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**Developing Game-Based Learning Sequences for Generalist Teachers:  
Creative Practice Research using the Sport of Ultimate Frisbee**

A thesis presented in partial fulfilment of the requirements for the degree of  
Masters in Health Sciences

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## **DEDICATION**

This thesis is dedicated to my parents, Mark and Tania, my siblings, Anna-Marie, Rachel and Matthew, and to my wife, Milla, all of whom I love dearly.

## **COVID-19 STATEMENT**

The Covid-19 global pandemic has had a major impact on the structure of this thesis. This thesis was originally designed to examine the Transforming Play model (Slade, Martin & Watson, 2018). The data collection for this examination was to come from a cooperative teaching programme with generalist teachers in two different schools. The New Zealand Government's response to the threat of the Covid-19 pandemic has meant this form of data collection was no longer possible. The thesis now provides a programme structure that is an interpretation of the Transforming Play model, examined through a creative practice research methodology, and designed for future use in schools by generalist teachers.

## ABSTRACT

Over the last 30 years traditional skill-based game teaching models in physical education (PE) have gradually been supplemented by instruction under an inclusive banner of Game Centred Learning (GCL), but more specifically Teaching Games for Understanding (TGfU). The uptake of this form of instruction, that is underpinned by the theoretical learning construct of constructivism, has in the main been undertaken by specialist teachers of physical education that in New Zealand (NZ), are typically secondary school teachers. Traditional behaviourist structures of technique followed by a 'game' are still the dominant context for physical PE instruction by generalist teachers in primary schools<sup>1</sup>. The explanation offered for this lack of adoption is twofold. Firstly, there has been the demise of the time given for teacher training in subjects such as PE and in combination with this time reduction is the view that the method of instruction is too difficult for the undertrained generalist teacher in PE to employ. This thesis explores a Transforming Play model of game instruction (Slade et al., 2019) that suggests specialist expertise is not necessarily required to deliver constructivist-based PE lessons. It does this through an examination of the relevant literature and the creation of an artefact reflective of that model utilising a creative practice research methodology through the medium of the sport Ultimate Frisbee. This creative artefact includes an evaluated lesson sequence as well as accompanying resources, such as an instructional video on throwing technique and a mastery learning chart template. Overcoming the need for in-depth content knowledge was achieved through the presentation of the creative artefact, a full evaluation of the process that was used to create the lesson sequence, and the justification of each lesson in the sequence.

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<sup>1</sup> Generalist primary school teachers in New Zealand are typically responsible for all aspects of the national curriculum which includes the teaching of physical education.

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## **ABBREVIATIONS**

CAP	Creative Analytical Process
FGS	Fundamental Game Skills
GBA	Game Based Approach
GPAI	Game Performance Assessment Instrument
GCL	Game Centred Learning
MBP	Models Based Practice
NZ	New Zealand
PE	Physical Education
PSI	Personalised System of Instruction
TGfU	Teaching Games for Understanding
ZPC	Zone of Proximal Control

## **1. INTRODUCTION**

### **1.1 BACKGROUND TO THE RESEARCH/RATIONALE**

Over the last thirty years a quiet revolution has been taking place in the way teaching in general, and specifically in physical education (PE) and sport, is being delivered to students. In the classroom that revolution has been a move away from traditional behaviourist role learning models of instruction, towards enquiry-based constructivist models. In PE and sport coaching, that revolution has been in the use of game-centred learning models (GCL) for example, Teaching Games for Understanding (TGfU) (Bunker & Thorpe, 1982). While the in-class change has been across all levels of learning, in PE the change has not been quite so widespread. It appears to be confined to those practitioners with specialist knowledge and consequently one sees GCL employed predominantly in secondary school PE classes and elite level sport contexts (Slade, 2011), but not so frequently with the generalist primary school teacher who is also responsible for the class PE instruction. The explanation offered for this lack of adoption is twofold. Firstly, there has been the demise of the time given for teacher training in subjects such as PE and secondly, in combination with this time reduction, is the view that the method of instruction is too difficult for the undertrained generalist teacher to employ (Lauder, 2001; Lauder & Piltz, 2013).<sup>2</sup>

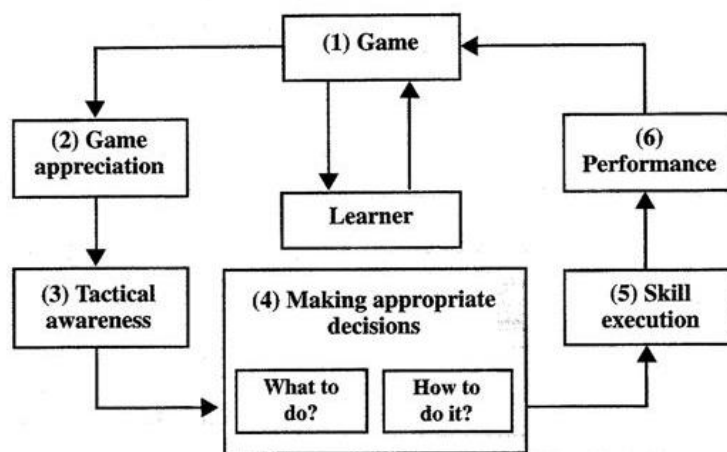
#### ***1.1.1 The development of Teaching Games for Understanding***

For many years games teaching has been an essential part of physical education programmes in schools, traditionally through the teaching of technique through linear progressions. In this

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<sup>2</sup> The amalgamation in the late 1990's of specialist four-year teacher training Colleges of Education with Universities ushered in a change in the structure of training pre-service teachers. The new format consisted of any undergraduate degree making one eligible to undertake a one year graduate Teaching Diploma. Within these programmes, subjects such as PE or music, core components of the NZ National curriculum, pre-service teachers sometimes received as little as six hours pedagogical instruction in these subjects.

traditional approach teachers would determine when the skill level of their students was high enough, and therefore could then move to a game like scenario. In 1982, Bunker and Thorpe published a 'model for the teaching of games in secondary schools' that has come to be seen as a watershed moment for the teaching of games in sport and in schools (Figure 1). The six-step model differed from the traditional methodology in that it required game modification and tactical appreciation as well as the development of technique. Their model was more inclusive, and taught games through a constructivist methodology (Bunker & Thorpe, 1982).



**Figure 1: The Teaching Games for Understanding Model (Bunker & Thorpe, 1983)**

This methodology was embraced throughout the 1990's, however, criticism was focused on the level of teacher expertise needed to implement this model in schools. TGfU was being adopted as a learning model by PE specialists in secondary schools, however this was not the case for the generalist primary school teacher. Launder (2001) felt that the complexity of the model meant that GCL constructivist practice was not moving out of the generalist classroom to PE lessons. He stated that the TGfU methodology was too complex for a generalist teacher to adopt in their own teaching practices. In a key-note address at the second International TGfU conference in 2003 he repeated this position (personal communication, Dennis Slade,

July 2020), stating that to use the TGfU model successfully it required the same skill-level as having a jet pilot's license. While to carry out a traditional model, skills and drills and a game at the end, a single prop Cessna licence would do the job (Slade et al., 2019).

### ***1.1.2 Rationale: Why the topic needs investigating***

In New Zealand (NZ), GCL strategies are widely taught in pre-service PE secondary school teacher training institutions and hence enjoy widespread adoption in secondary school PE contexts. However, the use of these models has not enjoyed the same adoption by generalist teachers in primary schools (Ucus, 2015). The 'blame' for this lack of uptake in primary school PE contexts is suggested by Launder (2001) as being due to the considerable game literacy required by those who would adopt these methods and such knowledge is not frequently found amongst generalist primary school teacher trainees (Launder & Piltz, 2014). These GCL approaches follow a constructivist methodology to the teaching of games, as constructivism focusses on individuals seeking out information for themselves using the context; being the task and environment they are given (Kirk & Macdonald, 1998). Kirk and Macdonald (1998) also recognised that using a constructivist approach requires a flexible understanding of the learners and their varying needs, which, in a PE context, proves challenging for many generalist teachers.

A potential response to this challenge comes in the form of the Transforming Play model (Slade et al., 2019). This model aims to provide the generalist teacher with a constructivist approach that can be implemented in a classroom with very little need for game understanding, knowledge nor skill technique. However, the model has not been subject to independent scrutiny, that is, does this model work? This thesis examines the application of

the Transforming Play model that suggests that generalist teachers can employ a constructivist model in teaching physical education. While first hand data has not been able to be collected due to the restrictions of Covid-19, a programme of teaching that employs the sequences suggested by the Transforming Play model has been developed for the sport of Ultimate Frisbee for future implementation.

### ***1.1.3 Aim of the research***

Due to the restrictions of Covid-19, the aim of this research has been revised to provide a programme structure that interprets the Slade et al. (2019) Transforming Play model's constructivist learning theory through the medium of Ultimate Frisbee in a way in which the generalist primary teacher would be able to implement it in a PE class setting. This research will give generalist teachers a resource in which they can apply a constructivist approach in their teaching of PE.

The primary research question is to what extent can the Transforming Play model be interpreted, by exploring constructivist learning theories, to provide a practice-led artefact, adapted to the setting of Ultimate Frisbee, and implementable by generalist PE teachers?

## **1.2 THE TRANSFORMING PLAY MODEL**

This thesis set out to explore the Transforming Play model of game instruction (Slade, Martin & Watson, 2019; Figure 2) where the authors of the model suggest that specialist expertise is not necessarily required to deliver constructivist-based PE lessons. However, as noted, the original intent of this exploration within schools has been rendered impossible by the government restrictions imposed due to the pandemic virus Covid-19. Hence the thesis now focuses on an examination of the relevant literature within the construct of the Transforming Play model. This approach explores the underlying assumptions of the model. It also then develops a series of lessons reflective of that model utilising the medium of the sport Ultimate Frisbee. In discussing the lesson structure, it provides a detailed explanation of the literature relative to the model and how it is reflected in the lesson sequence developed with the intent of its delivery being executed by non-specialist teachers.

**Figure 2: The Transforming Play model of Game-Centred learning (Slade et al., 2019, p. 6)**

### ***1.2.1 Integrated learning using a models-based approach***

This current research aims to contribute to the future of teaching PE in NZ primary schools as it applies an integrated approach and multiple models of teaching already used in the PE curriculum. The hope when integrating these models is to show that there is no 'single best' model to use when teaching PE and sport (Casey & MacPhail, 2018), but students actually learn through a variety of ways that can all be accessed using a number of models. The research being carried out takes an intra-disciplinary approach to integration in the sense that different sub-disciplines within a subject are being integrated rather than multiple subjects themselves (Drake & Burns, 2004). This type of integration is referred to as a models-based approach to teaching PE (Metzler, 2011).

Model-based practice (MBP) adopts a model for the teaching of games rather than using a traditional, linear, approach of teaching skills and drills (Casey & MacPhail, 2018). MBP aims to extend the learning of a classroom wider than the narrow focus of traditional teaching through the use of the theoretical underpinnings that come with the implementation of a model for the teaching of games. Although the idea of MBP has promising outcomes, this type of practice also comes full of challenges, mainly the lack of experience in integrating models that teachers have in schools currently. The Slade et al. (2019) Transforming Play model uses a multi-model notion of MBP as it consists of theories derived from a variety of other concepts, these being, play, mastery learning, the Sport Education Model (Siedentop, 2002), and TGfU (Bunker & Thorpe, 1982).

### ***1.2.2 Ultimate Frisbee as the medium for exploring the Transforming Play model***

While I have been exposed to other small-sided non-specific games in my undergraduate courses, I also have an abiding interest and expertise in Ultimate Frisbee. Hence using Ultimate as the medium for developing a lesson sequence that reflected the principles of the Transforming Play model (Slade et al., 2019) was an easy decision. 'Ultimate' is also a good choice for the lesson development because it has novelty value, as it is not currently played in a widespread manner in NZ schools.<sup>3</sup> However, it is played recreationally and in the summer months in NZ Frisbees can be seen flying around parks and beaches. In this sense the mastery of some of the basic throwing techniques have a positive leisure impact.

Within GCL approaches to PE, the teacher is concerned with more than the mastery of techniques. They want to develop students' critical thinking with regard to tactics and strategies that would transfer to other games. Ultimate is an invasion game and so tactical principles and movement concepts learned here would also transfer to other invasion games. Ultimate also has an ethical playing dimension, as it is, at all levels, novice and elite, self-refereed. There is no appeal to a referee. It therefore deflects the ugly side-line comments from many spectators around bias in decisions of officials, as the players are all responsible for self-policing the game, and in this sense it can also provide a learning format for positive behaviour in other sports the students might play that do have specific match officials. It is also interesting to note that this organised form of self-regulated play also mirrors what children are used to in their own forms of play. Most children's games such as backyard cricket, soccer, playground tag, touch rugby, are all self-regulated forms of play. Ultimate

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<sup>3</sup> The 2017 Annual Report of New Zealand Ultimate indicated only 2530 registered player of which 422 were under 20 years of age.



Frisbee also lacks the need for an excessive amount of equipment, and any skill repetition can lead to an improved game performance. Many of the techniques required to play Ultimate can be practiced simply with the use of a single Frisbee and some space, which separates the sport from many others that require a full team, as well as extensive equipment and specialist surfaces on which to play and practice.

### **1.3 NATURE OF THE RESEARCH: THEORETICAL CONCEPTS**

The theoretical underpinnings of the Transforming Play model are key to define in order to understand its overall purpose. These concepts are play, mastery learning, the Sport Education model and TGfU. Each of these concepts are complex, therefore this section sets the scene for the Literature Review chapter by briefly defining each of the concepts.

#### **1.3.1 *Play***

Play is a concept that covers a wide variety of activities. Garvey (1990) provides a description of play that fits with the theories in the Transforming Play model. Garvey states that play as an activity is always fun and pleasurable, and participants of play always cherish the experience. Play is an activity that happens outside of formal life, enables socialization, and often has boundaries, rules and procedures (Slade, 2018). Play is also essential to the development of children and is often linked with their creativity. Four stages of children's play were outlined by Parten (1932) and later cited by Gabbard (2012). These stages were solitary, parallel (alongside others), associative, and cooperative. The final stage, cooperative play, is especially important when defining transforming play, as transforming children's play into more formal games requires them to play with common goals and yet carry out different roles. Hence cooperative play features strongly in the programme development generated from this current research.

#### **1.3.2 *Mastery Learning***

Mastery learning can be defined as reaching a suitable levels of skill performance, where suitable refers to the outlines of instruction that the individuals were given to master (Slade, 2018). Keller (1968) and Bloom (1976) championed this idea as a teaching model through

their two varying ideas of mastery learning. While Bloom's group-based mastery learning received widespread criticism in relation to some of the claims made by Bloom (Resnick, 1977 and Slavin, 1987), Keller's Personalised System of Mastery Instruction (PSI) was much less controversial. The individualised nature of the Keller model that leant itself to individual goal setting already had a home in youth sport. Versions of what Keller advocated were found in swimming distance awards, mastery levels in martial arts, and gymnastics, as each of these sports require a specific set of skills to be mastered before reaching another level in the sport.

### ***1.3.3 The Sport Education Model***

The goal of sport education, according to Grant, Sharp, and Siedentop (1992), is to provide a model of learning that encourages the participation and improvement of those students in the classroom that are usually less likely to enjoy PE. The sport education model achieves this by creating an environment that is as close to the adult-version of the sport as possible in a PE classroom. It allows the students to direct their own learning and to put into practice fundamentals of sport they may have learnt during previous experiences (Grant, et al., 1992).

### ***1.3.4 Teaching Games for Understanding***

The TGfU model developed by Bunker and Thorpe (1982) was the catalyst for discussions on the nature of game teaching in PE contexts. It was from these discussions that the more generic term of Game Centred Learning (GCL) emerged. The development and history of the TGfU model, and adapted versions of the philosophies associated with the model, are discussed in the literature review, along with the debate around constructivism and the theoretical framework that defines GCL and the TGfU model relating to the Transforming Play model.

## **1.4 METHODOLOGY**

As mentioned previously the chance to work in and amongst students in schools became impossible due to Covid-19. Without this opportunity the focus of this research changed to understand the creative process necessary in the preparation and development of a lesson sequence that follows the outline of the Transforming Play model. Using creative practice as a research methodology provided an outline of the thought process, or, creative analytical process (CAP), throughout the development and finalising of a lesson sequence, as well as when evaluating each lesson.

### ***1.4.1 Creative practice as research***

This research has involved a creative practice approach. The process for this research allowed for the development of a lesson sequence that reflected the Slade et al. (2019) Transforming Play model. This model requires variability throughout the lesson sequence, as it calls for the students to be creative and design their own games as well as guide their own learning. Creative practice research also lends itself to the model's flexibility and unpredictability, which produces a well thought out and constructed lesson sequence, as the process encourages the researcher to constantly be revising their aims for the research and the creative process they are undertaking (Skains, 2018). The practice-led artefact within the structure of a programme of instruction in teaching games developed in this thesis is designed for upper primary, Intermediate Schools (Years 7 and 8), and junior secondary school students.

## **1.5 MOTIVATION FOR THE RESEARCH**

### **1.5.1 *My sporting background***

I was the third child of two sporting parents. I was exposed to a wide range of sports, varying from individual sports such as swimming or table tennis to team sports such as football, basketball and rugby. The nature of my parent's employment meant that my childhood and pre-adolescent years were spent in Hastings, New Zealand, and then Kentucky, USA. Playing basketball for three years in America sparked my interest in that sport, so when I returned to NZ I immediately joined the basketball team and played in all five years at Heretaunga College in the Hutt Valley. Throughout my time playing sport I have experienced many different coaches who all had various ways of delivering information. Many of these coaches used what I now understand to be traditional methods through the use of highly structured lessons that focussed on teaching mastery of specific skills and technique. Coaching sessions I attended in high school were often involved drill after drill with the intent of building skill execution hoping we would perform well when the time came to 'play the game'. On reflection, what many of these coaches failed to realise is that mastery of a technique without the necessary skill transfer of tactical and strategic knowledge within the game context may not produce the game performance the coach is looking for, as noted by Storey and Butler (2013).

### **1.5.2 *Early exposure to GCL***

There was one coach who stood out in the way in which they approached the teaching of games. My senior basketball coach throughout high school, Mr. Grant Parker, taught us in a way that made the drills we repeated seem more like games. These drills were carried out in such a way that could be easily adapted to provide a good level of learning for every player, while also providing a fun environment to practice our sport. I believe that whether

intentional or not, my basketball coach had adopted a GCL approach to coaching, as well as taking on board the necessary elements of mastery learning and the need for constraints. This GCL approach to coaching was replicated well during certain units of PE where we learnt about TGfU and GCL. This exposure to GCL during high school not only grew my passion for sport but also my passion for the teaching of fundamental game skills (FGS), and tactics and strategies in sport. My growing passion for the teaching of sport and PE led to me enrolling in a Bachelor of Sport and Exercise with a PE major in 2016.

### ***1.5.3 University sport***

I was delighted to find that in my undergraduate PE major a focus on game teaching was undertaken through GCL. It was this structure that drew me to reflect on my basketball experiences and convinced me that as a coach or teacher of games this is the approach I would like to adopt. I also joined the Massey University Ultimate Disc Club during my first year and found that I had an aptitude for the game. I worked hard to master the throwing and receiving techniques and coupled with my early game experiences discovered I also had a good understanding of the basic strategies and tactics of the game. This developing expertise led to my trialling and being selected for the NZ U24 Ultimate Frisbee team, Kea, where we attended the World U24 Ultimate Championships in Heidelberg Germany in 2019. What made my experience playing Ultimate Frisbee different to the majority of my other sporting experiences was not only the different nature of the game, and the way in which sportsmanship and ethics in sport shone through each and every tournament I attended, but also because I was being taught all about GCL in my undergraduate courses I was attending at the time. Towards the end of my undergraduate degree, I decided that pairing my love of Ultimate Frisbee with my passion for GCL would be the next step in my journey.

## 1.6 STRUCTURE OF THE THESIS

This thesis focuses on reviewing the theoretical elements involved in the Transforming Play model and the development of a resource that practically applies the model.

**Chapter Two: Literature Review** examines the four underpinning concepts for the Transforming Play model, as well as further concepts closely linked to the theories involved in the model, these are: play, mastery learning, Sport Education and TGfU. It also examines model-based learning and constraints theory.

**Chapter Three: Methodology** elaborates on creative practice research, and provides a detailed description of the creative analytical process (CAP) that was undertaken.

**Chapter Four: Findings** outlines the construction of a programme for Ultimate Frisbee that integrates play, mastery learning, Sport Education, and TGfU referenced to the Slade et al. (2019) Transforming Play model. The framework of the model and how each one of its stages relates to each lesson plan is reflected upon and discussed during this chapter.

**Chapter Five: Discussion** explores how the programme developed reflects the Transforming Play model and its underlying assumptions, with reference to play, individualised mastery learning, sport education and TGFU.

**Chapter Six: Conclusions** summarises the key findings of the thesis by outlining the application of the Transforming Play model in the creation of a PE resource for generalist teachers in NZ. Suggestions for further research are also stated.

## **2. LITERATURE REVIEW**

### **2.1 CHAPTER OVERVIEW**

The first section of this thesis discusses the intellectual, methodological and historical contexts in which the Slade et al. (2019) Transforming Play model is situated. In doing so, it sets the scene for the application of the Transforming Play model through the median of Ultimate Frisbee.

The Transforming Play model makes reference to theoretical elements associated with play, mastery learning, sport education and TGfU (Slade et al., 2019). An understanding of these concepts is crucial to fully grasping the theoretical framework of the Transforming Play Model. Hence the literature review examines these concepts and their intended interpretation within the Transforming Play Model.

Because it is crucial to understand other developments associated with the model, also examined is model-based learning (Casey & MacPhail, 2018; Metzler, 2011; 2017) and constraints theory (Newell, 1986; Renshaw, Davids, Newcombes, & Roberts, 2019).



## **2.2 PLAY**

Play is fundamental to the Slade et al. (2019) Transforming Play model. Hence it needs to be examined both as a general concept in game education and within the Transforming Play model. This section of the literature review will outline the historical growth of play in human development and then outline the current place of play in games and sport today especially within a NZ context. This section concludes with comment regarding the use of Play in the Transforming Play Model, and the literature that ties the generic and specific interpretation of play within the model together.

### **2.2.1 *History of play***

Prior to Piaget's first documentation of children's developmental stages, play within those stages was not acknowledged. Rogers (2008) outlined that discovery through play during this time period was largely ignored. Children were viewed as small adults who needed to grow to adulthood as soon as possible, which left little room for a concept such as play (Rogers, 2008). A child's clothing, responsibilities, work, and attitudes were all similar to those of the adults that raised them, and all painted a clear picture of the 'mini' adult that they were to behave like.

Jean Piaget, in 1936, was the first author to document stages of child development. Piaget's four stages of development: sensorimotor, preoperational, concrete operational and formal operational, have exerted considerable influence on topics such as discovery-based learning and constructivism. At the centre of Piaget's theory was the idea of experience, discovery, and environmental effects on a child's development. Piaget believed strongly that a child's

non-structured experiences with external environmental factors aided in their intellectual growth and development.

Bruner (1966) and Vygotsky (1978) were both more specific in their understanding of a child's development than Piaget. While Piaget theorised that his concepts would work on groups of children in most scenarios, Bruner and Vygotsky believed that individual, personal experiences with others more skilful or intelligent was key for the development of the individual. Bruner explained his theory as scaffolding, where an individual was aided along the way of discovery by more knowledgeable peers (Bruner, 1966). While similar in intent, Vygotsky used the term 'Zone of Proximal Control' (ZPC) to describe his process of working in a sphere with the influence of someone more experienced. Both the concepts of scaffolding and ZPC were influential in the understanding of a child's development through stages, and both concepts are still used in models of teaching games today (Slade, 2018).

Huttenlocher (1990) explained that the optimal time for a child to develop their creativeness is up to the age of seven years. He claimed that this is due to there being a great number and density of synapses in the human primary visual cortex during early childhood. Play through sport provides an opportune time for children to develop the creativeness that is essential for continued physical activity and lifelong skills. The Transforming Play model aims to create a context in which children feel like they are playing, and yet the teacher is guiding their play in such a way to enhance fundamental movement skills, game tactics and strategies.

### **2.2.2 *Physical Education and play in New Zealand schools***

The 1912 Amendment of the NZ Education Act heralded a new beginning in the place of play in NZ schools as it was the first formal-PE training system to be employed in schools that might be recognised by what one understands as PE in today's context. Prior to this date, what passed as any formal PE was associated with drilling of a military type. However, from 1912 all schools had to have a place in their timetables for physical training. Physical training included games and posture and had much less of an emphasis on military type activities. Additionally, teachers were to be educated in how to teach physical training (Ryan, 2004).

Play has been a growing area of importance in literature surrounding child development and its use in school curriculums, however, PE is still not a compulsory area to be taught at pre-schools. There is still a debate today around the structure of NZ schooling and where PE fits in the curriculum, especially at a pre-school level. While the 1987 Physical Education curriculum document requiring PE be a core component of early childhood education, the NZ Curriculum documents of 1999 and 2007 did not include PE as a core component in the pre-school curriculum. It is currently only at secondary school level that we see any amount of resources, including specialist teachers, poured into teaching students PE and giving them the opportunities they need to play and learn through discovery.

#### *Physical Education and Health Curriculum: 2007*

The *Physical Education and Health Curriculum: 2007* details achievement objectives that make the application of Slade's Transforming Play model a means by which a teacher can meet the curriculum requirements. The objectives are personal health and physical development, movement concepts and motor skills, relationships with other people and healthy communities and environments (Ministry of Education, 2007). Using play, mastery learning,

TGfU and sport education, the Transforming Play model covers each of these components of the curriculum in depth, allowing students to grow in their knowledge of their health and motor skills as well as providing them the time necessary to build relationships with their peers and build healthy communities within their classroom and at home.

### **2.2.3 *Lauder, Piltz and Butler***

Before discussing the literature as it directly relates to the Slade et al. (2019) Transforming Play model, it is important to note influences on both that model and in the teaching of games generally by three other central authors, namely Lauder and Piltz (2013) and Butler (2013).

#### **Lauder & Piltz**

Lauder and Piltz (2013) were key influencers in the promotion of non-traditional methods of games practice in schools. The title of their book itself; *Play Practice: Engaging and Developing Skilled Players from Beginner to Elite*, was used as an example of their philosophy around play and its place in teaching and coaching. Lauder and Piltz state that the term *Play Practice* “was carefully chosen to describe an approach to sport education that harnesses the immense power of play to create challenging and enjoyable practice situations through which players, young and old alike, can be motivated to play their way to understanding, competence, and excellence” (Lauder & Piltz, 2013, p. viii).

The authors were also quick to emphasise the fact that they believed sport was for everyone, and that their approach to sport, through ‘Play Practice’, was the key to making sport enjoyable for all, not just the elite. Lauder and Piltz advocated for every child to have the opportunity to experience sport that was both enjoyable and challenging. They stated that

“Play Practice is underpinned by the idea that if youngsters develop a deep love and understanding of sport through positive early experiences, they are more likely to make a lifelong commitment to physical activity and a healthy lifestyle” (Lauder & Piltz, 2013, p. ix). Creating a framework for the teaching of sport that provided experiences that were both enjoyable and challenging was the purpose of Play Practice.

While Lauder and Piltz were great advocates for play in GCL contexts Lauder especially argued that TGfU and the application of constructive learning theories by generalist trained teachers was too difficult for them to employ. Lauder believed this was why PE teaching in primary schools had not moved beyond drilling, and a game at the end of the lesson was more of a reward for compliance in the students’ behaviour rather than a logical extension of the lesson structure. In discussing play in the Slade et al. (2019) model the response to that position will be the focus of the discussion.

## **Butler**

Butler (2013) states that “If learning is to be sustainable and transferable, experiences need to be meaningful and thus memorable” (p. 53). Butler also outlined that allowing the students to fully understand the process and structure of games will enable them to create such experiences. Promoting organized and rule-governed play is what Butler aimed to achieve through the use of Inventing Games (IG) and is what Slade et al. (2019) aim to accomplish through the Transforming Play Model. Much like Lauder and Piltz, Butler also has a large focus on the enjoyment of play. She stated that “without the element of play, activity becomes routine, predictable, and lacking in possibilities” (Butler, 2016). Through the use of

IG, Butler sought to provide students with the opportunities to learn through discovery and enjoy the games they created for themselves.

#### ***2.2.4 Play in the Transforming Play model***

Play is an important aspect of the Transforming Play Model, and throughout Slade's development of the model, play always came first when discussing the literature (Slade, 2018). Slade's reasoning for this was to highlight the important role play has in the development of motor skills in developmental stages of a child's life. Slade pushes even further by outlining that not only are a child's motor skills affected by their experience with play, but also their lifelong participation in sport and PE. Positive play experiences from a younger age will be influencers in a child's decision to further participate in physical activity throughout their life (Slade et al., 2019).

Piaget's theory of development in a child's life is important in understanding the Transforming Play Model of learning, as Piaget believed that a child would not maximise their development without experiences through discovery, which the Slade et al. (2019) model aims to provide children with. Throughout the Transforming Play model, children are given opportunities to discover for themselves what they enjoy doing and what will work and what won't. The use of constraints and questioning allows for the children to be under enough direction to create meaningful experiences yet still come to their own understanding of games.

### **2.3 MASTERY LEARNING**

While Play is the first act of the Transforming Play model the philosophy of the need for movement literacy, competence or movement mastery also figures prominently. The Transforming play model is informed by the mastery concept and is discussed next both in a generic and Transforming Play specific context.

Advocates of mastery learning e.g., Bloom (1976) and Keller (1968), have made a case for group or individual based mastery programmes. While their particular philosophies have been different they have been united in the notion that “the mastery process operates on the proposition that almost every student can learn the basic skills and knowledge that are the core of the school curriculum when the instruction is of good quality and appropriate, (and the student) spends adequate time in learning” (Torshen, 1977, p. 41). This section briefly outlines the concept of mastery learning in an educational context. In the process it notes the Bloom and Keller systems. It then discusses the Keller system and its application along with goal setting as it can be applied to learning games and sports. Finally, it illustrates how it is applied in the Slade et al. (2019) Transforming Play model.

There are two versions of mastery learning that have been employed in educational settings. They are the Bloom (1976) model based on a group based approach to mastery learning, and Keller’s (1968) model of a personal mastery system of instruction (PSI). Of the two, it is the Keller model that is depicted in the Slade et al. (2019) model and will be discussed. However it is important to briefly note the underlying theory of learning that is the basis of both models before exploring the application of mastery learning in the Transforming Play model.

In order to fully understand the underlying principles of the Transforming Play model it is important to mention that both of these approaches, Bloom and Keller, to mastery learning followed the same underpinning equation, that “adequate time to learn occurs when the time required to learn equals the time available to learn” (Torshen, 1977, p. 49). However, the two approaches are fundamentally different in other areas (Slade, 2018).

### ***2.3.1 Bloom’s group-based approach***

Bloom’s advocacy for a group-based mastery level arose from his concern that children entered and left the education system in the same relative position to those they entered with. In other words, any gaps in different understanding or expertise was never over-come. He argued that a group-based mastery programme would overcome this issue and while initially time consuming; it would eventually not be an issue because most students would start new topics at the same level of understanding.

This group-based model of mastery learning requires that 80% of the students in a class achieve mastery of a module before the whole class can move on to the next module. If students are excelling throughout a module, they are given further tasks to improve their level of skill or are assigned to the independent teaching of their peers. This model was met with much controversy, especially around Bloom’s claim of a two sigma (or two standard deviations, or an effect size of 2.00) increase in learning than that of a class taught through traditional methods, being the use of lectures and rigid drills for the students to carry out (Bloom, 1984). This increase of a 2.00 effect size would mean that Bloom’s group based approach to mastery learning far exceeds the mean effect size for one-to-one tutoring (mean



effect size of 0.62), and is therefore why Bloom's claim provoked much controversy and robust examination (Slavin, 1987; 1990)

### **2.3.2 Keller's PSI approach**

In contrast to Bloom's group based 80% class mastery approach, Keller's PSI approach to mastery learning is an individualised approach to personal achievement. Each student performs the intended module to 100% before they move on to the next. This allows for students to set the pace of their own learning and the overall learning outcomes of the PSI are dictated by the student's level of mastery. Students can set themselves different tasks and goals based on their level of mastery from the beginning, and subsequently leads to individualised motivations for succeeding as well as 'peer to peer' competitions. Keller's approach to mastery learning has a long tradition outside of formal classroom education. An example of Keller's model can be seen in sports and art forms such as swimming, martial arts, music levels, and dance, as they all require an individual to work to 100% before they allow for the next level of learning.

### **2.3.3 Goal setting through Keller's approach**

Keller's PSI approach to mastery learning lends itself to the idea of goal setting. Goal setting is an important part in a child's education through physical activity. Goal setting can be explained as the ability to be displeased with a problem, and being able to put in place a strategy to solve that problem (Ogbeiwi, 2018). In the area of mastery learning, specifically the PSI model of mastery learning, goal setting can help individuals to reach the next level of mastery as they will be able to pinpoint the problem they are having and then create a smaller goal which will allow them to work towards completing the mastery level step by step.

Incorporating the teaching of setting good goals in the teaching of mastery learning can prove beneficial for the long-term learning of the students as well as the immediate use of goal setting in mastery learning.

Locke (1967) stated that knowledge of results, paired with goal setting, led to a greater positive impact on the student's performance than those students who did not use their knowledge of results to set goals. In the case of the PSI approach to mastery learning, knowledge of results can easily be achieved, by whether or not the student was able to reach a mastery level. Locke also stated that goals set in and of themselves are not useful unless the learners believe that they are achievable, and therefore the goals can be met and adapted to make new goals. Goals need to be set in a way which is challenging and yet achievable for the learners to reach their maximum potential (Locke, 1967).

#### ***2.3.4 Mastery learning and the Transforming Play model***

Slade et al. (2019), through the Transforming Play model, aim to break mastery learning down and take the positive factors of improved skill execution and a positive learning environment to implement individualised goals through Keller's PSI approach to mastery learning. Mastery learning has proven effective in teaching game performance skills and fine motor skills, however, beyond that of skill execution, mastery learning leaves learners with little game knowledge and awareness.

Mastery learning isn't prominent through the whole of the Transforming Play model, however. The early stages of the model (Stages 1-4) focus on play and discovery learning prior to fully mastering the skills needed to excel in the sport or game that is being used as the

medium throughout the model. It isn't until stage 5.2 that the Slade et al. model implements mastery learning, and it is then only implemented if poor technique of the skills required in a game is clearly hindering the players fun, application of tactics, or the ability to make good decisions (Slade et al., 2019). Slade refers to this as 'mandate teaching', as the teacher observing will be given a mandate to include some skill repetition if they observe their class struggling to enjoy their games due to their lack of mastery (Slade, 2014).

The context in which players learn is of key importance in the Slade et al. model and is why mastery learning only takes place if players request it or from coach observation. Smith (2016) follows the same opinion that if drilling through direct instruction would improve the learning and enjoyment of the skill, then it should be used. Mastery learning should also not be implemented if the coach is simply observing minor biomechanical errors in players' skill execution (Kirk, 2016). Mastery Learning must only be employed on the basis that it will improve the overall enjoyment of the games that are being played, and should be a brief intervention that is followed by another attempt at the game the players were last playing (Slade et al., 2019).

Slade et al. (2019) outlines that an individualised mastery learning model that promotes cooperation and goal setting amongst the players is the type of intervention that should be used throughout the later stages of the Transforming Play model. Although successful implementation of such a mastery model does require a small amount of content knowledge, such a model also implicitly lends itself towards discovery learning (Slade et al., 2019). An example of such a model can be seen through these 4 levels of mastery set out by a teacher in a football unit. Level 1 requires 4 successful passes between a classmate from a certain

distance away, level 2 requires 6, level 3 requires 8 and level 4 requires 10. Each student would then be able to track their individualised mastery improvements. However it is implemented in such a way that encourages the students to go and practice outside of class time in order to reach level 4. The levels are also set out in such a way that the early levels (levels 1-2) might be achieved simply by accident with poor technique, however, to achieve the higher levels of learning the skill would have to be mastered.

## **2.4 THE SPORT EDUCATION MODEL**

Throughout the Slade et al. (2019) Transforming Play model, the authors drew on two models that were already being used extensively in a PE context, namely, mastery learning and Sport Education. The literature review in this section focuses on Sport Education. It makes a brief reference to a definition from the work of Metzler (2017). It then addresses the specific model for learning in PE, namely the Sport Education model (Grant, Sharp, & Siedentop, 1992; Siedentop, 2002; Hastie, 2012). This model has significant interest for physical educators in NZ as it was a context for a trial of the system that involved Grant, Sharp<sup>4</sup> and Siedentop (1992). It is also imperative to note that the Sport Education model was developed with the sole purpose of being used in a PE classroom while mastery learning has been used in a much broader sense. Comments of the place of Sport Education in the Slade et al. (2019) model will be made with reference to Casey and MacPhail (2018).

### **2.4.1 Models based learning in Physical Education**

Metzler (2017) outlines eleven advantages to using Models Based Practice (MBP) in PE. Metzler argues that a model provides coherent plans and themes and clarifies learning priorities. A MBP also has research support that lends itself to the unified theoretical framework of the approach. Metzler also contends that through valid assessment of learning MBP promotes specific standards and learning outcomes. Lastly, Metzler outlines that a model promotes the use of technical language for teachers as well as allowing for the teacher and the student to understand current and upcoming events.

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<sup>4</sup> Sharp was not an academic but a member of the Government body for sport in New Zealand, The Hillary Commission. This is now called Sport New Zealand

The Sport Education model is not especially new as several authors have promoted and critiqued the model (See Grant, Sharp, & Siedentop, 1992; Hastie, 2012). It has been used and adapted to fit a wide range of situations, being school physical education to sport coaching. The Sport Education Research Project, carried out in NZ and outlined in the Grant et al. (1992) document, applied the Sport Education model in 34 different schools, which included 2,368 students and 86 teachers and also covered 14 different sporting codes ranging from sports such as table tennis or aerobics to netball and basketball. This research project found that the students who gained the most from the model were the “less skilled and usually reluctant to be enthusiastic participants during physical education” (Grant, Sharp, & Siedentop, 1992, p. 22). Although all of the participants improved in certain aspects of sport, the model was used to improve the participation and learning of those students who were usually less likely to enjoy their physical education experiences.

In a related study, Hastie (2012) summarized the different areas in which students and teachers alike appreciate the Sport Education model. Hastie states that,

“For students, Sport Education is a more attractive form of physical education than their previous experiences, as they perceive there is a level of curriculum ownership, with roles and responsibilities as part of a persisting team. For teachers, the model is also seen as attractive, particularly as they see students with greater interest in the subject. Teachers also appreciate the release from a direct instructional role which allows for more individual attention to students and the ability to achieve other pedagogical tasks such as assessment” (Hastie, 2012, p. 3).

Siedentop's (1992) Sport Education model was created with the aim of providing students with as close to a sport like atmosphere in a PE classroom as possible. Sport Education provides students with the ability to create their own learning, and to lead the way in which they perform and practice (Siedentop, 1998). Siedentop stated that the Sport Education model was grounded in play theory, and that he has been largely influenced by TGfU (Siedentop, 2002).

The Sport Education model recreates a sporting environment through the use of seasons, affiliations, scheduled competitions, and festivities. Seasons are used as a way of laying out a timeline of events for students to follow throughout the unit and therefore allow for them to plan ahead to the build-up of the end of unit festivities. Students will be able to follow standard sport seasons and act out the time it takes to train and prepare themselves for a season of competition. Affiliations are used in order to create a real sporting team environment where participants are able to feel the bond a team creates throughout a season and the reliance they have on each other during that time. Members of the team will be given the opportunity to coach or manage a team and therefore also be affiliated to the team through their roles of responsibility. Competitions are used as a way to keep the students stimulated and striving towards the end goal, and is also a way in which the teacher can monitor the performance of the students and gauge whether or not they are making the most of the time you give them to train together.

Festivities are the final event of a Sport Education model and deserve as much build up as a real weekend long sport tournament does. The idea behind a festival is that all students can be motivated by the competition and the fact that their previous time spent practicing can

now be put to the test. It also allows for those with roles of responsibility to step up and take charge and for everyone to pitch in and learn sportsmanship and other behavioural characteristics one might only learn on the sports field.

#### ***2.4.2 Sport Education and the Transforming Play model***

Although Slade et al. (2019) does not use a full Sport Education unit throughout the Transforming Play model, the authors mention the Sport Education model when discussing the possibility for other model concepts to be used alongside the Transforming Play Model. Slade et al. (2019, p. 443) states that “Sport Education is especially useful in terms of teaching rules, fair play, and other associated activities such as video recorder, they have the potential to encourage a wider and more diverse number of young people into realising they can play, contribute, understand and enjoy games, sports and recreation”. This statement lends to the fact that the application of the Sport Education model alongside the Transforming Pay model would lead to a greater understanding of the rules and fair play associated with Ultimate Frisbee, as well as promote participation amongst a wider variety of young people.

Slade et al. (2019) also summarizes a paper by Casey and MacPhail (2018) that discusses MBP in the light of using multiple models to teach PE rather than recognising one model as the only way to teach games and PE. The Transforming Play model is presented in such a way that it is a “game and learner-centred flexible teaching model” (Slade et al. 2019, p. 435). This flexibility allows for the use of several different teaching models to be at the heart of the theoretical framework of the model. Slade’s reasoning for this was so that generalist teachers would potentially be more comfortable adopting the model in their teaching of games or PE in their classroom.



## **2.5 TEACHING GAMES FOR UNDERSTANDING**

Bunker and Thorpe's TGfU model and associated philosophy for teaching games is also acknowledged as having a profound influence on Slade et al.'s (2019) Transforming Play model. The following segments of the literature review will outline the history of TGFU, through the discussion of the original 1982 model as well as the revisions of the model that have occurred since 1982. A Game Based Approach (GBA) will then be described and applied to the use of TGFU in NZ. Finally, the application of the TGfU model in sports will then be discussed before comments are made regarding the relationship between TGfU and the Transforming Play model.

Bunker and Thorpe (1982) initiated the TGfU model through their journal article titled 'A model for the teaching of games in secondary schools'. The authors published another article in 1996 that outlined the evolution of the TGfU model over the previous decade. They noted that "there is more than one way to teach games, and it may not be necessary to separate skill development from game play" (Werner, Thorpe, & Bunker, 1996, p. 28). Bunker and Thorpe were not of the view that their model was the only correct model to teach games in PE, they were simply offering a model that gave a fresh new insight into games teaching; rather than the traditional method of highly structured lessons that were reliant on the teaching of skills and techniques.

Teaching Games for Understanding (TGfU) is the model of the game based learning approach that Bunker and Thorpe developed in 1982, which looks at learning skills and strategies in a similar way to game based learning (Morales-Belando, Calderon, & Arias-Estero, 2018). TGfU

has been the founding model of game-based learning and is the leading model used by many teachers in coalition with the NZ PE curriculum.

### **2.5.1. *History of TGfU***

Bunker and Thorpe (1982) termed their approach as an understanding approach to the teaching of games. The two authors, along with Peter Werner, reviewed the research done on their model in 1996 which provided information around how the model had evolved and was being used in the current day as well as reaffirming the importance of the model in education (Werner, Thorpe, & Bunker, 1996). The authors issue with the traditional approach to the teaching of games was that children will never learn how to play games because they will be disheartened after never mastering the skills their teachers deem necessary to progress to playing games. Bunker and Thorpe were worried that the majority of young people were leaving school without knowing much about games (Werner, Thorpe, & Bunker, 1996). Their TGfU model took on the philosophy that children will learn the necessary skills as a by-product of learning game tactics and appreciation. Figure 1 outlines Bunker and Thorpe's TGfU model. This model starts with the game, which contrasts the traditional model of teaching games that focuses on skill execution and performance first before teaching game appreciation and tactical awareness. Making appropriate decisions is a vital part of TGfU. Werner et al. (1996, p. 29) stated that "A student who recognizes the value of placing a shot deep in the court or dropping it short over the net will more likely be ready to take time to learn the techniques for a clear, lob, or a drop shot". The authors believed that once the players understand why they need to perform a skill, they will want to learn how to perform the skill and will ultimately lead to a higher level of performance.

Between 1982, when Bunker and Thorpe first released their model, and 1996, there has been a number of authors that have done research that promoted and supported utilising the TGfU model in PE (Doolittle, 1995; Turner & Martinek, 1995; Werner, 1989; Lawton, 1989). The number of supporting articles as well as research that presented questions about the model led to Bunker and Thorpe's further explanation of the model in 1996. Post 1996 led to more studies on the model, which solidified its usefulness in skill execution as well as game tactics (Turner & Martinek, 1999). There were also two 'revised' versions of the original TGfU model (Kirk & MacPhail, 2002; Holt, Streat, & Bengoechea, 2002) (Figure 3).

**Figure 3: The revised TGfU model (Kirk & MacPhail, 2002)**

Kirk and MacPhail's model was very similar to that of Bunker and Thorpe; however, they added an extra step to each of the six existing ones in order to further expand the model and provide helpful knowledge for a wider variety of people. The point of adding further steps aids people like motor behaviourists as they struggle to apply the steps of the original model. The revised version of the model includes steps for motor behaviour such as "Cue perception"

and “Technique selection” (Kirk & MacPhail, 2002). Another interpretation of the Bunker and Thorpe model was proposed Holt, Streat, and Bengoechea (2002). Their focus (Figure 4) for the model was on the modification of the games being played. The authors added principles of modification-representation, a modified version of a game that represents the game itself and modification-exaggeration, a modified version of a game that exaggerates the game itself to the original steps of the model.

**Figure 4. The expanded model (Holt, Streat, & Bengoechea, 2002)**

The authors thought it was important to elaborate on the game from the very beginning, and explain that each step needed to utilise modification in order to be effective. They believed that the full adult version of a game wasn't necessary, and in many cases wasn't possible, in order for students to learn appreciation for the game and tactical awareness. Although both of the models bring to light key factors of the model that may have needed expanding, Bunker and Thorpes original model is still the leading model utilised in PE today, and GCL is the most

preferred practice in elite level sport coaching (Calabria-Lopes, Greco, & Perez-Morales, 2019; Jarret & Light, 2019; Slade, 2011).

### ***2.5.2 A game-based approach in New Zealand Physical Education***

A Game Based Approach (GBA) to learning was first introduced to the NZ PE curriculum in 1987. This was the first of three PE curriculums in NZ that encouraged teachers to adopt some sort of a GBA in how they taught PE. The most recent Health and PE curriculum, in 2007, suggests topics that are centred on play, inventing games, and integrating concepts (Slade, Martin, & Watson, 2018). Although none of the curriculum documents mention the TGfU model, they encourage a method that is full of critical enquiry, and therefore a method that will most likely lead teachers to TGfU.

Since Rod Thorpe's visit to NZ in 1996, GCL and TGfU has accelerated through the teaching of secondary school teachers (Slade, Martin, & Watson, 2018). Thorpe was able to visit many teachers' colleges while he was in NZ and left an impression on the practitioners at those institutions. The experience of many staff was that it was the framework for their teaching that Thorpe was able to provide them that led to the growth of GCL, and the adoption of TGfU as the leading model in schools (Slade, Martin, & Watson, 2018).

### ***2.5.3 TGfU in sports***

Although TGfU is more commonly used in schools, there has been some research done regarding the use of TGfU and GBA in sports teams as a coaching philosophy. Cushion (2013), described applying a GBA to coaching as challenging to traditional coaching, and an approach

that requires a change to an already developed coaching practice. However the following authors explain the many ways in which TGfU is beneficial to a coaching practice.

Calabria-Lopes, Greco, and Perez-Morales (2019) discovered the usefulness of the TGfU model when researching its effectiveness in a basketball team. These authors carried out a 5-day intervention with 18, 9-12-year-old, novice basketball players. This intervention consisted of nine 2.5-hour long sessions that employed TGfU focussed tactics and strategy training in game-like scenarios. The authors found that not only did the individuals' skill execution in game-like scenarios improve by the end of the intervention, but their decision making and tactical awareness was greatly improved (Calabria-Lopes, Greco, & Perez-Morales, 2019).

This finding supports the earlier research of Harvey et al. (2010) who carried out a study using the Game Performance Assessment Instrument (GPAI). The GPAI was designed by Oslin et al. (1998) in order to evaluate an individuals' game performance behaviours that demonstrate tactical understanding and the ability to solve tactical problems (Harvey, Cushion, Wegis, & Massa-Gonzalez, 2010). Although this research was carried out on Soccer players as opposed to Basketball players, the outcomes were very similar. The authors found that the game based approach led to much faster results in the teaching of the game environment and game movement tactics and strategies (Harvey, Cushion, Wegis, & Massa-Gonzalez, 2010).

Many more studies exploring hockey and football came to the same conclusion; a TGfU approach to coaching leads to a greater game sense and tactical awareness among athletes, as well as an improvement in isolated skill performance (Nathan, 2015; Pizzaro, Dominguez, Serrano, Garcia-Gonzalez, & del Villar Alvarez, 2017).

#### **2.5.4 TGfU in Ultimate Frisbee**

This review of literature surrounding TGfU has been primarily focussed on how the model is used in the education system and how it can be used in team sports. The literature discussed thus far has led to the conclusion that TGfU is an effective teaching model and can be adapted to use in team sports (Kirk, 2016). The sport of Ultimate Frisbee is a team sport different to many others due to its sportsmanlike nature and the lack of equipment needed to practice. Due to the size of the field, which results in a low player density, it differs it from most other invasion games of that size, as it requires players to be adaptable about where on the field they play and what role they carry out, as it is a large field and a low number of teammates on the field at any given time. This requires strategies and tactics that needed to be adapted from other sports and is why Ultimate Frisbee is of interest. The following piece of research is significant as it explores TGfU in the setting of Ultimate Frisbee and was therefore of utmost importance to include in this literature review.

Zuffova and Zapletalova (2015) carried out TGfU research that was Ultimate Frisbee specific. It aimed to trial the efficiency of two teaching models on three different age groups. These two models included a traditional approach (technical approach or sport through technique) to teaching and the TGfU model (tactical approach) to teaching. The results of this study found that there was a positive difference in the results of the group that partook in the TGfU model intervention, but the difference was not big enough to be statistically significant. The authors concluded that the classes taught with a TGfU approach reached “partially better game performance” (Zuffova & Zapletalova, 2015, p. 64).

In referencing the study by Zufova and Zapletalova (2015) that found a technical or sport through technique and a TGfU approach to Ultimate produced broadly similar results the Slade (2019) model also includes individualized mastery learning and goal setting for the development of competence and physical literacy. This approach reflects the stated philosophy behind the Slade (2019) model. There is though one important difference in that the Slade model starts with game-centred learning and it is the observation that technique development is required that one employs technique rehearsal outside of the game context. Slade referred to this as mandate teaching (Slade, 2014).

#### ***2.5.5 TGfU in the Transforming Play model***

Slade et al. describes their Transforming Play model as one that “provides a pathway within a TGFU-based model” (Slade et al., 2019, p. 435). The Transforming Play model of instruction follows very similar principals of the TGfU model through the use of play and invented games. Bunker and Thorpe’s TGfU model of game-based learning fills the gaps that mastery learning creates, through the use of small-sided games and constraints. Slade et al.’s (2019) model allows for these characteristics to work together in such a way that maximises the performance outcomes of the students while also teaching them the necessary game sense that they will need to further themselves in future PE. Pair these characteristics with play and the Slade et al. Transforming Play model becomes a model in which all students will be able to learn new skills, build on those skills through mastery learning and goal setting, and be able to carry out those skills during fun, enjoyable games that they have created themselves.



## **2.6 CONSTRAINTS THEORY**

The constraints-led approach (CLA) to coaching in sport originated in 1986 with the work of Newell (1986). The theoretical framework of a CLA to coaching and teaching is key to understand as practitioners as the framework itself does not have one set of guidelines that will work for everyone. Many practitioners use constraints in their everyday coaching lives, however very few understand the theoretical framework behind why they're doing what they're doing. Practitioners must view themselves as "environmental architects" in order to fully grasp the theory behind the CLA to coaching (Renshaw, Davids, Newcombe, & Roberts, 2019). By doing this coaches and teachers will be able to fluently use a variety of constraints on the spot in order to further the learning of their athletes without having to plan for a variety of skill levels.

### ***2.6.1 The three categories of constraints***

The three categories of constraints that underpin the theoretical framework of the CLA are task, environment and individual. Task covers the area of restraint around the activity for the athletes. If a practitioner assigns a task that is far too easy then they will need to be able to add restraints to that task in order to promote further learning. For example, if a basketball player with the task of shooting 10 free throws was making 9/10 then a time restraint on the task may be added, such as to take each shot within 3 seconds. The ability to place restraints on activities in a fluid manner is an important skill for coaches to become familiar with as it will be the difference between losing the focus of a talented athlete and continuing to build their abilities.

Environmental constraints refers to the type of restraints that can only be influenced by the external factors that play a part in an individual's skill execution. These factors may include a persons' family, culture, social pressure, peers, available facilities, or coaching. Environmental factors can also include physical constraints such as temperature, altitude, lighting, weather, and gravity (Renshaw, Davids, Newcombe, & Roberts, 2019). Although some of these environmental factors may be out of a coach's control, it is important for them to understand what factors are influencing their athlete's performance, and what control they can have on the environmental factors surrounding their athlete in order to further their abilities.

The final category of constraints that underpin the theoretical framework of a CLA is individual. Many of the individual constraints on an athlete cannot be directly influenced by their coach, however the coach can play a role in the athlete shaping their own individual constraints. These constraints include factors such as: skills, mental attributes, goals, motivation levels, physical restraints, genes, and previous experience. It is the coach's responsibility to monitor what drives the athlete to succeed and work to their motivations and physical abilities. By doing so the coach will create the best possible learning environment for the athlete, which will give them the best possible chance to further themselves.

These three categories of constraints: task, environment, and individual; are key factors in how a coach applies a CLA to their teaching structures. By constantly considering how these constraints can be used in order to help a coaches' athletes reach their goals, and the coaches goals for them, it will produce a coaching technique that not only meets the individual athletes, but provides an environment for the whole team to be constantly challenged by a wide range of constraints that are constantly being changed and adapted to further their

skills. Coaches of all ages and levels should view themselves as “learning designers” in order to really grasp the role that they play in providing their athletes with individually catered learning opportunities (Renshaw, Davids, Newcombe, & Roberts, 2019).

### ***2.6.2 Constraints theory and the Transforming Play model***

Constraints theory is an important concept to grasp when examining Slade et al. (2019) model of Transforming Play, as the theoretical framework of putting constraints on a game in order to further the learning outcomes of the participants is crucial in the model. The Slade et al. model provides students with the opportunity to create their own small-sided game. To begin with the constraints are very few, giving the participants freedom to use their creativity. As time goes by and games begin to form, constraints get added to these games in order to make them more specific to the topic the teacher is aiming to teach. This process allows for the students to remain creative and produce a game, however it also allows for the teacher to effectively use constraints in order to produce the learning outcomes that they intended.

## **2.7 CHAPTER SUMMARY**

This literature review sets out relevant literature related to the Slade et al. (2019) Transforming Play model. In doing so, reference was made to play, Mastery Learning, the Sport Education model, and there within models-based learning, TGfU, and constraints theory. Each model or theory is of either intellectual, methodological, or historical relevance to the Transforming Play model and that is why each section concluded with an outline of where it shines through in the model.

The literature outlined in this chapter is of key importance in understanding the upcoming chapters, especially when paired with creative practice research. In the following chapter, the methodology, creative practice as a research methodology will be described based on the work of Skains (2018).

### **3. METHODOLOGY**

#### **3.1 CHAPTER OVERVIEW**

This chapter provides a discussion of the conceptual framework of all aspects of the methodology. Firstly, the theoretical framework of creative practice research will be explored, followed by a more specific look at aspects of creative practice, namely practice and research, practice as research, practice led research and practice-based research. Auto-ethnography and social constructivism will then be defined and explained in relation to creative practice research. Finally, the process of the methods taken in order to lead to the findings of this thesis will be explained in detail, with the support of a creative analytical process (CAP).

## **3.2 THEORETICAL FRAMEWORK**

Part of the original intent of this thesis included developing a lesson sequence that both reflected the Transforming Play model while providing generalist teachers with plans they could apply to their classroom. This lesson sequence is now the key component of this thesis as the methodology adopts the theoretical framework of creative practice research. In the case of this thesis, the methodology is based on the work of Skains (2018); practitioner-based research (PBR) and creative practice in research. The construct of creative practice research is that the researcher is “observing and analysing themselves as they engage in the act of creation, rather than relying solely on dissection of the art after the fact” (Skains, 2018, p. 84). This allows for the researcher to not only produce something creative but also something critical. This critical piece of self-reflection is what validates the creative piece of work and both should always be presented together.

There will be two outcomes to this research having followed the methodology of creative practice. Firstly, there is the lesson sequence that will allow generalist teachers to implement the Slade et al. (2019) model of Transforming Play in their classrooms. Secondly there will be the reflective analysis of the creative process that was taken to create such a resource, which would provide a model for teachers to follow should they desire to create their own programmes.

### ***3.2.1 Practice and research, practice as research, practice led research and practice-based research***

Skains (2018) outlines four categories of creative practice research. These being practice and research, practice as research, practice led research and practice-based research. This section

will briefly define each category, as well as more clearly define practice-based research, as it is the category that best fits this thesis.

Practice and research and practice as research can be defined together as their differences are relatively minor. Practice and research refers to research in which a person's creative artefact and their critical exegesis are considered separate pieces of research (i.e. an artist who paints a painting and later critically examines that painting) while practice as research refers to research in which the creative artefact is considered as the whole embodiment of the new knowledge, for example, a musician who creates a musical piece (Skains, 2018).

Practice led research focusses on the development of a creative artefact leading to new knowledge, however the final created artefact may not always accompany the critical exegesis when the research is communicated. It is crucial to note that in this research the aim is on the method used in the development of the end product and not the product itself.

Practice based research, the method that best describes this thesis, has a focus on both the created artefact and the critical exegesis that accompanies it. This methodology cannot operate with either one or the other as both must be presented side by side in order to gain a full understanding of the research process. This methodology allows for the researcher (and future readers) to fully understand the creative artefact by examining the process that was used to construct the end product. This requires that the researcher document the whole process that went into the creation of the artefact during the process and not after, as this can lead to adaptations in the metacognitive process of the researcher and eventually changes in the creative artefact.

### **3.2.2 Auto-ethnography**

Auto-ethnography refers to reflective analysis and is a method of qualitative research. Although this piece of creative practice research does not follow the exact methodology of reflective analysis, self-reflection does play a large role in creative practice research and therefore mention must be made of self-reflection as a research methodology.

Skains (2018) discusses the usefulness of auto-ethnography alongside creative practice research. He urges researchers to apply self-reflection to their pieces of research, however, he also suggests that such reflection be done in the form of a research log carried out during the research period and not after. Skains argues that self-reflection is best carried out during the composition of the research, as it erases any bias that may develop as a result of reflecting after the research has been carried out and evaluated. There are also ways in which auto-ethnography can be used post research, but triangulated with data taken throughout the research that makes the reflective process more credible. Martin et al. (2019) outlines a three-stage process to self-reflection that generates a transparent piece of self-reflection. Although all three of these stages: life-story biography, evocative auto-ethnography and analytical auto-ethnography, have not been used extensively in this piece of creative practice research, the second and third stage, evocative and analytical auto-ethnography are important to understand as they relate to the type of self-reflection that Skains (2018) discusses is important to pair with creative practice.

### **3.2.3 Social constructivism**

Evocative auto-ethnography is embedded within the concept of social constructivism. Social constructivism is a means to explain people's ideas and actions through the notion that they



act as they do due to their prior experiences (Furman, Jackson, Downey, & Shears, 2003). Social constructivists believe that an individual's reality is constructed through their individual biological predispositions, personality tendencies, family history, and life experiences rather than the way society and culture may construct an individual. This notion is important in understanding the methodology as the design of the creative artefact has been created through learned perspectives and past experiences. This means that the critical self-reflection process that is crucial in presenting the created artefact may include feelings and emotions that are important in understanding the story-telling process of auto-ethnography (Martin, et al., 2019).

During the analytical auto-ethnography stage of this research, the focus is on creating plausibility through the triangulation of data (Martin, Slade, & Jacoby, 2019; Slade, Martin, & Watson, 2020). In this thesis this is achieved through triangulation of the data between the creative artefact, the literature explored and the critical exegesis that accompanies the artefact.

### **3.3 METHODS**

According to Skains (2018), creative practice as research requires a two-step process. These two steps make up the methods for this thesis and will be the topic of discussion in the coming sections. These two methods are the development of a creative artefact and the support of a critical exegesis of the artefact. In the case of this thesis the creative artefact includes the lesson sequence that has been designed using the theoretical framework from the Slade et al. (2019) Transforming Play model. The critical exegesis of the lesson sequence can be found throughout the findings section of the thesis as each lesson plan is evaluated and referred back to the theoretical framework of the Transforming Play model.

#### **3.3.1 *Creative Analytical Process (CAP)***

Part of the critical exegesis of the finalised artefact presents itself in the form of a creative analytical process (CAP). In the case of this thesis a CAP consists of a research log that describes the thought process that went into the creation of the lesson plans. This CAP also presents an ontology of self (Howe, 2003), which allows the researcher to explore the research question on a personal level. The CAP also makes up much of the epistemology of the researcher. Understanding the epistemology that made up this methodology will give the reader a greater understanding of the conclusions of this research and a greater ability to replicate it themselves. The CAP will be summarized below in order to build an understanding of the process before moving onto the findings section of this thesis.

The creation of the lesson sequence that followed the theoretical underpinnings of the Slade et al. (2019) Transforming Play model was a process that spanned many months. Each lesson was constructed following the steps that the Transforming Play model presented using

Ultimate Frisbee as the medium. The first step taken was to understand the process of creative practice as research (Skains, 2018). This required the identification of gaps within the research and framing a question that would provide the new knowledge that would fill those gaps. Based on this work was the requirement to identify and become familiar with the relevant literature.

The next step was the design of the creative project itself that followed the structure of the Slade et al. (2019) Transforming Play model to provide an answer to the research question. This process took the format of drafting lesson plans that were to be used as the creative artifact. These were subject to the reflective process and hence resulted in adaptations and revisions in order that they would, as the creative artifact, reflect the structure of the Slade et al (2019) Transforming Play model.

Upon the completion of the creative artifact, I then moved on to the second part of the research process, where I began to form my findings and discussion. This included a justification of each lesson with reference to where the lesson fits in with the Transforming Play model. This justification can be found in the findings, as each lesson has been evaluated and referred back to the model. The creative artifact and the model were then discussed in relation to the relevant literature and final conclusions were made that referred back to the research question and the process taken to make the necessary conclusions. Finally, comments regarding the use of this research in relation to future research were made.

### **3.4 CHAPTER SUMMARY**

This section has outlined the methodology that was undertaken, based on the work of Skains (2018). Creative practice as research was the methodology used in this research and has been the focus of the chapter. Accompanying an outline of creative practice was descriptions of auto-ethnography and social constructivism as well as an overview of the CAP used in this thesis. All these features of the methodology are crucial in understanding the findings of this research presented in the following chapter.

The following chapter, the Findings, provides an overview of how creative practice as research was used to create a creative artefact. This methodology and the findings combined, present a lesson sequence that provides generalist teachers with a practical sequence to follow, as well as an analysis of the process that was undertaken in creating of the lessons. This process enables teachers to gain a greater understanding and should aid in the creation of their own lesson plans.

## **4. FINDINGS**

### **4.1 CHAPTER OVERVIEW**

This chapter presents the findings from the aforementioned research methodological process, namely, creative research as practice. The final product consists of ten lesson plans that are each designed to follow the flow of the Slade et al. (2019) Transforming Play model. Each lesson plan has been explained in detail as well as evaluated in order to further expand on the creative process that went into the creation of this product. Skains (2018) makes particular mention of a creative research log in the development of the creative artefact, in this instance the lesson plans. This process would have been of vital importance in the creative process had I been in a position to teach the programme that was obviously cut short by the Covid experience. It would have through reflection required me to undertake further research to ensure the development of the artefact was appropriate and that I was perhaps adapting aspects of my delivery to best capture the learning needs of those I was teaching while also using my work as a template for the examination of the Slade (date) model. However, this was not to be and consequently the critical ethnographic component of this work was confined to my detailing the creative thought processes that I employed in developing my lessons and how I envisaged them, theoretically, being interpreted and taught.

The evaluation of the lesson plans describes where the lesson fits with the Transforming Play model and acts as the justification for each lesson. It is important to note at this stage that the Transforming Play model has an emphasis on being able to be flexible in game instruction, which means that although this lesson sequence has been set out in a logical way that follows the model, there is room for teachers to move lessons around if they

observe that more time needs to be spent on the creation of games or on mastery of technique.

This lesson sequence has taken each key topic from the Transforming Play model, namely play, mastery learning, sport education and TGfU, and broken them into 12 subtopics to aid in the flow of this thesis. These findings present each lesson as it relates to each stage of the model. It accomplishes this by relating each stage to the topics previously mentioned and then presenting them as 12 key themes. The first of these key themes is a prerequisite to employing the lesson sequence, (1) building familiarity with the game. Play, mastery learning and sport education each have three key themes; namely (2) cooperative learning, (3) playing modified games, and (4) questioning; (5) assessment, (6) individualised mastery learning, and (7) repetition; and (8) team identification, (9) game analysis, and (10) tournament play. TGfU has two key themes: (11) skill application and (12) decision-making.

## 4.2 LESSON PLANS

### Build familiarity with the game

Prior to implementing these lessons it is recommended that a teacher builds some familiarity with the sport of Ultimate (theme 1). This is achievable through observing some Ultimate being played in your region, or through watching some online. Links to YouTube sources have been included, as well as a brief summary of the rules of Ultimate (See Appendix 3). This is not intended to make the generalist teacher an expert in the sport, it is to aid in the initial periods of the lesson sequence when the teacher should be observing the students play and applying constraints in order to subtly direct the games towards Ultimate.

In this section, each of the ten lesson plans is presented in two parts; *interpreting the model (the creative process)* and *self-reflective practice*. The other key themes are highlighted alongside each detailed lesson plan.

#### 4.2.1 Lesson Plan #1: Introduction to Transforming Play and democratic learning; Stage 1

*Interpreting the model: The creative process*

##### Cooperative learning

Stage 1 is a crucial start to the Slade et al. (2019) model as it sets the scene for the cooperative learning environment that the rest of the model follows. Without the students having an understanding of the importance of cooperative play rather than the egocentric stage of play that all children pass at some point in their lives (Payne & Issacs, 2002), the students won't be able to effectively complete the coming stages of the model. During this stage it is important for discussions to be had regarding the manners needed throughout the model, and what examples of cooperative discussion might look like during the creation of games.

## *Self-reflective practice*

### **Questioning**

Throughout this lesson questioning is the key tool to use as a teacher. As the students are discussing their games the teacher's role is to be listening for opportunities to join the discussion and question the students around who was making the decisions and why the decisions were being made in such a way. It is also important to be singling out good examples of cooperative learning if you notice a pair or a group where everyone is sharing ideas and their ideas are being respected.

### **Decision making**

The warm up truck and trailer game was used as it promotes students' decision making skills. It requires the thrower to decide when to throw the ball in the short time period of the receiver turning around. It also aids in pair communication, as they must be calling each other's names and trusting their partner to be throwing where they want the ball to go.

### **Playing modified games**

Playing modified games is a crucial key theme throughout all these lesson plans within the Transforming Play model. Note, this is more than just playing games. This is directed learning through games i.e., game centred learning. It provides a constructivist learning context that students and the teacher would be familiar with from classroom lessons. By providing the equipment to play with, the teacher is able, through having become a little bit familiar with the 'end-game' Ultimate Frisbee, to subtly manipulate the play environment. For example, including a Frisbee as a possible choice of equipment. Similarly balls easily thrown and caught or even bean-bags will encourage play that could be related to Ultimate Frisbee in later



lessons. The 'art' of knowing the class and when to stop a particular episode of play before introducing other constraints is something that cannot be written in a lesson plan. It is the art of the teacher to know when that change is appropriate.

[illegible]

#### **4.2.2 Lesson Plan #2: Introduction to Transforming Play; Stage 2 & 3**

*Interpreting the model: The creative process*

##### **Playing modified games**

This lesson outline reflects what is needed to carry out stage 2 of the Transforming Play model. During stage 2 of the model students are required to design their own game with very little constraints or rules. The teacher during this stage of the model is only required to understand basic game categories and constraints that pair with those categories. For example, some basic constraints with invasion-based games might be having different teams, the need to attack and defend playing areas, the need for boundaries and rules, and making the game scoreable so there is a way to decide a winner. Using these basic constraints any game the students come up with falls into the invasion category. Stage 3 of the model is brought in as the groups build into groups of 8 and further constraints are added. These constraints are still broad and not too sport specific in order to build the students understanding of basic invasion game sense.

##### **Cooperative learning**

During this stage of the model students will put into practice their democratic/cooperative learning protocols that they learnt in the first lesson as well as learning essential movement patterns needed as the model progresses.

*Self-reflective practice*

##### **Questioning**

Although warm up games have been described in detail during this lesson plan, it is not essential that these games be used when carrying out this lesson. These games were chosen

as they aid in the 'play' component of the Transforming Play model and because they also help to develop the fundamental game skills required to play Ultimate. Having these warm up games explained in detail also makes this resource more practical for generalist teachers to use as it subtracts the need to develop their own warm up activities which may prove difficult for generalist teachers. The questioning aspect of the warm up games is also a very important component of the model as it adds to the learning of the students through encouraging them to examine their own decision making. Example questions were included to point the teacher in the right direction in terms of the wording of questions and how to ask effective questions without supplying the students with the answer. Throughout this lesson the goal of the teacher is to get a group to create a game as close to the final version of Ultimate Frisbee as possible, through the use of question as opposed to direct instruction. Simply encourage their thought pattern and help them to develop it further rather than telling them what to do. Having the students generate their own ideas is essential in order for them to build an understanding of how games work.

### **Decision making**

The warm up game hide and find was chosen as it has a large decision making component attached with it. The students must decide in a very short amount of time where they will throw the ball based on the movements of their partner. The decision must be made even faster when a defender is added. The person receiving the ball must also decide which way to move based on the positioning of the person defending them.

<b>Learning intentions:</b> Decision making Cooperative learning Playing modified games Questioning	<b>Lesson Equipment:</b> Hoops Balls Frisbees Cones	<b>Personal Equipment:</b> Whistle Clipboard Roll
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<b>Instructional Sequence:</b> Bring them in and do the roll, ask for some hands up regarding what the key things were that was covered last time, and what they're most excited for today.  <b>Decision making:</b> Warm up #1: Hide & Find. Players must line up across from each other at a close distance. One player in the pair starts with the ball. The other player is required to try and fake going one way before going the other and receiving the pass. Have this continue until everyone seems to understand the idea of tricking a 'defender'. Increase the pairs to three's and have a player stand in front of the receiving player. This player isn't required to play hard defence, they are just to get an idea of getting away from a player that's marking. If this is too easy, the player can then play some defence. Keep the playing area small.  <b>Cooperative learning:</b> Transforming play session continued: Have everyone get back into the fours they were in the previous session. They may then continue creating and playing their game for 5-10 minutes. During this time walk around the class and listen for good examples of democratic learning and make sure their games are progressing as well as fit the criteria.  <b>Playing modified games:</b> Bring them in and merge their groups so that you have final groups of 8. These groups will make the final teams for the tournament session so record these if need be. Give them the task of creating a game together, however, make sure the game is an invasion game that covers tactics that we already used in our warm-up games so far. Let them go and create with any equipment they need.  <b>Questioning:</b> Bring them in and ask a few groups to describe their games they came up with. Discuss more about the democratic learning environment and make sure each group has a good understanding of what that looks like.	<b>Questions to ask:</b>  When in their groups of 8 get them to go through a checklist: -Is your game an invasion game -Is your game fair, what are the rules? -Can both teams score? How? -Is your game continuous? -Is your game cooperative? Does it need a whole team or can 1 player score?  What could be added to make the game more like ultimate Frisbee?
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### **4.2.3 Lesson Plan #3: Determining the level of the learners**

*Interpreting the model: The creative process*

#### **Build familiarity with the game**

Although the Slade et al. (2019) Transforming Play model starts with determining the appropriate pathway for the learners, the sport of Ultimate Frisbee is a sport that many students would not have had much prior experience with. Therefore, the need to familiarise them with the game prior to introducing them to a Frisbee would benefit the flow of the upcoming lessons as well as aid the teacher in determining the best way to implement the lessons. This session provides them with the information they need to determine the rate and order that they implement the following lessons, and how much emphasis will be put on the mastery of throwing techniques.

*Self-reflective practice*

#### **Assessment**

This session aims to provide the teacher with an understanding of the classes throwing ability. Having a Frisbee golf course provides a fun and new learning environment that doubles as a performance test. The crucial element to this lesson is making the golf course achievable in the time frame but also presents challenges to the students that will allow them to consider different ways of throwing the Frisbee. For instance, placing the hoop in between some close trees or right around a corner of a building will mean that the students may have to consider how they might curve the Frisbee when they throw it. This will also aid in establishing the mastery standards later in the lesson plan.

## Repetition

Providing a short enough course that can be completed twice in a lesson means that the students can set some individualised goals based off the difference in their score with a tennis ball and their score with a Frisbee. The issue here may manifest in the lack of knowledge about the model. If the teacher observes that everyone in their class scored perfect scores and can throw a Frisbee very well and yet still implements a full mastery lesson where the technique is explained then the flexibility of the model has been overlooked. However, the justification of these lesson plans in relation to the model provides ample opportunity for teachers to understand it fully and be able to implement these lessons as they see fit.

<b>Learning intentions:</b> Assessment Repetition	<b>Lesson Equipment:</b> Frisbees Tennis balls Hoops Cones Maps Scoresheets	<b>Personal Equipment:</b> Whistle Clipboard
<b>Instructional Sequence:</b> Bring all the students in and complete the roll.  <b>Assessment:</b> Let them know they will be playing throw golf for this lesson. Pair them up and give each pair a score sheet as well as some tennis balls and a map of the course. Depending on the age of the students and their understanding of the school grounds and rules, you may need to lead them around the course to make sure they know where the holes are.  Start them off at varying holes so they don't have to wait for one another. Wander around encouraging students and bringing up any teaching points where necessary.  <b>Repetition:</b> As teams finish swap their tennis balls with Frisbees and get them to repeat the course.  Once they have all completed the course using both the tennis balls and the Frisbees, collect in their named score cards and have a discussion around how they found the course. Make sure the scores are recorded and each student is aware of the difference between their tennis ball score and Frisbee score.		<b>Questions to ask:</b>          What holes did they struggle with most, how much previous experience with a Frisbee have they had? (This gives you an idea of some students to keep an eye on to help others cooperatively with the mastery of technique)

#### **4.2.4 Lesson Plan #4: Transforming Play; Stage 5.2**

*Interpreting the model: The creative process*

##### **Repetition**

This is an important session as it builds the starting blocks for the throwing skill required to perform Ultimate Frisbee. This session reflects stage 5.2 of the Transforming Play model. The reason for skipping ahead and completing stage 5.2 prior to stages 5 and 5.1 is due to the difficulty and unfamiliarity with the skill of throwing a Frisbee. As very few students would have been taught how to correctly throw a Frisbee before, it is necessary for this stage to come earlier and give the students more time to master the skill. However, if the teacher observes that the class has excelled in picking up the skill during one of the previous warm-ups, then this session may simply be swapped with the next session and come later in the lesson sequence.

##### **Individualised mastery learning**

Stage 5.2 covers the mastery learning aspect of the Transforming Play model. Up to this point in the model the games, and their tactics and techniques, have been led by the students, and that is why mastery learning does not need to happen until this stage. This mastery learning is best implemented as an individualised mastery learning programme as this will give the students the opportunity to practice the techniques and develop their skills at their own pace. An example of an individualised mastery learning programme has been included (Appendix 1). This programme also includes a sequence for teaching the backhand technique that can be applied in an enthusiastic and fun way in order for the students to get creative with the practicing of their technique.

### *Self-reflective practice*

#### **Individualised mastery learning**

Adding an individualised mastery learning programme will help the class to be able to enjoy the upcoming lessons. This programme also helps the teacher to be able to integrate this lesson sequence within their classroom. Printing out the programme from Appendix 1 and placing it in the class means that the students are constantly reminded to practice, and it can become a competition amongst peers to reach level 4 first. Another idea to promote self-directed learning would be to set up measurements on a court or a field where students can go and practice during breaks. This means that when they have time in their PE lesson to have their levels signed off, they would have had the opportunity to practice outside of this time.

The mastery levels only cover a basic backhand throw as it is the most common throw in Ultimate and with a basic understanding of this throw, students will be able to implement it in their Frisbee games they will partake in later in the lesson sequence. The mastery template also mentions the term 'catchable pass' which simply allows the pass to be dropped by the receiver. If the receiver was still able to attempt to catch the pass, then the level can be completed. The distances of 5m, 15m, and 20m were chosen in order to allow for 1-2 levels that should be able to be completed easily, as well as the later levels that will only be able to be completed with some mastery of the technique. Having a width of 5m for the test area means that although the throw doesn't have to be caught cleanly, it still must be thrown within a constrained area.

The issue that may arise here is a lack of understanding of the proper technique. In order to overcome this issue and make teaching backhand throwing technique as easy as possible,



resources have been provided that break down the technique. These videos may either be used in the classroom to show to the students, or be watched by the teacher in order to then transfer that knowledge to the students (See Appendix 2). Allowing them to play their games using a Frisbee at the end of the lesson provides them with an opportunity to transfer their newfound knowledge and practice in a sport specific scenario.

<b>Learning intentions:</b> Assessment Repetition Individualised mastery learning	<b>Lesson Equipment:</b> Frisbees Cones	<b>Personal Equipment:</b> Whistle Clipboard Roll
<b>Instructional Sequence:</b> Bring them in and do the roll, ask for some hands up regarding what the key things were we covered last time, and what they're most excited for today.  Warm up #1: Truck and trailer with a Frisbee.  <b>Assessment:</b> Sit everyone down and discuss Mastery learning. Introduce the idea that so far no one has learnt the skill and so they're just going off what they think is right whereas mastery learning will teach them the right technique to carry out the skill. Show them the poster and demonstrate all 4 levels of mastery for them.  <b>Repetition:</b> Move on to working on the basic levels of the mastery. Demonstrate the technique (See Appendix 2) and then get everyone partnered up and lined up across from each other close. Have them pass the Frisbee to each other from a very close range and simply work on the technique.  Play one of the games the students came up with that requires a level of competency with the throwing skill. You may need to replace a ball with a Frisbee in one of the games if a group had not already done so.  <b>Individualised mastery learning</b> For the last 5 minutes have them all perform, or practice, level one (See Appendix 1).		<b>Questions to ask:</b>  Ask if the truck and trailer warm-up was easier or harder with a Frisbee. Why might have it been harder?  This is a good teaching moment to introduce the right technique and skill, if you observed a student performing the technique well during the warm-up, then let them demonstrate while you talk them through it.

#### **4.2.5 Lesson Plan #5: Transforming Play; Stages 3 & 4**

*Interpreting the model: The creative process*

##### **Playing modified games**

This lesson plan reflects stage 3 of the Transforming Play model. Stage 3 develops the games created in stage 2 further through some teacher-enabled, player-developed constraints. These are introduced during timeouts where discussion is taken place. This discussion should cover what went well in their games, what changes might increase everyone's engagement and to make sure everyone is enjoying the games. Although this discussion is led by the teacher, it is their responsibility to ask the basic questions in a suggestive manner rather than telling the students what they should be doing. These questions that result in adjustments to the rules and shape of the games are referred to as 'enabling constraints' (Butler & Robson, 2013). These constraints might be in relation to the rules of play, safety, ways to make the game more dynamic, faster, more inclusive or more challenging tactically. There should be no time or session limit on enabling constraints as it is crucial for the students to understand how games work and therefore improve their tactical knowledge. Stage 4 of the model shines towards the end of the lesson as more sport specific constraints are put into place which means the games will be becoming more and more like Ultimate.

*Self-reflective practice*

##### **Skill application**

Much like lesson #2, the aim of this lesson is to encourage students to generate their own ideas and understanding of invasion games. The difference in this lesson comes in the second half where more sport specific constraints are implemented. Using the example of Ultimate Frisbee as the case study, this stage might look like swapping a ball for a Frisbee in an invasion

game. This makes the game much more sport-specific while keeping the original design of the game the students came up with. The rules that have been given to provide a resource for the teacher to gain an understanding of the sport are simply there as a guideline (See Appendix 3). It is important to note here that they may not all need to be implemented in the class's final version of Ultimate. There are certain rules such as the stall count that the teacher may choose to leave out if they have observed the class struggle under pressure.

<b>Learning intentions:</b> Decision making Playing modified games Skill application	<b>Lesson Equipment:</b> Hoops Balls Frisbees Cones	<b>Personal Equipment:</b> Whistle Clipboard Roll
<b>Instructional Sequence:</b>  Bring them in and do the roll, ask for some hands up regarding what the key things were we covered last time, and what they're most excited for today.  <b>Decision making:</b> Warm up #1: The Great Escape (See Appendix 5) Taggers have 30 seconds to tag as many evaders as possible, evaders must stand off to the side-line once they are tagged. This will encourage movement and evasion tactics. Play for 5-10mins, changing around taggers regularly, before bringing them in. Add a variation after a few minutes (Make the playing area smaller so that tactics must change)  <b>Playing modified games:</b> Gather the students back into their groups of eight that they ended the previous session in. Encourage them to finalise their games they were creating last time and make sure they have considered all the constraints on this checklist. Do this for 5 or so minutes depending on how much time they had during the previous session.  <b>Skill application:</b> Play one of their games that most closely resembles Frisbee. Make sure the game is played with a Frisbee in order for their mastery to be applied.  Bring them back in and task them with editing their game with a few more constraints in order to make them more Frisbee specific. This may include simply swapping a ball for a Frisbee or making the scoring zone more like an end zone in Frisbee. Some basic rules of Frisbee has been included for the teacher to determine what a game of Frisbee might look like (See Appendix 3).		<b>Questions to ask:</b>  When in their groups of 8 get them to go through a checklist: -Is your game an invasion game -Is your game fair, what are the rules? -Can both teams score? How? -Is your game continuous? -Is your game cooperative? Does it need a whole team or can 1 player score?  What made these games more difficult? What was the most effective way to score? What was the most effective way to stop them from scoring?

#### **4.2.6 Lesson Plan #6: Transforming Play; Stages 4 & 5**

##### *Interpreting the model: The creative process*

This session continues stage 4 of the Transforming Play model. Throughout stage 4 more enabling constraints are required from the teacher. These constraints should aim to turn the students' player-invented games into more sport-specific games. This might be through the constraining of equipment or the playing area. It is important that this is also done through the use of suggestive questions to the students and not simply by giving them a new set of rules. Stage 5 can also be observed during this lesson as they play a small-sided game which provides them with a more tactical approach. This is then implemented further as they take the tactics they just learnt and put them into practice in their own created small-sided games.

##### *Self-reflective practice*

#### **Repetition**

The purpose of the Hide and Find warmup was to employ certain key aspects of Frisbee through some fun warm-up games. What separates this warm-up from the previous lesson is that the ball will be swapped out for a Frisbee which will make it much more sport specific but also much more challenging for the students. Adding in time for mastery practice also allows for the teacher to provide encouragement and further aid in individual's technique, as well as provides an opportunity for students that are excelling to help others cooperatively with their mastery levels.

#### **Team identification**

It is also important during this session to remind the students of the need for a cooperative learning environment as they continue to work in their groups of 8 as these will be the final

teams for the upcoming tournament and therefore each and every member of those teams needs to feel as though they are contributing and their opinions are being respected.

### **Decision making**

Zone defence was chosen as a good small-sided game option as there is a need for players to defend a lot of space in Ultimate Frisbee and therefore a zone defence is often a viable strategy. Zone defence is also often a strategy students don't learn until later in their secondary schooling and therefore benefits all of them as a new and unfamiliar skill. The purpose of playing one of the student-created games at the end is for them to be able to put the zone defence into practice in a sport specific and familiar environment.

Implementing TGfU based games, such as zone defence, raises the conundrum of whether or not generalist teachers will be able to implement such a lesson sequence. If a teacher has no understanding of what zone defence is or how it should be played, then their ability to teach it to their students will be very limited. For this reason, resources such as diagrams and rules of the game as well as references to Slade's (2010) book '*Transforming Play*' where further information can be found on such concepts.



#### **4.2.7 Lesson Plan #7: Sport Education**

*Interpreting the model: The creative process*

##### **Team Identification**

This lesson plan is an addition to the Transforming Play model that Slade suggests should be considered alongside the model. This lesson focuses on aspects of Sport Education through the use of video techniques and team identification. The aim of this lesson is to encourage the students to build a positive team environment and to be given a task that will challenge their cooperative skills, as they all have to decide on aspects of the video as a team. This lesson has the potential to encourage the members of the class that may not have participated as much as others to step up and contribute to their teams learning.

*Self-reflective practice*

##### **Repetition**

The purpose of the mastery levels being performed in the warm up was for the same reason as the previous lesson. Not only are they given time to practice and a reminder of its importance, but students are also being encouraged to cooperatively work with others and give them tips on their technique.

##### **Team identification**

This lesson has a large emphasis on team identification. One of the specifications for the video is that each member be named as well as the role they will be playing in the team. These roles could be things such as coach, captain, scorer, statistician, player, water boy/girl or anything else the students may come up with. This means that everyone in the team will have an understanding of their role and feel strongly connected with their team.

## Game analysis

This lesson provides the students with the opportunity to be creative and produce something their whole team has contributed to. Having one of the specifications for the video being a tactic they will be playing means that the team has to all be aware of a tactic and be able to replicate it for the video. This is a good way to analyse their game and put their learning into practice. The teacher's job during this lesson is to be encouraging each team and individual to be participating to the best of their ability, offering advice where necessary, and making sure the teams are staying on task with their use of electronics.

Make sure that before they leave this lesson they are all aware of what they will be wearing (their team colours), who is in their team, and the rules of the game they will be playing (this is important to introduce prior to the start of the tournament as it may take some time to explain or demonstrate and during the tournament you won't have that time).

<b>Learning intentions:</b> Repetition Team identification Game analysis	<b>Lesson Equipment:</b> Frisbees Cones Videoing devices	<b>Personal Equipment:</b> Whistle Clipboard Roll
<b>Instructional Sequence:</b> <b>Repetition:</b> Warm up: Encourage students to practice their mastery levels. This gives you time to sign off some of the higher levels and help any students in need. If you notice some students have finished, then encourage them to cooperatively help other students with their mastery levels.  <b>Team identification &amp; Game analysis:</b> Have the students get back into their teams of 8 that they have been in for the previous lessons. Their task during this lesson is to create a video that introduces their team and shows off some of their skill. The video must include the team name, the name and role of each member in the team, and some footage of their game play and tactics they like to use. The videos should be about 2 minutes long.  At the end of the lesson the class gets to watch each of the team's videos. You can then outline to them the structure for the tournament and make sure each team has a different colour or you will need to provide them with bibs.		<b>Questions to ask:</b>



#### **4.2.8 Lesson Plan #8: Final Stages of Transforming Play**

*Interpreting the model: The creative process*

##### **Tournament play**

This is the closest you will get to the adult-version of the game or sport, but it is important that small adjustments or constraints are made to the game in order to encourage decision making. Throughout this stage it is also important to recognise teaching moments where a student may have made a good decision and can then be used as a positive example to their peers. This is an extension of stage 5.3 of the model as it covers sport specific games being played with a few modifications to encourage decision making.

*Self-reflective practice*

##### **Tournament play**

Prior to this lesson it is important to set out the type of game the students will be playing in this stage of the model. Some simple modifications that promote decision making and yet is very close to the adult-version of the game may be splitting the end-zone into a middle section and two end sections, and you may get 1 point for scoring in the middle and 2 for scoring on the ends. This promotes movement from the middle of the court to the sides which is an important aspect of scoring in Ultimate. Another easy modification may be keeping the rule around scoring more points off a fast break, or scoring more points if everyone in the team had touched the Frisbee before scoring. These simple modifications that promote decision making are a few examples, however it will be up to the teacher to determine what would work best for the students they are teaching. If the teacher has observed that there is a large group of students that only pass to each other and are exclusive then adding the rule around passing to the whole team may be more beneficial than different scoring zones, however if

all of the teams are inclusive and performing well, then adding more points for scoring zones may benefit the further development of those students.

<b>Learning intentions:</b> Tournament play	<b>Lesson Equipment:</b> Frisbees Cones	<b>Personal Equipment:</b> Whistle Clipboard Roll
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<b>Instructional Sequence:</b> <b>Tournament play:</b> Set up however many courts you need prior to the students arriving. If the tournament is taking place outside, begin with the students inside in order to minimise distractions while you are discussing how the tournament will run. Once they arrive sit them all down and set out the draw for them, so they know the outline of the tournament. Make sure each team is accounted for and has enough players before starting the first round of games. Try and avoid mixing up the teams, however moving one or two players around if a team has diminished in size may be necessary for that team to still play.  Make sure each court has a score keeper and that you have a way of keeping time for the games.  At the end of the lesson discuss the plan to continue next time and let them know how many more games to expect. If there was anything that didn't run quite so smoothly this time (games weren't starting on time, students weren't keeping score), then outline how you might be changing this process for next time. For instance, if teams aren't rotating their score keeper around, then you can have a set individual for each game next time.	<b>Questions to ask:</b>
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#### **4.2.9 Lesson Plan #9: Final Stages of Transforming Play**

*Interpreting the model: The creative process*

##### **Tournament play**

This lesson is simply an extension of the previous lesson, and the final stage of the Slade et al. (2019) Transforming Play model. This lesson continues to implement stage 5.3 of the model with the aim of creating as much opportunities for individuals to learn in game like scenarios where their decision-making is being tested. These Sport Education based lessons are recommended as an addition to the Transforming Play model that Slade et al. (2019) states is especially useful for teaching rules and sportsmanship.

*Self-reflective practice*

##### **Tournament play**

The job of the teacher during this lesson is to boost the confidence of teams that didn't perform very well the previous day and make sure every member of the class is enjoying themselves. During this lesson the teacher will be able to observe the class having lots of fun with laughs and smiles while also seeing passes being completed and points being scored by as many individuals in the class as possible. If at the end of the tournament there are students keen to give the final levels of mastery learning a go than encourage and cheer them on while they try; and sign them off if they complete it. To encourage fair play and sportsmanship you may also add a prize not only for the winning team, but also for the team that you observed had the best show of fair play and sportsmanship throughout the tournament

<b>Learning intentions:</b> Tournament play	<b>Lesson Equipment:</b> Frisbees Cones	<b>Personal Equipment:</b> Whistle Clipboard Roll
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<b>Instructional Sequence:</b> <b>Tournament play:</b>  <p>Sit everyone down inside and layout the final tournament schedule. Lay out any changes that have been made from the previous lesson. Boost up the team in the lead and the teams that are close behind (All the others). Get into the 3<sup>rd</sup>/4<sup>th</sup> round (depending on how many get played last tournament day).</p> <p>Set up the final after it is clear what 2 teams will be competing against each other. It should be played on its own with the rest of the class observing in order to create a sport like environment where there is some side-line encouragement.</p> <p>At the end of the lesson announce the winner and give them their prize. Thank them all for the wonderful tournament and discuss the final lesson that will be coming up.</p>	<b>Questions to ask:</b>
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#### **4.2.10 Lesson Plan #10: Individualised goal setting and Mastery learning recap**

*Interpreting the model: The creative process*

##### **Individualised mastery learning**

This lesson brings to a close the individualised goal setting and the mastery programme from stage 5.1 of the Transforming Play model. This is a follow-up of lesson #3 as it covers the same performance test that was carried out earlier in the lesson sequence. This lesson also allows the students and the teacher to reflect on how much the classes' technique of the skills have improved, by comparing the results with their results from the beginning of the lesson sequence. This is an important part of individualised goal setting as each student will be able to see what progress they have made throughout the programme.

*Self-reflective practice*

##### **Assessment**

This lesson should be implemented in the same conditions as lesson #3 in order for the class to have results that are a true reflection of their work they put in to learning the technique and practicing the mastery. The throwing of the tennis ball is no longer required as they have their scores from the last time they played the course to compare with. The time later in the lesson for any last attempts at level 4 of the mastery levels is important as seeing an improved score during the Frisbee golf course may provide students with the motivation to attempt a level they were not going to try before. The questioning time at the end of the lesson is largely for the teacher to be able to observe students that are eager to share their newfound knowledge around how games work, tactics associated with games, the mastery of a backhand, and how to play Ultimate.

<b>Learning intentions:</b> Individualised mastery learning Assessment	<b>Lesson Equipment:</b> Frisbees Hoops Cones Maps Scoresheets	<b>Personal Equipment:</b> Whistle Clipboard
<b>Instructional Sequence:</b> Bring all the students in and complete the roll.  Let them know they will be playing throw golf for this lesson. Pair them up and give each pair a score sheet as well as some Frisbees and a map of the course. Make sure this map is identical to the one used in lesson #3.  <b>Assessment:</b> Start them off at varying holes so they don't have to wait for one another. Wander around encouraging students and bringing up any teaching points where necessary.  Once they have all completed the course using the Frisbees, collect in their named score cards and have a discussion around how they found the course. Make sure the scores are recorded and each student is aware of the difference between their original scores and their new scores.  <b>Individualised mastery learning:</b> If there a still students working on their mastery learning, then work with them to reach their goals until time is up.  Bring everyone in and run over some key concepts from the last 10 lessons.		<b>Questions to ask:</b>       What did they notice since the last time they completed this throw golf course?  What is a new sports term you've learnt? What is a new tactic you now know? Who can explain the backhand Frisbee technique for me?

### **4.3 CHAPTER SUMMARY**

These findings represent an interpretation of the Slade et al. (2019) Transforming Play model. This chapter sets out a practical resource that, accompanying an understanding of the methodology and the literature surrounding the Transforming Play model, provides generalist teachers with the means to teach PE, where students are generating their own ideas and learning through play rather than traditional drilling. This resource accomplishes this through presenting and elaborating on twelve key themes throughout the Transforming Play model that aid in practically implementing this model. These themes being: (1) building familiarity with the game, (2) cooperative learning, (3) playing modified games, (4) questioning, (5) assessment, (6) individualised mastery learning, (7) repetition, (8) team identification, (9) game analysis, (10) tournament play, (11) skill application, and (12) decision making.

In order to fully understand the process that went into the development of these findings, the following chapter, the discussion, will shed light on the place of each lesson and its relevance to the literature discussed in Chapter 2 of this thesis. This will provide further justification for the lesson sequence, as well as critically discuss some of the issues that arise from such a sequence.

## **5. DISCUSSION**

### **5.1 CHAPTER OVERVIEW**

The primary research question that this thesis set out to answer was to what extent can the Transforming Play model be interpreted, by exploring constructivist learning theories, to provide a practice-led artefact, adapted to the setting of Ultimate Frisbee, and implementable by generalist PE teachers? This discussion integrates the theory related to the findings and the Slade et al. (2019) Transforming Play model. As detailed in the literature review, the model consists of four key sections of theory, these being play, mastery learning, sport education and TGfU. The findings then presented twelve key themes: (1) building familiarity with the game, (2) cooperative learning, (3) playing modified games, (4) questioning, (5) assessment, (6) individualised mastery learning, (7) repetition, (8) team identification, (9) game analysis, (10) tournament play, (11) skill application, and (12) decision-making. The following discussion will describe how each section and key themes have been reflected in the lesson plans and will then relate the theory back to the literature. Each section herein will outline the role that the Transforming Play model played on the development of the creative artefact outlined in the previous chapter, with the aim of understanding why the Transforming Play model was used as a template for the artefact. Issues associated with these theoretical elements being reflected in the lesson plans will also be outlined, as well as ways in which the lesson plans overcome such issues.



## **5.2 PLAY IN THE CREATIVE ARTIFACT**

### **5.2.1 *Building familiarity with the game***

Although Slade et al. (2019) Transforming Play model provides a clear pathway for a generalist teacher to employ a constructivist model of teaching when teaching PE, the authors do not mention the need for the teacher to build their own understanding of how the sport works. In the case presented in this thesis, the sport of Ultimate is a niche sport and therefore not many generalist teachers would know how it is played, let alone be confident enough to teach it to their students. Therefore, it is important, prior to implementing the aforementioned lesson sequence, for the teachers to build their own familiarity with the game. Resources have been included in this thesis that give the necessary rule knowledge and basic knowledge of the game for a teacher to have a minimal understanding of how the sport is played (See Appendix 3).

The suggestion to build familiarity with the game stems from Butler's 'Inventing Games' (IG) discussed in the literature review. In order for play to be achieved in a constructivist manner which Slade et al. suggests through the Transforming Play model, the teacher must be able to promote organised and rule-governed play (Butler, 2013). Without the necessary knowledge of what the final product of the sport should look like and what rules should eventually be implemented, a teacher will not be able to make organised and rule governed play feel fluid and not routine (Butler, 2016).

### **5.2.2 *Cooperative learning***

Throughout these lessons the biggest task for the teacher is to determine the skills of the students, make sure that every member of the class is having fun, and being respected in a

democratic learning environment much like during their time in a classroom. The lessons at the beginning of the sequence allow for time where the teacher should be questioning the students on their cooperative learning. This lesson sequence also provides the teachers with the necessary content knowledge in order for the Transforming Play model to be achieved. As much of the learning is led by the students, the need for the teacher to be constantly providing them with direction is minimal; and is in fact discouraged during these lessons (Slade et al., 2019).

A cooperative learning environment provides opportunities for students to use scaffolding and Zone of Proximal Control (ZPC) in their learning. Scaffolding refers to students being aided along the way of discovery by their more knowledgeable peers (Bruner, 1966). ZPC refers to students being in an environment where they are influenced by people more experienced. (Vygotsky, 1978). By building cooperative learning environments in the early stages of this lesson sequence, the students are given optimal time to learn from their more experienced peers.

The downside to these play-based lessons is the inevitable time restraint. It has been mentioned that there should be no time limit placed on these stages of the model, due to the children learning through discovery and constructivist approaches to teaching. However, the nature of teaching physical education amongst the curriculum means that there may not be a possibility for these lessons to be extended if the teacher observes that the students might benefit from a longer period of time spent in this stage (Slade, 2018).

### **5.2.3 *Playing modified games***

We see play being emphasised in the first few sessions of the lesson sequence, as these sessions coincide with the early stages of the Slade et al.'s (2019) Transforming Play model. In the first few sessions, as the students are encouraged to create their own games, the focus is around the learning that occurs through discovery, which is a key part in Piaget's theory of child development (Piaget, 1936). Through lessons 1-2, the key component is the students creating their own games with very few specifications coming from the teacher. Therefore, the learning context during these lessons takes a constructivist approach. This approach allows for the students to build their own understanding of the process and structure of games through a learning environment that promotes meaningful and memorable experiences (Butler, 2013).

These games being modified simply refers to the constraints that a teacher may place on them in order for them to resemble a type of game. For instance, in the lesson sequence the constraints are that there must be an attacking end and a defending end and some way in which teams can score. This makes the game an invasion type game. Modified games also refers to the modifications that the students place on games themselves. Throughout the first few lessons as the students are inventing games, they are modifying games they already know and using their creativity to generate their own ideas. This supports Butler's aim for IG, as the students will learn through discovery and create memorable experiences (Butler, 2013 & Butler, 2016).

#### **5.2.4 Questioning**

Throughout these lessons, the teacher is required to use questioning techniques in order to employ a constructivist approach to the students' learning. The main issue that arises when implementing a constructivist approach to teaching games comes in the form of a lack of teacher understanding of games and questioning techniques. It would be unrealistic to expect that these lesson plans hold the answer to every question a student may ask, or every scenario they may come up with. However, the extensive evaluation and justification of these lessons through the use of creative practice research does provide the opportunity for teachers to understand the need to implement such an approach, as well as practical implications of how that may be carried out through the use of the Transforming Play model.

As previously mentioned, Launder believed that applying constructivist learning theories, for generalist teachers, was simply too difficult, and that was the reason for the excess amount of drilling in the PE taught in primary schools today (Launder, 2001). The lesson sequence outlined in this thesis, following the stages set in the Slade et al. (2019) Transforming Play model, provides an opportunity for generalist PE teachers to be able to implement a constructivist learning theory into their teaching of PE. In order to do so, questioning needs to be implemented in such a way that students are challenged and yet motivated to play their way to understanding (Launder & Piltz, 2013). The questions included in each lesson provide examples of ways in which teachers can be challenging each student to learn through their own experiences (Butler, 2013).

### **5.3 MASTERY LEARNING IN THE CREATIVE ARTIFACT**

#### **5.3.1 *Assessment***

The issue that arises with implementing a mastery learning model into the lesson sequence is that it has potential to take time away from the learning of game sense and tactics. In order for the mastery learning to fit transparently within the lesson sequence, it is recommended that the template be printed as a poster and hung in the classroom, and that lines be marked on the school grounds in order to provide the students with opportunities to practice in their own time. For the sake of keeping up with the class' progress and providing structured time to practice the technique, a brief warm up period has been dedicated to mastery in the lessons following lesson #4. However, this time should be short and therefore not cut into the rest of the lesson plan (Slade et al., 2019).

As the findings suggested, implementing mastery learning can become distracting from the main idea of the model, which is to allow the students to learn through play and a constructivist approach to teaching. Therefore, mandate teaching is an important concept to understand as mastery learning should not be implemented during their PE time if it has been observed that their skill level is adequate to enjoy and participate well in the sport (Slade, 2018, Smith, 2016 & Kirk, 2016).

Assessment is also important to aid in each student's goal setting. Locke (1967) stated that goals are only helpful if learners believe they are achievable. Therefore the first two levels of the assessment criteria were created to be achievable by everyone with very little practice. The later levels (level 3 and 4) will require some repetition and goal setting to complete for

some students, however, having passed the first two levels, the next levels will seem challenging and yet achievable for those struggling students (Locke, 1967).

### ***5.3.2 Individualised mastery learning***

Mastery learning is predominantly seen from lesson #4 onwards. During lesson #4 the focus is on the implementation of an individualised mastery system, which follows that of Keller's Personalised System of Instruction (PSI). Keller (1968) outlined a model of mastery learning that required each student to reach 100% on each level prior to moving on. This approach allows for students to create their own goals regarding the level they want to reach and means they can set their own pace of their learning.

In the case of the mastery learning system that has been included in this resource, each student is required to perform different skill-based tasks that will aid in their throwing ability and ultimately their confidence while playing the game of Ultimate. Slade et al. (2019), in the Transforming Play model, outline the need for mastery learning only if it has been observed that the class has poor technique, which is hindering the enjoyment of the game, the application of tactics, or the ability to make good decisions. Slade (2014) referred to this concept as 'mandate teaching'. For the ease of the teacher, it has been assumed that the students do not have much prior experience with Frisbee throwing technique and therefore the teacher would have a mandate to implement some mastery learning. To aid in the implementation of technique and mastery learning a detailed template has been attached (See Appendix 2). The aim of this PSI is to aid in the students' skill execution while not taking time away from learning game knowledge and awareness. This is why the mastery learning system should be encouraged as an extra-curricular activity to be tested during class time but

practiced in their own time. The PSI also provides the teacher with an opportunity to praise and encourage the students in their classroom, as well as monitoring the students that are excelling. The teacher can also encourage them to be cooperative learners and help other students that are struggling. This will ultimately help to build a cooperative environment not only during their time in PE, but also in the classroom and during their breaks (Keller, 1968).

### **5.3.3 Repetition**

We see repetition not only in the lesson plans that have a focus on skill execution, but also in the lessons that follow. Throughout the whole of the lesson sequence there are opportunities for students to be practicing their throwing and catching, whether this be during the warm up games or during their more sport specific games they play at the end of the lessons. Setting up the PSI in such a way where students can practice outside of class time also aids with repetition as the students will be able to practice during their lunch breaks. This amount of repetition in their learning will also aid in their goal setting, as they are able to put in place a strategy to reach those goals and solve their problems (Ogbeiwi, 2018). Repetition will ultimately aid in the students reaching their individual goals they have set as it allows them to practice and improve in their own time and set peer-peer competitions (Keller, 1968). Locke (1967) stated that students who use knowledge of their past results to set goals improve their performance more than students who set goals with no prior knowledge of their results. Having repetition of skills throughout the lesson sequence gives the students time to gain knowledge of their results in order to set personal goals that are achievable to everyone.

## **5.4 SPORT EDUCATION IN THE CREATIVE ARTIFACT**

### **5.4.1 *Team identification***

Examples of Sport Education can be seen scattered throughout the lesson sequence; however, the predominant example is in lessons #7, #8 and #9 where the students are building on their team identification and playing a tournament. Implementing a democratic learning environment that leads into this tournament setting is where Sport Education shows itself throughout the whole of the lesson sequence. The Transforming Play model, and therefore the lesson sequence, uses the key aspects of teaching rules and fair play in a sport like scenario in order to allow the students to play an adult-like version of Ultimate where they can put into practice a democratic learning environment as well as all of the game knowledge and tactics they have learnt throughout the lesson sequence (Siedentop, 2002).

Lesson #7 specifically has a large focus on the inclusiveness of the team and aiding in each and every member of a team having a role and identity within the team. This will build participation come tournament time and mean that everyone has a part to play in their team's performance (Grant, Sharp, & Siedentop, 1992). The research project carried out by Grant et al. found that the students who benefited the most from the Sport Education model were those who had low participation rates during PE, and those that were struggling with grasping the skills. This is largely due to them having roles and responsibilities within their team which gave them more purpose and a motivation to participate (Hastie, 2012).

### **5.4.2 *Game analysis***

The opportunity in lesson #7 for the students to video themselves implementing skills and tactics they have learnt throughout the lesson sequences means they will be able to analyse



their game and see what works well for them. It will then provide them with an understanding of what the whole team knows, which will help them in their tournament play (Slade, 2018). The opportunity is also there for students to be creative and implement tactics they may have learnt from other sports which they think will help them play Ultimate.

Siedentop (1998) explains two of the basic features of a Sport Education model are team affiliation and record keeping. During this lesson where students are given the opportunity to create a video of their gameplay and tactics, they are building their team affiliation as they are planning and practicing together (Siedentop, 1998). Record keeping can also be implemented in this lesson as they are required to video their game play. They can nominate a team statistician who can record passes, goals, assists, and turnovers in order to boost their team-mates and provide them with feedback before they enter the tournament (Siedentop, 1998). Analysing their gameplay leads them nicely into the following section of tournament play as they have had the opportunity to learn what tactics work best for their team and what members of the team may need to step up in the tournament to aid their team.

### ***5.4.3 Tournament play***

Ending the lesson sequence with a tournament may work well as a reward-type tool to encourage the students to participate along the way, however the main idea of the tournament is a natural progression of what they have learnt so far. Throughout the lesson sequence they have learnt the necessary game knowledge, tactics, and skill execution in order to play Ultimate, however the end goal is to encourage the students to be life-long participants in sport, so giving them the opportunity to put all they have learnt into practice,

in an environment that closely resembles that of an adult version of the sport, is very important (Siedentop, 2002).

Siedentop (1998) outlined two more basic features of the Sport Education model were festivity and developmentally appropriate competition. Having tournament play at the end of this lesson sequence provides a prime opportunity for festivities as the students are participating in an adult like version of a sport. These festivities celebrate all of the students improving, trying hard and playing fair and may include posters, team colours, and an award ceremony (Siedentop, 1998). Providing a developmentally appropriate competition means that the version of the sport the students will be participating in is not the exact same as an adult version of the sport. Having modified rules, spaces and equipment mean that the version of the sport the students are playing reflects the skill level of the learners and provides them with a fair chance of participating in the sport (Siedentop, 1998).

## **5.5 TGFU IN THE CREATIVE ARTIFACT**

Bunker and Thorpe's (1982) TGfU model of game-based learning is evident all throughout the Slade et al. (2019) model of Transforming Play as well as the lesson sequence. As mentioned previously, the Slade et al. model of Transforming Play follows a very similar conceptual framework to that of a TGfU model, although there are also aspects of mastery learning and Sport Education scattered throughout that aren't part of the original TGfU model.

### **5.5.1 Skill application**

We see practical examples of TGfU used in the warm-up games that are all small-sided games designed to promote the enjoyment of games as well as encourage the students to improve their skill execution. We also see TGfU at work through the creation of games. As students design their games through the earlier lessons in the sequence, they are designing their own TGfU based games. Much like the TGfU model (Bunker & Thorpe, 1982), where playing games comes at the very beginning, the Slade et al. (2019) model includes the creation of games at the very beginning, and therefore so does this lesson sequence. The concept of designing a game allows for the students to build a greater understanding of how games work and what tactics are needed to perform the game to a greater level, which fits the theory of TGfU.

We also see TGfU in the final few small-sided games that are used in lessons #6 and #7. These various games present the students with opportunities to apply the skills they are learning in a scenario which challenges their decision making and games knowledge. These games are fundamentally TGfU based games that aid in the further understanding of game sense and tactics (Werner, Thorpe, & Bunker, 1996).

The time for the students to start applying skills is where Thorpe's 1982 TGfU model mentions skill execution and is where Slade mentions mandate teaching. Both Thorpe and Slade recognise the need for some specific instructions to be applied to their models in order for the full enjoyment of games to be reached, and further opportunities to understand games be achieved. This lesson sequence introduces mastery learning early, however that is justified by the fact that the skill of throwing a Frisbee will be very unfamiliar to the students. The need for mastery learning to be applied only if the teacher has been given a mandate has also been explained in detail, and therefore it might be the case that the only necessary time for specific instruction be during these TGfU based games if a student asks for help with their throwing technique (Slade, 2018, Smith, 2016 & Kirk, 2016).

### ***5.5.2 Decision-making***

We see the students decision making challenged all throughout the lesson sequence. The warm up games are designed to challenge the students' decision making by putting them in a situation where a decision must be made in a short time frame for the game to work. The small-sided games in lessons #6 and #7 are larger examples of games that challenge students' decision making as they are put in a risk reward environment. Challenging student's decision making through games is a key focus of the TGfU model, as Bunker and Thorpe (1982) wanted students to be able to place value on certain decisions that should be made at any given time during a game, and therefore wonder what skills would be necessary to be able to make that decision.

TGfU is one of the hardest aspects of the Transforming Play model for a generalist teacher to apply as it requires the teacher to have a good understanding of game tactics that will challenge the students in their thinking and decision making. Providing differing levels of challenge for a range of skill levels and game knowledge in a class is a challenging thing to accomplish. Holt et al. (2002) outlined that they thought playing the adult version of the game was not necessary or possible throughout a TGfU based lesson sequence. This meant that teachers would be required to have a good understanding of game sense and tactics in order to modify and constrain their games in such a way in which their students can participate fairly (Holt, Streat, & Bengoechea, 2002). The idea of implementing games like 'Zone Defence', and providing resources to gain an understanding of how Ultimate works, is to help the generalist teacher bridge that gap as they are given the necessary resources to educate themselves on game tactics and strategies and the wider picture of TGfU.

## **5.6 CHAPTER SUMMARY**

This discussion has outlined how the creative artefact developed reflected the format and the theoretical underpinnings of the Slade et al. (2019) Transforming Play model of learning. The four key aspects of the Transforming Play model, namely play, Mastery Learning, Sport Education, and TGfU, were all reflected through the developed lesson sequence and therefore have all been discussed in detail. These four aspects were explained using twelve key themes found in the Transforming Play model. These being: (1) building familiarity with the game, (2) cooperative learning, (3) playing modified games, (4) questioning, (5) assessment, (6) individualised mastery learning, (7) repetition, (8) team identification, (9) game analysis, (10) tournament play, (11) skill application, and (12) decision making. Issues around where mastery learning should fit in the model as well as how a constructivist approach to teaching can be implemented were also discussed alongside ways in which these issues have been overcome. This discussion provides the reader with a greater understanding of the practicality of the Transforming Play model and aids in their ability to replicate this thesis in their own practice.

## **6. CONCLUSIONS**

Launder (2001) raised the conundrum that while a traditional, linear, skills and drills approach to physical education only required a single engine 'Cessna plane licence' for a generalist teacher to implement in the classroom, it takes the equivalent of a 'jet pilots license' for a generalist teacher to implement a GCL structure in their teaching of PE.

This thesis set out to answer this question: to what extent can the Transforming Play model be interpreted, by exploring constructivist learning theories, to provide a practice-led artefact, adapted to the setting of Ultimate Frisbee, and implementable by generalist PE teachers? Through the use of creative practice research, the framework of the Slade et al. (2019) Transforming Play model of learning has been interpreted in such a way that would overcome Launder's conundrum. This creative artefact included an evaluated lesson sequence, as well as accompanying resources such as instructional videos on throwing technique and a mastery learning chart template. Overcoming the need for in-depth content knowledge has been achieved through the explanation of the model that has included an overview of 12 key themes that are essential to understanding how to put the model into practice. These will be listed alongside concluding comments around how Play, Mastery Learning, Sport Education and TGfU have been used throughout the lesson sequence to overcome Launder's conundrum in the following sections.

## 6.1 PLAY

**Building familiarity with the game** is an essential pre-requisite prior to implementing the Transforming Play model, as it will aid in applying constraints and directing the students towards the game of Ultimate.

**Cooperative learning** can be a time-consuming aspect of the model, however, building a cooperative learning environment early on in the sequence is crucial in order for the model to reach its full teaching potential using scaffolding and Zone of Proximal Control.

**Playing modified games** refers to the time where the students are creating games with very little constraints or modifications. This time is important for the students to build memorable experiences and learn through discovery.

**Questioning** is the biggest task of the teacher throughout the model, as they allow the students to learn through a constructivist approach. This lesson sequence has provided many examples of effective questioning techniques that will guide the students to find the answers themselves, rather than supplying them with the answer.



## 6.2 MASTERY LEARNING

**Assessment** should only be implemented if it doesn't take too much time away from teaching.

Assessment is an important tool to aid in the students goal setting and to build their skill execution in order to enjoy the games to the fullest.

**Individualised mastery learning** is an important concept throughout the model and the lesson sequence and is best implemented outside of PE time. An individualised mastery programme builds students' confidence in playing the game, their competence, and provides them with ways of working towards their goals in their own time.

**Repetition** allows for students to create strategies to reach their goals, as they are given opportunities to practice wherever they are. Repetition happens naturally throughout the model, as students play games that require repetition as well as through the PSI that is implemented outside of their PE time.

### 6.3 SPORT EDUCATION

**Team identification** is a major aspect of Sport Education as it is what motivates the students to participate. Team identification can be built through the cooperative learning environment that has been implemented early in the sequence, as well as through the use of team colours, chants, team names, and roles within the team.

**Game analysis** provides a fun way in which the students can learn through video and analysing their own game. This allows students to strategize for the upcoming tournament and to gain some crucial feedback on their team and their skills.

**Tournament play** gives the students the opportunity to play a version of the sport that is close to an adult version. The tournament should be treated as a festivity and therefore there should be a large emphasis on team identification throughout the tournament, and prizes at the end.

## 6.4 TEACHING GAMES FOR UNDERSTANDING

**Skill application** comes naturally through the creation of TGfU based games at the beginning of the lesson sequence, and throughout the rest of the model. However further skill application through mastery learning should only be applied if the teacher is given a mandate for specific instruction.

**Decision-making** is the main goal of implementing TGfU based games. Throughout the whole lesson sequence, the student's decision-making will be challenged through the games they play and through the questioning of the teacher. Overcoming the difficulty of applying TGfU effectively has been achieved through the extensive planning and detail of the lesson sequence, which stems from the ease of following the Transforming Play model.

These lesson plans should appeal to the generalist teacher because of the nature of the teaching required to implement them. The Transforming Play model, and these lesson plans, have taken the generalist classroom strategies and have placed them in a PE context. This provides the teacher with familiarity around teaching in a holistic, constructivist way, while also providing them with the resources to apply it in PE. This lesson sequence and the accompanying resources are a clear representation of PE that can be more than simply drills and fitness training. These lessons are not only easy to apply but are also easy to replicate for any other sport that may be of interest.

## **6.5 RECOMMENDATIONS FOR FUTURE RESEARCH**

Although adopting a creative practice methodology has resulted in the development of a lesson sequence utilising Slade et al.'s (2019) Transforming Play model, future research should examine its implementation in practice. Observing generalist teachers and their reflective practice will enable better understanding of their capacity to use such an approach as a generalist teacher. Feedback needs to be gathered not only from the models implementation by generalist teachers, but also across a variety of sporting codes. This initial study also illustrates how future creative practice research can enhance the professional development of teachers in the area of Physical Education and Sport.

## **6.6 LIMITATIONS OF THIS THESIS**

As previously mentioned, this thesis was limited by the Covid-19 pandemic. This meant that the research was not able to be carried out in schools, which resulted in a change of methodology and a greater emphasis on the qualitative aspect of this research. For this reason, the recommendations for future research are very important as data can then be gathered to coincide with this research.

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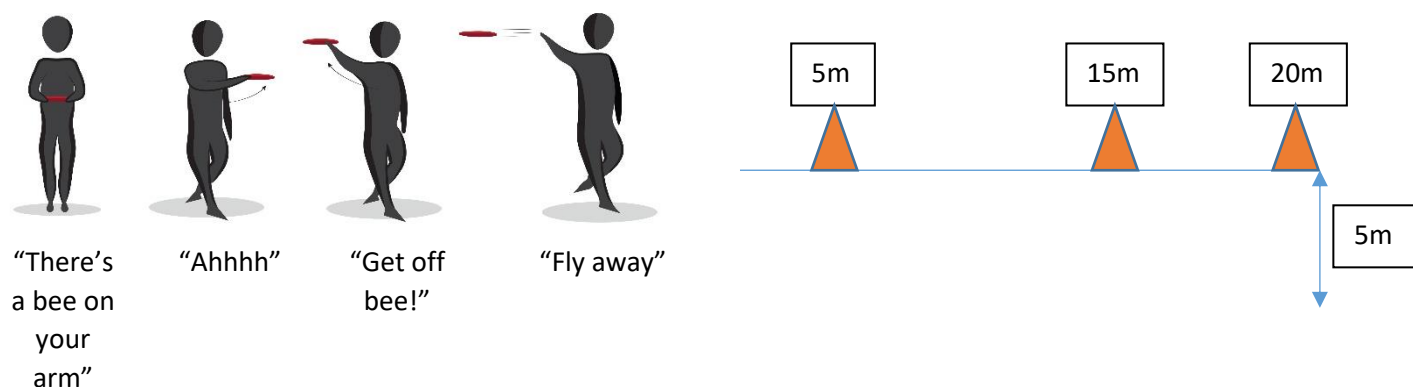
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## APPENDICES

## APPENDIX 1 Individualised Mastery Learning



Each pass must be catchable and within the 5-metre area set out by your teacher  
Levels 1-3 to be ticked/signed off by a peer, level 4 to be signed off by your teacher

[illegible]

## APPENDIX 2 Backhand technique videos

([https://www.youtube.com/watch?v=As1X0JNWILY&ab\\_channel=RowanMcDonnell](https://www.youtube.com/watch?v=As1X0JNWILY&ab_channel=RowanMcDonnell))



Mastery  
techniques.MOV

## APPENDIX 3 Summary of Ultimate Frisbee

What is Ultimate?

[https://www.youtube.com/watch?v=YkMMqOUNyKk&ab\\_channel=ExcelUltimate](https://www.youtube.com/watch?v=YkMMqOUNyKk&ab_channel=ExcelUltimate)

Summarised from (WFDF, 2020)

### **The aim of the game:**

The field is set up so that there are two 'end-zones' at each end with a playing area in the middle. A point is scored by throwing to a teammate in the end-zone you are attacking and having them catch it.

### **Basic rules:**

Players remain in the end zone they started after each point is scored, however you will swap starting end zones after half time.

You must catch the disc cleanly inside the end zone (i.e. your feet are not touching the line at all). The line is out. You have 10 seconds to throw the disc once you pick the disc up or receive a pass.

If possession is maintained after 10 seconds, then it is a turnover, but only if the person marking them has been counting.

The 10 seconds will be counted by the closest defensive player saying "Stall one...stall two...stall three..." through to ten. If 'ten' is reached and the offensive player still has the disc, then it is a turnover.

The 'stall count' may only be initiated once the defender is within 3 meters from the offensive player with the disc.

You cannot run with the disc; however, you may slow yourself down after catching it (Each subsequent step must be shorter than the last, within reason). You may also set one pivot foot and therefore move the other foot.

The defence may defend the offensive player with the disc no closer than a disc width from their body (30cm).

A turnover can occur when:

- The player has taken more than 10 seconds to throw the disc.
- The disc touches the ground.
- The disc goes out of bounds.

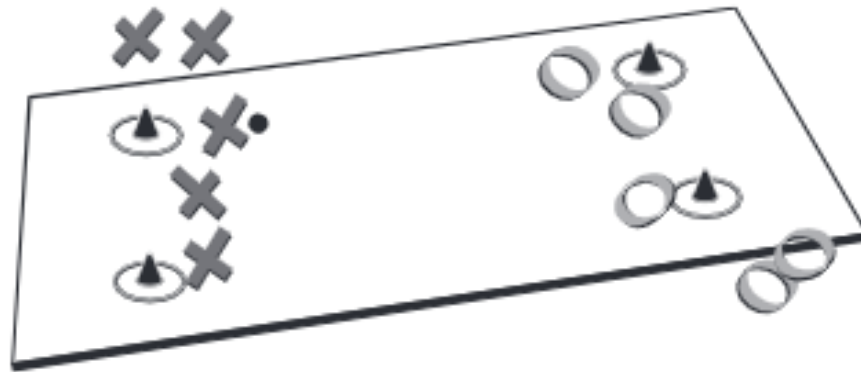
An intercept is made (an intercept does not need to be caught, if the disc is hit and then touches the ground, the turnover stands).

When a turnover occurs, possession changes hands and the game continues, no stoppage of play. The disc may not be removed from the hands of the offense by the defender. To do so would occur in the offense retaining possession and the stall count returning to '0'.

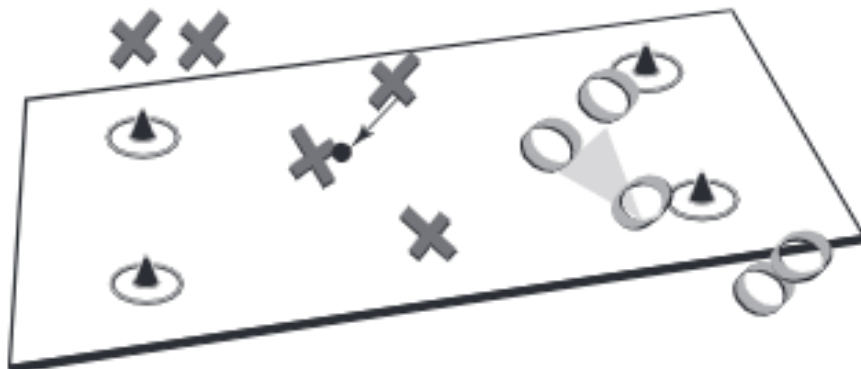
Contact between offensive and defensive players should be avoided. Any contact made will result in a foul and possession will either remain with the person who was trying to catch the Frisbee, or, if that person initiated the contact, then a turnover will occur. If a foul occurs, then play stops and everyone must return to where they were when the foul occurred (to the best of their ability). To start play again the person defending the person holding the Frisbee must count down from 3-1 and then say "Disc-in" to signal that everyone can begin moving again.

## APPENDIX 4 Zone Defence

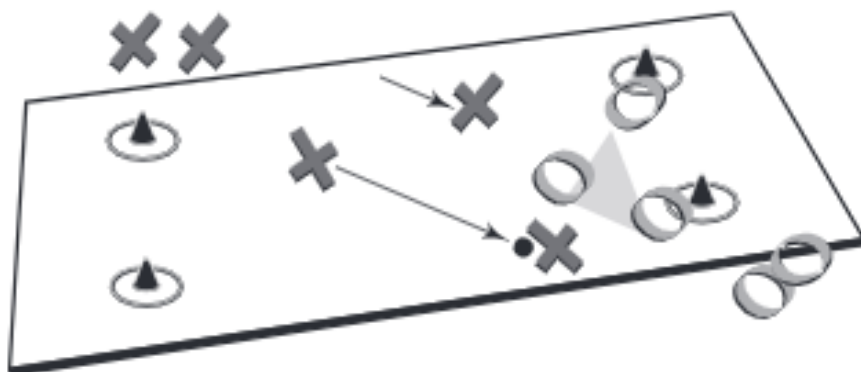
For the version played in lesson plan #6 remove the cones. Points are then scored by catching the Frisbee in the hoops. (Slade, 2009)



a Basic formation.



b Players form a zone defence as part of the game.



c The zone slides as the ball is passed across the front of the goals.



## APPENDIX 5 The Great Escape

(Slade, 2009)

