome.	Bridging the gap between scaffolding and skill development

The literature review has covered scaffolding and the ZPD, the TGFU and micro scaffolding. Each of these studies have left areas for further research that can be sources for further research.

From the studies conducted by [(Jones et al, (2012) and Santos et al, (2013)] their conclusions do point to the fact that micro scaffolding as a coaching method is not rigid or tied to strict structures. The latest study on micro scaffolding and the development of the athlete has also been conducted by Ronglan et al (2017). He has looked at the situations and dynamics that coaches need to create in their training sessions. They started from the premise that coaching takes place within a social system. This social context as covered earlier in this chapter under SCT theory and influences coaching practice as there are many factors outside the actual coaching activities.

In the field of rugby, two leading countries are New Zealand and Australia. These two countries between them have won the World Cup 5 times. In Australia they have come up with a derivative of TGFU around building game sense, Light & Evans (2013), and its understanding and application by elite rugby coaches in Australia and New Zealand (Evans et al 2008, 2012 & 2013). Scholars from both countries generally conclude that rugby coaches do not use academic principles of game sense, although they use games in their coaching sessions, player-centred instruction is far from being applied. This is the gap that the study is looking to bridge in the context of scaffolding as a coaching method for rugby coaches and players in Kenya.

Other countries have also conducted research on coaching pedagogy and transferring expertise from the coach to the learner in team sports. In France the approach to coaching through tactics and game sense has been studied since the 1960's and 70's. (Deleplace, 1979 & 1966) emphasised the need to teach technique within the attack-defence relationship. His work on analysing rugby and learning and how a coach can transfer responsibility from the expert to the novice led to the development of Pédagogie des Modèles de Décision Tactique (tactical decision models into coaching pedagogy) (Bouthier, 1984). Gréhaigne et al, (2005) and many of the French team sports coaches adopted this model as a tactical approach to teaching team sports that proposes the use of situations to promote the adaptation of players' decision-making to the changing constraints determined by the opposition, Ulrich & Eloi, (2016). The study by Llobet Martin (2016) conducted on novice players using Vygotsky's ZPD theory, researched learning tasks for 2 vs 2 and 2 vs 1 situations in the context of rugby initiation. Marti's work on scaffolding and rugby has guided this study. In Kenya no research exists on either scaffolding and sports coaching or scaffolding and rugby coaching.

2.7 Chapter Summary

This chapter reviewed scaffolding from Vygotsky and Wood's extensive research into the scaffolding metaphor, the ZPD development and how learning takes place at the interactional and cognitive level. The links of the theory to the TGFU model and how effective coaching takes place at two levels in many ways similar to the scaffolding methodology. The research by Ronglan (2017) on the dynamic nature of coaching and the different levels of scaffolding. Rugby skills are broken down to sequential parts known as key factors and World Rugby have developed these factors for coaches to be able judge skill performance. The chapter has also looked at the close relationship between micro scaffolding, TGFU and key factors. The application of scaffolding to rugby and how this is linked to rugby skills was also covered.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the methods and processes that were used in conducting the study. It describes the research design, scope, location of the study, target population, sampling, and methods of data collection, data instruments, data analysis and ethical considerations.

3.2 Research Design

The study design was a combination of a qualitative longitudinal design of qualitative data on the level of scaffolding and quantitative data on rugby skills. According to Ritchie et al (2014) Social research broadly serves four main functions: Contextual- which describes the form or nature of what exists, explanatory- the reasons for different associations, evaluative- appraising the nature of what exists and generative – supporting the development of policy, theory and practice. The study presented different, but related topics and so the overall design was flexible enough to cover the qualitative and quantitative aspects of the collection, analysis and interpretation of data in the study.

As a result, this study used a mixed methods design in a naturalistic environment as the coaching sessions took place in the real context of a coaching session and not created specifically for the study. The selected coach and players were assessed, observed and trained at their training facility. Combining quantitative and qualitative methods should not be seen as one method dominating the other or seeing quantitative research as central and qualitative research as preliminary (Flick, 2009). Rather, according to Ritchie et al (2014) a more effective approach in mixed methods design should be to look at both methods as equal but separate, suited to answering different questions about the same topic or related topics.

Table 3.2 illustrates the qualitative and quantitative elements of the study in the different functions of a mixed methods design.

Table 3.2 Impact of scaffolding on rugby skills: Mixed Methods Design (Quantitative and Qualitative methods)

Function of research	Qualitative research	Quantitative research
Contextual	The lack of rugby skills. The different rugby skills to be studied.	The statistics on the lack of rugby skills from showing the extent of the lack of skills.
Explanatory	The reasons that lead to a lack of rugby skills.	The Key factors for each rugby skill that measure the competence of a skill.
Evaluative	Appraising scaffolding as an intervention measure. Coach and player interaction.	Extent to which scaffolding as an intervention measure impacted rugby skills. The evaluation of the level of competence based on the key factors.
Generative	Suggesting strategies for improving rugby skills. Suggested strategies for improving scaffolding. Suggested strategies for improvement in policy, practice or development theory.	Levels of requirement for improvement of rugby skills. Levels of requirement for scaffolding.

The table is an illustration of the description of how both quantitative and qualitative data was used to achieve studying the impact of scaffolding on rugby skills. Both sets

of data tested and added value to each other to give a much more complete picture of the problem being studied.

A case study is strongly associated with qualitative research and this research is a case study of a rugby institution in Nairobi County. Case studies aid in depth exploration and insight into the research phenomenon (Ritchie et al, 2014). However, the elements of quantitative data that was collected when assessing the skills meant that the study could not be a purely qualitative study.

3.2.1 Target Population

The study population was male rugby players between the ages of 11-15 in Nairobi County. The county has the highest number of rugby playing institutions in the country was because it has close to 100 institutions playing rugby. Nairobi County has been chosen because the latest statistics on players in school boy rugby has the number of players in the County at over 5,000 from the ages of 12-18. (KRU 2018). The Kenya Rugby Union has then grouped other counties into regions. The Aberdares region has 3,300 players, Mau region has 5340, Lake region has 3,300, Highlands region has 6925, Coast region has 1,770 and Nzoia region has 7,560 players. So as a County on its own, Nairobi has the largest number of players at age grade level.

3.2.2 Sampling

The rugby institution used for the study was based in Nairobi and had age grade rugby players aged between the ages of 6-17 years of age. The players chosen were between the ages of 11-15 and were selected based on the World Rugby Long Term Player Development (LTPD) model in the Coaching Children (2019) manual. The age group represents the fun, development and participation sections of the LTPD model. There were 26 rugby players were from different schools with 24 from low income schools and 4 from private international and private Kenyan schools in this age group. The coach chosen was an adult coach based at the institution. Judgement and convenience sampling were used to choose the samples for the study. Due to the small population all the players in the age group were used in the study.

Table 3.3 Attendance of players at the training sessions

	Frequency	Percent
Present for one session	7	26.9
Present for 2 sessions	9	34.6
Present for all sessions	10	38.5
Total	26	100.0

The table above indicates the total number of players who took part in the study numbered 26. The players who completed the 3 sessions, who were eligible to be included in the data collection numbered 10. This represented 38.5% of the population being studied.

The methodology involved assessing the players in session 1 and then again in session 3 to see if there had been any progress in their rugby skills. The assessment involved a coach giving the players a set drill to complete five repetitions of each skill and the skills were marked against CBA drawn from the key factors.

The geographical scope of the study was limited to one institution in a Sub County that was easily accessible to the researcher.

3.3 Data Collection Methods

The data was be collected using two methods; Interviews and observations. Interviews in qualitative research describe some external reality (e.g facts, events) or internal experience (e.g feelings, meanings) (Silverman, 2017). Interviews were used to collect data from the coach on his interaction with the players and his experience when going through training on scaffolding. After every session, the coach was asked a list of questions to support him to reflect on which levels of micro scaffolding he used and to plan ahead for the next session.

Assessment of the coach and the players was done in session 1 and 3 using observation templates (Appendix 4), to record levels of skill before the study and at the end of the study.

The coach was observed on which of the levels of micro scaffolding (leading, guiding and prompting) he used (Appendix 3) and compared with what data was collected from the interviews with the coach.

Each rugby skill was given a level of competence: Highly effective, moderately effective, weak and very weak (Appendix 6). The key factors of each skill were used to determine the level of competence using an observation sheet that had key factors listed.

3.4 Data Analysis

Ritchie et al (2014) state that one of the core aims of content analysis in qualitative research is to count the frequency with which certain terms appear. In this study, data was collected, sorted and indexed. Data from the interviews and observations were then reviewed to ensure that the information was complete. Emergent ideas and patterns were captured and summaries from these themes were put into categories. These categories were coded and exported to the Statistical Package for Social Sciences (SPSS) for further analysis. The software produced frequencies, percentages, developed charts and tables to explain how scaffolding affects rugby skills, as well as give the level of significance of the impact of scaffolding on rugby skills. The interpretation of the data allowed for recommendations and conclusions to be drawn.

3.5 Research Quality

"Are we measuring what we want to measure?" Although it sounds simple in an educational context. This is because measuring concepts like self-esteem can be abstract. (Trochim, 2006) states that it is difficult to get into people's heads and know what they are thinking, feeling or experiencing. So the quality of research becomes important when conducting qualitative and quantitative research in an educational setting. The interviews with the coach as well as the observations to check for levels of scaffolding were done without software to measure interactivity and verbal or cognitive interaction. The observation of the players' rugby skills was different as it was body movement.

3.5.1 Validity

Seale, (2012) views validity from the context of quantitative data through precision and 'correctness'. Ritchie et al (2014) look at validation from a qualitative perspective and assess how well the participants' meanings have been captured and interpreted. Both studies lead to what Ritchie et al (2014) refer to validation through methods of triangulation, which is comparing data generated by different methods. The study used qualitative and quantitative data which validated the data based on methods triangulation. The interview and observation sheets were piloted to see if the instruments were accurate and correct. Additionally, the mixed methods approach enabled for generalisations to be made based on the data.

3.5.2 Reliability

Reliability refers to the consistency of the results that are obtained. (Kirkwood & Sterne, 2003). Ritchie et al (2014) support the view on consistency by taking a much broader view on reliability and refer to the 'stability' of the findings in terms of how authentic and credible the results are. The conclusions and transfer from the interviews and observations at the training sessions supported the Vygotsky's theory due to the soundness of the data gathered. The subjectivity of data from the skills and micro scaffolding was made objective by the application of Criteria Based Assessment (CBA). Additionally, the study achieved accuracy on the observation of rugby skills by comparing the results of the qualitative data obtained from the coaching interview to the quantitative results from the observations of the players and the coach at the sessions.

3.5.3 Piloting

A pilot is a way to ensure face validity (Kirkwood & Sterne, 2003). The observation and interview template were piloted with a coach and a group players prior to conducting the research. The trial was important as it ensured that the data collection instruments were designed accurately. The piloting of the assessment of the skills took so long, that it meant an adjustment to only one type of skill from passing, evasion and tackling could be done in the time available. The pilot also contributed to the reliability and validity of the data collection.

3.6 Ethical Considerations

Ritchie et al (2014) see particular issues of confidentially and anonymity arising out qualitative research such as case studies. "Ethics" refers to moral principles of guiding conduct, which are held by a group or even by a professional. Plagiarism, malpractice and duplication in the world of educational research have led to the need to have ethical consideration of research (Govil, 2013). The institution who allowed the study to be conducted in their organisation needed to be guaranteed privacy and anonymity so that the reputation of the institution was protected. The information and data obtained during the course of the study needed to be kept safely to reduce the risk of any leakage of confidential information to the public.

Permission to conduct the study was obtained from the administrator of the rugby institution. Further permission was sought from the National Commission for Science

and Technology (NACOSTI) after approval of the Strathmore Ethics Review Committee. A core principle of social research is that informed consent should be obtained from participants (Ritchie et al , 2014). Parental and Participant consent Forms were signed by all participants and guardians in the study. Parents were then asked for permission to allow their children to participate in the study.

The coach who agreed to take part was over the age of eighteen years. He also needed protection through confidentiality. To ensure his dignity as a participant was taken into account, the findings from the research study were not exposed through public discourse of their participation. The consent form for the coach (Appendix 8) was to ensure that the coach was aware of the study he was participating in and recognise that they were free to participate or to leave the study voluntarily. Ritchie et al (2014) raise the issue of involving gatekeepers. These are individuals through whom potential participants are contacted. In this study the administrator was actively involved so the coach did not feel under any pressure. There was some compensation for the coach and players who came from underprivileged backgrounds who normally come for training, but with difficultly. Care was taken for this compensation not to come across as coercion or an incentive to take part, but rather part of their weekly routine.

The rugby players in the study were under 18 years of age and as such represented a vulnerable group. Simply getting the informed consent was not enough. A participant must be in a position or old enough to understand the choice that are making. The Performa for informed consent should clearly mention the purpose of the research and involved risk (Govil, 2013). Their rights as children were guaranteed by ensuring their names or schools did not appear anywhere in the tallying process or the assessment sheet. Any photos or videos taken in data collection were not to be exposed in electronic or print media. The players were to be protected from harm by ensuring that they are two trained first Aiders, a stocked first Aid Box and valid insurance cover for each player at each session. The coach in charge of training was aware of the medical evacuation plan as well as the medical history of the players in case of any injury. The gate keeper for the players was the coach in the study. Ritchie et al (2014) say that gatekeepers can play a dual role of protecting participants from coercion and pressure, but they are also in a positon of power over participants. The players were asked to sign their consent forms (Appendix 9) in the presence of their guardian away from the

presence of the researcher, coach or institution's administrator so that they felt free to choose without any coercion. If they felt that they would like to leave the program, they are advised to inform their guardian and they continued training with the team apart from the study. If they experienced any distress during the study, they needed to let their administrator, parent or coach know and this was indicated in Appendix 9 of the consent form. If they felt they could not approach an adult, then they were encouraged to speak to their captain and leadership group.

In case of minors, permission should be sought from parents or guardians (Govil, 2013). The parents/guardians and carers whose children are taking part in the study were supported through information on what the study entailed in (Appendix 7). They were given guarantees that their children were in a safe environment to play rugby, clearly stipulated provisions in the case of a medical emergency and the adults who were to be in contact with child for the duration of the study. Additionally, the parents understood that the study was voluntary and their children could leave at any time without being victimized and whom their child could contact if they were not comfortable with the study. The participants in the research project were entitled to privacy, guaranteed anonymity, guaranteed confidentially and, avoiding harm, betrayal or deception.

The information collected after analysis was used to complete this report of the study. The coaches involved were then taken through a final meeting to be given the results and ways they could improve their coaching. The players were given the results from the assessments of the skills and also given pointers on areas they could improve. The administrator of the institution was given the information as a way to develop his coaches. If the document is to be shared with the wider public and stakeholders the name of the institution will be withheld, the names of the coaches and players will also be anonymous. Users of the data from the institution were informed of the data in a timely and accurate manner.

CHAPTER 4

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.0 Introduction

This chapter covers presentation, analysis and interpretation. Findings on the levels of skills and micro scaffolding are presented in graphs, charts and statements. Further to this, the data will be analysed using SPSS software to check for the level of significance between the independent variable (Micro-scaffolding) and the dependent variable (Rugby Skills). An interpretation of the analysis the correlation of paired samples will then be stated.

4.2 Research objective 1: To examine how micro scaffolding affects passing skill development in rugby players.

This section covers findings for research objective 1. The examination of this objective involved looking for an association between micro scaffolding and passing skills development. Fig 4.2 a and 4.2 b are the graphical representation of the spin passing skills of the players at session 1 and session 3.

Fig 4.2 a Spin pass skill assessment session 1

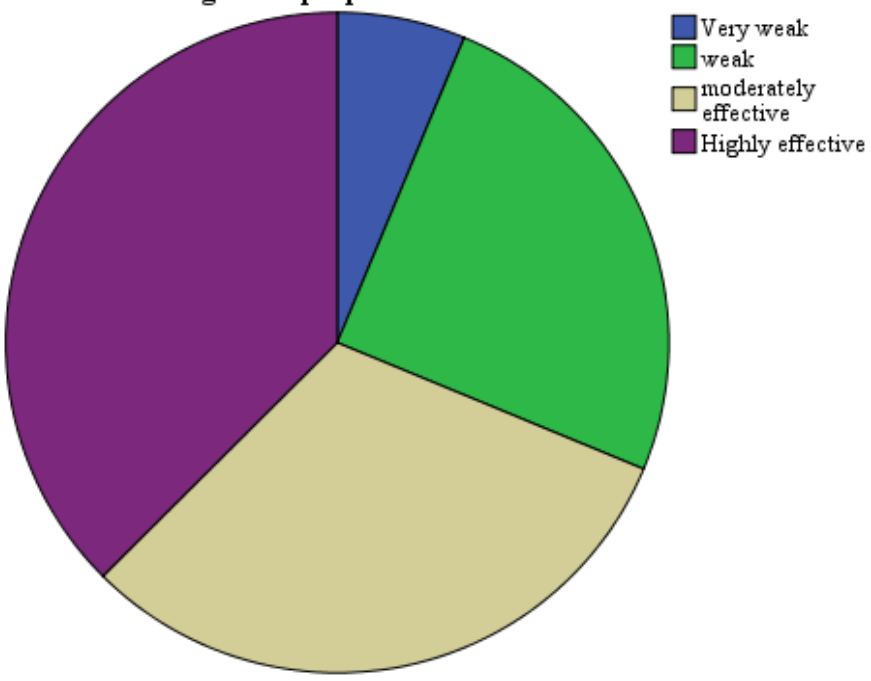
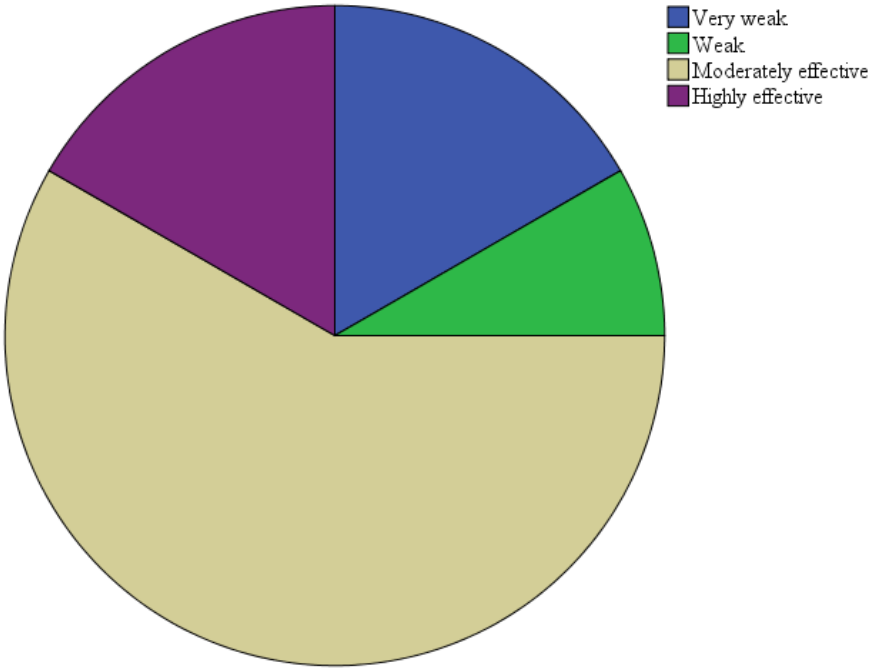


Fig 4.2 b Spin pass skill assessment session 3



The descriptive results from Figure 4.2 a Figure 4.2 b show that there was an increase in the moderately effective passes from 31.3% to 58.3%. However, there was a decrease in the highly effective passes from 37.5% to 16.7%.

Table 4.2 is a tabular comparison of passing skill levels and micro scaffolding levels from session 1 and 3. The correlation of sampled pairs is calculated to measure the impact of the intervention measures.

Table 4.2: Passing and micro scaffolding skill levels at session 1 and 3.

		Session 1 levels		Session 3 levels	
Passing		Frequency	%	Frequency	%
	Very weak	1	6.3%	2	16.7%
	Weak	4	25.0%	1	8.3%
	Moderately effective	5	31.3%	7	58.3%
	Highly effective	6	37.5%	2	16.7%
Micro scaffolding		Frequency	%	Frequency	%
	Very weak	0	0	0	0
	Weak	1	60%	4	0%
	Moderately effective	1	20%	1	80%%
	Highly effective	3	20%		20%
Correlation of Paired samples					
		t	Df	Sig (2 tailed)	
Spin pass session 1 & 3		0.0000	11	1.000	
Micro scaffolding session 1 & 3		2.966	11	0.013	

Correlation significant at 0.05

In addition, table 4.2 shows an improvement in guiding which increased from 20% at session 1 to 80% at session 2. There was no leading used in session 3 and the highly effective levels of scaffolding remained at 20%.

The sampled pairs correlation in the spin pass from session 1 to 3 shows a significance of 1, with degrees of freedom at 11, with a t value of 0.000 at a confidence level of 0.05. 1 is greater 0.05 hence these results indicate that the intervention measures did not have a significant impact on spin passing skill. Micro scaffolding the results have a significance of 0.013 with df of 11 at a t value of 2.966 at a confidence level of 0.05. The significance is less than 0.05 which shows that the impact of the intervention

measures on micro scaffolding had a significant effect. This means that the coach responded to the intervention measures and made progress in his scaffolding ability.

The World Rugby key factors and CBA skill levels remained below the effective level. The results, are consistent with the ZPD of Vygotsky's scaffolding model, because the results show the greatest improvement in the moderate skills of the players and accelerated learning takes place in the ZPD. This corresponds to the guiding level of micro scaffolding and in rugby coaching is between the coach centred and player centred approach.

The coach was interviewed on the challenges of using scaffolding and if he saw any development in the players' skills at session 3. This is what he had to say:

"I realised that I had to read on the skills that I was going to coach. The reading and knowledge helped me ask better questions. What I found challenging with using scaffolding is that I was scared of being asked questions that I could not answer. I also found that I forgot some of the key factors of the passing skill that I was to coach. To improve next time, I will look at writing things down before the session."

"There was progress in their passing which made me happy. The demonstration on how to use scaffolding in session 2 was of great help as I realised I needed to plan a lot more. The note book I carried made it difficult for me to keep looking at it and at the same time coach. I had read on the information, but I was now giving the players all the information at once. I was asking questions, but many were looking at me and not giving feedback, except for one boy who kept asking questions that I could not answer at times."

The interviews above are consistent with the results from the passing skills and micro scaffolding levels. This supports the theory that learning takes place in the ZPD with the support of an expert. The discomfort of the coach is consistent with Engins (2014) study on levels of micro scaffolding, that teachers or coaches will find it challenging to improve from leading, to guiding to prompting.

4.3 Research objective 2: To determine how micro scaffolding affects evasion skills in rugby players.

This section has results on what effect micro scaffolding has on evasion skills. Fig 4.3 a and 4.3 b are the results of the change of pace after intervention

measures. The pie charts using the CBA give an illustration of the progress of the players comparison of the players level of skill from session 1 and session 3.

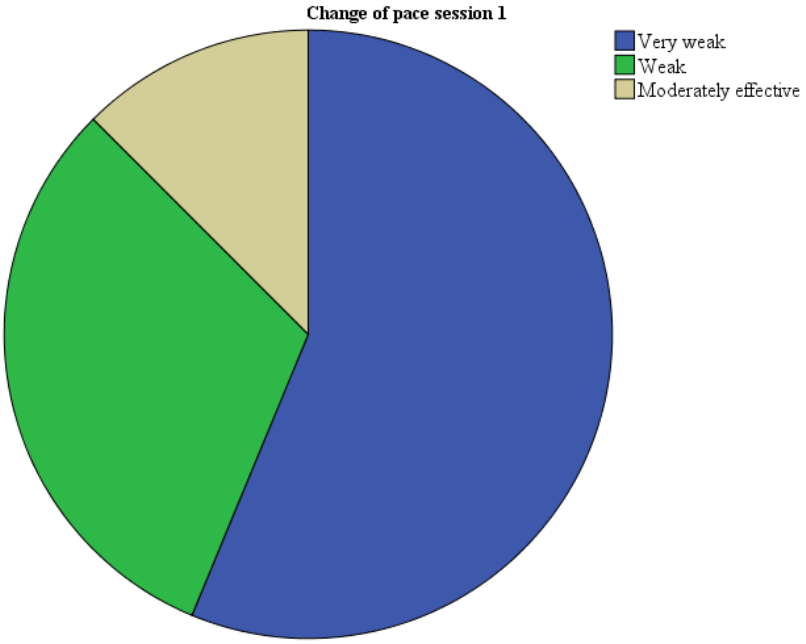


Figure 4.3 a Change of pace skill assessment session 1

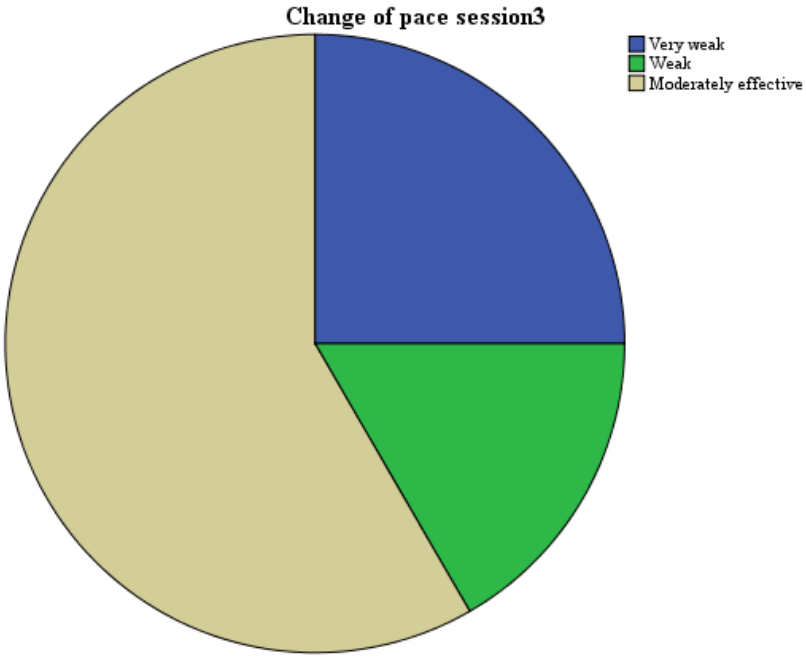


Figure 4.3 b Change of pace skill assessment session 3

The pie charts show an improvement in the change of pace skill from session 1 to 3. There was a 9.6% decrease in “very weak” skills and a 2.5% decrease in “weak” skills. The moderately effective skills improved by 52.3% and there were 16.7% of the players who got to achieve highly effective skills in session 3. This

implies that some players were able to learn in the ZPD and progress to cognitive internalisation of the skill.

Table 4.3 combines the change of pace and micro scaffolding levels used and gives the correlation of sampled pairs.

Table 4.3 Evasion by change of pace and micro scaffolding skill levels at session 1 and 3.

		Session 1 levels		**Session 3 levels**	
Change of pace		Frequency	%	Frequency	%
	Very weak	9	34.6%	3	25%
	Weak	5	19.2%	2	16.7%
	Moderately effective	2	7.7%	7	58.3%
	Highly effective	0	0	0	16.7%

		Session 1 levels		**Session 3 levels**	
Micro scaffolding		Frequency	%	Frequency	%
	Very weak	0	0		0
	Weak	13	81.3%	4	33.3%
	Moderately effective	3	18.8%	8	66.7%
	Highly effective	0	0	0	0

Correlation of Paired samples	t	df	Sig (2 tailed)
Change of pace session 1 & 3	-1.735	11	0.1111
Micro scaffolding session 1 & 3	-2.159	11	0.054

Correlation significant at 0.05

Table 4.3 shows micro scaffolding levels from leading to guiding improved by 50%, however, the coach was unable to achieve the highest level of micro scaffolding which is prompting.

The sampled pairs correlation in the change of pace from session 1 to 3 shows a significance of 0.111 with degrees of freedom of 11, with a t value of -1.735 at a confidence level of 0.05. 0.111 is greater than 0.05, hence this indicates that the intervention measures improved the evasion skills, however, not significantly.

For micro scaffolding the level of significance is 0.054 with df of freedom of 11, at a t value of -2.159 at a confidence level of 0.05. The significance is equal to 0.05 which shows that the impact of the intervention measures on micro scaffolding was significant, although the coach did not get to the highest level of prompting which is the highest level of micro scaffolding.

Some of the players achieved a high level of skill because they were able to learn with the support of the coach in the ZPD. This result is consistent with Llobet-Martí's, (2016) theory on transferring responsibility from the expert to the rugby player through the internalisaiton of a skill when learning is at a cognitive level. These result diverge from the scaffolding theory, because the coach did not get to the highest level of micro scaffolding, but the players got their skills to highly effective levels without the support of the coach. However, the findings are consistent with scaffolding theory that states the ZPD is not a constant area, but keeps shifting as the players learn.

The coach was interviewed on how effective he found his coaching of the change of pace at session 1 and this is what he had to say:

The Change of pace (Goose step) was frustrating for me to coach, because I was giving the players instructions, but they were using the wrong skill (Side step), instead of the goose step. I think the change of pace (Goose step), should be used when the defender is coming from in front of the player with the ball. I don't understand why the players are using the side step instead of the goose step. Yes, it will help to write things down as I forgot some of the things I wanted to coach.

When he was interviewed after session three he had this to say:

I found that the players were responding to the training a bit better. Those players who had just come in for the session, were holding others back. The

reading that I did helped me look at what the players were doing and answer questions a bit more confidently. I realised that I had been coaching the players the wrong thing in terms of the direction that a defender comes from. After the demonstration in session 2, the level of success for the change of pace (Goose step) was much better. The writing down of coaching points did help me, but I was now saying so many things at the same time, that the players were quiet. They also seemed a bit confused and then I got frustrated with them during the session.

The interviews are consistent with the progress the players made without the help of their coach. The change in micro scaffolding levels had an impact on the skill level of the players.

4.4 Research objective 3: To assess how micro scaffolding affects tackling skills

This findings in this section were micro scaffolding and tackling skills. The focus was the relationship between micro scaffolding and tackling. Fig 4.4 a and 4.4 b below show the spread of the skill levels of the players in session 1 and session 3.

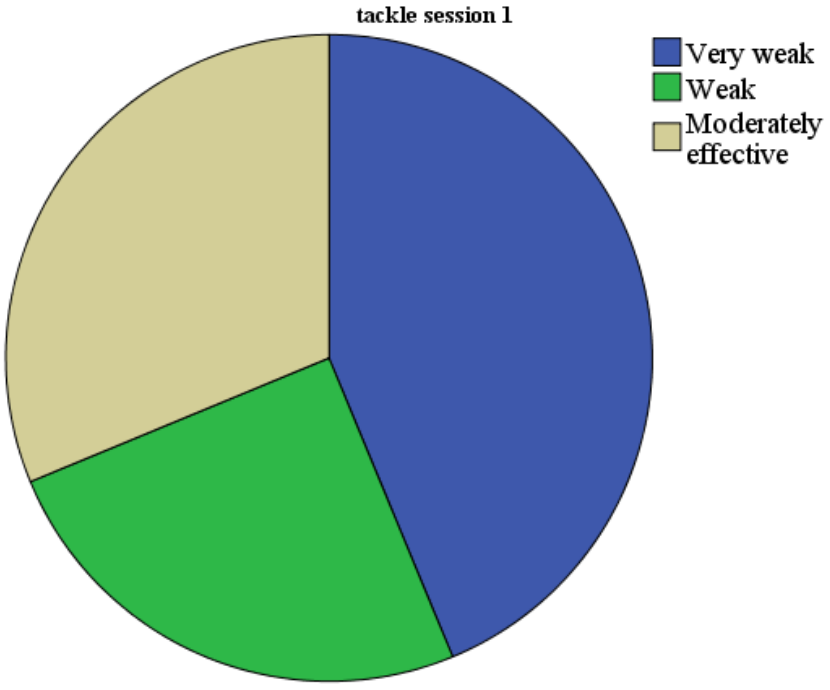


Fig 4.4 a Tackling skill levels session 1

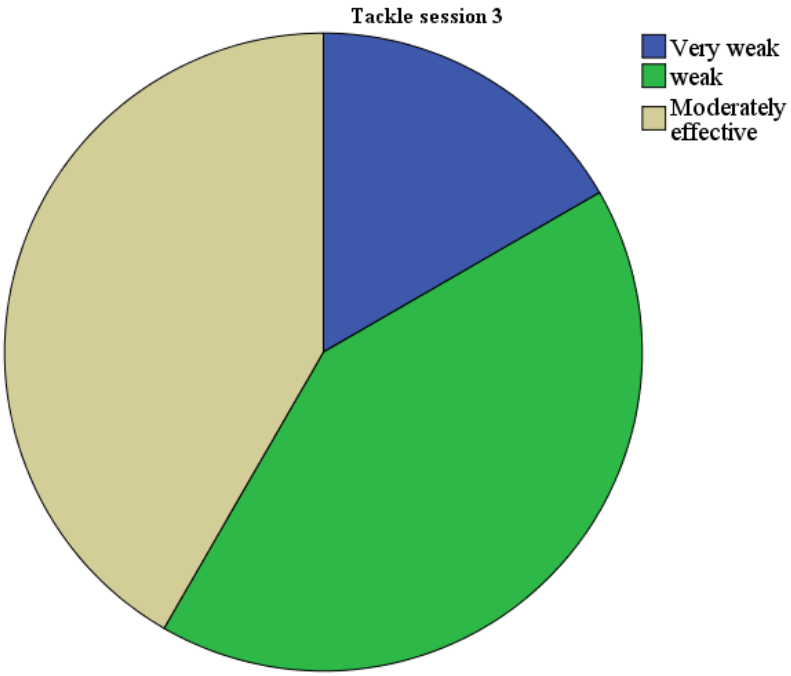


Fig 4.4 b tackling skill levels session 3.

The pie charts show 68.8% of the tackles were either weak or very weak at session 1 and no player was able to reach the level of highly effective tackling. In session 3, there was a decrease of 27.1% in the players with very weak skills to weak. Although, still below the effective level there was progress nevertheless. Moderately effective skills improved by 10.4% to 41.7%.

Table 4.4 are the results combining the tackling skill levels and the micro scaffolding levels from session 1 and 3. The paired samples correlation is also calculated.

Table 4. 4 Tackling skills assessment at session 1 and session 3.

Tackling		Session 1 skill levels		Session 3 skill levels	
		Frequency	%	Frequency	%
	Very weak	7	43.8%	2	16.7%
	Weak	4	25.0%	5	41.7%
	Moderately effective	5	31.3%	5	41.7%
	Highly effective	0	0	0	0

Micro Scaffolding		Frequency	Percentage	Frequency	Percentage
	Very weak	0	0		0
	Weak	13	81.3%	4	33.3%
	Moderately effective	3	18.8%	8	66.7%
	Highly effective	0	0	0	0

Correlation of Paired samples	t	Df	Sig (2 tailed)
tackle session 1 & 3	-1	11	0.339
Micro scaffolding session 1 & 3	-1	11	0.339
Correlation significant at 0.05			
Mean Tackle	1.1967	2.25	
Mean Micro scaffolding	1.25	1.4167	

From table 4.4 Leading was not used as a coaching method at session 3 and the improvement from weak to moderately effective scaffolding, which was from leading to guiding was 33.4%.

The sampled pairs correlation in the tackle and micro scaffolding from session 1 to 3 shows a significance of 0.339 with degrees of freedom at 11 with a t value of -1 at a confidence level of 0.05. These results indicate that the intervention measures did not have a significant impact on tackling. The skill levels of the tackle improved to moderately effective levels of tackling. This implies that the skill was being learned from scratch and it would need a longer period of time to improve the results significantly.

The coach was interviewed on his coaching of the tackle and this is what he had to say:

I asked the players if they agreed with what I was saying and they said yes. I then asked them who could tackle better than the other and they were able to show me. Although, they were missing a few tackles I can ask them to look at which tackle is better and see if it works.

After the third session, the coach was interviewed once again and he had this to say:

The demonstration in session 2, showed me that I needed to read a lot more on the tackling skill. I asked the players if they agreed with what I was asking them, but not many of them answered. I gave them so many questions at the same time, I think they were not able to give me answers properly. I think giving them the key factors by asking questions a little at a time may help them give better responses. I felt I needed to tell them what needed to be done. I see that it could be better to let the session continue and ask questions as they train.

The interviews are consistent with the CBA of rugby coaching using authoritative, directing and giving instructions which is at the same level as leading in scaffolding. The coach made an attempt to use games to develop skill levels, but the progress the players made was not significant. The coach interviews support Jones & Thomas' (2015) theory that micro scaffolded coaching takes place through social interaction which leads to cognitive learning and impacts rugby skills.

4.4.2 Summary

The results show that the intervention measures instituted in micro scaffolding impacted the coach as there was progress in his level of scaffolding from leading to guiding, however; he did not get to the highest level of prompting for all the skills. The change of pace and spin passing skills all registered improvement, but none of the changes were significant. The implication is that the intervention measures had an effect although not significant. The next chapter covers each objective and gives recommendations as well as scope for further research.

CHAPTER 5

SUMMARY, DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter discusses the findings, conclusions, points of convergence and divergence to existing theory in the report. Recommendations for further studies are made to the different groups of interest.

5.2 Summary of findings

Objective 1 findings show a big increase in the moderately effective passes from 31.3% to 58.3% from session 1 to 3. However, there was a decrease in the highly effective passes from 37.5% to 16.7%. This implies that as the coach was changing his style of coach from leading to guiding, the players were learning at an interactional level, but not a cognitive level. Subsequently, their level of skill dropped as they were still learning at the interactional level. There was an improvement in the guiding level in the micro scaffolding teaching which increased from 20% at session 1 to 80% at session 3. The intervention measures showed a significant impact on micro scaffolding. The implication on rugby coaching is that the shift from a coach centered approach to a player centered approach (World Rugby 2018) has a positive impact on passing skills. The coach realised the importance of planning and having the relevant knowledge. These two components of coaching contributed to how the players developed their passing skills. This is part of teaching pedagogy which is consistent with the TGFU model on how to teach through games.

In objective 2 there was a general improvement in the change of pace skill from session 1 to 3. There was a 9.6% decrease in “very weak” skills and a 2.5% decrease in “weak” skills. The moderately effective skills improved by 52.3% and there were 16.7% of the players who got to achieve highly effective skills in session 3. Micro scaffolding levels from leading to guiding improved by 50%, however; the coach was unable to achieve the highest level of prompting. These results show that the players had learned in the ZPD and progressed to what they

could do on their own and led to highly effective levels of skill. The implication is that the transfer of responsibility leads to a higher ability of skill even without a high level of scaffolding. There is also the implication that the ZPD of the players was not constant and moved to another level that allowed for highly effective skills without the highest level of scaffolding

In objective 3, 68.8% of the tackles in session 1 were either weak or very weak, whereas, 58.4% of the tackles in session 3 were either weak or very weak which an improvement of 10.4% was. There was 10.4 % progress in the moderately effective tackles from 31.3% to 41.7%. These are still very low tackling skills for an area that has the primary cause for rugby injuries (World Rugby 2018). Micro scaffolding levels improved by 33.4 % from weak (leading) to moderately effective (guiding) scaffolding. The intervention measures were not significant.

5.3 Discussions

The results indicate that the impact of scaffolding on rugby skills converges with Lev Vygotksy's theory that optimal learning and transfer of responsibility takes place in the ZPD. This supported by the fact that when guiding was used in coaching, the rugby skills recorded the most progress. This corresponds to the players learning at the interactional and cognitive level through getting help from the coach (knowledgeable other) tools and technology. The transfer of responsibility to a player corresponds to what a learner can do on their own and the achievement of highly effective rugby skills. The improvement in micro scaffolding got to the level of guiding, but not to the highest level of prompting. Stone's (1998) critique of Vygotsky's work where she says cultural differences between and amongst teachers and learners had not been considered. Boblett's, (2012) study when discussing the scaffolding metaphor and culture as playing a role in the use of scaffolding is supported by the power distance between the players, a majority of whom were from low income homes and the coach. As a result, they rarely responded to questions without thinking about if they were going to upset their coach. This was a contributing factor to the lack of achievement of the coach not getting to the highest level of prompting in micro scaffolding.

5.3.1 Micro scaffolding and passing

How micro scaffolding affects passing in rugby. The 27% increase in numbers of the players with moderate passing skills is consistent with the comparison of sample squares which calculated the improvement as not being significant. However, the level of micro scaffolding improved significantly from leading to guiding by 80%. This uncertainty and lack of uni direction is consistent with Jones & Ronglan, (2017) that micro scaffolding does not go in a straight line, but is complex and multi directional.

The increase in micro scaffolding levels from leading to guiding led to a 27% increase in moderately effective passing skills. What is surprising from the results is that the level of highly effective passing fell by 20% after the introduction of micro scaffolding methodology (Cambridge, 2005). This is because learning at the interactiona level preceds learning at the cognitive level and this can lead to a drop in skill levels. Leadership management suggests a drop in skill level can be attributed to issues in change management. This is because the players are dealing with a complex issue of change in how they are coached. The players now need to adjust, their values and ways of thinking to be able to learn. The results were inconsistent with Jones & Thomas, (2015), because the micro saffolding using guiding affected 20% of high ability players moved from what they can do on their own and what they can achieve when being supported by the coach or beyond their reach. As a result there was a reduction in the number of players showing highly effective passing skills.

5.3.2 Micro scaffolding and evasion

To determine how scaffolding affects the evasion skills of players in a rugby team. In evasion skills the high ability players responded to the micro scaffolding level of guiding to have 16.7% develop their evasion skills to achieve highly effective levels of skills from having none at the beginning of the training sessions. The model of the ZPD, shows the ability to learn on their own without the help of the coach. The comparison of correlations gave the progress of change of pace as not being significant. This is because the coach was teaching them the wrong skill at the start which reduced their progress. Further to this, the coach was unable to achieve prompting to be “highly effective” because he chose to introduce what he had read on all at once. Engin, (2014) on scaffolding, point out that the reduction in the degrees of freedom, to avoid overwhelming the child by using incremental steps in

the problem-solving process is important for the transfer of knowledge to take place. So the delivery of all the key factors at the same time did not impact skill improvement or improve highly effective scaffolding.

5.3.3 Micro scaffolding and tackling

Micro scaffolding affects tackling skills. Studies that have been conducted on the tackle since 1990 have summarised that rugby is a contact sport with injury risks related to physical contact, primarily in the tackle (World Rugby, 2017) and so it is the area in the game that needs to coached and officiated with a lot of detail and focus. 58% of the injuries in the game are at the tackle. In the third objective the test for significance for both micro scaffolding and skill development in the tackle suggested that the intervention measures were not significant over the duration of the study. This is because 68% of the players were learning the skill from scratch. In the scaffolding training, the coach was encouraged to write things down in his planning and carry his note book with him.

5.4 Conclusions

The matrix in table 5.4 represents a summary of the conclusions, research questions and significance of the intervention measures.

Table 5.4 Conclusions of the study

Objective	Research Question	Findings
Scaffolding on rugby skills	Does scaffolding have an impact on rugby skills?	It does have an impact
Objective 1: Scaffolding on passing skills	Does scaffolding affect passing skills	• There is an association between micro scaffolding and passing skills. • Intervention measures on micro scaffolding had a significant effect on the improvement of the coaching levels.
Objective 2: Scaffloding and evasion skills	scaffolding affects evasion skill	• the effect that micro scaffolding has on evasion skills is not significant • Intervention measures had a significant effect on the coach's scaffolding ability.
Objective 3: Scaffolding and tackling skills	micro scaffolding affects tackling skill	• Micro scaffolding affects tackling skills although not significantly • Intervention did not have a significant impact on the coach's scaffolding ability.

5.5 Recommendations

Table 5.3 states the recommendations, describes the problem and explains how to overcome the particular problem.

Table 5.3 recommendations:

Recommendation	The problem	How to overcome it
Rugby institution of the study: training to develop scaffolding methodology)	Lack of scaffolding skills.	Practice in scaffolded coaching.
Kenya Rugby Union & Ministry of Sports: Rugby Manuals with scaffolding for coaches • Coaches to develop logical and methodical ways to coach) • skills that involve contact need, some level of leading and guiding could be used first before questioning)	• No unique coaching manual for rugby coaches in Kenya • Old method of coaching using instruction, drills, didactic, coach centred • Too much information without a proper plan. No reflection on their practice. • Risk of injuries is high in the tackle.	• Conferences, workshops and curriculum development for rugby coaching • Scaffolding training • Observe and train in teaching pedagogy to develop a • Learn from as many sources • Know the safety points of the tackle and learn to observe safe and unsafe technique
World Rugby (Develop a coaching manual in Kiswahili)	The knowledge the coach had was lost in translation due to the mixture of Kiswahili and English.	Develop a language that is effective in transferring skills.
Ministry of Education: teacher training in scaffolding	New Curriculum requires multi skilled practitioners	Develop a curriculum for Teacher training colleges in rugby

	who can teach in the classroom and coach sport.	Workshops and conferences for teachers coaching sports

5.6 Opportunities for further research

Table 5.4 gives the contribution to the body of knowledge in terms of policy, practice and further research.

Table 5.4 opportunities for further research

Contribution to body of knowledge	Policy/Practice	Further research
Coaching pedagogy	• Policy in scaffolded coaching. • Coaching practice in scaffolded coaching	opportunity to observe another coach who does not use the scaffolding coaching methodology so that a comparison can be done on how the skills of players being coached without scaffolding, compared to those being coached using scaffolding.
Comparison of macro and meso levels of scaffolding on rugby skills	This would be a the level of policy as macro is at the level of curriculum development	Research on the impact of the three levels of scaffolding on rugby skills.
Socio cultural factors in rugby coaching	This would be a both policy and level of practice	Study can be conducted with rugby players from low, middle and high social classes. A study to investigate if the cultural context plays a part in the level of interaction between the players and the coach.

References

Abraham , A., & Collins, D. (2011). In *Taking the next step: Ways forward for coaching science.* (pp. 63, 366–384). Quest.

Aljaafreh, A., & Lantolf, J. P. (1994). Negative feedback as regulation and second language learning in the Zone of Proximal Development. *The Modern Language Journal*, 78(4), 465-483.

Applebee, A. N., & Langer, J. A. (1983). Instructional scaffolding: Reading and writing as natural language activities. *Language Arts*, 60, 168-175.

Bayer, C. (1979). *L'enseignement de sports collectifs.* Paris: Vigot.

Boblett, N. (2012). Scaffolding: Defining the Metaphor . *Teachers College, Columbia University Working Papers in TESOL & Applied Linguistics, Vol. 12, No. 2*, 1-16 .

Bourdieu, P. (1977). *Outline of a Theory of Practice.* Cambridge,: Cambridge University Press,.

Bouthier , D. (1986). Comparaison expérimentale de différents modèles didactiques des sports collectifs. *SNEP (Ed.), EPS contenus et didactique*, 85-89.

Bouthier, D. (1984). *Sports collectifs: une contribution à l'analyse de l'activité et éléments pour une formation tactique essentielle: l'exemple du rugby.* Paris: mémoire INSEP.

Bouthier, D. (2014). Iniciación y perfeccionamiento en los deportes colectivos: desarrollo de la pertinencia de la toma de decisiones en el juego en relación con otros elementos de la acción táctica. In V. López-Ros and J. Sargatal (Eds.). Girona: UdGUniversitat de Girona.

Bowes & Jones, R. L. (2006). Working at the edge of chaos: Understanding coaching as a complex, interpersonal system. In *The Sport Psychologist* (pp. 20, 235–245).

Briner, M. (1999). Learning Theories. *University of Colorado*.

Bunker , D. J., & Thorpe, R. D. (1982). A model for the teaching of games in secondary school. *Bulletin of Physical Education*, 18(1), 5-8.

Butler, J. (2014). TGfU – Would you know it if you saw it? Benchmarks from the tacit knowledge of the founders. *European Physical Education Review*, 465-488.

Cambridge, M. (2005). From Managers Who Lead: A Handbook for Improving Health Services. *Management Sciences for Health*.

Campo, M., Champely, S., & M. La, A. (2016). Emotions and performance in rugby. *Journal of Sport and Health Science*, 3-6.

Cazden, C. (1979). Peekaboo as an instructional model: Discourse development at home and at school. Papers and reports on child language development . *No. 17. Stanford University, CA, Department of Linguistics.*, 18.

Cheyne, R. (2018, January 5). *Small Blacks Run Catch and Pass.* Retrieved from Coaching Toolbox: https://www.coachingtoolbox.co.nz/the-game/articles/small-blacks/run-catch-and-pass

Collins, T. (2016). Myth and Reality in the 1895 Rugby Split. *The Sports Historian No. 16,*, 19-27.

Côté, J. (1999). The influence of the family in the development of talent in sport. *The Sports Psychologist*, 13, 395 - 417.

Côté, J. S., & Trudel Baria, J. P. (1995). The Coaching Model: A Grounded Assessment of Expert Gymnastic Coaches Knowledge. *Journal of Sport and Exercise Psychology*, 1-17.

Cruickshank, A., & Collins, D. (2015). The Sport Coach. In I. O'Boyle, D. Murray & P. Cummins (Eds.), Leadership in Sport. Abingdon, Oxon: Routledge.

Cushion, C. J., Armourb, K. M., & Jones, R. L. (2006 & 2014, February). Locating the coaching process in practice: models 'for' and 'of' coaching. *Physical Education and Sport Pedagogy*, pp. 83-89.

Daniels, H. (2001). *Vygotsky and pedagogy.* London: Routledge.

Deleplace, R. (1966). *Le rugby.* Paris: Armand Colin.

Deleplace, R. (1979). *Rugby de movement, rugby total.* Paris: Editions EPS.

Donato, R. (1994). Collective scaffolding in second language learning. In J. P. Lantolf & G. Appel (Eds.), Vygotskian approaches to second language research: Second language learning. Norwood, NJ: Ablex Publishing Corporation.

Engin, M. (2013). Questioning to scaffold: An exploration of questions in pre-service teacher training feedback sessions. *European Journal of Teacher Education*, 36, 39–54.

Engin, M. (2014). Macro-scaffolding. Contextual support for teacher learning. *Australian Journal of Teacher Education*, 39, 26–40.

Ericsson , K. A., Krampe , R. T., & Tesch-Römer , C. (1993). The role of deliberate practice in the acquisition of expert performance. *Psychological Review*, 100, 363-406.

Faulkener , G., & Finlay, S. J. (2002). It's not what you say, it's the way you say it! *Quest Conversation analysis: A discursive methodology for sport, exercise and physical education*, 54, 49–66.

Fleiss, J. L. (1971). Measuring nominal scale agreement among many rater. *Psychological Bulletin*, 76(5), 378-372.

Flick, U. (2009). *An introduction to qualitative research.* London: Sage Publications.

Frey, J. H., & Eitzen , S. D. (1991). Sport and Society. *Annual Review of Sociology, Vol. 17* , 503-522 .

Garganta , J. (1997). Modelação táctica do jogo de futebol – estudo da organização da fase ofensiva em equipas de alto rendimento. Dissertação de Doutoramento. *estudo da organização da fase ofensiva em equipas de alto rendimento. Dissertação de Doutoramento. Faculdade de Ciências do Desporto e de Educação Física da Universidade do Porto.*

Garganta , J. (89). Trends of tactical performance analysis in team sports: bridging the gap between research, training and competition. *Centre of Research, Education, Innovation and Intervention in Sport (CIFI2D) Faculty of Sports University of Porto Portugal*, 86.

Goffman, E. (1983). The interaction order. *American Sociological Review*, 48, 1-17.

Govil, P. (2013). Ethical Considerations in Educational Research. *International Journal of Advancement in Education and Social Sciences*, 17-22.

Grecic , D., & Collins , D. (2013). The epistemological chain. In *Practical applications in sports* (pp. 65, 151-168). Quest.

Greenwood, J. (2003). *Total rugby. 5th ed.* London:: A and C Black.

Greenwood, J. (2015). *Total Rugby 6th Edition.* London: Bloomsbury Publishing Plc.

Gréhaigne , J. F., Wallian , N., & Godbout, P. (2005). Tactical-decision learning model and students' practices. *Physical Education and Sport Pedagogy*, 10(3), 255-269. doi:10.1080/17408980500340869.

Gréhaigne , J. F., & Nadeau, L. (2015). L'enseignement et l'apprentissage de la tactique en sports collectifs: des précurseurs oubliés aux perspectives actuelles. *eJRIEPS,*, 35, 106-140.

Gréhaigne, J. F. (1989). "Football de Mouvement". Vers une approche systémique du jeu. *Dissertation de Doctorat Université de Bourgogne.*

Halliday, M. A. (1975). *Learning how to mean.* London: Edward Arnold Ltd.

Hammond, J., & Gibbons, P. (2005a). What is scaffolding? In A. Burns & H. de Silva Joyce (Eds.), Teachers' voices 8: Explicitly supporting reading and writing in the classroom. Sydney: National Centre for English Language Teaching and Research.

Hammond, J., & Gibbons, P. (2005b). Putting scaffolding to work. The contribution to scaffolding in articulating ESL education. *Prospect*, 20, 6–30.

Harraqi, M. (2017). Review of Aida Walqui's Scaffolding Instruction for English Language Learners: A Conceptual Framework. *American Journal of Arts and Design*, 84-88. 10.11648/j.ajad.20170203.13.

Henry, D. (1982). A look at Kenya Rugby. *Rugby: A magazine of Kenya's rugby History 1909-1982*, 5.

Henry, D. (1982). The Growth of Rugby in Kenya. *A Magazine of Kenya's Rugby History 1909-1982*, 5.

IRB. (2011). International Rugby Board Level 2. *Developing Rugby Skills*, 35-36.

IRB. (2014). *World Rugby Level 1 Coaching Manual.* Dublin: World Rugby Ltd.

Jones , R. L., & Wallace, M. (2006). The coach as orchestrator. In R. L. Jones (Ed.), The sports coach as educator: Re-conceptualising sports coaching. London: Routledge.

Jones , R. L., Bailey, J., Santos, J. S., & Edwards, C. (2012). Who is coaching? Developing the person of the coach. In D. Day (Ed.), Sports and coaching: Pasts and futures. Crewe: MMU press.

Jones, L. B. (2010). Complex practice in coaching: Studying the chaotic nature of coach-athlete interactions. In *Sports coaching: Professionalism and practice* (pp. 15–26). London: Elsevier.

Jones, R. L. (2006). How can Educational Concepts Inform Sports Coaching? in: Jones, R.L., ed., The Sports Coach as Educator: Re-Conceptualising Sports Coaching. London: Routledge.

Jones, R. L., & Thomas, G. L. (2015). Coaching as 'scaffolded' practice: further insights into sport pedagogy. *Sports Coaching Review,*, 65-79.

Jones, R. L., & Wallace, M. (2005). Another bad day at the training ground: Coping with ambiguity in the coaching context. *Education and Society*, 10(1) 119-134.

Jones, R., & Ronglan, L. T. (2017). What do coaches orchestrate? Unravelling the 'quiddity' of practice'. *Sport, Education and Society*, 1-11.

Kibisu, A., & Onsotti, C. (1982). School Boy Rugby In Kenya. *A history of Kenya Rugby 1909-1982*, pp. 33-36.

KICCD. (2017). *Basic Curriculum Education Framework.* Nairobi: Government Press.

Kirkwood , B. R., & Sterne, J. A. (2003). *Essential medical statistics (2nd ed.).* Carlton: Wiley-Blackwell.

Knudson, D. V., & Morrison , C. S. (2002). *Qualitative analysis of human movement (2nd ed).* Lower Mitcham: Human Kinetics.

Kothari, C. R. (2004). *Research Methodology; Methods and Techniques, 2nd Ed.* New Delhi.: New Age International (P) Limited.

Kreighbaum, E., & Barthels, K. M. (1996). *Biomechanics: A Qualitative Approach for Studying Human Movement (4th ed.).* Sydney: Allyn and Bacon.

KRU. (2015). *Kenya Vs Zimbabwe Match Report.* Nairobi: Kenya Rugby Union.

KRU. (2018). *Kenya U20 Report* . Nairobi: Kenya Rugby Union.

Lames , M. M. (2007). On the search for reliable performance indicators in game sports. *International Journal of Performance Analysis in Sport*, 62-79.

Langer, J. A., & Applebee, A. N. (1986). Reading and writing instruction: Toward a theory of teaching and learning. *In E. Z. Rothkopf (Ed.), Review of research in education: American Educational Research Association Vol. 13*, 171-194.

Lemert, C. (2012). *Social things: An introduction to the sociological life.* Lanham, MD: Rowan & Littlefield.

Llobet-Martí, B. (2016). *Analysis of the interactivity in a teaching and learning sequence with novice rugby players: the transfer of learning responsibility and control.* Girona: Faculty of Education and Psychology – University of Girona.

Loland, S. L. (2011). The normative aims of coaching: The good coach as an enlightened generalist. In A. Hardman & C. R. Jones (Eds.), The ethics of sports coaching. London: Routledge.

Luschen , G. (1980). Sociology of sport: de velopment, present state, and prospects. *Annu. Rev. Sociol*, 6:315-47.

Lyle, J. (2007). Modelling the complexity of the coaching process: A commentary. *International Journal of Sports Science & Coaching*, 407–409.

Mahlo, F. (1969). *L'acte tactique en jeu.* Paris: Vigot.

Mauldon, E., & Redfern, H. B. (1969). *Games teaching: A new approach for the primary school.* London: Macdonald & Evans.

McCarthy, E. D. (1996). *Knowledge as culture: The new sociology of knowledge.* London: Routledge.

Mcintosh, A. (2005). Rugby injuries. *School of Safety Science, University of New South Wales, Sydney, Australia.*, 120-39.

Mercer, N. (1995). *The guided construction of knowledge. Talk amongst teachers and learners.* Clevedon: Multilingual Matters.

Mouchet , A. (2003). *Caractérisation de la subjectivité dans les décisions tactiques des joueurs d'élite 1en rugby. Unpublished doctoral thesis.* Bordeaux: Université Bordeaux.

Mouchet , A. (2008). La subjectivité dans les décisions tactiques de joueurs experts en rugby. *eJRIEPS*, 14, 96-116.

Mouchet, A., & Bouthier, D. (2006). Prise en compte de la subjectivité des joueurs de rugby pour optimiser l'intervention. *STAPS*, 72, 93-106.

Njororai, S. W. (1994). Physical Education and Sport for All: The Kenya Case. *Basic Education Forum: Vol. 5*, 49-53.

Njororai, W. (1996). GENDER AND SPORT SOCIALIZATION IN KENYA. *Journal of Eastern African Research & Development, Vol. 26 Retrieved from http://www.jstor.org.ezproxy.library.strathmore.edu/stable/24326333*, 26, 24-31.

North, J. (2013). Philosophical underpinnings of coaching practice research. *Quest, 65,*, 278–299.

Okongo, P. (2019, April - May). The First African Ruggers to play for their countries. *The Old African*, p. 34.

Palincsar , A. S., & Brown, A. L. (1984). Reciprocal teaching of comprehension-fostering and comprehension-monitoring activities. Cognition and Instruction. Ratner.

Patton, M. Q. (2002). *Qualitative evaluation and research methods (3rd ed.).* London: Sage Publications.

Peponi. (2018, September 1st). Retrieved from Peponi House Prepatory School: http://www.peponischool.org/house/about-us/ethos

Peponi House Website. (2018). About Us.

Potrac , P., Jones , R. L., & Armour, K. M. (2002). 'It's all about getting respect': The coaching behaviours of an expert English soccer coach. *Sport, Education and Society*, 7, 183–202.

Price, D. (1961, June 11). An experiment on the Rugby Field. *Sunday Nation*, p. 33.

Procter, A., & Palmer, C. (2010). From practice to play, rugby the empowering way. *Journal of Qualitative Research in Sports Studies Volume 4, Issue 1*.

RFU&NZRU. (2007). Rugby Skills Assesment. *Rugby Football Union Newsletter*.

Ritchie, J., Lewis, J., Nicholls, C. M., & Ormston, R. (2014). *Qualitative Research Practice.* London: Sage .

Robert, C., & Sarangi, S. (1999). Hybridity in gatekeeping discourse: Issues of practical relevance for the researcher. In C. Roberts & S. Sarangi (Eds.), Talk, work and institutional order: Discourse in medical, meditation and management. Berlin: Mouton Dr. Gruyter.

Rogoff, B. (1990). *Cognitive development in social context. Apprenticeship in thinking:*. New York: Oxford University Press.

Rogoff, B. (1995). In *Observing sociocultural activity on three planes: Participatory appropriation, guided participation, and apprenticeship. In J. Wertsch, P. del Rio & A. Alvarez (Eds.), Sociocultural studies on mind* (pp. 139-164). New York: Cambridge University Press.

Rogoff, B., Malkin, C., & Gilbride, K. (1984). In *Interaction with babies as guidance in development. In B. Rogoff & J. V. Wertsch (Eds.) Children's learning in the "zone of proximal development* (pp. 33-44). San Francisco: Jossey-Bass, Inc., Publishers.

ROŞCA, V. (2010). The Rugby Coach and his three roles in the managment of a team. *Management & Marketing Challenges for Knowledge Society* , 135-147.

Santos, S., Jones , R. L., & Mesquita, I. (2013). Do coaches orchestrate? The working practices of elite Portuguese coaches. *Research Quarterly for Exercise and Sport*, 84, 263–272.

Santos, S., Jones, R. L., & Mesquita, I. (2013). Do coaches orchestrate? The working practices of elite Portuguese coaches. *Research Quarterly for Exercise and Sport,*, 84, 263–272.

Santos, S., Jones, R. L., & Mesquita, I. (2013). Do coaches orchestrate? The working practices of elite Portuguese coaches.,. *Research Quarterly for Exercise and Sport*, 84, 263–272.

Saury, J., & Durand, M. (1998). Practical Knowledge in Expert Coaches: On Site Study of Coaching in Sailing,. *Research Quarterly for Exercise and Sport*, 69, (3) 254-266.

Savage, T. N. (2015, January 13). The Development of a Qualitative Protocol to Analyse the Tackle in Rugby Union. *School of Risk and Safety Science Faculty of Science University of New South Wales Australia Research Gate.net*, p. 2.

Seale, C. (2012). Validity, reliability and the quality of research. In *Researching society and culture 3rd Edition* (pp. 71-84). London: Sage.

Silverman, D. (2017). *Doing Qualitative Research.* London: Sage .

Singh, A. J. (1982). Physical Education and Sports: Programming in Schools. *Snipes Journal: Vol. 5, No. 2,* 44-50.

SIS. (2018). *Peponi House Preparatory School,.* Nairobi : SIS BSO.

Sitkin, S. B. (1996). Learning through failure: The strategy of small losses. In M. D. Cohen, & L. S. Sproull (Eds.), Organizational learning. Thousand Oaks, CA: Sage.

Stein , J. F. (1981). *ports d'opposition, éléments d'analyse pour une pédagogie des prises de décision.* Paris: Mémoire INSEP.

Stolz , S., & Pill, S. (2014). Teaching games and sport for understanding: Exploring and reconsidering its relevance in physical education. *European Physical Education Review*, 20(1), 36-71. doi: 10.1007/s10648-010-9127-6.

Stone, C. A. (1998). The metaphor of scaffolding: Its utility for the field of learning disabilities. *Journal of Learning Disabilities*, 31, 344-364.

Teodorescu, L. (1965). Principes pour l'étude de la tactique commune aux jeux sportifs collectifs. *Revue de la SIEPEPS*, 3, 29-40.

Tharp, R. G., & Gallimore, R. G. (1988). *Rousing minds to life: Teaching, learning, and schooling in social contex.* Cambridge: Cambridge University Press.

Thomas , A. (2006). The impact of puck possession and location on Ice Hockey strategy. *Journal of Quantitative Analysis in Sports*, 2(1):1-16.

Thomas, G. L. (2013). Introducing children to rugby: Elite coaches' perspectives on positive player development. *University of Exeter*.

Tod, D. (2014). *Sport Psychology*. New York: Routledge.

Trochim, W. M. (2006, October 20). *Construct Validity*. Retrieved from Web Centre For Social Research Methods: https://socialresearchmethods.net/kb/constval.php

Ulrich , G., & Eloi, S. (2016). Développer l'intelligence tactique en jeu par la pédagogie des modèles de décision, dans la perspective francophone. *eJRIEPS*, 38, 38-62.

van de Pol, J., & Elbers, E. (2013, March Volume 2, Issue 1). Learning, Culture and Social Interaction. *Elsevier*, pp. 32-41.

van Lier , L. (2004). The ecology and semiotics of language learning. *Dordrecht: Kluwer Academic*.

van Lier, L. (1994). Language awareness, contingency and interaction. *AILA Review*, 11, 69-82.

van Lier, L. (1996). *Interaction in the language curriculum: Awareness, autonomy and authenticity*. London: Longman.

van Lier, L. (2000). In *Sociocutural theory and second language learning* (pp. 245-260). New York: Oxford University Press.

van Lier, L. (2007). Action-based teaching, autonomy, and identity. *International Journal of Innovation in Language*, 1, 46-65.

Vygotsky, L. S. (1978). Mind in society. In *The development of higher psychological processes* (p. 57). Cambridge, Mass.: Harvard University Press.

Wade, A. (1967). *The F.A. Guide to Training and Coaching.* London: Heinemann.

Walqui, A. (2006). Scaffolding instruction for English language learners. *The International Journal of Bilingual Education and Bilingualism*, 9, 159-180.

Watkins, B., & Montgomery, A. B. (1989). Conceptions of Athletic Excellence among Children and Adolescents Vol 60 No. 6. *Society for Research in Child Development*, 1362-1372.

Wenger, E. (1998). *Communities of Practice: Learning, Meaning and Identity.* Cambridge,: Cambridge University Press.

Whitley, R., & Crawford, M. (2005). Qualitative research in psychiatry. *Canadian Journal of Psychiatry - Revue Canadienne de Psychiatrie*, 50(2), 108-114.

Wood, D., Bruner, J. S., & Ross , G. (1976). THE ROLE OF TUTORING IN PROBLEM SOLVING. *J. Child Psychol. Psychiat., Vol. 17*, 89-100.

World-Rugby. (2017). *Coaching Children.* Dublin: World Rugby Ltd.

World-Rugby. (2018, November 22). *Inside World Rugby*. Retrieved from World Rugby.Org: https://www.world.rugby/vision

Appendix 1 . Permission Letter

INSTITUTION PERMISSION TO CONDUCT RESEARCH

10th March 2019

Dear _____:

The purpose of this letter is to inform you that I give Paul Tindi Odera permission to conduct the research titled IMPACT OF SCAFFOLDING METHODOLOGY ON RUGBYto improve the coaching at our institution which will have an impact on the and rugby Skills among our players. The players are drawn from different schools in Nairobi County and they train once again during the school term. . Paul is a respected rugby coach in the country and I was pleased to learn that he wanted to use our institution to conduct his study. I understand that his study will also focus on the use of scaffolding and how our coaches and to get some training on its use. We are pleased to have a coach of such experience contributing to the development of the game in our institution. This also serves as assurance that the institution and the researcher will comply with requirements of the Child Protection Act in Kenya and the UK. There will be two first aiders at every session and a first Aid box. The children playing will also have insurance cover to cater for any injuries that may require hospitalization. We will ensure that these requirements are followed in the conduct of this research.

Sincerely,

CEO

Rugby Institution

APPENDIX 2: NACOSTI Authorization

THIS IS TO CERTIFY THAT:
MR. PAUL TINDI ODERA
of STRATHMORE UNIVERSITY, 0-508
Nairobi,has been permitted to conduct
research in *Nairobi County*

on the topic: *AN ASSESSMENT OF SCAFFOLDING AS A COACHING METHOD IN IMPROVING RUGBY SKILLS AMONG PLAYERS OF SELECTED SCHOOLS IN NAIROBI COUNTY.*

for the period ending:
8th April,2020

NCSTIP NO : NACOSTI/P/19/80371/29119
Date Of Issue : 9th April,2019
Fee Recieved :Ksh 1000

Applicant's Signature

Director General
National Commission for Science, Technology & Innovation

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

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Email: dg@nacosti.go.ke
Website : www.nacosti.go.ke
When replying please quote

NACOSTI, Upper Kabete
Off Waiyaki Way
P.O. Box 30623-00100
NAIROBI-KENYA

Ref No. **NACOSTI/P/19/80371/29119**

Date: **9th April, 2019**

Paul Tindi Odera
Strathmore University
P.O. Box 59857-00200
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"An assessment of scaffolding as a coaching method in improving rugby skills among players of selected schools in Nairobi County"*** I am pleased to inform you that you have been authorized to undertake research in **Nairobi County** for the period ending **8th April, 2020.**

You are advised to report to **the County Commissioner and the County Director of Education, Nairobi County** before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit **a copy** of the final research report to the Commission within **one year** of completion. The soft copy of the same should be submitted through the Online Research Information System.

BONIFACE WANYAMA
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Nairobi County.

The County Director of Education
Nairobi County.

APPENDIX 3: Strathmore Ethics Review Committee Approval

Strathmore UNIVERSITY

25th March 2019

Paul Tindi Odera
P.O BOX 76424 – 00508,
Nairobi.
paultindi@gmail.com

Dear Paul,

REF **Protocol ID:** SU-IERC0306/19 **Student Number:** 94521

AN ASSESSMENT OF SCAFFOLDING AS A COACHING METHOD IN IMPROVING RUGBY SKILLS AMONG PLAYERS OF SELECTED SCHOOLS IN NAIROBI COUNTY.

We acknowledge receipt of your application documents to the Strathmore University Institutional Ethics Review Committee (SU-IERC) which includes:

1. Cover letter listing all submitted documents 26 January 2019
2. Research Proposal version 2 date August, 2018
3. Participant information sheet and consent form submission date 13 March 2019

The committee has reviewed your application, and your study "AN ASSESSMENT OF SCAFFOLDING AS A COACHING METHOD IN IMPROVING RUGBY SKILLS AMONG PLAYERS OF SELECTED SCHOOLS IN NAIROBI COUNTY" has been granted approval.

This approval is valid for one year beginning ***25 March 2019*** until ***25 March 2020***

In case the study extends beyond one year, you are required to seek an extension of the Ethics approval prior to its expiry. You are required to submit any proposed changes to this proposal to SU-IERC for review and approval prior to implementation of any change.

SU-IERC should be notified when your study is complete.

Thank you

Sincerely,

STRATHMORE UNIVERSITY INSTITUTIONAL ETHICS REVIEW COMMITTEE (SU-IERC)
26 MAR 2019
TEL: +254 (0)703 034 000
P. O. Box 59857 - 00200
NAIROBI - KENYA

Prof Florence Oloo
Secretary
Strathmore University Institutional Ethics Review Committee

APPENDIX 4: Turnitin report

IMPACT OF SCAFFOLDING METHODOLOGY IN RUGBY

ORIGINALITY REPORT

28%	23%	4%	19%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	Submitted to Strathmore University Student Paper	7%
2	journals.tc-library.org Internet Source	3%
3	www.rugby.ru Internet Source	2%
4	dugi-doc.udg.edu Internet Source	2%
5	clok.uclan.ac.uk Internet Source	1%
6	Submitted to University of Wales Institute, Cardiff Student Paper	1%
7	www.tandfonline.com Internet Source	1%
8	scholar.sun.ac.za Internet Source	1%
9	repository.up.ac.za Internet Source	1%

Appendix 5: Coach consent form

TITLE: IMPACT OF SCAFFOLDING METHODOLOGY IN RUGBY.
The study involves the assessment of you as the coach and how you use scaffolding as a coaching method in session 1. The players will also be assessed on passing, evasion and tackling. You will then be trained over the next 4 sessions on how to use leading, guiding and prompting to transfer responsibility from you to the players. The objective of the study is to see if the coaching method has an impact on passing, evasion and tackling skills. In the last session you will be assessed again to see the level of scaffolding and the players will also be assessed again on the same skills as from the first session.

SECTION 1: INFORMATION SHEET
Investigator: PAUL TINDI ODERA
Institutional affiliation: Strathmore University
SECTION 2: INFORMATION SHEET–THE STUDY
2.1: Why is this study being carried out?
To improve the rugby skills of coaches and playing skills of players in Kenya.
2.2: Do I have to take part?
No. Taking part in this study is entirely optional, voluntary and the decision rests only with you. If you decide to take part, you will be asked to coach the players in the usual training sessions at the rugby club. You are free to decline to take part in the study from this study at any time without giving any reasons. If you wish to leave and feel you cannot speak to the investigator, please feel free to contact the club administrator to let them know.

2.3: Who is eligible to take part in this study?
Coaches based at the Rugby club in Nairobi who coach age grade rugby of players between the ages of 13-15 in Nairobi County.
2.4: Who is not eligible to take part in this study?
Coaches from outside Nairobi County and those coaching in the age grade program at club for players aged 13-15.
2.5: What will taking part in this study involve for me?
You will be approached Paul Odera and requested to take part in the study. If you are satisfied that you fully understand the goals behind this study, you will be asked to sign the informed consent form (this form) and then taken through an assessment as a coach questionnaire to complete.
2.6: Are there any risks or dangers in taking part in this study?
There are the risks of taking part in coaching rugby at your institutions and the medical precautions that are undertaken by the institution at each training session will apply. All the information you provide will be treated as confidential and will not be used in any way without your express permission.
2.7: Are there any benefits of taking part in this study?
The information will be used to improve Rugby Coaching and playing skills to develop playing and coaching at your institution.
2.8: What will happen to me if I refuse to take part in this study?
Participation in this study is entirely voluntary. Even if you decide to take part at first but later change your mind, you are free to withdraw at any time without explanation.
2.9: Who will have access to my information during this research?
All research records will be stored in securely locked cabinets. That information may be

transcribed into our database but this will be sufficiently encrypted and password protected. Only the people who are closely concerned with this study will have access to your information. All your information will be kept confidential.

2.10: Who can I contact in case I have further questions?

You can contact me, [Paul Tindi Odera], at Strathmore University, or by e-mail (paultindi@gmail.com), or by phone (0722313277). You can also contact my supervisor, Dr. Evelyne Makhanu, at the Strathmore Business School, Nairobi, or by e-mail (emakhanu@strathmore.edu).

If you want to ask someone independent anything about this research please contact: The Secretary–Strathmore University Institutional Ethics Review Board, P. O. BOX 59857, 00200, Nairobi, email ethicsreview@strathmore.edu Tel number: +254 703 034 375

I have had the study explained to me. I have understood all that I have read and have had explained to me and had my questions answered satisfactorily. I understand that I can change my mind at any stage.

Please symbol the boxes that apply to you;

Participation in the research study

☐ I AGREE to take part in this research

☐ I DON'T AGREE to take part in this research

Storage of information

☐ I AGREE to have my information stored for future data analysis

☐ I DO DON'T AGREE to have my information stored for future data analysis

Participant's Signature: _____

Date: _____/_____/_____

DD / MM / YEAR

Participant_____

DESIGNATION (player/Coach) Circle the appropriate designation

(Please print name)

I, certify that I have followed the Statement Of Purpose for this study and have explained the study information to the study participant named above, and that s/he has understood the nature and the purpose of the study and consents to the participation in the study. S/he has been given opportunity to ask questions which have been answered satisfactorily.

Investigator's Signature: _____

Date: _____/_____/_____

DD / MM / YEAR

Investigator's Name: _____

Time: _____ /_____

(Please print name)

TALLY SHEET FROM ASSESSMENT AT SESSION 1 AND SESSION 4

When the player attempts the skills below, this is the assessment criteria for each skill. To be filled in using a (√), (x) or (-) based on the criteria.

Appendix 6: Player participant consent form

TITLE: IMPACT OF SCAFFOLDING METHODOLOGY IN RUGBY.

The study involves you as a player and how you responding to scaffolding coaching methodology. Your passing, evasion and tackling skills will be assessed in session 1. You will then be coached using the scaffolding coaching method. You will then be assessed again in session 4. The objective of the study is to see if the coaching method has an impact on passing, evasion and tackling skills.

SECTION 1: INFORMATION SHEET

Investigator: PAUL TINDI ODERA

Institutional affiliation: Strathmore University

SECTION 2: INFORMATION SHEET–THE STUDY

2.1: Why is this study being carried out?

To improve the rugby skills of coaches and playing skills of players in Kenya.

2.2: Do I have to take part?

No. Taking part in this study is entirely optional, voluntary and the decision rests only with you. If you decide to take part, you will be asked to participate in the usual training sessions at the rugby club. You are free to decline to take part in the study from this study at any time without giving any reasons. If you wish to leave and feel you cannot speak to the coach, please let your parents or guardians know. You are also welcome to let your captain know or those in the leadership group.

2.3: Who is eligible to take part in this study?

Players and coaches based at the Rugby club in Nairobi through the rugby programme for schools in Nairobi County.

2.4: Who is not eligible to take part in this study?

Players and coaches from outside Nairobi County and those not enrolled in the age grade program at club, as well those below or above the age of 13-15 will not be eligible.

2.5: What will taking part in this study involve for me?

You will be approached Paul Odera and requested to take part in the study. You will need to ensure that you have completed your studies, school work and responsibilities at home. If you are satisfied that you fully understand the goals behind this study, you will be asked to sign the informed consent form (this form) and then taken through a questionnaire to complete.

2.6: Are there any risks or dangers in taking part in this study?

There are the risks of taking part in rugby training with club and the medical precautions that are undertaken by the club at each training session will apply. All the information you

provide will be treated as confidential and will not be used in any way without your express permission. If you do get distressed at any time during the study, please speak out. Don't suffer in silence.

2.7: Are there any benefits of taking part in this study?

The information will be used to improve Rugby Coaching and playing skills to develop playing and coaching . You will also be able to practice passing, evasion and tackling.

2.8: What will happen to me if I refuse to take part in this study?

Participation in this study is entirely voluntary. Even if you decide to take part at first but later change your mind, you are free to withdraw at any time without explanation.

2.9: Who will have access to my information during this research?

All research records will be stored in securely locked cabinets. That information may be transcribed into our database but this will be sufficiently encrypted and password protected. Only the people who are closely concerned with this study will have access to your information. All your information will be kept confidential.

2.10: Who can I contact in case I have further questions?

You can contact me, [Paul Tindi Odera], at Strathmore University, or by e-mail (paultindi@gmail.com), or by phone (0722313277). You can also contact my supervisor, Dr. Evelyne Makhanu, at the Strathmore Business School, Nairobi, or by e-mail (emakhanu@strathmore.edu).

If you want to ask someone independent anything about this research please contact:

The Secretary–Strathmore University Institutional Ethics Review Board, P. O. BOX 59857, 00200, Nairobi, email ethicsreview@strathmore.edu Tel number: +254 703 034 375

I have had the study explained to me. I have understood all that I have read and have had explained to me and had my questions answered satisfactorily. I understand that I can change my mind at any stage.

Please symbol the boxes that apply to you;

Participation in the research study

☐ I AGREE to take part in this research

☐ I DON'T AGREE to take part in this research

Storage of information

☐ I AGREE to have my information stored for future data analysis

☐ I DO NDON'T AGREE to have my information stored for future data analysis

Participant's Signature: _____

Date: _____/_____/_____

DD / MM / YEAR

Participant_____

DESIGNATION (player/Coach) Circle the appropriate designation

(Please print name)

I, _____ (Name of person taking consent) certify that I have followed the Statement Of Purpose for this study and have explained the study information to the study participant named above, and that s/he has understood the nature and the purpose of the study and consents to the participation in the study. S/he has been given opportunity to ask questions which have been answered satisfactorily.

PARENTAL CONSENT

I Mr / Mrs …….. (Name)

Father / Mother or legal guardian (underline the correct statement)

Allow my son/daughter(Circle the appropriate gender)

To take part in the above study at the Rugby club in Nairobi by Paul Tindi Odera of Strathmore University.

In addition, I have read the document and understand the purpose of the study as well as the risks associated with the study.

Signature of legal guardian/parent:

Appendix 7: Parent consent form

STUDY: IMPACT OF SCAFFOLDING METHODOLOGY IN RUGBY.
The study involves the assessment and training of the coach to use scaffolding as a coaching method. This objective of the study is to see if the coaching method has an impact on passing, evasion and tackling skills. The focus will be mostly on the coach, but the impact of the skills on your son/daughter will also form part of the study. Your child will be assessed in session 1 and again in session 4 during the usual training days at the Rugby Club. Your child will then be trained using the coaching method to improve their rugby skills.

I hereby give permission for my Son/Daughter to participate in the study: Impact of Scaffolding methodology in Rugby conducted by Paul Tindi Odera of Strathmore University.

APPLICATION & PERMISSIONS FORM

PARTICIPANT DETAILS

GENDER OF PLAYER	
Date of birth:	
Age group	
Opting out the study at any time without do not hesitate to	Please be aware that your son/daughter can opt out of Giving any reason. If they are under any distress, please Contact the administrator or coach of the rugby institution.
Medical provision	Two trained First Aiders and a First Aid Box on site. The
Insurance	Cover for the players will cover them during the study.

PARENT/GUARDIAN/CARER DETAILS

Primary Contact Name:	
Telephone Number:	
Mobile:	

Relationship to participant:

Secondary Contact Name:	
Telephone Number:	
Mobile:	
Relationship to participant:	

MEDICAL

Known medical conditions	
Medication	
If appropriate please let us know if and how any Medical Condition might affect the participant:	
Please let us know the preferred hospital you would like your child to be taken to in case of an emergency.	

BAD WEATHER POLICY

There is always the possibility that bad weather will make us unable to train outside. Should bad weather become an issue participants will be kept warm and dry inside, will remain supervised and every effort will be made to keep them safe.

PERMISSIONS

Being the parent / guardian / carer (delete as applicable) of the participant/s I agree that photographs and camera filming can be taken of the aforementioned child by the investigator/researcher. They may be used for only purposes of the study.

Name	
Signature	

I acknowledge that Paul Tindi Odera and Strathmore University are not under any liability whatsoever in respect of personal injury, loss or damage, however caused whilst participating in the study.

Name	

Signature

I hereby give permission for my child to be given emergency treatment in my absence if deemed necessary.

Name	
Signature	

Appendix 8: Skills observation sheet

	Evasion skills			Passing skills		Tackling skills			
Player (EG)	Side step	Swerve	Change of pace	Basic pass	Spin pass	Off load	Front Tackle	Side tackle	Rear Tackle
1. (Sample)	√ x - - x								
2.									
3.									
4.									
5.									
6.									
7.									
8.									
9.									
10.									
11.									
12.									
13.									
14.									
15. Totals									
(√) highly-effective, effective	Able to beat opponents consistently. Use of the both feet.			Able to pass accurately to a target off left and right Uses arms and elbows to follow through Able to execute this under pressure		Able to move the feet and get close to opponents Able to lead with the shoulder and wrap arms around. Correct head placement. Able to make most if not all the tackles under pressure			
(-) moderately effective	Able to beat opponents half the time. Predominately dependent on one foot, but can use the other one.			Able to pass the ball accurately half the time Favours one side in passing Sometimes not able to use the skill		Able to move the feet but does not get close to an opponent Able to wrap arms around, but does not lead with the shoulder, incorrect head placement Misses half the tackles under pressure			
(×) weak	Able to beat an opponent using this skill rarely if at all.			Able to pass the ball accurately rarely if not at all Uses only one side unable to pass off the other side Unable to use the skill under pressure		Not able to move the feet quickly Uses arms instead of shoulder, poor head placement Misses all if not most tackles			
(o) Very weak	Needs to learn the skill from scratch			Needs to learn the skill from scratch		Needs to learn the skill from scratch.			

Appendix 9: Coach interview sheet

Coach interview at the end of the each session to assess the effectiveness of scaffolding in that session coaching rugby skills.

1. To what extent did you find leading effective in coaching the following skills? What extent did scaffolding affect evasion skills?

		Very Weak	Weak	Moderately Effective	Effective	Highly Effective
1	side step					
2	swerve					
3	change of pace					
4	SPIN PASS					
5	BASIC PASS					
6	FRONT TACKLE					
7	REAR TACKLE					

2. To what extent did you find guiding effective in coaching evasion skills scaffolding affect handling skills?

		Very Weak	Weak	Moderately Effective	Effective	Highly Effective
1	side step					
2	swerve					
3	change of pace					
4	SPIN PASS					
5	BASIC PASS					
6	FRONT TACKLE					
7	REAR TACKLE					

3. To what extent did you find prompting effective in coaching the skills below skills?

		Very Weak	Weak	Moderately Effective	Effective	Highly Effective
1	side step					
2	swerve					
3	change of pace					
4	SPIN PASS					
5	BASIC PASS					
6	FRONT TACKLE					
7	SIDE TACKLE					

Thank you for your responses

APPENDIX 10: Scaffolding training template for coaches after each session

This is questionnaire to be used to train the coach on scaffolding.

Skill	How did you coach it? (Leading, Guiding, Prompting)	What was the impact? Very weak, weak, moderately effective, effective, highly effective	Which of the scaffolding methods can you improve on	Other comments
Side step				
Swerve				
Change of pace				
Basic pass				
Spin Pass				
Side Step				
Change of pace				
Front tackle				
Side tackle				

Appendix 11: Costs

NAME COACH/PLAYER MARK (c) OR (P)	SESSION	BUSFARE	STIPEND	SIGNATURE
Coach	1, 2, 3 & 4	200/=		
Players	1, 2, 3	50/=		

Appendix 12: Budget

ITEM	SOURCE OF ITEM	Quantity	Unit Cost	Total Cost	Source Of Funds
Photocopies	Questionnaires	250	2	500	Personal
Phone calls	Communication	100	15	1500	Personal
Fuel	Transport	2	4000	8000	Personal
Stationery	Recording	40	10	400	Personal
Food and Drinks	Refreshments	20	150	3000	Personal
SD Cards	Recording	3	1500	4500	Personal
Laptops	Typing			0	Personal
Video recorder	Recording	4	2000	8000	Personal
Internet	Data	6	400	2400	Personal
Compensation	participants	15	700	10500	Personal
Total Cost				**38800**	