

**Sport attainment and education sustainment  
of talented female secondary school athletes in New Zealand**

by

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Submitted in fulfilment of the requirements of the degree of  
Doctor of Philosophy

Auckland University of Technology (AUT)

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“Ehara taku toa i te toa takitahi engari he toa takitini”

(My strength is not that of an individual but that of many) Māori Proverb

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## Abstract

Excelling at sport between the ages of thirteen and eighteen years has profound implications not only for the athlete, but also for her educators, family, friends and sporting associates. Balancing a multitude of commitments, expectations, timeframes, and outputs is a daily challenge for a growing number of young athletes in New Zealand today. An increased understanding of the needs and challenges of this group will aid educators and sporting organisations to support and manage these student-athletes, in an appropriate and insightful manner.

My research focused on the sporting attainment and academic sustainment of three female athletes (13-18 years) who were concurrently competing in sport at regional or national level, whilst attending an Auckland secondary school to gain academic qualifications. Due to the complex nature of young people's lives, many factors and influences were investigated to provide insights and to increase understanding about the multi-layered, dynamic, self-organising, and unpredictable yet stable interconnected systems each student-athlete operated within. Key themes such as complexity, talent, gender and gender identity, socio-economic, socio-cultural and socio-ecological factors, as well as national and international policies and programmes, were investigated.

A qualitative research methodology using individual narrative case studies and an interpretative perspective informed this research. The adoption of a complexivist posthumanist approach informed a paradigm shift from a purely constructivist-interpretivist view of each student-athlete's life. Bound by individual parameters (sporting and schooling experiences during a two-year period), each case study was presented in the form of a personal biography, or story. Each participant's perceptions and meanings, supported by comments from a nominated significant other (parent or coach), emerged from the detailed analysis and interpretation of collected data.

A short longitudinal design (over two years) using a four-phase strategy of data collection was employed to investigate each student-athlete's transition from non-examination assessment to studying for external academic qualifications (New Zealand Qualifications Authority, 2017). During this educational phase, the participants in my

research were simultaneously training and competing at a representative level in sport.

The health and well-being of this specific cohort of excelling young sportswomen was a key focus of this research project, as the interface between sport and education has implications for other areas of a young athlete's life (for example, puberty, adolescence, socialisation, qualification attainment, career pathway and maturation). At present, in-depth educational research in this area of giftedness and talent does not exist in New Zealand. Therefore, my research aimed to generate insights, understandings and recommendations, which are educative to a variety of stakeholders (athletes, parents, coaches, educators, policy-makers, government agencies, national sports organisations, etc.). The purpose of this inquiry was to understand a particular phenomenon, not to generalise to a general population (Farzanfar, 2005).

Findings from my research revealed that each case was unique, individual and dynamic. Each student-athlete faced a range of challenges and barriers that had the potential to undermine her sustained attainment in sport, education and/or both; however, each student-athlete demonstrated a high level of resilience and often a mature appreciation of what was required to achieve goals simultaneously, in both fields. Stable support structures within each student-athlete's complex systems, in particular in sport, at school and in her family domain, were key to sustained achievement, as were appropriate opportunities to progress incrementally. Concerns with regard to each student-athlete's health and well-being were highlighted, with significant injury and stress perceived as inevitable. My research recommends that adults in responsible roles, such as educators, senior management, parents, whanau, administrators, policy-makers, regional and national organisations and government agencies need to view 'talent' as individual, multi-layered, complex and evolving. The needs of each student-athlete must be focal to and commensurate with reasonable, realistic training, competition and academic workloads, to sustain attainment and enjoyment in both arenas.

## Publications

Listed below are peer-reviewed publications produced prior to and during the undertaking of my research presented in this thesis.

### Refereed articles and book chapters

Godber, K. (2011). **The identification of and provision for talented female athletes in New Zealand secondary schools.** Master's Thesis. University of Auckland.

Retrieved from <http://www.ak.uni>.

Godber, K. (2012). Policy, practice and performance. Do the Ps add up? *Physical Education New Zealand (PENZ)*, conference edition, 45(2),

Godber, K. (2012). The life-worlds of elite young athletes: A lens on their school/sport balancing act. *APEX the New Zealand Journal of Gifted Education*, 17(1),

Ovens, A. & Godber, K. (2013). Affordance networks and the complexity of learning. In complexity thinking in Physical Education: reframing curriculum, pedagogy and research. 55-66.

### Conference presentation with published abstract

Godber, K. (2015). **Talented young sportswomen in New Zealand: Pilot study to explore the consistency and robustness of a qualitative research methodology.** Proceedings of the AARE-UQ Health and Physical Education Theory and Method Conference, Brisbane, Australia.

## **Chapter 1 Introduction**

This chapter begins with a reflection on my interest in the field of talented female athletes; from my perspective as a competitive sportswoman, educator, coach, sports administrator, sports official and researcher. The purpose of this initial history is to ground and frame my thesis, and to inform the reader of my view when undertaking this research. In my role as researcher/educator, emergent interpretations, perceptions and meanings have arisen, coloured and shaped by my own associations and experiences with talented young athletes in New Zealand and in the United Kingdom over the past twenty years. By looking back, I recognised the significance of my perspective on the value of the understandings and insights gained. However, to hear, make meaning of and record in an authentic manner the voice of each student-athlete participant in this doctoral project, I embarked on a process of interviewing, analysis, interpretation, synthesis and reflexivity, with an open and inquisitive mindset. My early encounters and impressions of talented young athletes capture an appropriate start point with which to begin my research journey.

### **Growing an ontology and epistemology**

My interest in physically able young athletes stemmed from many years of teaching in Special Education (SE), Physical Education (PE), Health and Physical Education (HPE), and in my role as a school sport coordinator (in the United Kingdom) and sports manager (Auckland, New Zealand). The combination of physically educating whilst also identifying and accelerating young athletes through competitive sport opportunities, engendered disquiet and some professional tension at times. For example, observing students falling asleep during class or between classes due to excessive training regimes, and coaching young athletes who developed significant overuse injuries or ill-health due to inappropriate activities for their maturation stage, raised concerns about practices and pathways (see Garrick & Requa, 2003; Gutman & Feinstein, 2008; Maffulli, Longo & Denaro, 2011; Valovich McLeod, Decoster, Loud, Micheli, Parker, Sandrey & White, 2011, for a fuller discussion of the implications of muscular-skeletal and overuse injuries, well-being, and mental health in young athletes). Insights gained from coaching and administering individual and team-based competitive level sport at interschool, regional and national levels in New Zealand and in the UK, highlighted the



stressors, issues and challenges that talented young athletes faced. At this point in my journey, my experiences were with young male and female athletes of secondary school age (12–18 years).

As a teacher of PE (in the UK) and HPE (in NZ), my perceptions of able students encompassed girls and boys who excelled in a variety of physical activities due to a range of factors and influences; a relaxed affinity, knowledge and confidence in their body (embodiment), heightened spatial acuity and coordinated movements (kinaesthetic awareness), strength, stamina and suppleness (skill and health-related fitness components), and an increased ability to select information, synthesise and act in an effective and successful manner (reading the play or the opponent). In general terms, the movements, actions and behaviours of physically able students tended to set them apart from others within the socio-ecological environments of PE and sport. A combination of attributes appeared to facilitate the young athlete's attainment and success in most aspects of the PE curriculum, and in sport-related contexts.

Achievements in this field afforded young athletes social capital (Bourdieu, 1984) and access to resources and opportunities not readily available to other students (sports trips, expert coaching, uniform and equipment, acknowledgement and overt rewards), commensurate with the value associated with that physical activity or sport code. The greater the value attributed to excelling in a physical pursuit, the greater the benefits, accolades and status the athlete was empowered with, relative to the perceived value of the activity within various socio-ecological contexts (school, club, regional, national, international).

My role as a player, coach, official and administrator in a range of sporting contexts (from rock climbing, springboard diving and athletics to netball, basketball and rugby, to name a few) gave me a privileged position of insight, experience and authority. Often, I influenced competitive structures and formats, provided incentives and rewards, established developmental opportunities for players, coaches and officials, and observed first-hand situations involving the health and safety of young athletes. Within this sport socio-ecological context, I had regular contact with parents in their role as providers, supporters, mentors and motivators. A cooperative and collaborative relationship underpinned many positive experiences and outcomes for the young athlete, their parents, their school and/or club, and in some cases, their region and/or

country. Associations with sport governing bodies and organisations over time (over a decade) proved to be mutually beneficial to grow and nurture sport programmes, use of facilities, the development of expertise and a volunteer base, as well as travel opportunities (home and away matches, tournaments, coaching clinics and camps, representative fixtures, sports trips). My sport-based experiences established a significant platform of knowledge, skill, awareness and personal endeavour upon which to build my research focus about talented young athletes.

As an experienced educator and competitive sportswoman, coach, official and administrator, I recognised the significance of these experiences and associations in naming and framing my research orientation; individual narrative case studies using interpretivist epistemology and emergentist ontology, underpinned by a complexity post-humanist paradigm. As stated in Chapter 3, complexity as a research paradigm facilitates ways of thinking that represent a creative, innovative way of understanding educational and societal phenomena. Within a complexity research context, post-humanism can be understood as a rejection of humanistic assumptions, such as independent, disembodied and autonomous subjects, with the 'post' referring to the thinking before and after humanism (Wolfe, 2009) (see Chapter 3). The combination of a complexity theoretical framework with a posthumanist view is particularly helpful to my research as the student-athletes are all generationally of the twenty-first century (millennial). Thus, Herbrechter's (2013) ruminations on future human conditions are relevant and appropriate to this study (see Chapter 3).

### **Background and rationale**

My PhD research was designed to investigate the sport attainment and academic sustainment of talented young secondary school sportswomen in New Zealand. It was designed to provide understandings and insights about the meanings these young women brought to their everyday experiences, both as competitive representative athletes and as secondary school students. The implications of being a talented female athlete whilst also a secondary school student, the relationality of their systems (Barab & Roth's, 2006 affordances and effectivity sets; DeLanda's, 2006 assemblages; Hodder's, 2012 entanglements; Ovens, Hopper & Butler's, 2013 information flow and feedback loops; Pickering's, 1993 mangles; and Winker & Deléage's 2011 intersectionality, see Chapter 2) and their ability to manage the complexity of their

daily lives, were investigated. Cultural, socio-cultural and socio-economic factors were considered; in line with Fitzpatrick's (2011) finding that student identities and attitudes (and ultimately their schooling success) are framed by wider social and political influences.

Excelling at sport between the ages of thirteen and eighteen years could have profound implications not only for the athlete but also for her educators, family, friends and sporting associates. Balancing a multitude of commitments, expectations, timeframes and outputs is a daily challenge for a growing number of young athletes in New Zealand today. An increased understanding of the needs and trials of this group could aid educators and sporting organisations to support and manage these athletes in an appropriate and insightful manner.

A wealth of research exists around youth sport, talent identification, youth high performance, the health and well-being of young athletes, injuries and conditions associated with children in sport, child protection issues, physical, emotional and psychological safety within the coach-athlete dynamic, the role of parents in sport, etc. (see Brosnahan, Steffen, Lytle, Patterson & Boostrom, 2004; Baker, Côté, & Abernethy, 2003; Côté & Lidor, 2013; Gagné, 2000; Moltzen, 1996; Kidman & Lombardo, 2010; Vaeyens, Lenoir, Williams & Philippaerts, 2008; Williams & Riley, 2000; Wolfenden & Holt, 2005 for a full discussion of current research and findings for children and youth in sport). However, the point of difference demonstrated through my study is research that emerged from an authentic, unique student-athlete perspective of what it meant simultaneously to be a secondary school student and a competitive sportswoman in New Zealand. The influences and factors acting on each athlete are perceived to be multiple, layered and unpredictable (Mason, 2008). In New Zealand, educationally, for the National Certificate of Educational Achievement (NCEA) qualifications, the transition from non-external examination assessment (Years 9 and 10) to external examination qualifications (Years 11 to 13) is a significant phase in a young person's life (see Chapter 2 for a further explanation of NCEA and the NZ qualification structure). For each student-athlete in this study, her life experiences were exacerbated exponentially by the addition of 20 hours of training per week to prepare for and compete regularly at a high level in their sport. The training requirements were a critical point of difference that made my research significant and essential.

While my interest in the field of talented young athletes evolved from previous associations and experiences with exceptional athletes in New Zealand and in the United Kingdom, it was during my early teaching career that I became aware of the easy rapport I had with physically able young athletes. This favourable relationship developed further through my roles as a sports administrator, a sports coach, a teacher in charge of gifted and talented students in Physical Education and sport, and as a Masters' degree (MEd) researcher. My Masters' study (Godber, 2011), which included questionnaires and semi-structured interviews of four athletes, four educators and four parents, highlighted a lack of research of the performance and potential in physical education and sport, specifically for secondary school-aged female athletes. Recommendations that emerged from the MEd study included: the need to track or monitor athlete school/sport balance; the individualised implementation of educational provision; increased awareness of additional pressures due to an athlete's stage of maturation (adolescence); a need for educational guidelines and policy documents to be robust, appropriate and regularly reviewed; a need for academic expectations to be realistic and flexible; a need for additional advice and support for the athletes' health, well-being and career pathway; and identification of policy guidelines to provide for talented students who excelled in other fields apart from academia. These recommendations helped to shape the research proposal for my doctoral project. The impetus from the above recommendations guided my rationale to raise awareness and to highlight the issues that young female athletes encounter as talented student-athletes in New Zealand secondary schools.

### **1.1 Purpose of the research**

Four key factors offered a clear rationale and significance for my doctoral study of "sport attainment and education sustainment of talented female secondary school athletes in New Zealand":

- The daily lives and multiple challenges of talented young sportswomen have not been recognised or well understood in current research.
- The interface between sport and education has implications for other areas of a young athlete's life (for example, puberty, adolescence, socialisation, qualification attainment, career pathway, maturation).

- There is a paucity of research specifically regarding the daily experiences of exceptional student-athletes in New Zealand.
- Research in, of and about the stories of this exceptional group of young New Zealand women (through the interpretation of their 'voices') has not previously been undertaken, so this study was original, unique and potentially ground breaking.

My current research contributes to an evidence base that explores and develops an understanding of these key significant factors. It presents a unique opportunity for inquiry with an often invisible or silent group; that is the exploration of the lived experiences of student-athletes that generate understandings and insights, which could transpose to meaningful, practical outcomes. My doctoral study investigated student-athletes' sport attainment and efforts to sustain academic achievement while striving to optimise performance in both sporting and schooling domains, simultaneously.

### **1.1.1 Research questions**

To enable me to explore the complex nature of young people's lives with specific regard to the sporting excellence and academic sustainment of female student athletes, I gathered rich, in-depth data from the athletes and a nominated significant other (SO) (coach, parent, teacher, sport coordinator or sport director). Exploratory questions included: What impact does their sporting excellence have on their personal relationships, on their health and well-being, and on their academic pathway and future career? What influence does their school have on supporting the athletes to balance the multiple demands and pressures in their lives? What influence can their sporting organisations have to support student-athletes to balance sport demands... and continue to achieve at school? What factors within their socio-cultural environment helped to tip the balance towards ongoing success and achievement, or drop-out and failure? How did gender or ethnic issues affect the athletes' attainment in the sporting arena and in their academic study? Did success in one field preclude success in another, or was it possible to perform at a high level in both? Such questions facilitated the development of two focus questions that underpinned this research:

1. What factors and influences affect young female athletes' performances across sporting and schooling contexts?
2. How can social networks within a theoretical framework of complexity uncover meanings and perceptions of talented female athletes' experiences and attainment opportunities?

## **1.2 Content overview**

The following section includes a short explanation of how sport is organised and managed in secondary schools in New Zealand, how talent is identified and provided for in New Zealand secondary schools and beyond, and what measures schools and sporting organisations put in place to support student-athletes as they negotiate the transition from non-external assessments (Years 9 and 10) to achieving nationally recognised qualifications through a process of internal assessments and external examinations (Years 11 to 13).

### **1.2.1 Sport and secondary schools**

Historically, before 1989, interschool sport was run in the Auckland region by teacher committees in various codes, overseen by a body known as the Auckland Secondary Schools Headmasters' Association (ASSHA). In 1989, an organisation named College Sport came about due to the proliferation of sport in schools and the resultant increasing demands placed on teacher committees. It was the vision of school principals that an independent professional administrative body, backed up with bylaws and regulations, was required. Since 1989, College Sport Auckland has grown its membership to now include 109 secondary schools from the Greater Auckland area. As an organisation, College Sport Auckland facilitates 39 codes for approximately 65,000 secondary school participants who are supported by over 200 sport coordinators ([www.collegesport.co.nz](http://www.collegesport.co.nz), 2017). Similar secondary school sport organisations exist throughout the country: School Sport Canterbury, Otago Secondary Sports Association, College Sport Wellington, Sport Waikato-secondary schools, Secondary School Sport – Bay of Plenty, etc. The accessibility and availability of sporting opportunities at secondary school level is substantial in New Zealand, especially in the main centres. The sport management secondary school sport structure of weekly competitive events and games, often held at a central venue on

the same day and at the same time, is a model that has been adopted at intermediate (Years 7 and 8) and, in some sport codes, at primary school level.

Running alongside and often in collaboration with schools is the sports club structure. These community-based organisations and associations provide sporting opportunities from grassroots grades through to international representation, dependent on participant numbers, affiliations, coaching personnel, facilities and funding.

The New Zealand Secondary Schools Sports Council (NZSSSC) is the sports service organisation that coordinates, promotes and protects secondary school sport for all students ([www.nzsssc.org.nz](http://www.nzsssc.org.nz), 2017). This organisation is responsible for the planning, administration, delivery, and ongoing development of all national secondary school tournaments, which are staged annually during school holidays, as summer and winter tournament weeks. The NZSSC works collaboratively with Regional Sport Associations (RSAs) throughout the country. In Auckland alone, collaborative partnerships exist with Counties Manukau Sport, Sport Waitakere, Harbour Sport and Sport Auckland, in conjunction with the relevant National Sport Organisations (NSOs). Sport New Zealand (Sport NZ), at government level, is the umbrella organisation with overall responsibility to support and encourage the delivery of quality sporting experiences for young athletes. Participation at a national secondary school tournament often precedes the identification of talented young athletes who are nominated or selected to start a pathway towards high performance sport.

### **1.2.2 Talent identification and provision**

My research project focused primarily on sport talent as the participant focus of the study was talented female secondary school athletes. To date, many definitions and descriptions of talent exist; however, for the purposes of this study, Gagné's (2000) Differentiated Model of Giftedness and Talent (DMGT), Williams and Riley's (2000) view that "appropriate familial, educational, and socio-cultural environments were keystones in a balanced approach to child development, especially of elite players" (p.665), and Vaeyens, Lenoir, Williams and Philippaerts' (2008) future directions of talent identification and development programmes, are helpful perspectives to consider (see Chapter 2, p. 32-35 for a full discussion). Whether giftedness and talent

are a reality or myth (Howe et al., 1998), how they are perceived and the influence of that perception remains real and powerful.

In New Zealand, the progress of elite young athletes is catered for by Institutes of Sport, special academies, club-based coaching and high-performance programmes, all of which help to form the pinnacle of the High-Performance pyramid model. Sport New Zealand's High Performance (HPSNZ) model is an excellent example of a pathway that provides support and services for exceptional athletes. HPSNZ offers performance enhancement grants to National Sporting Organisations (NSOs) to support and develop local coaching academies, fund athlete travel, improve facilities and access top level personnel. Another highly sought-after source of funding is the Prime Minister's scholarship services, aimed specifically at carded<sup>1</sup> athletes as a way of identifying which athletes are eligible for performance sport, and includes; injury and illness prevention, nutrition, athlete life advice, performance and technique analysis, strength and conditioning, physiology, psychology and performance planning. HPSNZ and NSOs jointly consider and agree to who is eligible to receive carding status in New Zealand.

Two other popular Sport NZ initiatives, the Athlete Life Programme and the Athlete Friendly Tertiary Network, provide financial, professional, personal and educational support for aspiring young athletes. The Athlete Friendly Tertiary Network is particularly beneficial as it includes the Maximise Potential Athlete Life (MPAL) to encourage athletes to cultivate their careers outside of sport. The National Athlete Transfer System encourages athletes who have the potential to win Olympic medals in another code (by transferring their skills, fitness and experience to a new sport), and also provides a positive route for excelling athletes.

Another Sport NZ initiative, Pathway to Podium, was implemented in 2014 as a nationwide talent development programme to help emerging athletes (usually in their late teens) and coaches prepare for the demands of a life in high-performance sport. Currently, about 350 pre-elite athletes and 150 coaches from throughout New Zealand are selected to participate each year ([www.sportnz.org.nz](http://www.sportnz.org.nz), 2017). The goal is for some of the programme participants to win medals at the Olympic/Paralympics Games or at

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<sup>1</sup> Carded – A collaborative system between High Performance Sport New Zealand (HPSNZ) and National Sport Organisations (NSOs) to decide which athletes receive performance support, on an annual basis.



world championships, usually around 8 to 10 years after starting their Pathway to Podium journey. Pathway to Podium is run in partnership between Sport New Zealand, High Performance Sport New Zealand and 14 regional talent hubs around the country ([www.sportnz.org.nz](http://www.sportnz.org.nz), 2017). See Figure 1 for a schematic representation of Sport New Zealand's strategic athlete development pathway (2016).



Figure 1. Schematic representation of athlete development pathway in New Zealand.

In a Master's thesis research study on the identification of and provision for talented female athletes in New Zealand secondary schools, Godber (2012) suggested that identification and provision "is currently haphazard and operates on generically-based criteria which dismiss other important contributing factors to the student's giftedness" (p.4). This study identified a lack or limited use of policy and procedural documents in schools to guide talent identification (as recommended by the Ministry of Education, 2000), with subsequent inadequate or variable provision as an outcome.

### 1.2.3 Student attainment sustainability

The context of my research is located within the sport/school experiences of three young female athletes from three different secondary schools in the Greater Auckland area. As mentioned, the transition from non-examination assessments (years 9 and 10) to the attainment of qualifications through external examinations (years 11 to 13) is a critical period for secondary school students in New Zealand. The student-athletes in this study were at this transitional stage in their education.

The attainment of academic qualifications in secondary schools is dependent on achieving pass grades (Achieve, Merit, Excellence) on the New Zealand Qualifications Authority (NZQA) framework through the National Certificate of Educational Achievement (NCEA), or other internationally based assessment systems (e.g., the Cambridge International Examinations<sup>2</sup>, The International Baccalaureate<sup>3</sup>). The New Zealand Curriculum (NZC) (2007), a descriptive educational document designed to guide all schools in New Zealand to produce “confident, connected, actively involved, lifelong learners” (NZC, p.8), provides schools with sufficient flexibility to meet students’ needs. The vision, principles and values of the NZC “embody the beliefs about what is important and desirable in school curriculum – locally and nationally” (p.9), such as “high expectations, Treaty of Waitangi, cultural diversity, inclusion, learning to learn, community engagement, coherence, and future focus” (p. 9).

Secondary school students who are competitive athletes at national or international level are required to meet the educational expectations as set out by the New Zealand Ministry of Education (MOE), through the NZQA framework. The accumulation of credits from completing internal assessments, and an external examination at the end of each academic year (for some NCEA subjects), results in a student gaining Not Achieve (NA), Achieve (A), Merit (M) or Excellence (E) for each subject taken. In New Zealand secondary schools, the majority of year 11 students sit NCEA level 1, year 12 students sit level 2, and year 13 students sit level 3; however, schools have flexibility in relation to when they start level 1 studies (as experienced by Sandy who completed some NCEA level 1 credits in year 10). Other considerations pertinent to student-athletes in New Zealand secondary schools include: goal setting, time management of training and competitive events, injury, health and well-being, educational support for absences or missed assessments, and maintaining a sport/school balance physically, emotionally, mentally and socially. Research indicates that expectations set too high can initiate anxiety and stress responses in young people, especially if the expectations

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<sup>2</sup> University of Cambridge International Examinations – established in 1998 to provide high-quality, leading-edge qualifications to meet demands of employers worldwide. Includes IGCSE (International General Certificate of Secondary Education, Year 11), A and AS levels (Years 12 & 13 which satisfy entry criteria for university study worldwide).

<sup>3</sup> The International Baccalaureate – founded in Switzerland in 1968, affiliated with the United Nations through UNESCO’s Peace Education plan, this international assessment programme is international in nature and recognised by leading universities worldwide.

are perceived to be important to a significant other, such as a parent, coach, teacher or selector (Edger, 2015).

The sustainability of achieving academic qualifications while simultaneously competing in high-performance sport underpins this research. A consideration of the multi-layered, interconnected and interrelated factors and influences on each student-athlete highlight the complexity of her systems, therefore making it an ideal phenomenon to study (Merkel, 2013).

### **1.3 A brief overview of this thesis**

This thesis is presented in seven chapters. A summary of the remaining six chapters follows:

#### **Chapter 2: Literature review**

The purpose of the literature review is to contextualise the doctoral research study against existing scholarly publications and thinking. Chapter two commences with a discussion of talent, talent identification and talent development programmes in New Zealand and overseas. Policies and provision pertaining to New Zealand and international programmes follow to establish current initiatives and agendas in the fields of youth sport and education. Next, an exploration of influences on student-athletes, including the socio-cultural factors of gender, gender identity, embodiment, power relationships, socio-economic influences, ethnicity, and culture as an inherited construct. A review of literature pertinent to managing sport sustainability for youth athletes encompasses expectations and goal setting, training and performance, organisation, time management and commitment, and school/sport balance. Chapter two concludes with a clarification of a complexivist philosophy as the underpinning theoretical framework on which my thesis is based. The primary focus of such an explanation is to provide an overview of complex systems and complexivist terms, relative to an understanding of talent within the socio-ecological context of sport.

#### **Chapter 3: Methodology**

Chapter three begins with a discussion of the methodological approach undertaken in the study. Integral to chapter three is an examination of the theoretical perspective upon which the thesis was based: a complexivist posthumanist paradigm. The research site and participants, including demographic data and selection criteria, are

presented and justified. An explanation for employing a narrative case study methodology is discussed in depth, followed by an explanation of the research methods, analysis processes, the steps taken to ensure compliance with qualitative research standards, and the research pilot, phases and timeframes. Specific issues regarding ethical considerations and the validity and trustworthiness of the study are addressed within the body of the Methodology chapter.

#### **Chapter 4: Aroha's story**

Chapter four presents the data or findings of a narrative case study for Aroha in the form of a biographical description of her preschool to secondary school sport and education experiences, as interpreted from the collected questionnaire and transcribed interview data. Aroha's story is told from largely a personal perspective and centres on her perceptions, meanings and behaviours, which unfold as she negotiated her daily life as a student-athlete in New Zealand. This carefully crafted narrative of Aroha's life is followed by a detailed interpretation of her story and data, relative to a complexivist post-humanist theoretical framework.

#### **Chapter 5: Sandy's story**

Chapter five presents the data or findings of the narrative case study of Sandy in the form of a biographical description of her preschool to secondary school sport and education experiences, as interpreted from the collected questionnaire and transcribed interview data. Sandy's story was created from my researcher-narrator perspective and represents only one interpretation of her story. The narrative is based on a qualitative interpretative process of interviewing, recording, transcribing, analysing, and writing.

#### **Chapter 6: Rebecca's story**

Chapter six presents the data or findings of the case study of Rebecca in the form of a biographical description of her preschool to secondary school sport and education experiences. Rebecca's story was created from the interpretation of the collected questionnaire and transcribed interview data. Maintaining the student-athlete voice at the forefront of the research, Rebecca's story displayed a strong sense of what factors and influences contributed towards her experiences, perceptions and meanings about her everyday life. Rebecca's story, created from my researcher-narrator perspective, represents only one interpretation of her life during the research period. It is possible

that, due to the qualitative interpretative process, Rebecca's story as presented may not convey the same meanings as were originally experienced.

### **Chapter 7: Discussion**

The discussion chapter highlights and examines the major interconnected, overlapping, interrelated and dynamic themes (or nodes) identified through thematic analysis of the research narratives. The nodes include elements such as: aspirations in sport, aspirations in education, early childhood experiences, Years 7 and 8, secondary school specialisation, a day/week in the life of, perceptions, support, relationships, change of sport code, recruitment, reflection, strategies for success, key interconnecting influences and key influences of tension. An interpretation of the nodes along with multiple related subthemes, address the two research questions underpinning this research. Using a complexivist post-humanist theoretical framework, the complexity of each student-athlete's systems, experiences, perceptions and meanings are discussed by exploring factors and influences that act within, between and across their dynamic systems. The individual components (people, places, equipment, buildings, regulations, policies, procedures, constraints, etc.) act as adaptive agents, interdependent with those to which they are connected (Ovens, Hopper & Butler, 2013).

### **Chapter 8: Implications and future considerations**

The final chapter highlights the challenges faced by the student-athletes as they negotiated the complexities of their daily lives and experiences within a school/sport context. The challenges are located within, through and across multiple dimensions due to the multi-layered, discursive, unpredictable nature of their systems (Bronfenbrenner, 1979; Ovens et al., 2013). Implications for improving their life experiences as talented female secondary school student-athletes in New Zealand are embedded in the discussion. From this study, recommendations for future exploration have been identified.

## Chapter 2 Literature review

In this chapter, I present a review of literature based on contemporary and seminal research relevant to talented female secondary school athletes in New Zealand and the theoretical underpinnings of my research. The chapter begins with a clarification of the term talent followed by discussion of gifted and talented policies and programmes in New Zealand. International influences and opportunities that shaped talent identification and provision in New Zealand, especially in the past two decades, follows. Influences acting on young athletes, such as significant others, siblings and peers, injury, health and well-being, form the main body of this review. Concurrently, socio-cultural factors such as gender and gender identity, embodiment, power relationships, socio-economic issues, ethnicity, and culture as an inherited construct, inform this review of pertinent literature. Managing student-athlete sport and education sustainability at a secondary school level in New Zealand, follows and provides a foundation against which my three narrative case studies (Garrick & Requa, 2003; see Chapters 4, 5 and 6) were interpreted and analysed. The chapter concludes with current thinking on the philosophy of complexity, key complexivist themes and a selection of complexivist tools appropriate for data analysis and interpretation in qualitative research methodology. The purpose of the literature is to provide a view of existing work relevant to my study, to highlight research that contributed to an increased understanding of talented youth athletes (aged 13-18 years), and to identify gaps in research and directions for research that existing literature (both conceptual and theoretical) does not currently identify or address. Therefore my study is important and timely, as it aimed to investigate two key research questions:

1. What factors and influences affect young female athletes' performances across sporting and schooling contexts?
2. How can social networks within a theoretical framework of complexity uncover meanings and perceptions of talented female athletes' experiences and attainment opportunities?

## 2.1 Talent

### 2.1.1 Understanding talent

My research focused primarily on sport talent, specifically three talented sportswomen. Tranckle and Cushion (2006) purport the value and importance of talent, stating that talent should not be underestimated within and across the fields of academic and sports performance. They elaborated further that the detection and development of talent is a central concern for coaches, teachers and researchers in sport sciences and education. Régnier, Salmela and Russell (1993) supported this view, proposing that the detection and development of talent is based firmly on the premise that predicting future performance based on present knowledge underlies the competitive processes in sport and education contexts.

An alternate view of the value and importance of talent has been offered by Csikszentmihalyi, Rathunde, and Whalen (1993), who clearly enunciated that “talent is a rare and valuable resource for society and a great deal of potentially valuable human talent is wasted in every generation” (p. 265). Csikszentmihalyi et al. elaborated further; “the waste of talent stems, essentially, from a lack of understanding and knowledge about the nature of talent and a failure to grasp what makes people motivated enough to develop talent” (p. 265). On the other hand, Gardner (2005) contended that there is no issue more important for the survival of a society than cultivating young talent and reducing the loss of talented individuals. In a similar vein, the Australian Institute for Sport (AIS) recognised a “need to actively unearth talent for nations to remain internationally competitive” (Michael Scott, Director of Australian Sport Commission, 2001); however, Lloyd (1995) stated that identifying and developing talent is more than merely “turning flesh into gold” (p.11). The indication from literature and differing interpretations of the term demonstrate that talent is an incredibly complex concept.

Without a clear and comprehensive definition or understanding, *talent*, *gifted* and *aptitude* are terms often used interchangeably, resulting in a casual and frequently misleading use of the word (Tranckle & Cushion, 2006). Tranckle and Cushion proposed that a good starting point for developing a clearer definition of talent comes from Csikszentmihalyi et al. (1993) who argued that talent is socially constructed; “It is a

label of approval we place on traits that have a positive value in the particular context in which we live" (p. 23). Due to the social dimension in sport, they explained that "talents do not exist in a vacuum but in reality; these are relative to a given context and labelled only as talent when valued and approved by the subculture and wider society in which these exist" (p. 223). Tranckle and Cushion emphasised that, due to the complex nature of talent, an accurate definition of this term must incorporate the social construction and value placed upon an understanding of this term within a particular context. This value may be interpreted as capital, which may be social, cultural and/or symbolic (Bourdieu, 1984).

Brown (2002) recognised the absence of a definition that suited the sporting domain and proposed that talent was more than "a special, natural ability" and "a capacity for achievement or success" (p. 3). He supported the notion that talent could be one-dimensional and multi-dimensional, and that athletes could excel in one sporting activity or in many. He also conceded that athletes may be position specific and due to the mix of their abilities and aptitudes, may only display talented performances in specific contexts. Conversely, he recognised that multidimensional athletes were adept at "decision-making, handling the ball, running, avoiding defenders, changing direction, and reacting to teammates and opponents" (p. 4). Due to divergent perceptions and interpretations of the term, I am predisposed to seek the formulation of clear definitions and a greater understanding of talent, to allow attention to focus on how talent can be maximised in the lives of sport performers.

In 2002, Durand-Bush and Salmela's understanding of talent was clarified through their qualitative study of expert athletic performers - Olympic medallist participants. Evidence revealed that talented athletes move through four distinct stages: sampling, specialising, investment and maintenance. The ability of a talented athlete to maintain expert athletic performance hinged, according to their study, on the influence of contextual factors, such as parents, coaches, teammates/friends, support staff, other athletes and school/education. Personal characteristics (self-confidence, motivation, creativity and perseverance) and the quantity, quality, intensity and planned recovery from training also played significant roles in the development and maintenance of expert athletic performance.



Wolstencroft's (2002) academic review of the validity and applicability of Scotland's Talent Identification and Development (TID) programme has also contributed to our understanding of the term talent, especially at the interface between bio-scientific and socio-cultural perspectives. Wolstencroft concluded that the current UK resources, which are concentrated on anthropometric measures for talent identification, should concentrate primarily on the psychological dimensions supported by the development of fundamental motor skills. Her review highlighted talent as dependent on genetics, environment, encouragement and the effect of these on physical and psychological traits. She recommended that by "equipping young people with the appropriate psycho-behavioural characteristics of excellence and providing them with opportunities to develop at an early age, the fundamental motor skills required for participation in a wide variety of sporting activities would allow young people to reach their potential in sport..." (p. 80).

Gagné's (2000) Differentiated Model of Giftedness and Talent (DMGT, cited in Tranckle & Cushion, 2006, p. 267- 268) provided an alternative view of talent from an educational perspective. For Gagné, the one term fits all use of talent was unacceptable, so he proposed a clarification by developing a definition based on meaning rather than description or properties. This resulted in Gagné making what is a useful distinction between the raw material at one end of a continuum, which he described as "the possession and use of untrained and spontaneously expressed natural abilities (called aptitudes or gifts), in at least one ability domain, to a degree that places a child at least among the top 10% of his or her age peers" (Gagné, 2000, p.1). To Gagné, such aptitudes or gifts might result from maturation or informal learning. At the other end of the continuum, Gagné described the end product of development as "the superior mastery of systematically developed abilities (called competencies or talent) and knowledge in at least one field of human activity to a degree that places a child's achievement within at least the upper 10% of age peers who are actively in that field or fields" (Gagné, 2000, p.1). Instead of the current one term fits all approach, Gagné's continuum of giftedness and talent offers greater conceptual clarity between these two distinct but interrelated areas.

While it would be impossible to capture the moment a gift becomes a talent, Gagné demonstrated and consolidated his definitions of giftedness and talent through his

2000 Differentiated Model of Giftedness and Talent (DMGT), which includes four broad bands (natural abilities): intellectual, creative, socio-affective, and sensorimotor. In terms of systematically developed skills, Gagné broadly categorised academic, arts, business, leisure, social action, sports, and technology as fields of human endeavour. Gagné suggested that these systematically developed skills or expertise (as described by Ericsson, Krampe, & Tesch-Römer, 1993) are the end product of the developmental process and may be described as talents. Gagné's model has relevance as it offers a continuum upon which the researcher may identify significant events, others and developments that can and have affected or influenced a student-athlete's attainment in one or both fields of endeavour – education and sport.

Three forms of catalyst, according to Gagné (2003), can have a positive or negative impact on the developmental process. He describes the catalysts as *intrapersonal*, *environmental*, and *chance*. Gagné's intrapersonal catalysts include physical, motivation, volition, self-management, and personality, while his environmental catalysts include milieu, other people, provisions and events. In his revised DMGT model of 2000, Gagné emphasised the catalyst of *chance*, linking it to natural abilities, which supported his belief that gifts are genetically determined. He also made connections between *chance* and intrapersonal factors, and *chance* and the environment by considering whether an individual had access to certain people and provisions, the effects of positive or negative events in their lives, their suitability to the field they had chosen to develop skills in, and which culture they were born in to. Although Gagné suggested the relevance of the model for sports as well as other fields (Gagné, 1996), the model has yet to receive any recognition within sports research or indeed even be considered in the sports talent literature. However, the relevance and potency of Gagné's model has wider acceptance and recognition within educational and commercial contexts (Driscoll, 1994; Gredler, 1997).

Research by Bailey and Morley (2006), specifically in the domain of school Physical Education and Sport, found that traditional conceptions of talent generally emphasised the construction of threshold values and the development of relatively unitary abilities. They proposed that this traditional approach still dominates talent development programmes for elite sport. Bailey and Morley also indicated that most researchers on high ability, now favour domain-specific, multidimensional conceptions

of ability that stress the development of behavioural potential and its interaction with personal and environmental characteristics. Their research presented a model of talent in physical education, drawing together findings from a wide range of literature on the realisation and inhibition of abilities, international studies of effective school-based identification and provision strategies, and a conception of talent as an integration and realisation of different forms of ability.

In an academic review of the educational benefits of Physical Education and School Sport (PESS) in English schools, Bailey et al., (2009) produced persuasive evidence to suggest that physical activity can improve children's concentration and arousal, which might indirectly benefit academic performance. Bailey et al. concluded that many of the educational benefits claimed for PESS are highly dependent on contextual and pedagogic variables, which led them to question any simple equations of participation and beneficial outcomes for young people. Earlier research by Morley and Bailey (2006) aimed to redress the imbalance from an almost total concern with out-of-school clubs and the preparation for adult elite sport, in favour of a more equitable and inclusive approach, premised upon the unique importance of mainstream, curricular physical education within any talent development scheme. Morley and Bailey's findings emphasised the need for whole-school policies and gifted and talented policies for Physical Education as a subject area, as well as provision and development of all abilities in Physical Education and sport, over and above psychomotor performance.

### **2.1.2 Identification of talent in sport**

Another perspective of talent can be deduced from the work of Vaeyens, Lenoir, Williams and Philippaerts (2008) on current models and future directions of talent identification and development programmes in sport. Vaeyens et al. (2008) found that a lack of consensus in relation to how talent should be defined or identified, combined with no uniformly accepted theoretical framework to guide current practice, produced variable success rates of talent identification and development programmes. They proposed that talent identification (TID, the process of recognising participants with the potential to excel in sport) and talent development (TDE, providing the most appropriate learning environment to realise this potential) play a crucial role in the pursuit of excellence in sport. While many sporting organisations and top level teams

utilise science-based support systems (psychological counselling, computer-based match analysis, physical conditioning), Vaeyens et al. concluded that, due to a lack of scientific grounding for most TID programmes, “research efforts should be transferred from TID and detection to TDE and guidance” (p. 703). This recommendation, based on analysis of recent literature on TID, TDE and the difficulties of implementing current understandings in a practical context, highlights the traditional use of cross-sectional models to predict success in adult competition by measuring the current performances of adolescents. Vaeyens et al. identified three major concerns with the use of cross-sectional models:

- 1) The assumption that the important characteristics of success in adult performance can be extrapolated to identify talented youngsters. Studies by Abernethy and Russell, (1987), Bloom (1985) and Simonton (1999) suggest that many qualities that distinguish top athletic performance in adults may not be apparent until late adolescence, which confounds the practice of early selection.
- 2) How the rate of maturation impacts on performance characteristics, such as aerobic power, muscular strength, muscular endurance, motor skill execution and game intelligence. Sexual maturity during puberty may have a large influence on performance and depending on their rate of maturation, children may be (dis)advantaged on performance tests. The use of age-related categories by sports clubs, sports organisations, and local and regional competitions to ensure developmentally equitable competition and opportunity often exacerbate the differences in timing and rate of maturation, especially during late childhood and early adolescent years.
- 3) The dynamic nature of talent and its development precludes accurate predictive indicators when based on a cross-sectional model of TID and TDE programmes. Empirical evidence from sports such as gymnastics, hockey, rugby and soccer suggests that different performance indicators may characterise success at different age groups. For example, Nieuwenhuis, Spamer and Van Rossum’s (2002) study of predictive function for identifying talent in 14–15 year old female hockey players, Pienaar and Spamer’s (1998) longitudinal study of talented young rugby players, Régnier and Salmela’s (1987) investigation of the predictors of success in Canadian male gymnasts and Vaeyens, Malinda, Janssen, Van Renterghem, Bourgois, Vrijens and Philippaerts’ (2006) multi-dimensional selection model for youth soccer, all exemplified the need for caution, because “excellence in sport is not idiosyncratic to a standard set of skills or physical attributes; it can be achieved in individual or unique ways through different combinations of skills, attributes, and capacities” (Vaeyens et al., p.705).

Subsequently, Vaeyens et al. advocated that talent identification and development programmes should be dynamic and interconnected, taking into consideration maturity status and the potential to develop, rather than to exclude children at an early age. In their view, traditional cross-sectional talent identification models are

likely to exclude many, especially late maturing, promising children from development programmes due to the dynamic and multidimensional nature of sport talent.

A contrasting perspective, gleaned from Williams and Reilly's (2000) work on talent identification and development in soccer players, questioned the validity of relying on physical, physiological or psychological measures to predict potential in sport. Williams and Reilly reported that, from a sociological perspective, "supportive parents, a stimulating and permissive coach and the dedication and commitment of the athlete to spend multiple hours training and refining skills are the real determinants of excellence" (p.664). Williams and Reilly questioned whether their findings could be generalised to female players and concluded that research into talent identification and development should be extended to address issues related to young female soccer players. An outcome of their work highlighted why "the pursuit of excellence should not be at the expense of the athlete's physical and emotional health, growth and development" and that "appropriate familial, educational, and socio-cultural environments were keystones in a balanced approach to child development, especially of elite players" (p.665).

In a similar vein, Tansley (2011), in her exploration of the historical and linguistic development of the term talent as situated specifically in the field of talent management, found that there was no single or universal contemporary definition of talent in any one language. She concluded that the importance of current meanings of talent tended to be specific to an organisation and were highly influenced by the nature of the work undertaken. Côté and Lidor (2013), in their research on the identification of talented children and youth, took multiple factors into account including activities in which children participate in during their development, and personal and social variables that affect their growth. Côté and Lido's comprehensive exploration of children's talent development through sport is based on a structured research investigation that considered not only practice activities (Gagné's formal instructional stage), but also the importance of play (Gagné's informal development stage) and the sampling of various sports throughout childhood. Their study also considered the psychosocial influences of self-efficacy, perfectionisms on emerging talent in youth, the influence of coaches, peers and family members, as well as training aspects such as the impact of implicit motor learning.

Another talent identification initiative with relevance to New Zealand sport came from Australia. New Zealand policy makers and educationalists watched with great interest as the Australian government supported, as part of a national strategy leading up to the Sydney 2000 Olympics, the implementation of a nationwide Youth Talent ID search for ideal 14-16-year-old athletes who had the potential to become Olympic champions in swimming. The selection of athletes was primarily based on anthropometric measurements of the forearm, full arm length, leg length, lower leg and overall height of the athlete, as indicators of greater propulsion potential. Such athletes were trained through the Australian Institute of Sport in elite squads, designed specifically to produce champion swimmers such as Ian “Torpedo” Thorpe who was a triple medallist at Sydney followed by another two medals at the Athens Olympics four years later. Unfortunately, Thorpe and his millennium ilk struggled to maintain international qualifying standards in recent Olympics, which cast doubt on the justification of such selection policies ([www.ausport.gov.au/ais](http://www.ausport.gov.au/ais)).

While also relying on international standards and tests of physiological performance, Sport New Zealand adopted a more multidimensional selection process within the disciplines of exercise science, sports psychology and sociology. Moltzen (1996) supported this stance and identified the observable physical characteristics that surround athletic ability as: “excellent control of body movement; excellent hand-eye coordination; ability to manipulate objects with ease; ability to learn new physical movements with ease; and a strong sense of rhythm” (p.52). Pearson, Naughton and Torode (2006) highlighted the need for caution when using anthropometric data and test batteries for talent identification as they found that the additional factors of growth rates and trainability accounted for large discrepancies in performance between athletes who were similar during initial physiological testing. Pearson et al. also advised that the perfect model for identification would “account for maturity and include multidimensional aspects of performance such as game intelligence and psychosocial attributes in addition to physical performance and growth-related measures” (p.285). Despite the trend for multidimensional analyses in New Zealand, as recommended by the Ministry of Education (2000), most test batteries for talent identification in young athletes in New Zealand and overseas continue to primarily be based on anthropometric data and physiological tests.

To advance knowledge further, Tranckle and Cushion (2006) proposed a greater understanding of how individuals discover their gifts may be uncovered by exploring the perspectives of coaches, gifted individuals, and their families. Further research needs to be addressed concerning significant events, values, beliefs and meanings associated with the discovery of gifts. Whether giftedness and talent are a reality or myth (Howe et al., 1998), how they are perceived and the influence of that perception remains real and powerful.

## **2.2 Gifted and talented New Zealand policies and programmes**

### **2.2.1 Education**

As Years 9 to 12 secondary school student-athletes, the participants in my study experienced the New Zealand Curriculum (NZC) (2007). The NZC is a statement of official policy pertaining to teaching and learning “relating to all English-medium state schools (including integrated schools) and to all students in those schools, irrespective of their gender, sexuality, ethnicity, belief, ability or disability, social or cultural background, or geographical location” (p.6). The NZC sets the direction for teaching and learning, but it is a framework and not a plan. This means that every school curriculum must be clearly aligned with the intent of the document, but schools have the flexibility to draw on various resources and a range of ideas or models to achieve the educational expectations of the NZC. In Years 1 to 10, schools are required to provide teaching and learning in English, the arts, health and physical education, mathematics and statistics, science, the social sciences and technology.

New Zealand secondary schools are required to provide the basis for the ongoing development of achievement standards and unit standards registered on the National Qualifications Framework, which are designed to lead to the National Certificate of Educational Achievement (NCEA). Schools may choose to offer other national certificates in Years 11 to 13. The flexibility of the qualification system allows schools to keep assessment to levels that are manageable and reasonable for both students and teachers ([www.nzcurriculum.tki.org.nz](http://www.nzcurriculum.tki.org.nz)).

The impact of international policy on Education and Sport in New Zealand cannot be understated. Recommendations from two ground-breaking documents in the 1970s; the Marland Report from the United States, and Renzulli and Reis’ (1978) multi-

category definition of talent, influenced the New Zealand policies to reflect criteria based on *potential* performance rather than *demonstrated* performance. This view of talent precipitated the need for educators to offer challenging learning experiences to fully realise special abilities. The release of the Marland Report to the Congress of the United States in 1972 contained a widely known definition of giftedness for children, was the first national report on gifted education, and contained some compelling findings, that is, “Gifted and Talented children are, in fact, deprived and can suffer psychological damage and permanent impairment of their abilities to function well which is equal to or greater than the similar deprivation suffered by any other population with special needs” (p.11-12).

Initially, exceptional physical abilities were viewed by Rezulli and Reis as an interaction between clusters of human traits rather than isolated criterion; for example, above average intelligence, a high level of task commitment and a high level of creativity. However, when the New Zealand Education Department published a draft policy statement for students with special abilities in 1986, educators examined a wider range of factors:

- specific academic, technical or mechanical aptitude
- creative, productive, or intuitive thinking
- general intelligence
- psychomotor skills
- cultural traditions, values, and ethics
- social skills and leadership
- aesthetics

New Zealand educational policy aligned with the trend in the United States, which was influenced by the Javits Gifted and Talented Act (1988) and the United States Office of Educational Research and Improvement report, *National Excellence and Developing Talent* (1993). Both documents emphasised the need to identify talent in students across all cultural groups and socio-economic strata, and in all areas of human endeavour (MOE, Handbook for Schools 2000). A third influencing factor that brought debate and eventually clarity to international educational policy was Gagne’s (1996 cited in MOE, handbook for Schools, 2000) differentiation of the term gifted and



talented. He claimed that giftedness is usually associated with high intelligence or aptitude, whereas talent is often related to a high level of performance in such areas as music, art, craft, dance or sport. While this view was at variance with earlier perceptions of potential rather than demonstrated performance, it provided a wider lens on the understanding of exceptionality, which included interpersonal catalysts such as motivation, personality, and health, and environmental catalysts such as one's surroundings, significant people, activities, and events.

The NZC vision for young people in New Zealand schools is to be “confident, connected, actively involved, lifelong learners” (p. 8). This vision is underpinned by principles that put “students at the centre of teaching and learning, asserting that they should experience a curriculum that engages and challenges, is forward-looking and inclusive, and affirms New Zealand’s unique identity” (p.9). The student-athletes in my study were educated at three different schools in the Greater Auckland Region, two in co-educational and one in a single-sex secondary school. Their experiences, although based on the same generic curriculum, were conceived and synthesised in an original and unique manner, influenced by each student-athlete’s motivation, aspirations, expectations (of self and from others), short and long term goals, aptitudes and interests, and other multi-layered factors and forces acting on, across and within each student-athlete’s complex educational system. The combination of education and sport will be explored in more detail in the next section.

### **2.2.2 Education for student-athletes**

Opportunities to compete as a high-performance athlete in conjunction with academic study has been a benchmark of the American College system for many decades. The USA has consistently offered sponsored support (scholarships) to eligible participants (nationally and internationally) who are expected to balance the roles of being a full-time student and a full-time athlete. Athletic scholarships are largely regulated by the National Association of Intercollegiate Athletics (NAIA) or the National Collegiate Athletic Association (NCAA). These two associations set minimum standards in terms of grade point averages (GPAs) and standardised test scores for the athlete, with non-performance in one or both aspects subject to regular review and possible dismissal. Similarly, the NAIA and NCAA monitor the proportion of recipients who must ultimately earn degrees, and the terms and value of the scholarships, for each

sponsoring institution. While athletic scholarships are common in the USA, they are rare or non-existent in many other countries ([www.usa.student\\_athlete.org](http://www.usa.student_athlete.org)).

In general, New Zealand has not pursued such a policy or model, but young New Zealand athletes have in recent decades accessed some of the USA's athlete scholarships in sports such as athletics, baseball, basketball, soccer, swimming, tennis and golf. While access to this highly regulated student-athlete system appears to be hugely beneficial, especially to the individual and their country, many selected student-athletes fall short or fail on several counts. Though the research comes from the USA, some relevant information applies to New Zealand student-athletes.

According to Kissinger and Miller (2009), student-athletes face six distinct challenges:

- Balancing athletic and academic responsibilities.
- Balancing social activities with athletic responsibilities.
- Balancing athletic success and/or failure with emotional stability.
- Balancing physical health and injury with the need to keep competing.
- Balancing the demands of relationships with entities such as coaches, teammates, parents and friends.
- Addressing the termination of one's college athletic career (p.6).

In New Zealand, Sports Academies and Institutes of Sport emerged as part of the development of Sport Departments in secondary schools. Prior to 2000, sport was organised and implemented by PE teachers as part of their role as a teacher in the school's PE department. The College Sport innovation in the late 1990s, supported by the Secondary Schools Heads Association, coordinated interschool sport and provided opportunities and pathways for student-athletes to access top level coaching and competition in Auckland. As alluded to earlier, the College Sport initiatives (weekly leagues, zone tournaments, interzone and champion of champion finals, sports awards and a sports dinner) raised the bar on secondary school sport. Many secondary schools responded by employing part-time Sport-coordinators, forming a Sport department, and in more prestigious sporting schools by establishing sport academies and institutes. The academies and institutes are of interest to this research as several of the student-athletes have experienced this in-school sport structure. That is, they have their academy sport timetabled as part of their school week, and attend theory and practical classes specific to their sport. In addition, sport academies and institutes of sport assist students to manage their sporting commitments, homework and

assessment deadlines, subject choice and career planning, injury, nutrition, health and well-being, while also giving them access to top level coaching (Godber, 2011).

Kissinger and Miller (2009) noted that pressures such as time constraints, use of drugs, alcohol consumption, and student-athlete identity can affect the ability of student-athletes to function within normal society. The formation of an ego identity, which recognises student athletes only for their athletic competence, places the individual under enormous pressure, where their sense of self-worth hinges on making big plays and winning. According to Kissinger and Miller, all the experiences are heightened because everyone (coaches, teammates, friends, family, the supporters and the media) expects the student-athlete to perform at a high level both academically and competitively. The consequences of not performing are very intense and can be severe, with some student athletes dropping out and others committing suicide.

However, Ferris, Finster and MacDonald (2004) cited a correlation between playing sports and academic performance in the USA, due possibly in part to the strict guidelines that require athletes to maintain a certain GPA to be eligible for sports, as well as rigorous monitoring. They suggested that many teens who were previously at risk of dropping out graduate, often with honours. Recently, a USA federal law mandated that universities reveal their graduation rates to inform policy makers and constituencies about efforts to support educational attainment for students and athletes. This information enabled prospective student-athletes to estimate the course load and amount of practice and game time at an institution. Ferris et al. found that universities with more selective admission policies graduated students and athletes at higher rates. There was a significant difference in graduation rates between student-athletes and non-athletes, but also a noticeable difference between scholarship and non-scholarship athletes, with athletes on scholarships typically faring worse than non-scholarship and partial scholarship athletes in academic achievement. Ferris et al. explained that many university athletes felt obligated to put university sport before academic study because their tuition was essentially being paid for by universities. Student-athletes were therefore, at times, disadvantaged by their full-time involvement in university sport and often focused on their next game or the pressures to win, instead of concentrating on the academic work they needed to complete.

Regarding female athletes, the Title IX of the Education Amendments Act 1972, known as the Patsy T. Mink Gender Equity in Education Act of 2016, in honour of its principal author, is a United States law that states:

To support educational entities in fully implementing title IX and reducing and preventing sex discrimination in all areas of education (S.3147 — 114th Congress, 2015-2016).

Title IX of the Education Amendments of 1972 was designed in part to balance the amount of money spent on men's and women's sports. During the 1970s – 1990s, the late Senator Ted Kennedy impacted on women's athletics and the overall sport scene in the USA. He became the chief advocate behind the Civil Rights Restoration Act of 1987, which re-enacted Title IX after a narrow Supreme Court decision to have the Title IX coverage removed from all intercollegiate athletics in the United States. Today, the increased opportunities for female athletes can be witnessed in university and high school athletics programmes, which have helped to spawn professional leagues, increased participation, and Olympic success (cited in SAPR – Student Athletic Performance Ratings, 2012). In New Zealand, opportunities to access a sports scholarship in an American High School or university was regarded as prestigious (Godber, 2011) and almost a guarantee of future New Zealand representation (post scholarship). Within the current study, none of the student-athletes indicated an interest in applying for a place on a USA programme. Sandy's artistic gymnastics coach, however, confirmed that a scholarship in the United States was the expected progression for New Zealand gymnasts who wished to compete internationally after the age of 15 or 16. Access to local opportunities and programmes appears to be based more on socio-cultural, socio-economic and socio-ecological factors (Godber, 2011), rather than on gender equity issues.

### **2.2.3 Some international influences**

Sport policy, not unlike other areas of social policy, is a site where struggles over resources, status and identity, occur frequently (Piggin, 2013; cited in Henry & Ko, 2013). Piggin (2013) elaborated further by suggesting that significant problems for policy makers included how to distribute resources (not just physical resources but those such as granting legitimacy and status), and how to justify to stakeholders vying for these resources that the decisions are the 'correct' or 'best' ones. For example, in

the United Kingdom, the UK Talent Team, which is a collaboration between UK Sport and the English Institute of Sport (EIS), focuses on supporting sports to improve their systems of performance development through four key areas:

- Educational opportunities - Master class workshops for coaches and managers including talent profiling, tracking, benchmarking, and junior to senior transition
- Benchmark - performance development pathways against world best using specialist diagnostic tools
- Innovative research - to gain greater understanding of the route to excellence in elite sport
- Technical frontline solutions - in partnership with sports to develop talented athletes ([www.uksport.gov.uk](http://www.uksport.gov.uk))

National athletic recruitment projects, designed to assess thousands of potentially talented athletes, were implemented in the UK as part of the UK Sport's eight-year strategic investment into development, pre London 2012. The UK Talent Team documented that over 100 athletes selected into the world class system won a total of 102 international medals from 293 appearances. The focus on performance-based world class achievement was a clear policy direction for the UK, with winning medals at the London Olympics being the goal. Due to the success of this performance-based rationale, the UK Talent Team introduced a Performance Pathway Programme (PPP) from 2013 as a further development of the previous eight-year strategy for international sporting success. The UK Sport PPP is designed for managers working in the world class programme environment, responsible for talent identification, confirmation and development of future medallists for 2018, 2020 and beyond ([www.uksport.gov.uk](http://www.uksport.gov.uk)).

Recent UK government-led changes in public policy domains, including sport and physical activities, have had wider implications. Grix (2009) from the University of Birmingham, argued that the modernisation of sport policy along new managerialist lines based on business values, techniques and practices, has had a detrimental effect on many sports at international and grassroots levels. As part of this modernising process, national governing bodies of sport (NGBs) were required to professionalise their management by "the removal of the locus of power from the knowledge of

practising professionals to auditors, policy-makers and statisticians” (Davies 2003, p.91). The concept of for-profit values, techniques and strategies, recommended as a framework for the New Managerialism of NGBs (Green & Houlihan 2006, p.50), had a particularly erroneous impact on UK Athletics, a sport which was regarded as failing under the previous systems of governance. Grix (2009) explained that the hierarchical chain of power from government down to NGBs effectively strait-jacketed UK Athletics into “delivering a narrow, Olympic-driven sports policy to meet government set targets” (p. 33), due to key management and administrative positions being filled by people with business rather than athletics backgrounds. The shift to centrally imposed targets, directives and performance indicators resulted, according to Grix, in a bewildering array of overlapping and unspecified roles, specifically in the delivery of sport policy. To illustrate, the delivery of sport policy in the UK currently includes non-departmental public bodies (for example, Sport England and UK Sport), a Sports Minister, an Olympic Minister, a UK Sports Institute and British Olympic Association, who all work together with the Department for Culture, Media and Sport (DCMS).

European member states of supranational institutions such as the European Union (EU) play an increasingly important role in the relationship between the EU and sport policy (Garcia, 2013; cited in Henry & Ko, 2013). Garcia acknowledged that despite diversity, two main views of sport among EU institutions had developed: sport as an economic activity in need of regulation, and sport as a socio-cultural activity with important implications for civil society.

China, on the other hand, has followed the Soviet model for athletic development. China’s sports development policy is to select promising youngsters at a young age (8–13 years) in to state-funded boot camp-style training centres, where they endure rigorous training programmes in preparation for international competition. Talent identification is achieved from scouts who travel the country looking for athletes with proper physique and skills. The removal and isolation of these potential high-performance youngsters into specialist sports schools effectively removes familial impact and opportunity. Such removal and isolation allows the State to control social factors, which could otherwise have a detrimental influence on the athlete. Children demonstrating exceptional flexibility and balance are sent to gymnastics and diving camps, those identified with long arms into swimming or javelin throwing, and

potential archers, who also have strong shoulders, superior vision and a cool demeanour, are selected on their ability to stack eight or more .22 calibre bullets. The social and emotional impact of China's selection policy, however, is exemplified by the following comment:

When I was in the first grade scouts came to our school from the Communist sports machinery to hunt for future champions. The event was diving. Never mind that I couldn't swim and had no desire to be an athlete. I was told that I had the right proportions and good feet. I was chosen from a field of thousands to train at a state sports school. I was supposed to be thrilled to serve my country"  
(Ni Ching, Los Angeles Times journalist, retrieved from <http://factsanddetails.com/china.php?=1008&> on 4 February 2013)

According to Hessler (2003), the method of early recruitment is a product of China's inability to provide every public school with coaches and sports facilities. Presented with an array of anthropometric measurements (including bone density and bone structure to predict future growth), parents of selected candidates are coerced into sending their child to a national training centre, for the good of the State. Olympic gold medal diver, Fu Mingxia, entered the Beijing Sports School when she was nine, saw her parents only once a year, and often was not allowed to see them when they attended her diving meets. She stated that the training sessions emptied her of her emotions. It has been documented in the China Daily newspaper (June 2011) that, prior to the Beijing Olympics, more than 30,000 athletes were in full-time training at China's elite sport camps, local training centres and specialist sports schools, five times more than actually competed. Due to the factory system policy, many young athletes in sports development in China are discarded with no skills and no more than a basic level of education.

The "Out of Asia and Go to the World" motto adopted by China's sports teams during the 1980's marked a turning point in international competition. China's Out of Asia policy moved China from a country beset with poverty and internal divisions to a recognised and respected adversary in international sporting events. With less than 20 years of participation in the Olympic Games, China has made progress, beating the United States and Russia at the top of the gold medal table in the Beijing Olympics in 2008. In the past decade, reliance on the Soviet-style training systems has declined in China, with attempts to merge high-level sport and education in much the same way

as the NCAA does in universities in the United States. A move towards breakaway independent groups has occurred in such sports as diving due to the poor treatment of athletes and a lack of career pathway or job training from the State-run centres.

Another important policy change has occurred in the choice of sports that are developed and funded in China. A move away from the traditional sports of table tennis, badminton and volleyball, with significant investment in tennis instead, has assisted China's global image and soft power. China has realised that many of the traditional sports lack global visibility and commercial value when compared with tennis, football, basketball and golf. Furthermore, China's more recent Go Global policy has opened the door on international sport even wider. Selected athletes now receive training in the United States and Europe, and top coaches and players are recruited to China. China's number one female tennis player, Li Na, the first Chinese woman to win the French Open, spends time training abroad and currently has a Danish coach (US China Daily, 2012).

Tan's (2013) research on globalisation, sport policy and China argued that in addition to economic and cultural dimensions, the development of a global organisational infrastructure for sport (such as FIFA and the IOC for football) was evident in both governmental and non-governmental spheres. He commented that governmental influence and regulation ensured that the Chinese government was able to use its political power more effectively and efficiently in the international and domestic sport arenas. After 1995, when the principles of western capitalism were embraced by China, suitable rules to regulate the material interests of clubs, coaches and players were imposed. This policy was designed to alleviate the negative impact of western commercialisation on top level Chinese athletes. The responsibility for carrying out intense ideological indoctrination was given to a senior manager of each squad. 'Ideological education' included teaching patriotism, collectivism and revolutionary heroism, in order to "dilute and reduce the allure of materialism and money" (Tan, 2013, p.146).

In contrast to the progress and resultant success of the Chinese model of sports policies, Singapore has experienced difficulties, especially regarding the introduction of foreign-born talent (often Chinese) to international competitions. Neighbouring



countries, Malaysia, Indonesia and Thailand have criticised Singapore for “employing foreign mercenaries” to win medals at all costs. Singapore’s Foreign Sports Talent (FST) scheme effectively deprives promising Singaporean athletes the chance to represent their own country, but also awards foreign talent with full-time salaried work, bonuses, sponsored education and citizenship (The Strait Times, July, 2012).

The change from system-related athlete development policies and practices (for example, those prevalent in the former German Democratic Republic and Union of Soviet Socialist Republic), to person-related systems (in Canada, Australia, France and the United Kingdom) has highlighted that social stratification provides a filter for who gets in at the base or beginning of the selection process. While the United Kingdom is adopting and adapting ideas developed in Australia of a national institute network (High Performance Centres), and from Canada of a select group of focus sports, the national talent identification system is still under construction. To conclude this section on the influences of international policies and programmes on young talented female sportswomen, recent sport policies and programmes in New Zealand are considered.

#### **2.2.4 Sport policy in New Zealand**

Within the spectrum of gifted and talentedness, students with exceptional physical abilities are extended and developed mainly through competitions that are school or club-based, regional, national or international in nature. Such tournaments and events often provide identified elite young athletes with stepping stones to higher levels of performance. Research on the development of sport policy in New Zealand by Sam and Jackson (2004), found that government-appointed inquiries and taskforces played an important role in altering the structure of the sport delivery system. Sam and Jackson reported that policy change in New Zealand, when based on a “paradigm shift, power and ideologies” (p.206-207) created shifts in budgets or changing levels of allocation that in turn altered the size of various organisations, their mandates, entitlements and capabilities to represent specific interests. Sam and Jackson also highlighted that if rationalisations and reductions were carried out (so the system as a whole became more integrated), persons involved in minor sports or coming from regions with unique economic and political backgrounds (such as rural Māori) were likely to be affected most. In a follow up article, Sam (2017) proposed that within a New Zealand sporting context, New Zealand’s ambition to ‘punch above its weight’ had enabled

policy transformations to make the sport system appear more legitimate but not necessarily less vulnerable. In his view, the centralisation of sport delivery in small countries such as New Zealand, invoked strategies to break the communal bonds that helped to create growth and competitive advantage.

In New Zealand today, the progress of elite young athletes is catered for by Institutes of Sport, special academies, club-based coaching and high-performance programmes, all of which help to form the pinnacle of the high-performance pyramid model. Sport New Zealand's High Performance SportNZ model is one example of a pathway that provides support and services for exceptional athletes. High Performance SportNZ offers performance enhancement grants to national sporting organisations to support and develop local coaching academies, to fund athlete travel, to improve facilities and to access top level personnel. Another source of funding that is highly sought after is the Prime Minister's scholarship services, aimed specifically at carded athletes.

Two other popular SportNZ initiatives, the Athlete Life Programme and the Athlete Friendly Tertiary Network, provide financial, professional, personal and educational support for aspiring young athletes. The Athlete Friendly Tertiary Network is particularly beneficial as it includes the Maximise Potential Athlete Life (MPAL), which encourage athletes to cultivate their careers outside of sport. The National Athlete Transfer System, which encourages athletes who have the potential to win Olympic medals in another code (by transferring their skills, fitness and experience to a new sport), also provides a positive route for excelling athletes.

To deliver sporting activities and opportunities to all levels of the performance pyramid, New Zealand has 92 national sports organisations and 17 regional sports associations. These centres of influence have developed targeted initiatives such as Coach Force<sup>4</sup>, He Oranga Poutama<sup>5</sup> and Active Movement<sup>6</sup> with success. Sport New Zealand's focus on encouraging "more kids to play and enjoy sport, more adults participating and getting involved, and more Kiwis winning on the world stage", has

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<sup>4</sup> Coach Force – a Sport New Zealand initiative to grow and develop coaches at community and high performance levels through the New Zealand Coaching strategy.

<sup>5</sup> He Oranga Poutama – a Sport New Zealand initiative to support Māori wellbeing through sport and recreation. Introduced in 2009.

<sup>6</sup> Active Movement - an activity guide for under-fives initiated by Sport New Zealand.

added value, both economic and social, to the contribution sporting and recreational activities can make to New Zealand society” ([www.sportnz.org.nz](http://www.sportnz.org.nz)). A Research New Zealand survey (2013/14), conducted as a case study of a local rugby club’s social cohesion and social capital, revealed that the club, individuals, families and the broader community all benefited from their association and involvement with this sports club (Sport and Active Recreation, 2013/2014).

The Sport in Education three-year Sport New Zealand project was implemented in 2012 with commendable aims to deliver improved academic, social, physical education and sporting outcomes in eight trial schools. The project involved teachers, students, clubs, community organisations, and supporting public services. An underlying focus and expected outcome were new opportunities in student leadership, specifically in sport and recreation. This project was built on the Active Schools (for 5-12 year olds), the Active Young People (13-18 year olds) and the Sports Ambassador’s programmes, which provided equipment, activities, role models and resources to facilitate active, healthy lifestyles and excellence in sport. Within this programme, teaching and assessment resources in math, English, PE and other subject areas used sport as a context to engage students. Another Sport New Zealand initiative, Pathway to Podium, was implemented in 2014 as a nationwide talent development programme to help emerging athletes (usually in their late teens) and coaches be better prepared for the demands of a life in high-performance sport. The Sport New Zealand Chief Executive, Peter Miskimmin stated:

Pathway to Podium brings high-performance support to local kids in their communities. There's no one place in New Zealand where talent springs from. Talent is everywhere and so no matter where an athlete is from, they'll be given support at a stage in their development that can really help them gain their entry ticket to one-day competing for New Zealand on the world stage ([www.sportnz.org.nz](http://www.sportnz.org.nz))

In 2017, about 350 pre-elite athletes and 150 coaches from throughout New Zealand are selected to participate each year. The goal is for some of the programme participants to win medals at Olympic/Paralympics Games or at world championships, usually around 8-10 years after starting their Pathway to Podium journey. Pathway to Podium is run in partnership between Sport New Zealand, High Performance Sport

New Zealand and 14 regional talent hubs around the country. Emerging athletes and coaches are selected to join the programme each year, to achieve the following aims:

- Making the pathway to high-performance sport clearer for pre-elite athletes and their coaches;
- Getting support around potential medal winners early on, to give them the best shot at future success;
- Through regional hubs, providing nationwide access to facilities and training as close as possible to their homes, families and peer support, until they're ready to enter the formal high-performance system,
- Providing support and guidance in areas such as performance planning, training regimes, mental skills training, strength and conditioning, and nutrition (Sport NZ Strategic Plan, 2015-2020).

High Performance Sport New Zealand (HPSNZ), the international athlete development arm of Sport New Zealand, works in partnership with national sport organisations, allocates resources to sports organisations and athletes, and delivers world-leading support to impact performance. The HPSNZ strategic plan (2013-2020) includes vision targets for the next two Olympic cycles and outlines the long-term goal of creating one of the world's leading high-performance systems. They work closely with their key partners, including national sport organisations (NSOs), the New Zealand Olympic Committee, and Paralympics New Zealand. Sport NZ and HPSNZ are government funded and attract sponsors and investment partners from the wider community to "bring benefits to the whole country, including the national pride we feel when we see New Zealanders standing on the podium" (Miskimmin, n.d). The HPSNZ mission statement identifies successful athletes as role models who can inspire other New Zealanders to be successful in sport or other endeavours. They also state that "New Zealanders winning on the world stage builds identity and promotes New Zealand as a successful nation internationally" (High Performance Sport New Zealand Strategy, 2017-2020).

The structure and organisation of programmes in the New Zealand sport scene have been acknowledged as successful (Hoye & Cuskelly, 2007; Slack & Parent, 2006); however, there is some speculation about attention to gender equity, ethnic

opportunity and whether current and proposed generic programmes are meeting the perceived or actual needs of everyday New Zealanders (Hoye, Smith, Nicholson & Stewart, 2015). At this stage, it is helpful to consider the gender of the research participants, and the influences affecting their sustained attainment in sport and education.

## **2.3 Influences**

While an understanding of what talent signifies will remain central to my investigation, a range of other influencing factors are explored to illuminate the lived realities of the student-athlete participants, including their support networks at home, at school, and through their sporting connections. An exploration of issues pertaining specifically to talented female athletes, who are concurrently competing at a National and/or International level whilst also studying towards academic qualifications, is pursued with vigour. A consideration of significant others, siblings and peers, gender, identity, power, embodiment, and the impact of socio-cultural and socio-economic factors contribute towards a rigorous view of the complexity of the lived experiences of talented young student-athletes. These aspects have been selected to highlight the unique and individual space inhabited by elite young sportswomen, specifically in New Zealand secondary schools, as viewed and interpreted through my constructivist posthumanist paradigm.

### **2.3.1 Significant others**

Numerous studies have identified significant others as key to young people's initial and sustained engagement in sport. Research into the domain of competitive youth sport focuses as much on the influential roles and behaviours of coaches, parents and peers as it does on the experiences and responses of the young athlete (Côté & Hay, 2002). For example, when we consider the social psychological research on sport parents, they are often portrayed in a more negative than positive light, and through the lens of coaches' and athletes' reported perceptions (DeFrancesco & Johnson, 1997; Gould, Lauer, Rolo, Jannes, & Pennisi, 2006; Gould & Maynard, 2009). Indeed, parents play a critical role in their children's socialisation to sport and throughout their sporting lives (Brustad, 1996; Wuerth et al., 2004). Fredricks and Eccles (2004) suggested that parents fulfil three fundamental roles in their child's sport experience. These are as provider (of opportunities, finance, transport), as interpreter of the sport experience

for their child (emotionally reacting to competition in adaptive manners), and as role model (modelling the ideal attributes and behaviours in sport). The extent to which these roles are fulfilled by parents influences a child's beliefs and values and, in turn, their motivated behaviours and performance.

Côté (1999) identified four stages of participation for parents of physically talented youth: sampling, specialising, investment, and recreation. His model traces sport participation from early childhood to late adolescence and identifies differences in the experiences and requirements of athletes during each stage. The role and requirements of parents have also been noted to change throughout these stages (see Côté, 1999; Côté & Hay, 2002; Wolfenden & Holt, 2005). According to Côté, families play a central role in an athlete's development in the sampling years. Family time is devoted to a number of activities, but much time is devoted to sport. Parents play clear provider roles and are responsible for initiating sports activities and ensuring transportation and access. During this stage, parents have to be highly committed to their child's sport, displayed through altered family routines as well as emotional and financial support (Wolfenden & Holt, 2005). During this stage, however, fun is of utmost importance to athletes, emphasising deliberate play rather than intense training (Côté & Hay, 2002).

During the specialising stage, sport-specific skills develop through practice, with a reduction in deliberate play (Côté & Hay, 2002). Parents take a growing interest in their child as an athlete and make an increasing financial and time commitment (Côté, 1999; Durand-Bush, Salmela & Thompson, 2004). The time commitment is such that other opportunities are often sacrificed for a child's sport. Furthermore, there is a premium placed on a parent's nurturing role alongside the provision of moral and socio-emotional support (Wolfenden & Holt, 2005).

At the investment years stage, the child pursues the aim of reaching an elite level in their chosen sport. Children increase the intensity of their commitment to one sport and there is a substantial increase in deliberate practice (Côté & Hay, 2002). Parents' levels of support and interest in their child-athlete may result in them displaying different treatment towards their other children (Durand-Bush et al., 2004). During

this stage, parents' actual requirements may begin to decrease as coaches play a larger role.

Coach influence on youth sport participation and retention is documented as crucial (Gilbert & Trudel, 2004; Kidman & Lombardo, 2010; Lyle, 2002; Smoll, Cumming & Smith, 2011). Smoll et al. (2011) expounded that the so called “athletic triangle” (p.13) of coach, athlete and parent is a natural element of the social system comprising youth sports, and that coaches and parents play important roles in determining the outcomes of participation in youth sports. Smoll et al. concluded that in a developmental model, “sport provides an arena for learning, where success is measured in terms of personal growth and development” (p.23). They further recommended that communication with parents needed to be open, healthy and two-way (listening and talking) to promote physical skills and fitness, character building, social competence, and enjoyable recreational experiences for young people. They suggested that positive experiences that were fun constituted the essence of successful youth sport experiences, which had the potential to bring families together. Gilbert and Trudel’s (2004) research considered objective environmental conditions that influenced a sport coach’s approach (behaviour of others, interpersonal skills, relationships), when coupled with internal role frame components (beliefs, values, perceptions, assumptions, goals, expectations of self, expectations of athletes, view of self as expert), constituted the coach’s personal views of youth sport coaching. Lyle (2002), in contrast, considered the influence of sports coaches as “a process of integrated, interdependent and serial accumulation of purposeful activities, designed to achieve a set of objectives centred on improved competitive performance” (p.16). He made the distinction between participation coaching (sports leadership, sports teaching) and performance coaching, the latter being characterised by extensive preparation, intensive commitment and a focus on competition goals. Lyle also noted that while performance coaching focused on developing or pursuing excellence in sport, the influences of this type of coaching could be found in a wide variety of athlete/team-coach relationships, and supported a range of developed athlete abilities.

Weiss and Stuntz (2004) documented that positive perceptions of relationship quality between parents and student-athletes, student-athletes and friends, and peer

acceptance were associated with higher enjoyment, perceived competence, self-determined motivation and lower stress. Weiss and Stuntz proposed that the physical activity behaviour and support of parents and peers could have either an enabling or detrimental influence on a child's physical activity level and sport experience. If the relationship quality was positive, the influence on the child was usually positive and motivating, and vice versa. Smith, Ullrich-French, Walker and Hurley (2006) supported this view with junior soccer players who reported that feeling accepted by their group and having a positive relationship with parents and their best friend increased their motivation to play soccer, and to continue to play. Smith and Ullrich-French's positive motivational outcomes were predicted from positive perceptions of social relationships. Lower stress was identified in children who described high peer acceptance and a positive father-child relationship. Self-determined motivation was reported to vary depending on the quality of the child's friendships and mother-child relationships. The findings suggested that parents and peers can influence the self-determined motivation of young athletes (Smith et al., 2006).

Further research in this area by Smith et al. (2006) highlighted friends and peer groups as developmentally crucial social agents in late childhood and early adolescence. Friendships during this developmental stage, defined as "a mutual, close, dyadic relationship" (p. 377), were found to be key sport participation motivators, while social recognition of competence and perceived competence were found to be closely connected to enjoyment. Smith et al. concluded that youth in more adaptive peer relationships possessed considerably higher perceived sport competence, higher enjoyment, less competitive anxiety and less self-presentational concerns. Children and youth who experienced low quality relationships (with friends) tended to exhibit low perceptions of their athletic abilities, not participate, and eventually drop out of sport.

Further beneficial research regarding the contribution and importance of significant others has been conducted by Fraser-Thomas, Côté and Deakin (2005). Previously, no model has embraced the notion that positive youth development through sport must be deliberately worked towards by coaches, parents, sport organisations, and policy makers. Côté's Developmental Model of Sport Participation (DMSP in Côté 1999; Côté & Hay, 2002; Côté, Baker & Abernethy, 2003) begins to acknowledge the necessity of



designing sport programmes that consider youths' physical, psychological, social, and intellectual development, and are thus conscientiously designed to foster developmentally appropriate training patterns and social influences. Research by Côté (1999) and Côté et al., (2003) of factors that enabled adolescent athletes to progress and develop in their sport(s), identified parents as the primary support system in this process. Côté et al. proposed that parents who maintained a high interest in their child's sport were essential in providing emotional support to help their child overcome setbacks such as injuries, pressure and fatigue, as well as provide financial support for training. This high level of emotional support during stressful times was a central characteristic of Côté's (1999) investment years in which the parents' role was to provide support and encouragement, rather than leadership and direction.

Fraser-Thomas et.al. (2005) reported that how youth were involved in organised sport could contribute to a better quality of life and the development of numerous social skills; however, they also outlined some of the negative outcomes of youth sport, such as poor sport programme designs (early specialisation) and negative adult influences (parents and coaches), which were found to hinder rather than enhance positive youth development. The role of coaches, parents, sports organisations and policy makers for the development and long term performance of talented student athletes requires further investigation as current literature and understandings of the influence of these significant others is limited.

### **2.3.2 Siblings and peers**

Another area of influence that is relevant to research about young female student-athletes concerns siblings and peers. McHale, Updegauff and Whiteman (2012) found that incorporating the study of siblings into family research provided novel insights into the operation of families as social and socialising systems. They highlighted the centrality of siblings in family life, sources of variation in sibling relationship qualities, and the significance of siblings for child and adolescent development and adjustment. A key finding was that sibling influences emerge not only in the context of siblings' frequent and often emotionally intense interactions, but also by virtue of each sibling's role within family system dynamics. Sailor, Dunlap, Sugai and Horner (2014) postulated that while all family relationships are important, the parent-child relationship has the greatest impact on sibling relationships. Sailor et al. explained that individual

differences among siblings also impact their relationships; for example, when children are younger, temperament is important, but for older children, relationships are influenced by their personality and social and cognitive skills. Sailor et al. conceded that family life varies greatly and many factors influence the outcome for children; however, the quality of the relationship between each child and parent, and between parents, had the greatest effect on sibling relationships.

Research by Bryant and Crockenberg (1980) and Furman (1996) indicated that parents who were constructively responsive to their children fostered good feelings and cooperative behaviour among their children; however, when children perceived parental partiality, it increased feelings of competition, conflict, and jealousy among siblings. Bryant and Crockenberg suggested that it was helpful when adults modelled good conflict resolution skills around children; however, if parents intervened, a contrary outcome was that children did not experience how to resolve conflicts for themselves. Sailor et al.'s (2014) findings included roles that parents consciously or unconsciously assign to each child and how these roles affect sibling relationships; that is, the degrees of warmth-closeness, status/power, cooperation or conflict, and rivalry each sibling felt. Sailor et al. acknowledged that personalities, social and cognitive skills, self-concepts, values, and a sense of protection from the outside world also contributed to the quality of sibling relationships. Sailor et al. confirmed that a child's self-image and gender role were first formed in the family, based on how they interpreted the way parents and other siblings viewed them. The interests and skills children developed in their sibling relationships were often repeated later in life; for example, when choosing an occupation, mate or the number of children to have. Finally, Sailor et al. considered the influence of siblings on children's roles in peer groups, in selecting friends, and in the larger world, and found that the quality of sibling relationships had significant consequences on a range of competencies (decision making, problem solving, responsible behaviour, conflict resolution, interpersonal and communication skills), which directly or indirectly affected their relationships outside the family.

Bidel, Nazarzadeh, Mohamadi, Zareeimanesh, Azval, Mohamadi, and Delpisheh (2014) suggested that peers influence other adolescents through the expression of normative standards or modelling of behaviour, and adolescents respond to such pressure

directly or by internalising norms or preferences for conduct. Bidel et al. expanded their view further by suggesting that pressures, norms and preferences have different effects on adolescent behaviour, depending on the topic of behaviour considered.

Research based on observations of adolescent behaviour carried out by Jones, Somerville, Ruberry, Powers, Mehta, Dyke and Casey (2014) revealed that adolescents were quick and accurate in making judgments and decisions on their own and in situations where they had time to think. Jones et al. maintained that when adolescents had to make decisions in the heat of the moment or in social situations, their decisions were often influenced by external factors like peers. Jones et al.'s research also highlighted the positive influences of peer pressure. For example, an adolescent might join a volunteer project because his or her friends were volunteering, or decide to work hard at school because the social group he or she belonged to valued academic achievement. Jones et al. concluded that friends often encouraged each other to study, try out for sports, or follow new artistic interests. Steinberg (2007) added to this discussion by identifying two main features that distinguished adolescents from adults in their decision making:

During early adolescence in particular, teenagers are drawn to the immediate rewards of a potential choice and are less attentive to the possible risks. Teenagers in general are still learning to control their impulses, to think ahead, and to resist pressure from others (p. 56).

Recent research by the US National Institute on drug abuse, the National Institutes of Health and the US Department of Health and Human Services (2016) focused on the importance of building strong pathways in the brain through skill-building activities. Challenging physical, learning and creative endeavours that adolescents are often encouraged to try through positive peer influence meant that teens had the potential, through their choices and the behaviours they engaged in, to shape their own brain development. Many other influences and factors act upon young people. Some of these influences are overt while some are more nuanced and subtle. For example, apart from experiencing a major transition in physical growth and maturation, each student-athlete in this study coped with a range of emotions precipitated by hormonal changes, increased cognitive development and challenge, social dilemmas and choices. The multilayered, multidimensional aspects of each student-athlete's everyday life

emerged, at times, as novel behaviours, perceptions and decisions, manifest through varying levels of health and well-being.

### **2.3.3 Injury, health and well-being**

Despite the evidence to suggest that greater participation in sport and exercise enhances physical health, there is growing literature that some forms of sports participation actually increase illness and injury. Several studies highlighted injury as a negative effect of sports' participation on physical health. Maffulli, Longo and Denaro (2011) carried out a systematic review and synthesis of existing clinical evidence of long term follow-up outcome of sports' injuries. They concluded that physical injury is an inherent risk in sports participation and may lead to incomplete recovery, although noted that few well-conducted studies are available on the long term follow-up of former athletes compared with the general population. Several studies focused specifically on musculoskeletal injuries in children and all found that injuries are common in children. Grimmer, Beard, Bell, Chipchase, Edwards, Fulton and Gill (2000) found that injuries amongst students playing sport are common (one body part injured for every three participations), but mostly these were minor. They found significantly higher risk of Year 7 students injuring themselves compared to Year 10 students, with elevated risk in some sports. Verhagen and van Mechelen (2010) found that girls were at higher risk of physical activity (PA) related injuries and estimated high associated cost. Garrick and Requa (2003) noted that the negative consequences of musculoskeletal injuries sustained during sports' participation in childhood adolescence may compromise function later in life, although there is limited long term evidence. In the absence of injury, vigorous participation in sports and fitness activities during childhood and adolescence increases the likelihood of developing subsequent osteoarthritis.

In the United States, De Lench (2011) reported on the National Athletic Trainers' Association position statement regarding overuse injuries in youth athletes. He documented that participation in only one sport can result in increased risk of repetitive micro-trauma and overuse, and that multisport athletes who do not obtain adequate rest between daily activities or between seasons, and those who participate in two or more sports that emphasise the same body part are at higher risk of overuse injuries than those in multiple sports with different emphases.

Valovich McLeod, Decoster, Loud, Micheli, Parker, Sandrey and White (2011) maintained that "repetitive stress on muscles and joints without adequate and appropriate conditioning and rest can result in chronic or overuse injuries in athletes of any age" (p. 206). They also reported that "this situation in children is complicated by the growth process, which can result in a unique set of injuries among paediatric athletes" (p.220). Among young athletes, overuse injuries included Osgood Schlatter's disease and Sever's disease among other growth-related disorders; medial epicondylitis, commonly called little league elbow; patellofemoral pain syndrome; as well as stress fractures caused by overuse and/or repetitive stress over time (Valovich McLeod et al., 2011). In-depth research by Valovich McLeod et al. recommended that to manage repetitive or training injuries in athletes of any age, the risk factors for injury and steps to prevent injuries occurring, should be pursued. They suggested that injury surveillance in young athletes should be improved to identify risk factors associated with particular sports, in a concerted effort to provide better prevention and treatment.

There is also evidence that sport and exercise may reduce the risk of developing mental health illnesses and be beneficial in treating certain mental illnesses (Street, James & Cutt, 2007; Wynaden, Wichmann & Murray, 2013). Furthermore, unlike domestic or work-based physical activity, sport and exercise/recreation in an organised context provides a social element, which can help tackle feelings of isolation, often a symptom associated with poor mental health (Cox, 2012). Taliaferro, Eisenberg, Johnson, Nelson and Neumark-Sztainer (2011) found that, compared to non-participants, youth involved in sport in both middle and high school had a lower risk of suicidal ideation during high school, concluding that remaining involved in sport throughout adolescence can offer mental health benefits. Similarly, Brosnahan et al. (2004) found a beneficial effect of physical activity on feelings of sadness and suicidal behaviours in Hispanic and non-Hispanic adolescents aged 14-18 years.

When attempting to measure the concept of well-being, the lack of a standardised definition and the cross-disciplinary nature of well-being present considerable challenges (Gutman & Vorhaus, 2012). Gutman and Vorhaus maintained that most of the literature on well-being is drawn from cross-sectional studies, and that none of the studies reviewed demonstrated evidence of a direct link between sport and exercise

and well-being. Well-being in the literature is typically subjective well-being (SWB), and as such, it is not a social impact (Gutman & Feinstein, 2008). Nevertheless, Gutman and colleagues proposed that well-being has both physical and mental health dimensions and the links with psychological health are particularly close. In addition, they ascertained that relationships exist with other areas of social impact such as social capital. The main problem they identified was disentangling the contribution of sport and exercise to well-being from the relationships to outcomes in other areas.

Evidence put forward by Gutman and Feinstein (2008) suggested that the opportunities for social interaction provided by sport participation played a part in contributing to well-being effects; for example, interpersonal skills, social acceptance and connectedness, self-confidence, self-efficacy, a sense of belonging, and improved body and self-image. There was little or no evidence in their research of the differential effects of participation in sport and exercise on well-being for various sub groups of the population (different ethnicities, marginalised groups, boys versus girls), although they did identify some differentiated effects depending on individual versus team sports. Their evidence was primarily concerned with the positive effects of sports participation on well-being. Next is a discussion of the effects that other socio-cultural factors and New Zealand's cultural heritage have on young athletes in New Zealand today.

## **2.4 Socio-cultural factors**

A socio-cultural aspect has a significant impact on the lived experiences of talented female student-athletes' cultural identity, sexuality, different ways of knowing tied to gender, and their perceptions of their bodies, body image and sporting self. Within the traditional masculine hegemony of sport, defined by Bryson (1987) as "processes through which sport directly supports male dominance" and associates "males and maleness with valued skills and the sanctioned use of aggression/force/violence" (p.349), talented female athletes must adapt, adjust and often accept the double standards and inequities that permeate their sporting world. Bryson elaborated further by noting that the monopolisation process was completed by a series of concrete actions to exclude women (and some men) from the terrain, to minimise their achievements by definition, direct control, ignoring, and trivialisation. Contemporary definitions of hegemonic masculinity (Connell & Messerschmidt, 2005;

Donaldson, 1993) focus on the possibility of democratising gender relations, by abolishing power differentials and establishing a transitional move towards positive masculinity that is open to equality with women. The following section will consider the ramifications of bodily conceptions by talented female athletes, and the concomitant outcomes on their view of gender, identity, self-image, and power relations.

### **2.4.1 Gender**

Current research and thinking in the area of gender issues is particularly relevant as this study focuses on young female student-athletes. How gender is conceptualised and investigated in contemporary research is therefore pertinent and of interest to this research project. A short history of the conceptualisation of gender is a useful starting point (Connell, 1995; Giddens, 1991; Gilligan, 1982; Messner, 1988; Thorne, 1993), followed by gender studies in educational settings (Francis, Read & Skelton, 2011) and more specifically within physical education and sport (Flintoff & Scraton, 2005; Hargreaves, 1994; Penney, 2002, 2017).

Anthony Giddens' *Modern Social Theory* (cited in Tucker, 1998) highlighted how cultural identity, sexuality, and different ways of knowing tied to gender, erupted in to public and academic consciousness in the wake of decolonisation in the 1940s and 1950s, the civil rights struggle of the 1960s, and the feminist movement of the 1970s. While all of these movements have profoundly changed social life, it is feminism, according to Giddens, that has raised some of the most fundamental questions about contemporary societies, from the monogamous family, to the naturalness of heterosexuality. Despite the social upheavals initiated by feminism, gender roles are still taken for granted, and gender remains the most important influence on individuals' lives, that is, whether they are a boy or a girl. Thorne (1993) stated that gender is a more significant factor in predicting group affiliation than either culture or ethnicity. She reported that boys are on the whole more rough and tumble than girls as much of their talk revolves around physical force and strength, with boys ranking themselves into a hierarchy achieved through "threats, insults and challenges" (p. 30). Among girls, best friends monitor emotions, share secrets, and become mutually vulnerable. Girls often turn to intermediaries or third parties to express their emotions, especially where conflict is involved. Thorne also found that multiple

masculinities and femininities often surface in groups. Moreover, interactions vary by context and activity, as girls often direct boys when playing house. When boys and girls work on a common project, gender differences are less pronounced. Giddens's (cited in Tucker, 1998) post-modern theory critiqued the notion that men and women have firm, different and clear gender identities that can easily be demarcated. He stated that gender is not a natural fact; it is socially constructed and culturally specific. Recent changes in feminist theory and practice demonstrate that gender relations are not fixed, but can vary in different historical eras, and with class and race distinctions, among others.

Gilligan's (1982) work argued that women have traditionally been excluded from psychological theories of development. She argued that these psychological theories define all identities in terms of masculine characteristics, as identity is a task of individuation, of separation, and of thinking abstractly. For Gilligan, women's moral development results in "an ethic of care" (p. 81) very different from abstract rules and rights characteristic of males. Gilligan expanded that women develop different "ways of knowing" (p. 94) than men do, based more on empathy and a sensitivity to context than on abstract and rights-orientated reasoning. This theory of gender intersects with the prevalence of gender differences in everyday life.

Messner's (1988) work, relating to female athletes within the male dominated domain of sport, emphasised that organised sport (in the USA) served as a primary institution to bolster a challenged and faltering ideology of male superiority in the twenty-first century. Messner expanded further by stating that "increasing female athleticism represents a genuine quest by women for equality, control of their own bodies, and self-definition, and as such represent a challenge to the ideological basis of male domination" (p.197). Thorne (1993) explained that gender remains a crucial feature of the categorisation of identity, with maleness or femaleness being the most important variable in predicting which groups children prefer to join.

Giddens (1991) explained that in the modern world, Western colonialism has created a worldwide patriarchal order, as Euro-American definitions displace local indigenous understandings of gender. Connell (1995) contended that gender relations are reproduced not only through childhood socialisation, but recur over lifetimes and



generations. In his view, gender is a product of everyday interactions and institutional practices. He explained that today's institutions (sporting and educational, as in my research) are inherently masculine, and the gendered nature of institutions is due to male control of wealth, income, state power, the means of violence and cultural authority. Like Connell, Giddens (1991) stated that masculinity and femininity are constituted and reproduced in the context of power differentials of everyday life. He stated, "gender is constructed and reconstructed in the flow of interaction of day-to-day social life" (cited in Tucker, 1998, p.196).

In the context of the sporting institution of sports journalism and media coverage, gender discrimination, under-representation, and unfair treatment of sportswomen and their achievements have been an ongoing gender issue. For example, in a two-year study of sports' coverage by UK weekend papers, Godoy-Pressland (2014) found that five national Sunday newspapers dedicated just 826 (3.6%) articles to sportswomen compared to 21,531 (93.8%) devoted to sportsmen. The frequency of photographs was similarly disproportionate with 25,717 published during the research period, of which 1,780 (6.9%) were of women. Godoy-Pressland investigated how sportsmen were portrayed as dominant and superior to sportswomen. She found that "Sunday newspapers promote the weekend as predominantly a male entity, which revolves around viewing sports with other men and male sporting activities" (p. 1). Godoy-Pressland's study supported the notion that gender is a social construct, and that within the male domain of sport, sportswomen are subjugated to a place of lesser value. The study indicated a tendency for papers to print images and stories of women not connected to sport, even when photographic coverage of sportswomen became more prominent, such as during the Beijing Olympics. Female athletes who demonstrate extraordinary ability are also subject to questions about their sexuality and, in some cases, about their gender, suggesting that weekend sports reporting favours women whose display of femininity is prominent (Godoy-Pressland, 2014).

In the context of educational institutions, gender issues, according to Read, Francis and Skelton (2011), influence and constrain children's constructions of meaning, their actions and communications with others, the ways in which they conduct complex aspects of identity work in relation to themselves and their peers, and the way in which peer cultures work. Read et al.'s research concentrated on the area of friendship

groups, and the ways in which such groups construct and maintain complex differential levels of status and prestige [capital]. Research by Francis and Skelton (2005 cited in Branden, Avermaet & Houtte, 2011), explored empirical evidence relating to gender and achievement post-1992 when school league tables were introduced. Skelton and Francis documented achievement at General Certificate of Secondary School Education (GCSE) examinations, which included a breakdown of results by gender. They found that the gender gap, as sensationalised in the media, could not be explained by the feminisation of UK schools. Feminisation in this context represented more female teachers than male and a feminisation of the curriculum in which certain subjects such as English required diligence, passivity and obedience to assure success. Bleach (1998, cited in Francis & Skelton, 2005) argued that changes in assessment practices to continual internal assessments and assignments rather than sudden death-style examinations, were more advantageous to girls than boys. Skelton and Francis also noted that the increasing achievement of girls, especially in maths and science, had been a trend in many subjects prior to the introduction of the National Curriculum in 1988. Francis and Skelton's work highlighted issues pertaining to the pursuit of excellence and equity of opportunity, in an educational context.

Research based in Australasia by Penney and colleagues (2002a), focused on gender and equity in contemporary physical education contexts. Their contribution included an investigation of why professionals in all aspects of physical education need to be concerned with gender issues, due to longstanding inequities in the policies and practices of physical education in schools. Penney and colleagues emphasised the importance of the roles teachers, teacher educators and researchers play in either reinforcing or challenging sexism and inequity in physical education and sport. The shortcomings of traditional but still commonplace conceptualisations of gender, which reduce what are, in effect, complex socio/biological processes to simplistic and specifically singular characteristics or traits, were cited as problematic. Such conceptualisations may be "based on unitary conceptions of sexual character" (Hargreaves, p.147, 1994). However, a widespread assumption that all girls and women have a set of characteristics that is constant and common to them as females, and which is distinctly different from set characteristics common to boys and men (Hargreaves, p.147, 1994) was also regarded as problematic by Penney (2002b).

Perhaps Penney's most salient and helpful distinction incorporated a view that unitary conceptions of gender not only concealed or denied commonalities in the experiences and characteristics of some men and some women, but also ignored the diversity that reflects that we are not 'only' women or men, but also many other things; we have multiple identities.

Research conducted by Flintoff and Scraton (2005) specifically on gender and physical education, provided another perspective from a liberal feminist view. Their investigation focused on the gendered differentiation of activities offered to boys and girls, different socialisation of girls and boys into gender-specific activities; stereotyping and attitudes, and unequal access to facilities and opportunities. Their research in physical education focused on how girls learn and develop a female physicality that emphasises appearance, presentation and control (desirable 'femininity') whereas boys are encouraged to develop physical strength, aggression and confidence in their physical prowess (desirable 'masculinity') (Cockburn, 2002: Scraton, 1992). More recently, the development of post structural feminism has centred attention on difference and diversity, emphasising the plurality of femininities and girls' experiences, together with masculinities and boys' experiences. According to Flintoff and Scraton (2005), contemporary concerns on health and the body have begun to be explored within physical education and schooling, however only a limited amount of work focuses specifically on gender issues (Clarke, 2004; Garret, 2004; Oliver and Lalik, 2004). This research has begun to foreground the relational and intersectional perspectives from complexity thinking (Refer to Chapter 2.6, p.79-80) that are central to my research study on talented female secondary school athletes in New Zealand.

At the beginning of the 21<sup>st</sup> century, international comparative studies, such as those carried out by Organisation for Economic Cooperation and Development (OECD, Pisa), launched a worldwide debate on the effectiveness of educational systems (macro level), schools (meso level) and teachers (micro level) in terms of enhancing equity and excellence. Inspired by the OECD research and spurred by national policy making, quantitative and qualitative research studies have recently been conducted in different parts of the globe, aimed at providing deeper insight into the crucial variables that have an impact on equity, excellence or both. Among the variables that were identified

as crucial in this respect are the pupils' gender and their socio-economic and linguistic background, teachers' expectations, cognitions and pedagogical approaches in the classroom, parental support, financial aspects, educational policies (priority policies, multilingual policies, early start policies), and variables related to the structure of the educational structure and system; for example, compulsory school age, comprehensive systems, support structures, and system variables enhancing spread of learners (Branden, Avermaet and Houtte, 2011).

In New Zealand, published research on the effectiveness of schools and the current education model, are limited. An article by Dale (2010) proposed that the New Zealand education model (based on the NZC, 2007) might profit from an engagement with “globalisation” without sacrificing the purpose of “how to make education better” to “how to make education do better” (p. 493). Dale examined the discursive and formal characteristics of local conditions that enabled the development and installation of New Zealand’s model of education. He questioned whether incorporating New Zealand’s educational approach at a global level was desirable. Earlier research by Whitty, Power and Halpin (1998) considered educational reforms in New Zealand, Australia, England and Wales, Sweden, and the USA. Whitty et al. suggested that, instead of devolving power to individual schools, governments had actually increased their capacity to “steer” the system from a distance (p.170). Decentralised decision making, the changing roles of school leaders, incursions on teachers’ workload, and the effects of restructuring on classrooms and the curriculum, resulted in patterns of social differentiation (Whitty et al., 1998). This review identified that fragmentation of bureaucratic educational systems (for example, New Zealand’s Tomorrows School model) led to a polarised system where “good” schools were rewarded and able to choose their (advantaged) students, while “failing” schools were thrown in to a cycle of decline with their socially disadvantaged students (p.170). Choice in this situation was as likely to reinforce hierarchies as to improve educational opportunities and overall school quality (Whitty et al., 1998). Research about how female student-athletes view themselves in the context of their school and sport experiences follows next.

#### **2.4.2 Gender identity**

Bettis and Adams (2005) challenged scholars, professionals and students concerned with gender issues to take seriously the everyday concerns of adolescent girls. The

focus of the fluidity of femininity highlighted the importance of race, class, sexual orientation, and other salient features of personal identity in a discussion of how girls construct gendered identities in different ways. It explores how adolescent girls come to understand themselves as female in this culture, particularly during a time when they are learning what it means to be a woman and their identities are in-between that of child and adult, girl and woman. Talented female student athletes, while appearing to be immune to the pressures and expectations of socially constructed identities and gender/sex roles (due to their confidence, positive body image and exuberant participation), are invariably dealing with substantive demands from their sporting commitments as well as a range of other educational and social milieu (Godber, 2011).

Research with Canadian women athletes by Becker (2009) highlighted the complexities of life as a female athlete in a postcolonial western culture. Becker acknowledged that increased participation rates and significant performances of girls and women in sport over the last three decades would have many believing that the barriers and discrimination experienced in the past have been overcome, and that continued participation and success into the future is unproblematic. However, she acknowledged that feminist research has problematised what now seems like acceptance of women's participation in sport by considering the location of the female athlete at the intersecting of discourses of femininity, masculinist sport, heterosexuality and homophobia. Situated among these powerful regulating forces, Becker contends that female athletes become subjects attached to often contradictory identities. For instance, the paradox of femininity and athleticism can result in a troubling experience that requires complex negotiation and time-consuming management of gender boundaries and behaviour expectations. Although sport has been considered a liberatory space for women, this view fails to consider that sport continues to maintain the status quo through workings of power politics that sustain oppressive social structures and relations (Becker, 2009).

In Becker's view, sport as it currently exists, perpetuates gender inequality and builds and maintains socio-cultural boundaries of normative femininity and heterosexuality. Unpacking women's sport experience, therefore, involves exploring the discursive force fields that structure their everyday lives. Becker expands further by stating that

women who perform so-called masculine activities such as skilled sport performance, create a contradictory and precarious location for themselves. This location could be perceived as transgressive and liberating or as one where they must negotiate, possibly resolve, the tension between discursive expectancies and non-normative performances. In her study, Becker concluded that the participants found themselves frustrated by their “in-between-ness” (p.180). They were not athletes in the dominant hetero-normative discursive space of male sport (they were “othered”), and they did not fit in to the dominant discursive space of privileged femininity. The results of her study revealed that while sport presents itself as a site of empowerment for women, it also perpetuates and maintains traditional patriarchal values. The participants, however, creatively negotiated and renovated that patriarchal space to create a location in which they could evade the strength of dominant discourses and experience the benefits of sport engagement. The student-athletes in my research negotiated their identity by acknowledging a preference for the term *sporty*, which fell within acceptable parameters (for them) of hetero-normativity while still challenging masculine hegemonic assumptions. Relevant research pertaining to female athletes’ thoughts and perceptions about their bodies, specifically in the sporting domain, follows.

### **2.4.3 Embodiment**

Another school-based study, which contributes to our understanding of the implications of gendered participation for young female student-athletes, considered the links between girls’ physicality and their views of physical activity spaces in their communities. Bettis and Adams (2005, cited in Azzarito & Hill, 2011) found that “as active agents, girls decide to insert themselves into and/or withdraw from a space depending on how they view and how they believe others view their bodies in these spaces” (p. 353). Azzarito and Hill postulated that girls in Physical Education lessons can feel significantly more “vulnerable to being measured and evaluated in terms of their outward signs and body shape” (p. 224); however, girls’ feelings of vulnerability might be intensified in gender-mixed, sport-based practices where the presentation is of a corporeal style and performance is under public scrutiny. Other pressures come in to play where the social spaces uphold and reproduce gender/sex roles of a typical game of sport, heightening the risk for girls to be labelled as “mannish”, “tomboy” or a

“dyke” (Cooky & McDonald, 2005; Müller, 2007). Evans (2006) suggested that “one must not simply act feminine, but look feminine too” (p.550). The public gaze, in this instance, works to discipline and control the body to particular dominant ideals of gender, and thus regulates its exposure to the public (Azzarito, 2009). The subtle balance of power, whether imagined or real, will now be examined in relation to talented females, both as secondary school students and as competitive athletes.

#### **2.4.4 Power relationships**

The seminal work of social philosopher Pierre Bourdieu (1984) has had a significant influence on how power constructs and relationality are viewed today. Bourdieu’s focus on *habitus*, *capital* and *field* encapsulated his tools of thinking, to clarify and crystallise an embodied social, physical and cultural world that influences and guides (but does not totally determine) the behaviour and actions of individuals. Bourdieu contended that each relatively autonomous field of modern life, such as economy, politics, arts, journalism, bureaucracy, science or education engenders a specific complex of social relations where the agents will engage their everyday practice. Through this practice, individuals develop a certain disposition for social action that is conditioned by their position on the field (dominant/dominated and orthodox/heterodox are only two possible ways of positioning the agents on the field). This disposition, combined with every other disposition the individual develops through his/her engagement in a multidimensional (in the sense of multifield) social world, will eventually tend to become a *sense of the game*, a partial understanding of the field and of social order in general.

Fitzpatrick’s (2013) interpretation further contended that activity within Bourdieu’s fields, to acquire or retain capital results in struggles as participants seek to manoeuvre and position themselves favourably. The participants comply with the set structure and practices of the field and in doing so, legitimise and reproduce such practices (Jenkins, 2002). For the young female student-athletes in my study, their position as aspiring sportswomen simultaneously places them in the fields of sport with coaches, sports administrators, family and friends, whilst also positioning them in the field of education, educators, school friends and administrators.

Work in this area of power relationships by McMahon, Penney and Dinan-Thompson (2012) highlighted bodily practices that were placed on three female swimmers who were immersed in the Australian swimming culture, as adolescents. The research addressed two distinct time periods in the swimmers' careers:

Adolescent experiences within the cultural context of Australian swimming, with specific reference to bodily practices or 'memes' (ideas, symbols, and practices) which the athletes were exposed to or engaged with in regard to their bodies. Present day, some 10–30 years after being immersed in the cultural context of Australian swimming, with a consideration of their body practices and the relationship they now have with their body (p.181).

Conclusions drawn from this research indicated that Foucault's (1991) concepts of disciplinary power, regulation classification and surveillance align closely with Australian swimming, which, according to McMahon et al., (2012) was perceived as:

An institution, a site and a culture where techniques of power have become concentrated and have been brought to bear on individuals in systematic ways, with sometimes damaging effects arising for athletes' long-term health and well-being, particularly if the individuals concerned continue to engage with cultural practices in regard to the body post-career (p.181).

McMahon et al. emphasised that the long-term effects of embedded power structures, unchallenged ways of doing things, and inculcated regimes and systems that adolescent athletes are exposed to within their sporting culture, can have and have had a long term detrimental effect, not only on body image but also on body practices. The implication of these findings for the current research is reflected in the positioning of the student-athletes within and between their fields of sport and education. Both fields provide an institutional structure, disciplinary power, regulations, a classification system, and regular monitoring. Both fields also enforce and reinforce the notion of Connell's (1995) hegemonic masculinity, which is tied to institutional and cultural definitions of gender, while the socio-ecological factors that Read, Francis and Skelton (2011) described as "impossible femininity" (p.169) are equally pervasive.

Thorpe (2011), in her research on feminist physical cultural studies expounded the view that by increasing our understandings of the practices and politics of physically active female bodies, stakeholders at all levels will benefit. Andrews (2008, cited in Thorpe 2011) described physical cultural studies as "dedicated to the contextually



based understanding of the corporeal practices, discourses, and subjectivities through which active bodies become organized, represented and experienced in relation to the operations of social power” (p. 54). Adopting an interdisciplinary approach, physical cultural studies seeks to identify “the role played by physical culture in reproducing, and sometimes challenging, particular class, ethnic, gender, ability, generational, national, racial, and/or sexual norms and differences” (Andrews, 2008, p. 54).

Andrews’ view is questioned by Chambers (2005) who reminds us that, “even when women experience a disjunction between habitus and field, leading to reflexivity in relation to these alterations, this does not necessarily work to undermine power relations within the field” (p. 343). Thorpe’s study sought to make meaning of “different kinds of movement and belonging” (Knowles, 1999, p. 62–63) from the narratives of three feminist academics who negotiated their way as female athletes through different sporting activities, and the readings others made of the women through their bodies in various locations (the beach and ocean, mountain, gym, locker-room, basketball court, bar). As the participants engaged in their sporting fields, certain norms, rules and power relations were destabilised, yet other aspects were further entrenched (McNay, 1999). According to Chambers (2005), when women enter male-dominated fields as Thorpe’s participants did, many make adaptations and adopt strategies to “manage the masculine culture into which they are entering” (p. 342). Upon reflection, the participants recognised that they each also made adaptations and adopted strategies to negotiate space within their field (sport). The student-athlete participants in my research also need to negotiate space within and across their specific sporting and educational fields. They may need to implement strategies to manage their behaviours, reactions and responses, especially in the essentially masculine domain of sport.

#### **2.4.5 Socio-economic influences**

In the United Kingdom, research by Collins and Buller (2003) highlighted the importance of personal and social capital to assist young athletes to succeed in both sporting and academic fields. However, Kay (2000) (cited in Collins & Buller, 2003, p.440) found that “sport is widely recognised as a site for the reproduction of inequality in gender, race, class and (dis)ability, and is a powerful tool for social exclusion” (p.166). The premise that all promising young athletes receive the same

resources, opportunities and support in the United Kingdom has been proved to be erroneous (Kay, 2000). According to Collins and Buller (2003), a trend towards an increased percentage of the population who are poor has been evident in all OECD countries, with the United Kingdom and New Zealand leading this trend since the 1990s. While absolute poverty is the inability to regularly afford the basics of food, shelter, clothing and warmth, relative poverty is not being able to afford the material and cultural goods that the majority of the population have. Duffy (1995) (cited in Walker & Walker, 1997) expounds this clearly when he stated:

Social exclusion is a broader concept than poverty, encompassing not only low material means but the inability to participate effectively in economic, social, political, and cultural life, and in some characterizations, alienation and distance from the mainstream society (p.8).

In the United Kingdom in 1994, 24% of the population were regarded as poor. Haywood, Kew, Bramham, Spink, Capenerhurst and Henry (1989) discussed how people's social background leads to constraints on their sporting activities. Haywood et al. found that intervening constraints, those which occur between the act of wishing to participate and actual participation, such as the cost of transport, facility hire, and entry, created a significant barrier to participation and therefore the ongoing opportunity for athletic development for thousands of individuals in New Zealand and millions in the United Kingdom. Antecedent constraints on the other hand, which according to Bourdieu's social theories (1986, p.108-119, 208-225) people are not fully conscious of, are rooted in social phenomena. Bourdieu argued that social practices such as the decision to be involved in sport, activity choices, and lifestyle practices are, "neither objectively determined nor exclusively the product of free will" (p.110), and that different classes exhibit choices and practices that are affected by:

Their habitus, acquired by experience and early socialization, the person's internalization of social structures. Their access to economic, social, cultural, and symbolic (self-presentational) forms of capital (which are not equal, and some of which – including sport and leisure – are relational, that is, how some groups see themselves relative to others) (p.222).

Collins and Buller's (2003) research in the United Kingdom concluded that young people brought up in areas of social need were not being provided with sufficient support to enable them equal opportunities to perform at the highest level. This

situation is also relevant in the current New Zealand education and sporting environments where lower socioeconomic groups, specific ethnicities, and children from unemployed and/or poor backgrounds may be excluded from realising their talents and abilities because their families cannot provide the support they need.

More recent research by Spaaij, Farquharson and Majoribanks (2015), which focused on gender, race, nation and social mobility highlighted how sport reflects and reinforces broader hierarchical structures; how it serves as a site for inclusion and exclusion, but in ways that work unevenly. Spaaij et al. investigated and reported on how sport is ultimately a site for the social reproduction of hierarchy and social stratification, with gender, racial and national hierarchies embedded within sport to largely prevent sport becoming a site for social mobility, despite popular myths to the contrary.

#### **2.4.6 Ethnicity**

Regarding minority populations and the interface between the fields of education and sport, a recent study by Fitzpatrick (2011) made a significant contribution to current understanding and thinking regarding the perception that Māori and Pacifica students, due to their culture and ethnicity, are predisposed to excel in sport and to underachieve in education. In her study of Māori and Pacifica students at a South Auckland secondary school, Fitzpatrick found that schools addressed the statistical under-achievement of Māori and Pacifica students by implementing pedagogical interventions, which were mainly directed by the Ministry of Education (for example, see Hill & Hawk 1998, 2000, 2003; Ministry of Education, 2002). She reported that the complex identities of these young people (including a range of perspectives related to class, ethnicity, culture and gender) are not generally considered in relation to educational success and achievement statistics. According to Fitzpatrick, the voices of these students do not exist independent of wider social trends and indeed these particular students can be (and are) constructed as historically disadvantaged and underserved socio-economically. Her data collection referenced wider sociological trends such as migration, community resources, the rights of minority and ethnic groups, and cultural and gender issues (Madison, 2005). Fitzpatrick explored how Māori and Pacifica students' identities and attitudes to schooling (and ultimately, their schooling success) are framed by wider social and political circumstances.

In a follow-up article, Fitzpatrick (2011) explored how school physical education (PE) can both reinforce stereotypical notions of the brown body as inherently physical, while also allowing young people to gain educational success. Drawing on a critical ethnographic study of Māori and Pacifica (Pacific Island) youth in PE in New Zealand, Fitzpatrick described how the academic status of PE, and its alignment with sport, positions the brown bodies of these youth in problematic and stereotypical ways. According to her research, while PE may reinforce racialised stereotypes, it was also a space of recognition and achievement for youth, so much so that Bourdieu's (1984) notions of capital, field and habitus provide insight into how such contradictions potentially offer social transformation while simultaneously reproducing social status.

Fitzpatrick (2011) also commented that in New Zealand and Australia, Health and Physical Education (HPE) are credentialed and recognised senior high school options in which students can gain national qualifications. In New Zealand, they tend to attract students who are statistically low achievers in the educational system, and who represent a disproportionate number of Māori (indigenous) and migrant Pacifica youth. Results suggested that these same youths achieved more in these disciplines than in other subjects. An important consideration for Fitzpatrick was how their engagement with health and PE intersected with their general positioning in education in relation to social class, ethnicity, physicality and other social hierarchies. Of interest to her was whether achievement in health and PE reinforced or contested the overall underachievement of Māori and Pacifica students. Fitzpatrick's findings, insights and understandings provide a valuable foundation upon which to further explore the complex lives of the talented Māori and Pacifica student-athletes in this research project.

#### **2.4.7 Culture as an inherited construct**

The culture of New Zealand is largely inherited from British and European custom, interwoven with Māori and Polynesian tradition. As an isolated Pacific nation, human settlement has been comparatively recent. Māori voyagers arrived in the islands of New Zealand before 1300, but the initial Māori settlements soon became bicultural, inculcated with colonial and rural views, due to the rapid immigration from Britain during the nineteenth century. The colonists had a dramatic effect on the indigenous Māori who had for centuries developed a sophisticated culture divergent from their

Polynesian roots. The introduction of Christianity, technology and the English language caused the indigenous peoples to eventually suffer a loss of land and identity (New Zealand land wars), and to become a minority group by the end of the following century. The New Zealand Europeans (Pakeha) began to forge a separate identity (pioneering, rural and shaped by the unique environment), which became prevalent after the land wars. Sustained political efforts, however, saw biculturalism and the Treaty of Waitangi become part of the school curriculum in the late twentieth century, to promote better understanding between Māori and Pakeha. In recent times, New Zealand culture has been broadened by globalisation and immigration from the Pacific Islands, East Asia and South Asia. New Zealand Europeans and Māori remain the two largest ethnicities; however, the large Polynesian population in Auckland represents the largest Polynesian city in the world ([www.stats.govt.nz](http://www.stats.govt.nz), 2017).

Another perspective that will inform and contribute to my investigation comes from Hickling-Hudson's (2003) view of postcolonial theory. This perspective, which advocates that the predominantly white societies of the European Diaspora in the United States of America, Canada, Australia and New Zealand - that have both practised colonialism and have been shaped by it - have populations that are inevitably characterised by immense cultural diversity. Such populations, according to Hickling-Hudson, consist of indigenous people and of the descendants of Europeans who displaced and dispossessed indigenous people in the colonial adventure. These populations also consist of waves of migrants from all over the globe who augmented these populations of European invaders and settlers. More recently, postcolonial theory has been used to signify a position against Euro-centrism and the dominance of Western knowledge and history (Ashcroft, Griffiths & Tiffin, 2003; Hickling-Hudson, 1999). Postcolonial theory has been used in educational research to challenge and reform the Western-style education systems that dominate much of the world because of colonisation, and more recently, globalisation (Hickling-Hudson, 1999; Sleeter & McLaren, 1995). As highlighted by Ghandi (1998), "Postcolonial studies follow feminism in its critique of seemingly foundational discourses" (p.44) ..." both bodies of thought have concerned themselves with the study and defence of marginalised others within repressive structures of domination" (p.82). Ghandi, however, identifies a clear distinction between the two bodies of thought, with postcolonial theory

directing its critique against the cultural hegemony of European knowledge, rather than dominant masculine hegemony. Strategies for sustainment in sport and education over extended periods of time are outlined next.

## **2.5 Managing sport sustainability**

Using a complexivist philosophy, it is valuable to try to determine many of the influences that affect female student-athletes in the performance of their sport and education. Though I address many issues, I know I cannot address all the issues that can impact on student-athlete performance. Issues that have relevance to my study include: expectations and goal setting, training and performance, support structures, organisation, time management and commitment, and sport/school balance.

### **2.5.1 Expectations and goal setting**

To achieve optimal performance, contemporary research in sport psychology suggests that goal setting and realistic expectations of progress and development, are important skills for student-athletes to learn. Leith (2003) proposed that the goal-setting process helps athletes understand where they are currently and also where they want to go. Leith emphasised that student-athletes need to learn how to set systematic goals that are focused on the process and performance, rather than focused on the outcome of competition. Leith distinguished between subjective and objective goal setting, stating that specific objective goals, such as taking two seconds off a 100m freestyle time, helps the athlete be more focused on the task at hand to improve technical and tactical skills. Edger (2015) advised that setting expectations too high can initiate anxiety and stress responses in young athletes, especially if the athlete perceives the expectation is important to a significant other, such as a parent, coach, teacher or selector.

Kornspan (2009) commented that in addition to outcome (related to winning, losing or specific results of competition) and performance (related to various statistics to help the athlete improve what s/he is doing) goals, student-athletes need to focus on process goals while performing a sport skill. For example, in addition to setting a two second performance goal in freestyle, the young swimmer focuses on improving his/her technique on each turn. Thus, the athlete, through learning to set process and

performance goals rather than outcome goals, is setting goals that she/he has control over (Kornspan, 2009).

Sport psychologists found that athletes often set goals that are not specific and not measurable (Rabasca, 1999). Research in this area indicates that young athletes often set goals that focus on winning. Kirschenbaum (1997) presented the SMART acronym to help athletes set effective goals that are: specific, measurable, attainable, realistic, and occur within a specific time frame. Cohn (2008), however, maintained that young athletes need to set their own goals. He reported that goals set by parents or coaches tended to increase pressure on the athlete, who then struggled to stay motivated to attain the goal(s). Within an educational context, Curtis (2006) recommended that a key role of teachers and academic supervisors was to “help the student-athlete modify his or her goal orientation in the classroom from the student-athlete’s familiar ego orientation to the more-appropriate task orientation” (p.3). Curtis emphasised the need to ensure that student-athletes do not allow negative external forces (which are often unique to the student-athlete experience) to foster negative achievement goals, academically. It is interesting to now consider the age at which children are selected for competitive sport, and at what stage specialising in one or two activities, is most beneficial.

### **2.5.2 Training and performance**

To be considered an expert in any field, Ericsson (1996) proposed that a performer must reliably exhibit exceptional levels of skill. Baker and Horton (2004) supported the relationship between training and expertise with consistent findings for both experts and non-experts on learned capacities and abilities. The term expert here may be useful only in so far as it can be interpreted as a high level of attainment. Researchers examining the accumulated effects of prolonged practice and the rate of learning have indicated a robust positive relationship between practice and performance. Baker and Horton stated that “the relationship between practice and performance is so strong that some researchers (e.g., Ericsson, Krampe and Tesch-Römer, 1993) support the notion that an adequate amount of high quality training is the only necessary ingredient for elite level achievement” (p.226 ). Ericsson and colleagues (Ericsson et al., 1993; Ericsson, 1996; Ericsson & Lehmann, 1996) advocated that increases in performance in any domain are the result of adaptation to task constraints through

training or practice. The implication here is that similar outcomes in other fields, for example in education, are also the result of sustained high quality effort and practice (study). Ericsson expanded this view by stating that “deliberate practice activities that are not intrinsically motivating, require high levels of effort and attention, and do not lead to immediate social or financial rewards” (cited in Baker, Côté and Abernethy, 2003, p.2) were necessary for the attainment of expertise. Baker et al. supported this notion by suggesting that training activities needed to be continually modified so that optimal effort and concentration were required to maximise physiological and cognitive adaptations.

Baker et al. also ascertained that sustained attainment in sport emerged from an interaction of “biological, psychological, and sociological constraints” (p.223). They examined the training and environmental factors that influenced the acquisition of sport expertise and found that the quality and quantity of training were two crucial predictors of attainment. In addition, the possession of resources such as parental support and adequate coaching were essential. Social factors such as cultural influences and the relative age effect were also considered as determinants of sport expertise and achievement (Baker et al., 2003).

The theory of deliberate practice (Ericsson et al., 1993) extends Simon and Chase's (1973) work on the ten-year rule by suggesting that it was not simply training of any type, but engagement in deliberate practice that was necessary for the attainment of expertise. The ten-year rule, however, has been supported in music (Ericsson et al., 1993; Sosniak, 1985), mathematics (Gustin, 1985), swimming (Kalinowski, 1985), distance running (Wallingford, 1975), and tennis (Monsaas, 1985). While empirical evidence indicates that sheer quantity and quality of training are important variables in understanding how an individual attains the status of expert in any field, there are significant socio-cultural factors that also contribute to the development of exceptional performance. Baker and Horton (2004) outlined these factors as:

Maturation; relative age effect, access to resources, younger athletes disadvantaged.

Role of teacher, coach and instructor; deliberate practice, planned, developmentally appropriate, when to introduce expert coach, domain specific knowledge and practice structure highly relevant to progress and development of athletes in sport and students in education.



Parental influences; Blooms (1985) stages of Early, Middle and Later childhood, and parental roles at various stages. Sport specific model of talent development (Côté, 1999).

Cultural influences; particular sports are part of a nation's identity, encouraged from an early age with structured competitions, progressions, facilities and resources, for example Ice hockey in Canada, rugby and netball in New Zealand, alpine skiing in Sweden, basketball and athletics for Afro-American athletes (p.220-221).

An important point to note at this stage is the issue regarding nature versus nurture. According to Davids, Hristovski, Arújo, Serre, Button & Passos (2003), an athlete with an advantageous genetic makeup (often termed natural ability) but without the desire to train at sufficient intensity is not predisposed to higher levels of performance than an athlete who has completed significantly more intense training. Other factors found to have a more obvious beneficial effect on sustained attainment for youth in sport are: reinforcement of desirable behaviours, positive feedback from significant others and peers, respectful and congenial adult-athlete relationships, and opportunities to participate in dialogue to review and confirm student-athlete progress and development (reflective practice). To consistently demonstrate these skills, high performing athletes must also negotiate situational psychological requirements. For instance, the ability to focus on a given task (Cox, 1990) and/or to manage the anxiety inherent to competition (Gould, 1987) is essential to successful, sustained performances.

Early investigations (Morgan, 1980) used the Profile of Mood States to examine psychological characteristics of athletes and found that those who were successful tended to demonstrate an iceberg profile (that is, higher than average on vigour but lower than average on tension, depression, anger, fatigue and confusion). In the decades following these initial studies, researchers examined the psychological characteristics of successful sport performers. In a review of this body of work, Williams and Krane (2001) reported that successful performers had higher levels of self-confidence, better concentration and were less likely to be distracted from their performance. They were also more preoccupied with and thought about their sport in a positive way. Further, successful athletes experienced less anxiety before and during competition and could control what anxiety they did experience in a manner that facilitated performance (using anxiety to psych up). Lastly, successful athletes had a greater ability to rebound from mistakes than less successful counterparts. Gould,

Dieffenbach and Moffett (2002) confirmed these characteristics in a recent study of Olympic gold medallists.

In addition to the characteristics outlined by Williams and Krane (2001) and Gould et al. (2002), Anshel (1997) reported that elite athletes are typically predisposed to higher amounts of risk-taking, sensation seeking and competitiveness than non-elite athletes. Further, he reported that elite athletes are distinguishable from non-elite athletes on several behavioural tendencies, cognitive strategies and performance expectations. In sport, the crucial role that family members play in the day to day management and monitoring of talented young athletes cannot be over-emphasised. The support of parents and coaches in particular, is investigated next.

The research of Bloom (1985) and Côté (1999) demonstrated how parental support helped expert performers and elite athletes deal with the demands of the sustained deliberate practice necessary to reach an expert level of performance. Bloom and Côté presented the position of parents as evolving from that of a leadership role, to that of a general supportive role. Athletes who were unable to access certain emotional and financial resources faced a qualitatively different road to accumulate the high levels of practice necessary for expert performance (Côté, Baker & Abernethy, 2003).

Similarly, access to appropriate teaching support, equipment and facilities is imperative to sustain academic attainment. The term academic support may refer to a wide variety of instructional methods, education services, or school resources provided to students in the effort to help them accelerate their learning progress, catch up with their peers, meet learning or assessment standards or generally succeed in school (Alber, 2011). In practice, academic support encompasses a broad array of educational strategies; tutoring sessions, supplement courses, summer learning experiences, after school programmes, teacher advisors, volunteer mentors, plus alternative ways of grouping, counselling and instructing students. While the term academic support typically refers to services provided to underperforming students, it may be used in reference to enrichment programmes and more advanced learning opportunities provided to higher achieving students (Alber, 2011).

Student-athletes in Lamb and Lane's (2011) research, reported that support offered through individual mentoring was received positively; however, many students

commented in their research that mentoring was sparse, and appeared to be an unstructured process. In schools where a Junior Athlete Education framework was in place, indications were that the framework was not always used effectively, or met the authentic needs of the student-athletes listed on the schools' gifted and talented register for PE. Lamb and Lane concluded that to help student-athletes meet the demands of both academic and sporting commitments, there was "a need for personalised and tailored individual support" (p.150).

In line with a consideration of support structures, the level of organisation that a student athlete can access, coupled with their time management skills and a commitment to attend and participate fully, are other factors that can have a positive impact on sustained attainment.

### **2.5.3 Organisation, time management, commitment**

Yu (2004) found through an online survey of 456 college student-athletes that athletes budget their time better in season than out of season, and that student-athletes prioritise their academic study and their sport above their social life. Yu also found that female athletes were more academically self-motivated, and that students with academic requirements (which they had to meet to retain their scholarship) perceived these requirements to be beneficial to their studies. Ferris et al., (2004) supported this view when they stated that, "female athletes are more willing and able than other groups of athletes to transfer the skills that they have used to be successful in a sport domain, such as effort and time on task, to the academic domain" (p.11).

According to the 2016 National College Athletic Association (NCAA) GOALS (Growth, Opportunities, Aspirations and Learning of Students in College) study in the US, student-athletes reported spending more hours per week on their sport than was reported in previous surveys, both in season and out of season. College students (the equivalent of university students in New Zealand) who responded to the survey (a total of 21,000) also reported that they needed more down time to spend time with family, and socialising with friends. High on the list for female athletes was increased time to relax on their own. The average time spent on sports activities (practice, conditioning and competition) according to the GOAL's 2015 results, ranged from 27-42 hours per week, depending on the sport and the level of competition. The results, however, did

not include non-athletic activities such as meetings with coaches, team functions, video-study, travel, etc. An additional ten hours per week for non-athletic activities brought the commitment to sport, between 37-52 hours per week. Concerns about the workload on student-athletes, especially within the College programmes in the US, may be symptomatic of the drive to win, which has become a baseline focus for coaches, administrators, and stakeholders in high profile sports.

In the UK, Gil (2014) reported that juggling the two (sport and academic study) can benefit both academic and sporting performance. She expanded this view further by stating that to put their training and sport in perspective, and to allow them to deal more effectively with the challenges of sport, including setbacks and injury, student-athletes needed an outlet of interest other than sport. Gil also noted that the self-discipline required in top level sport lends itself well to academic focus; for example, “The mind wanders when you are doing essays, but if you develop a focus and know you have to use your time efficiently then it’s a transferable skill “ (Baddeley, cited in N. Gill, 2014, p.1). Baddley also stated that “their weeks are very pressurised, so top sportspeople are extremely organised, disciplined and efficient with their time, which are useful skills in the academic side of their lives” (Guardian article, 4 August, 2014). While current research recognises the benefits and difficulties student-athletes face as they persevere with their studies and commitments, the value of affiliation and a sense of belonging have also been identified as critical influences on sustained effort and satisfaction, in sport and education.

#### **2.5.4 Sport/education balance**

Lamb and Lane’s (2011) work in England on student perceptions of being identified as ‘gifted and talented in Physical Education’ revealed interesting outcomes. Lamb and Lane found that students reported positive perceptions of being on their school’s gifted and talented register; however, the participants noted that while schools valued and nurtured their physical abilities, the positive nurturing of talent was not always transferred to the nurturing of their academic potential. The student-athletes in this mixed gender, small-scale qualitative study thought they would benefit from more support for their academic needs, especially in managing their workloads. They expressed a tension between fulfilling their commitments to training and sport on one hand and meeting the requirements of their academic work on the other. Many

student-athletes maintained that their dedication to sport took a toll on their social lives.

De Lench (2011) also found that specialisation in one sport may also be associated with nutritional and sleep inadequacies, psychological or socialisation issues, and ultimately burnout, which might be avoided with a balanced lifestyle and a strong support system made up of parents, friends, coaches, and health care providers. De Lench stated that young athletes who participate in a variety of sports tend to have fewer injuries and play longer, thereby maintaining a higher level of physical activity than those who specialise before puberty. He expanded his recommendations further by advocating that youth athletes be encouraged to participate in multiple sports and recreational activities throughout the year to enhance general fitness and aid in motor development, and that athletes take time off between sports seasons if they participate in a single sport year-round (De Lench, 2011).

It appears that an emphasis on fun while establishing a balance between physical fitness, psychological well-being, and lifelong lessons for a healthy and active lifestyle are paramount for success (Merkel, 2013). Merkel reported that organised youth sports are highly popular for youth and their families, with approximately 45 million children and adolescent participants in the United States (US). Empirical evidence from the US suggests that seventy-five percent of American families with school-aged children have at least one child participating in organised sports (US youth sport stats), whereas youth sport participation in New Zealand, especially in the 14-18 age group, is significantly lower (Ministry of Health, 2012). The initial perception according to Merkel, is that US children are healthy and happy as they engage in organised sport, and families report higher levels of satisfaction if their children participate. However, Merkel stated that “US statistics demonstrate a childhood obesity epidemic, with one of three children now being overweight, with an increasingly sedentary lifestyle for most children and teenagers” (p.151). Merkel found that increased sports-related injuries, with 2.6 million emergency room visits a year for those aged 5–24 years, a 70%–80% attrition rate by the time a child was 15 years of age, and programmes overemphasising winning were problems encountered in youth sport. The challenges faced by adults involved in youth sports, from parents, to coaches, to sports medicine providers are multiple, complex, and varied across ethnic cultures, gender,

communities, and socioeconomic levels (Merkel, 2013). The effects of excessive training and the pressures of competitive play, leading to fatigue, injury and/or ill-health, have also been documented in relation to children and youth participation in sport.

## 2.6 Complexity

### 2.6.1 Complexitivist philosophy

A complexitivist philosophy underpins my research. This philosophy, multi-layered and challenging to define, resonates with what complexitivists have in common, which is a broad agreement on what constitutes a complex phenomenon or entity (Ovens, Hopper & Butler, 2013). Therefore, rather than defining complexity by a mode of inquiry, it is “more appropriately characterised in terms of its objects of study” (Davis & Sumara, 2006, p. 5). Within a complexitivist philosophy, the objects of study are commonly modelled as a system of interacting entities in which the system is perpetually constructing its own future as continuity and transformation (Stacey, 2001, cited in Ovens et al., 2013). According to Byrne (2005), the underpinning assumption is not the focus on the system, but on the *process of interaction between the elements* (my emphasis) that enables the emergent properties and forms to become the focus of inquiry. The interactive process between elements in a system aligns with Kineman’s (2007) notion of relationality (see below for a further explanation). The purpose of choosing a complexitivist philosophical approach in my research is to provide a source domain that is rich with possible analogies for understanding human action, knowledge, identity and learning (Stacey, 2001, cited in Ovens et al., 2013).

A complexitivist philosophy for my research is a purely systems-based approach, which focuses on specific characteristics of systems’ theory (Durkheim, 1895; Spencer, 1851) that can distract from the bigger picture. Key concepts of complexitivist philosophy, such as affordances, relationality, intersectionality, lines of flight, entanglements and mangles, are discussed below as tools to flesh out the student-athletes’ meanings and perceptions as they navigate the complexity of their sport and education domains. An awareness of each participant becoming (emerging) who she is physically, cognitively, socially, spiritually, and emotionally (Kidman & Lombardo, 2010) is also key to a complexitivist philosophy.

To conclude this section, it is important to acknowledge the intentioned multilayered, wide-view approach undertaken in my study. For one to research the complexity of individuals' development, there is always a limit to the researcher's interpretation of events. Indeed, Ennis (2013) acknowledged this when she said, "the limits of our ability to conceptualise and measure complexity and the limits of our funding and personnel have necessarily meant that some aspects, influences and variables are identified, but unmeasured, while others admittedly are simply unrecognised" (p.14). In an emergent ontology ("a belief that there is no universal truth or validity but that truth holds a relative and subjective value according to context and perception" (Crotty, 1998)), the limitation arises as to what in a constructed narrative is real or fiction. More importantly perhaps, the key issue to consider is not what has been selected, but what has been left out. Chapter 8 provides more detailed discussion of this juxtaposition.

My role as researcher in the creation of each student-athlete's story was significant. Regular contact over a two-year period between me and each case study student-athlete created a complex system within which the research could take place. A discussion of complex systems follows to foreground a deeper understanding of complexity thinking and the complexity tools employed in my research; affordances, rationality, intersectionality, lines of flight, entanglements and mangles. This discussion informs the research questions, and facilitates recognition of emergent meaning and learning from my collected data.

### **2.6.2 Complex systems**

As a property of a system of interacting elements, complexity is situated between the states of order and disorder (Morrison, 2008). Complex systems are neither regular nor predictable in the way they act; however, neither are they random nor chaotic. Complex systems tend to display features of multiple dimensions that are highly-patterned and ordered features, while simultaneously being surprising and unpredictable. Complexity generally exists in situations in which many agents are connected and interacting together in dynamic ways (Mason, 2008). However, systems may become more or less complex, dependent on a number of factors; the number of interacting elements, the number of connections between the elements, the diversity of elements involved, and the length of time they are interacting and evolving (Simon, 1962). An element or agent in this context is understood as something that takes part

in an interaction within a system and is subsequently changed (a person, a society, a plant, a nerve cell, an athlete, a student). Byrne (2005) and Cilliers (1998) explained that the behaviour of a system is said to be complex because the relationships between multiple elements give rise to emergent qualities that cannot be reduced to the sum of their constituent parts, or to a central agent responsible for overall control of the system. Complex systems can also be simple and complicated, that is, composed of multiple components but characterised as closed systems capable of decomposing to their individual parts and whose workings follow predictable and precise rules (Cilliers, 2000). Such closed systems are not particularly relevant to my research, which focused on open-ended, self-organising, adaptive forms constituted by many non-linear, dynamic interactions.

In complex systems, the individual components (people, places, equipment, buildings, regulations, policies, procedures, constraints, etc.) are self-organising, adaptive agents and interdependent with those to which they are connected (Ovens et al., 2013). An example of a student-athlete's complex system is how she is interdependent and connected to her school's complex system. The student-athlete is also interdependent with her family's complex system, sport club's complex system and coach's complex system (just to name a few). If the system is taken apart, either physically or theoretically, it is the relational aspect that is destroyed, which subsequently prevents an understanding of the system's dynamics and properties (Byrne, 2005). Thus, there is a need to view complex systems holistically, and to consider that, when agents of a system are attracted to a certain activity, they will generate a pattern of behaviour (not necessarily a linear pattern) over time.

Deleuze and Guattari (1980) developed the term assemblage as an "ontological framework to analyse and interpret the relationships of component parts within a body which are not stable and fixed; able to be displaced and replaced within and among other bodies, thus producing systems through relations of exteriority" (p.356). Deleuze and Guattari's assemblage theory proposed that relationships are formed through the processes of coding, stratification, and territorialisation, with no individual body or entity operating in isolation. According to Deleuze and Guattari, the process of ordering matter around a body is called coding; a process through which a principal entity (student-athlete) selects, composes and completes a territory of other



entities (sports team, family unit, form class, sports club, school). In composing a territory, there exists the creation of hierarchical bodies in the process of stratification, with some bodies included and others left out. According to Deleuze and Guattari's coding theory, the bodies (other entities) in close proximity to the principal entity (student-athlete) define the relationships and therefore demonstrate the social complexity of assemblages. Deleuze and Guattari explained that "assemblages territorialize forms of content (material forms) such as human and nonhuman bodies, actions and reactions, and forms of expression such as incorporeal enunciations, acts, and statements" (p.322). The ordering of bodies means that assemblages do not remain static, as they are also characterised by processes of deterritorialisation and reterritorialisation (with components exiting and entering the assemblage), with new connections (relationships) forged, constituting new assemblages.

DeLanda (2006) further developed and re-configured Deleuze and Guattari's theory of assemblages by examining exteriority, in which assemblage components are self-subsistent and retain autonomy outside of the assemblage in which they exist. DeLanda suggested that assemblage components are organised through two axes of material/expressive and territorialising/deterritorialising. Further, according to DeLanda, a third axis exists of genetic/linguistic resources to define the interventions involved in coding, decoding, and recoding of an assemblage. DeLanda asserted that the social does not lose reality or its materiality through its complexity. In this way, assemblages are effective in their practicality. DeLanda's reconfiguration of the Deleuzian concepts provides a robust theoretical framework for analysing assemblages (systems) that can be seen as practical in use.

Due to the qualities of complex systems, as summarised by Davis and Sumara (2006) below, the outcomes of specific actions or the next planned direction often cannot be predicted, if the system exhibits complexity. Davis and Sumara identified the key elements of complex systems as:

- 1) *Self-organising* – spontaneously arise as agents become interlinked and co-dependent.
- 2) *Bottom-up emergent* – properties exceed the summed traits and capacities of individual agents.

- 3) *Short-range relationships* – information is exchanged between close neighbours, so the systems coherence depends on interdependencies, not centralized control or top-down administration.
- 4) *Nested structure* – often composed of and often comprised of other ‘complex’ unities, giving rise to new patterns and activities.
- 5) *Ambiguously bounded* – open in the sense that their edges may be variable.
- 6) *Organizationally closed* – closed in the sense that complex systems are inherently stable.
- 7) *Structure determined* – able to change its own structure as it adapts; complex systems embody their histories; they learn.
- 8) *Far from equilibrium* – complex systems do not operate in balance. A stable equilibrium implies the death of the system (p.5-6).

There are, however, constraints on a system that can mediate the stabilising influence of an attractor’s (properties that allow individuals to self-reference within an organisation or system) power to control the system (Davis & Sumara, 2006). For example, a sports coach can set up training situations to shape a student-athlete’s emergent learning and skilled behaviour. However, new and often unexpected properties, patterns and behaviours can emerge, which cannot be predicted from an analysis of the individual system components, nor the way these components interact (Mason, 2008). The following discussion on complexity thinking foregrounds a form of inquiry as an attitude, which is potentially generative of, and pays attention to, diverse sensibilities without making claims to or being trapped by universals or absolutes (Ovens et al., 2013).

### **2.6.3 Complexity thinking**

Ovens et al. (2013) explained that “complexity is not a field of study that is easily defined by its constituent concepts or contributing disciplines” (p.3), and that attempts to classify complexity have shown that varied discourses, histories and concepts are “highly nuanced, intertwined, and potentially inconsistent” (p.3). Complexity thinking, as Davis and Sumara (2006) pointed out, prompts a sort of:

Level jumping between and among different layers of organisation enabling attention to be orientated towards other dynamic, co-implicated and integrated levels, including neurological, the experiential, the contextual/material, the symbolic, the cultural, and the ecological (p.26).

In other words, complexity thinking is transphenomenal (requires awareness of phenomena at different levels of organisation), transdisciplinary (requires border crossing between theoretical frames), and interdiscursive (requires an awareness of how discourses intersect, overlap and interlace) (Davis, 2008; Davis & Phelps, 2005). To understand complexity thinking and a complexivist philosophy further, an overview of some of the key themes that are relevant to my research are discussed; emergence, adaptation and complexivist tools.

### **Emergence**

One of the most important ideas central to complexity is the notion of emergence (Ovens et al., 2013). Emergence can be defined as the appearance of a property or feature not previously observed as a functional characteristic of a system (Cilliers, 1998; Mason, 2008; Richardson & Cilliers, 2001). Emergence draws attention to three important ideas inherent to a world view of complexity and a complexivist philosophy: how the emergent property is dependent on its constituent parts (supervenience); how the emergent parts are more than the sum of the parts and not just the predictable aggregate of the way the parts interact; and how the emergent property is more than either an illusion or a metaphor (epiphenomenal) (Ovens et al., 2013). Research participants in my study exhibited interdependent relationships among elements or agents in their complex system, and with the environment that afforded their system to arise. Barab, Cherkes-Julkowski, Swenson, Garrett, Shaw, and Young (1999) termed a transition phase, when a system reaches a certain critical level of diversity and complexity, as an autocatalytic state. They described this state as a process of self-organising in a continuous manner and drawing on available resources in the environment to create a system that sustains itself as its constituent elements interact, and in turn, interconnect with the environment; that is, it emerges. Complexity thinking foregrounds a contextual ontology where phenomena such as learning and skill development (such as education and sport) are emergent in response to how contributing agents, as part of a collective, adapt and self-organise in relation to the constraints of a context (Ovens et al., 2013).

### **Adaptation**

Adaptation is the ability of complex unities to continuously and actively reorient their structures to maintain coherence in relation to their worlds (Ovens et al., 2013). This

definition is helpful to understand the adaptability and self-organising processes inherent in complex systems, so that a system can survive in a changing environment by creating new and emergent system-wide understanding and acting (Mason, 2008). Adaptation offers an insight into how complex systems learn and provide an analogy for how we understand human learning. That is, for a complex system to reorient itself to maintain coherence with the environment in which it is engaged, it must contain enough diversity in its make-up to allow it to adapt to the demands of the environment. If there is sufficient commonality among the agents that make up a system, if any part fails, the other agents can compensate. According to Barab et al. (1999) an autocatakinetic process starts where the system, drawing on available resources, develops a self-sustaining exchange with the environment. The conditions in the environment need to provide enabling constraints (affordances) that limit what the system can do, preventing it from being overwhelmed, but at the same time, offering an openness to possibilities that the complex system can take advantage of. The system must have the capacity to retain the products of previous exchanges, but also the ability to discard elements that are no longer useful. According to Ovens et al. (2013), the process of unfolding as the system self-organises to the challenges of the environment represents the critical feature of adaptation in a complex system. A range of tools can be useful in disassembling a complex system, as discussed below.

### **Complexitivist tools**

Cilliers (2005) argued that while complexity thinking may not provide us with the conceptual tools to solve our complex problems, “it shows us (in a rigorous way) why these problems are so difficult” (p.257). A range of complexitivist tools are presented next as implements to tease through gathered data; to make meaning from the everyday experiences of three student-athlete participants whose stories have been documented in Chapters four, five and six. Next, I consider the usefulness of affordances, relationality, intersectionality, lines of flight, entanglements and mangles, as part of a complexitivist post-humanist toolbox.

#### **2.6.4 Affordances**

An affordance is a possibility for action by an individual. An affordance network is the collection of facts, concepts, tools, methods, practices, agendas, commitments, and even people that are distributed across time and space and viewed as necessary for

the satisfaction of particular goal sets (Barab & Roth, 2006). Central to an understanding of affordances and affordance networks, Gibson's (1986) seminal work postulated the belief that the environment includes qualitative regions of functional significance (affordances) that are visible to individuals with reciprocal skills (effectivities) and the intention to act. Gibson introduced the concept of effectivities as complementing affordances. If an affordance is a possibility for action by an individual, an effectivity is the dynamic actualisation of an affordance. Barab and Roth (2006) expanded further by stating that, functionally defined, an effectivity set constitutes those behaviours that an individual can in fact produce to realise and even generate affordance networks. For example, a student-athlete may choose to trial for a specific sports club or team to facilitate his/her progress within that sport. When an individual has a specific effectivity set, he or she is more likely to perceive and interact with the world in certain ways—even noticing certain shapes of networks that are unavailable to others.

Knowing is described as the process of being able to realise affordance networks; that is, the coupling of affordance networks and effectivity sets in the service of particular goals (Barab & Roth, 2006). Barab and Roth also noted that different (physical) individuals relate to the same material environment in different ways and therefore inhabit different, personal life-worlds, which nevertheless share family resemblances across individuals. They explained that the contents of any life-world are dependent both on an individual's effectivity sets and on the available affordance networks (Roth, 2003), leading to a continuous evolution of both individual life-world and communicative patterns with others (Roth, 1999). The significance of this literature to my study is to emphasise a student-athlete's heightened sensitivities to beneficial opportunities, resources and expertise when she perceived that she could affect her developmental, functionally related worlds through her actions. Barab and Roth (2006) argued that "life-world expansion, as the ultimate trajectory of learning, involves engaging in sets of experiences that have overlapping core components (multi-layered) such that individuals build up "effectivity sets" (p.11) that span multiple affordance networks—potentially evolving into new ways of interacting with the world. The advantage of increased effectivities can be twofold:

Transfer can occur when individuals begin to see different contexts as having similar underlying affordance structures—even in the context of differing contextual particulars.

In the best cases, individuals appreciate the power of, or adopt commitments with respect to, a specific effectivity set and begin to assert this ‘toolset’ in multiple situations even when the affordances are not readily apparent on the surface (Barab and Roth, 2006, p.11).

Bronfenbrenner (1979) considered that “at the very core of an ecological orientation and distinguishing it most sharply from prevailing approaches to the study of human development is the concern with the progressive accommodation between a growing human organism and its immediate environment, and the way in which this relation is mediated by forces emanating from more remote regions in the larger physical and social milieu” (p. 13). The information flow that exists and is created within, across and between complex systems can amplify, dampen, cancel out, and provide feedback loops (Ovens et al., 2013). Information flow is complex, non-linear and unpredictable, but works to self-organise and restabilise the system, to facilitate access to and relationships with other living and non-living agents or unities.

### **2.6.5 Relationality**

Relational theory can deal with systems that originate themselves and their own behaviour (Kineman, 2007). Relational complexity is emerging to explain the origin of both the living and non-living world. Kineman explained that the basic tenants of relationality are quite simple, but controversial due to prior limits on scientific thinking, particularly the mechanistic world view. In his view, both living systems and mechanisms emerge as special cases of the general, relational complexity. The basic relationship he suggested is between existent and potential aspects of nature, which requires relational information to cross the subject-object boundary. Kineman reported that the theory of relationality is compatible with both Western and Eastern thought, and offers a means to integrate these quintessentially opposite world views. He proposed that relational complexity can also provide a solid theoretical foundation for structure-function epistemology in ecology that is not predicated on, or thus limited by, mechanistic assumptions. The relevance of relationality to my study is as a tool to unpack the flow of information within, between and across multiple layers of each student-athlete’s complex world of experiences.

### 2.6.6 Intersectionality

The concept of intersectionality is a useful tool to assist in unpacking the experiences of the student-athletes in my study. Intersectionality in its current version denominates reciprocities between gender, race and class (Winker & Delége, 2011); however, it also allows for the integration of other socially defined categories, such as sexuality, nationality or age. The level to which these reciprocal effects apply (of social structures, of constructions of identity or of symbolic representations) is somewhat unclear (Winker & Delége, 2011). The multi-layered complexivist world view adopted in my research supports multiple points (intersectionality) to establish, for example, a student-athlete's identity, her sense of self, and her position in both her educational and sporting domains. Researchers of diverse provenances work with this concept, suggesting that "it can be used in both quantitative or qualitative work (McCall, 2005) which examines the micro level of lived experiences (Shields, 2008; Smith, 1986), the meso level of organisations (Acker, 2006) or social structures (Risman, 2004), and the macro level (McCall, 2001) including internationality" (Bilge & Denis, 2010, p.4).

Adherents to the concept of intersectionality stress the interwoven nature of these micro, meso and macro categories, and how they can mutually strengthen or weaken each other (Crenshaw, 1989). Its comprehensive approach has the potential to look beyond the different theoretical currents and offers up further perspectives for constructive development and utilisation (Winker & Delége, 2011). Acker (2006) provided further insight by stating that socio-structural inequality regimes exhibit "loosely related practices, processes, actions, and meanings that result in and maintain class, gender, and racial inequalities within particular organizations" (p.443).

Within the socially structured organisation of sport, which can also be viewed as a complex system, a discussion pertaining to the body is appropriate. Winker and Delége (2011) regarded the body as their fourth structural category (after gender, race and class). They viewed bodily productivity in the same way as cultural productivity, to generate structural inequalities in capitalist societies. Their stance focused on the body being perceived as less and less as a fact of nature, and more a product of culture, since it can be manipulated mechanically, genetically, mentally and physiologically. In their view, optimising the body was aimed at improving its employability, as "illness and physical disability have a negative effect on career opportunities" (p.55-56).

Bodies are supposed to be optimised to function better, thus following a performance principle (Winker & Delége, 2011).

Through social practices like social action and speech, individuals delineate themselves in social contexts, construct identities, process symbolic representations, support social structures, or challenge them (Winker & Delége, 2011). Conversely, the three aforementioned levels (micro, meso and macro) construct a framework for social practice. Thus, social practices are intrinsically linked to each other through categories of difference and the interaction, interrelatedness, and interdependence of all levels.

### **2.6.7 Lines of flight**

The Deleuzean term line of flight is considered a useful tool of interpretation and analysis, and as an alternative concept to unpack the actions and behaviours of individuals. In Deleuze and Guattari's (1987) seminal work, creating a line of flight does not mean to flee, but to recreate or act against dominant systems of thought and social conditions. For example, if a student-athlete decides to change her sport code or to drop a subject at school, she has demonstrated a line of flight (according to Deleuze and Guattari), especially when her decision is not expected or supported by significant others or wider society. Deleuze and Guattari maintain that a line of flight never consists of running away from the world, but rather in causing runoffs, and that there is nothing imaginary or symbolic about a line of flight. That is, the individual often has no choice but to pursue an alternative action or behaviour. In their view, Deleuze and Guattari regarded such action as a positive; the action demonstrated an individual or groups' ability to carve out space, rather than occupy the space created by a higher or pre-given ordering principle or process (hylomorphism). In its simplest form, lines of flight can be "celebrated as the ambiguous nature of being" (Deuchar, 2009, p.19) or perhaps more accurately from Deleuze and Guattari's perspective, of "becoming" (p. 232).

Rather than asking what a concept means when analysing individuals, Massumi (1992) suggested that more appropriate questions to ask were, "Does it work? What new thoughts does it make possible to think? What new emotions does it make possible to feel? What new sensations and perceptions does it open in the body?" (p. 8). Massumi acknowledged that "to free life from where it's trapped, to trace lines of flight"



(Deleuze, 1995, p.141) into a different way of being in the world, was an approach worthy of serious consideration. To finish my discussion on complexivist tools, an exploration of the terms entanglements and mangles provides insights about these contemporary concepts, which have become integral speak in complexivist philosophy.

### **2.6.8 Entanglements and mangles**

Gintis (2016), in his most recent publication, claimed to provide a rigorous transdisciplinary explanation of some of the fundamental characteristics of human societies and social behaviour. Through transdisciplinary research of entanglements and individuals, he postulated that a shared analytical framework bridges the behavioural sciences research gap on “genre-cultural co evolution, the rational actor model, game theory, and complexity theory” (p.2). Gintis argued that everything distinctive about human social life flows from the fact that we construct and then play social games. He suggested that society itself is a game with rules, and politics is the arena in which we affirm and change these rules.

In contrast to other complexivist theorists, individuality according to Gintis, is central to our species because the rules do not change through inexorable macro-social forces. Rather, individuals band together to change the rules. Our minds are also socially entangled, producing behaviour that is socially rational, although he conceded that this view violates the standard rules of individual rational choice. Gintis also proposed that individuals possess a moral sense, which is essential for playing games with socially constructed rules. He maintained that people generally played by the rules and were ashamed when they broke the rules, and were offended when others also broke the (socially constructed) rules.

An alternative view of entanglement is Hodder’s (2012) ruminations based on an archaeological perspective of the relationships between human and non-human things. Hodder presented an innovative argument that explored the complexity of the human relationship with material things, demonstrating how humans and societies are entrapped into the maintenance and sustainment of material worlds:

The interrelationship of humans and things is a defining characteristic of human history and culture. Physical things can still hold value without individuals

succumbing to materialism. Evolutionary theory shows how long-standing entanglements are irreversible and increase in scale and complexity over time. Many of the key contemporary perspectives from materiality, material culture studies and phenomenology to evolutionary theory, behavioural archaeology, cognitive archaeology, human behavioural ecology, Actor Network Theory and complexity theory, exhibit entanglements (p.33-34).

The idea of social phenomena as interconnected, unpredictable and inconsistent (from a complexivist philosophical view) is not new, but has rapidly developed as a global phenomenon. Giddens (1994) stated that “globalization is not a single process but a mixture of processes which often act in contradictory ways” (p.5). In a similar vein, Stewart (2001) considered the nature of social complexity to be very much open to debate, arguing that the use of a complexivist frame hinged more on perspective and level of detail, and was inevitably contingent upon the phenomenon/object being observed and how it was perceived by the observer. According to Bauman (2001), the most important learning for individuals in postmodernity is the capacity of the learner to unlearn and “adapt to uncertainty” (p.125).

The complexivist concept of mangles, as coined by Pickering (1993), provides a reconceptualisation of research practice. Pickering described a mangle as an “open-ended, evolutionary, and performative interplay of human and non-human agency” (p.574). His ideas originated in science and technology studies, but has application to a broad range of fields including history, philosophy, sociology, geography, environmental studies, literary theory, biophysics, and software engineering. Barad (2003) offered an alternative view on performativity, suggesting that a performative understanding of discursive practices challenges the representationalist belief in the power of words to represent pre-existing things:

Performativity, properly construed, is not an invitation to turn everything (including material bodies) into words, on the contrary, performativity is precisely a contestation of the excessive power granted to language to determine what is real (p. 802).

Pickering and Guzik (2009) highlighted how the mangle points to a shift in interpretative sensibilities that makes sense of a world of decentred becoming. The volume, which is a compilation of the mangle’s applicability to diverse topics, demonstrates the viability, coherence and promise of a shift, not only in science and technology studies, but in the social sciences and humanities more generally.

Entanglements and mangles, as complexivist concepts, provide opportunities to view each student-athlete's experience as interconnected, interrelated, and interdependent, while also being transphenomenal, transdisciplinary, and interdiscursive (Davis, 2008; Davis & Phelps, 2005).

The various complexivist tools outlined above do not represent a comprehensive or exhaustive list of methods to unpack the multi-layered incoherent parts of individuals' lives. However, these tools do provide useful hooks to begin to understand the iterative, dynamic, self-organising, complex system(s) that represents many of the student-athletes' experiences. Ovens et al. (2013) proposed that the use of a multi-layered approach "disturbs standard ways of interpreting current research, in many fields" (p. 3). In the next section, the concept of talent will be explored. The discussion includes possible definitions, how this term is understood in educational and sporting fields, and how student-athletes who are identified as 'talented' are provided for and managed, as athletes and as students.

## **2.7 Chapter summary**

The experiences of talented female student-athletes in New Zealand secondary schools are complex, multi-layered, relational, original and unique to each young woman. Literature in youth sport and education can inform practice, policy and appropriate programmes, by providing empirical and anecdotal evidence to review the current assumptions and approaches, and to recommend future management and directions of school-aged athletes. The pursuit of sustained attainment in both education and sport is the domain of choice for the talented female student-athletes in my study. A range of influences and factors act on and impact their development and progress, producing challenging situations and unexpected rewards. In this chapter, an overview of seminal and current research in complexity philosophy, complex systems and complexity thinking has set the theoretical framework upon which to build an understanding of the term talent, how it is identified and what provision is available in educational and sporting contexts. An exploration of New Zealand and international education and sports policies and programmes has highlighted new initiatives and focus areas in the pursuit of excellence in both fields. A range of influences and factors that impact the student-athletes quest to achieve their aspirations have been briefly investigated, such as significant others, siblings and

peers, injury, gender, gender identity, embodiment, power relationships and culture as an inherited construct. The final sections in this chapter, while considering some of the strategies and barriers that have the potential to enable or disable talented performances, have also emphasised the overlap, interconnectedness and complexity of sustained attainment in sport and education, when pursued simultaneously.

## Chapter 3 Methodology

The implications of being a talented female athlete whilst also a secondary school student, with reference to relationality (systems, networks, entanglements, assemblages) and their ability to manage the complexity of their daily lives, was investigated through an integrative, complexity framework. Cultural, socio-cultural and socio-economic factors were considered, as according to Fitzpatrick (2011), student identities and attitudes (and ultimately their schooling success) are framed by wider social and political influences, which is the nature of complexity theoretical framework.

The methodology chapter outlines the research process and presents a critical rationale for the methodology I chose for this investigation. To establish context, I begin by explaining the research site and participants, before outlining and justifying the ontological and epistemological assumptions that underpin this study. Founded in these assumptions, I propose and rationalise the chosen methodology: individual narrative case studies. I scrutinise the characteristics of a complexivist posthumanist paradigm, relative specifically to individual narrative case studies. This is followed by a summary of the complexity theory models used in this research and the supporting data collection tools and analysis methods utilised to answer the research questions. The chapter concludes with an explanation of validity, trustworthiness and ethical considerations relevant to this investigation, including my role as researcher.

### 3.1 Research site and participants

There were four phases in the research process. For phases one and two, purposeful sampling was used to recruit participants. For phase three, random sampling was used to narrow down the participants from fourteen to three. The rationale during phases three and four for random sampling as opposed to purposive sampling, was to eliminate researcher bias as the participants were becoming known as the project proceeded. In qualitative research, non-probability sampling of participants is used, of which there are several forms (Punch, 2005). When considering the selection of participants for the study, purposive and convenience sampling were the non-probability sampling strategies chosen. Unlike the random nature of probability sampling, which indiscriminately selects participants to make generalisations,

researchers who utilise purposive and convenience sampling, sample with a purpose in mind (Bryman, 2001). Purposive sampling was employed to select the original 14 participants who met specific criteria:

- A full time female student at their secondary school.
- Currently competing at a regional, national or international level in their chosen sport.
- Had a parent, coach or significant other who was willing to participate in the research.
- Attending a school willing to participate in the research if required.

The participants were nominated by their schools according to the above criteria. Based on my knowledge of the secondary schools in Auckland, I believed that sufficient participants who met the purposive sampling criteria would be available for this study. I approached four Principals from two single-sex and two co-educational secondary schools in the greater Auckland region and sought site access so I could begin the research process. Three schools responded positively so I sent participant information sheets (Appendix A), consent forms (Appendix B) and the participant questionnaire (Appendix C) to inform their Director of Sport or Teacher in Charge of Gifted and Talented students of the context, purpose and aims of the research. This initial contact was followed by a meeting and further discussion about the criteria for selecting suitable participants. Each participating school was asked to give site consent as the majority of interviews were expected to take place at a school venue. The three participant schools nominated up to five female student athletes, asked the students if they would consider participating in a research project, and ensured that the athletes had the relevant information, consent forms and initial questionnaire to complete, or to discuss with their parents.

The participating schools were also selected based on their willingness to identify, nominate and support (administratively) appropriate student-athletes from their school for the duration of the project. The participating schools included a large single-sex state secondary school from a medium to high decile and mixed socio-economic area (school A), a large co-educational state secondary school from a high decile and high socio-economic area (school B), and a large co-educational state secondary school

from a medium decile and medium to low socio-economic area (school C). A key consideration for choosing each student-athlete's school as the research site was the availability of a quiet, conducive interview area (organised by the school), transparency and collaboration throughout the data collection process, and the project's recognition of the increasing role schools play to identify and provide for talented young athletes. In 2005, a change in the National Administration Guidelines (NAG) 1.(iii)c stated that "all state and state-integrated schools must be able to show how they are meeting the needs of their gifted and talented learners" (Ministry of Education, 2003).

Other considerations when constructing the sampling framework were the availability of participants, workload and school/work/sport commitments, commitment to study, support from teachers/sport directors/sport coordinators, and parental permission/involvement. Participation was voluntary and the student-athletes had the right to withdraw from the project at any time, without penalty or disadvantage (refer to participant information sheet, Appendix A(i)).

Fourteen participants completed the phase one initial questionnaire and ten student-athletes continued and complete the phase two semi-structured interview. A spreadsheet of the baseline data from phase one participants can be viewed in Appendix E (p.378). Table 1. provides an overview of the student-athlete demography for phase two (semi-structured interview).

Table 1. Overview of Phase Two Participant Demography

Participant	Sport	Academic year	School
NK	Cycling	11	A
NF	Multisport	10	A
ECW	Swimming & water polo	11	A
PB	Triathlon	9	A
AW	Figure skating	9	A
IA	Gymnastics & athletics	10	B
BS	Water polo	10	B
PW	Athletics, netball, touch, sevens	10	C
WJ	Athletics, netball, touch	10	C
KG	Swimming	11	C

*Phase one* and *two* athletes represented students from three separate greater Auckland secondary schools. The participants were not selected according to their sporting code and, consequently, exhibited a range of sports and physical pursuits; for example, athletics, cycling, dancing, figure skating, gymnastics, mountain biking, multisport, netball, sevens rugby, swimming, touch rugby, triathlon and water polo. The original phase one group of athletes also represented a range of ages, from 13 years (Year 9) to 16 years (Year 11). One thing all the participants shared in common was their love of sport, being physically active, and a desire to excel in their chosen sport or physical pursuit. The phase one student-athletes had strong family and sibling role models, and uniformly had participated and generally excelled at sports or physical pursuits from an early age. For this group, particular attention was paid to the influences and factors that had affected their experiences, and the meanings they attributed to their perceptions, in sport and in education, from preschool until the day of the interview. This group was asked to identify and order who and/or what had been significant in her development as a talented female athlete and what she aspired to achieve academically and in her sporting domain, in the coming year and the next five years. All interviews were electronically recorded and subsequently transcribed for analysis.

Familiarisation with a wider base of participants enabled me to randomly select the final three case studies. A general principle that guides sample size is saturation of data (Pitney & Parker, 2009). Saturation of data is usually achieved in qualitative research when enough data is collected to “address the study’s purpose and to answer the research questions” (Pitney & Parker, 2009, p.44). Morse (2000) suggested that researchers should overestimate the number of participants to ensure saturation, but noted that the higher the quality of usable data obtained from each participant, the fewer the interviews that were needed. The original cohort of fourteen students, using “criterion based selection” (Pitney & Parker, 2009, p.42), allowed for the sample to be reduced to three student-athletes for the short longitudinal phase of in-depth interviewing and data collection during *phase three*. The rationale for beginning with a large initial cohort was to cater for the possibility of participants dropping out (of which four student-athletes did), and to provide a wide sample base from which to draw the final three case study participants. The reduction of participants from *phase*



*one* and *phase two* to the *phase three* interviews, was carried out to aid the manageability of the project and to allow sufficient time for trustworthy and authentic data collection. Having located the research site and the participants in the research, it is now necessary to discuss the inclusion of a significant other, for each case study student-athlete.

Significant others provided another layer to the final three student athletes' case studies. Each athlete was asked to nominate a significant other such as a coach, parent, sibling, teacher or Director of Sport. Each significant other was interviewed using a semi-structured interview technique and indicative questions, at a venue and at a time convenient to the subject. The purpose of these interviews was to monitor changes, developments, issues or events that were relevant to the principal participant, from the view of another whom the student-athlete deemed important in her education and/or sporting experiences. All interviews were electronically recorded and transcribed for analysis. More information on the nominated significant others in this research are presented in Chapters 4, 5 and 6.

## **3.2 The research paradigm**

In a shift from a constructivist-interpretivist paradigm, my current study is situated within a complexitivist posthumanist paradigm. Firstly, as a research paradigm, complexity facilitates ways of thinking, which represent a creative, innovative way of understanding educational and societal phenomena. Ovens et al. (2013) suggested that "complexity also offers a particular philosophical orientation that enables [physical] educators to gain transphenomenal, transdisciplinary and interdiscursive insights" (p.7).

### **3.2.1 Theoretical perspective**

For the past two decades, complexity has informed a range of work across the social sciences. As would be expected within the nature of complexity thinking and its theories, there are diverse schools of interpretation, and researchers have used these ideas in a multiplicity of ways (Byrne & Callaghan, 2014). Some understand complexity as emergence from the rule-based interactions of simple agents and explore it through agent-based modelling. Others argue against such restricted complexity and for the development of case-based narratives to deploy a much wider set of approaches and

techniques (Byrne & Callaghan, 2014). Complexity guided my theoretical framework in conducting the research, in an attempt to gain insights and understandings about the participants' perceptions of their experiences. Within this research context, complexity thinking was aligned with the following foundational characteristics: co-dependent agents, self-organising, open to disturbance, sites of co-emergent learning, open to varying experiences, and able to evolve their structures in response to feedback (Storey & Butler, 2010).

When considering each student-athlete's experiences, an appreciation of her routine as a sustainable and adaptive system may be useful here. Sustainability, adaptive potential and her engagement level in her daily activities and tasks emerge as insights about the student-athlete's ability to manage and sustain the demands of her academic and sporting commitments. From a complexity thinking perspective, high levels of sustainability and engagement, which include key concepts from systems literature such as attractors, affordances, attunement, and disturbances, are identifiable and manipulatable dimensions within a complexity thinking framework (Storey & Butler, 2010). Mennin's (2007) work recognises that at the heart of this language shift through complexity thinking, is an acceptance that "learning is not predictable, not linear, nor is it best explained through simple rational models" (p. 303). Davis (2004) elaborated further by stating that "members of the same class of phenomenon have the capacity to respond differently to the same sorts of influences...." and that "... complex systems embody their own histories" (p.94). Santonus (1998) expanded this view by explaining that complexity theory looks at the world in ways that break with simple cause-and-effect models, linear predictability, and a dissection approach to understanding phenomena, instead replacing them with organic, non-linear and holistic approaches (refer Figure 2), in which relations within interconnected networks are the order of the day (Wheatley, 1999; Youngblood, 1997).

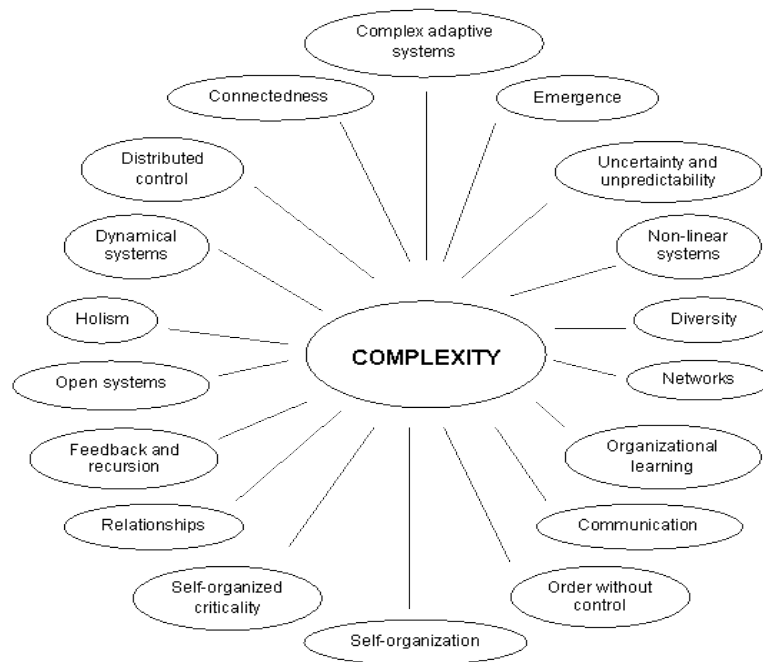


Figure 2. Components of complexity theory (Santonus, 1998, p.3).

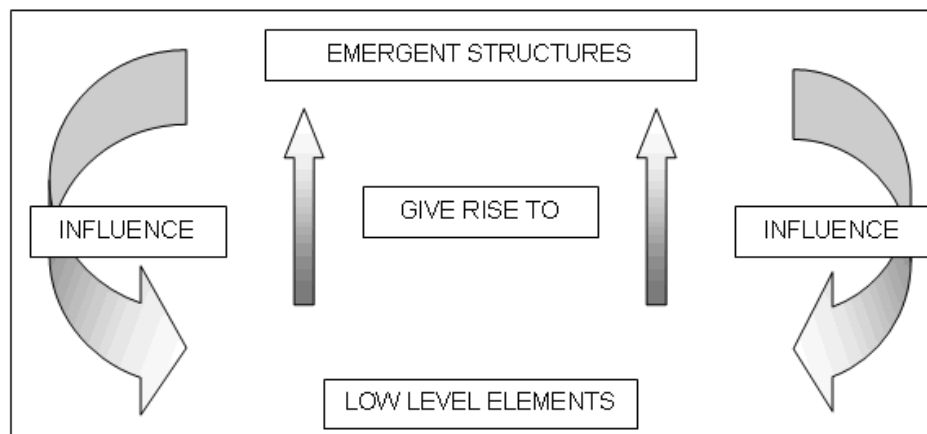


Figure 3. The rise of emergence in complexity theory (Stewart, 1991).

The interaction of individuals feeds into the wider environment (see Figure 3), which, in turn, influences back into the individual units of the network; they co-evolve, shaping each other (Stewart, 1991). Emergence is the co-partner of self-organisation. Systems possess the ability for self-organisation, which is not according to a grand design, a deliberately chosen trajectory or a set of purposes (Casti, 1997). Rather, self-organisation emerges as a result of interaction between the organism (student-athlete) and its environment (sporting and schooling domains), and new structures (such as strategies, behaviours, decisions, perceptions) emerge that could not have been envisioned initially (Merry, 1998). Within my research context, the term

complexity thinking is the broad umbrella under which dynamical systems theory and other systems theories converge.

Secondly, within my complexitivist research context, posthumanism can be understood as a rejection of humanistic assumptions of an independent, disembodied and autonomous subject, with the “post” referring to the thinking before and after humanism (Wolfe, 2009). The posthumanist perspective turns our attention to embodiment, connectivity and coevolution, which is not enclosed within intraspecies boundaries of existence, but acknowledges the complex, adaptive placement of the human within the other-than-human world, including animals, plants, and things (Roelvink & Zolkos, 2015). This definition of posthumanism needs to be differentiated from scholarship, which, while also taking the name of posthumanism, celebrates human exceptionalism as the human species is seen to be advanced and heightened through entanglements with technology, including genetics (Wolfe, 2009).

The distinction between Roelvink and Zolkos’ view of posthumanism and hyperhumanism, seeks to manage and ultimately master the ecological crisis, and on the other hand recognises that human life is and has always been entangled with other species and the environment in webs of interdependence (Dibley, 2012). As Wolfe (2009) explains, posthumanist research seeks to not only shift the thematic focus of research but also to challenge the thinking about the human, and to draw attention to the ethical assumptions and consequences of researchers’ thinking. Roelvink and Zolkos (2015) elaborated further by stating that posthumanist research enables a description of the human and its characteristic modes of communication, interaction, meaning, social significations, and affective investments focusing on *specificity* once the meaning has been removed from the ontologically closed domain of consciousness, reason, reflection, and so on. The posthumanist view forces a rethink of taken for granted modes of human experience, by reconceptualising human perceptual and affective states as part of the evolutionary history and behavioural and psychological repertoire of being human (Roelvink & Zolkos, 2015). A posthumanist approach also insists that attention is drawn to the specificity of the human; that is, its ways of being in the world, its ways of knowing, observing and describing, by acknowledging that humans are fundamentally a “prosthetic creature that has coevolved with various forms of technicity and materiality, forms which can be

regarded as 'not human' and yet nevertheless have made the human what it is" (Wolfe, 2009, p.16).

"Affect" is a central theme in multidisciplinary posthumanist scholarship (Bennet, 2010; Massumi, 2002, 2011; Wolfe, 2009, 2012). Scholarly considerations of affect, and the affective operations that cut across the human and other-than-human world, have the potential to inspire alternative modes of thinking about the liberal-humanist model of the autonomous and independent self. This affective framework has helped to create what Hardt (2015) has termed "the new ontology of the human" (p.215), where binary oppositions of the human subject (mind/body, autonomy/subjection, and activity/passivity) are complicated and challenged. Posthumanist theories of affect consider whether and how affect theory contributes to non-anthropocentric notions of human subjectivity, and in doing so, emphasise the complex connections and interdependencies between human and other-than-human subjects (Roelvink & Zolkos, 2015). Affect theory has relevance to my study as each talented athlete is concurrently interacting, reacting, depending and relating to a multiplicity of human and other-than-human experiences, which may be referred to as "forces or forces of encounter", which increase or decrease the athlete's ability to act, move and think (Gregg & Seigworth, 2010, p. 2). Thus, the use of the overarching complexivist posthumanist theoretical framework guides my research.

### **3.2.2 Epistemology and ontology**

From an epistemological stance, my research employed an interpretivist perspective in which the participants' interactions and relationships with others and with wider social systems were investigated and analysed. According to this perspective, the purpose of inquiry is to understand a particular phenomenon, not to generalise to a general population (Farzanfar, 2005). Within my research inquiry, the perspective was non-manipulative, unobtrusive, and non-controlling (Tuli, 2010). The interpretative framework enabled me to generate in-depth insights into the negotiated realities of students and significant others, and to understand the world and its experiences from the voice of those who live within it (Poczwadowski, Barott & Henschen, 2002). Interpretivist research seeks to provide thick, rich descriptions, a term coined by Geertz (1973) in which the voice of the student-athlete is paramount so that authentic meanings, values, interpretative schemes and rules of living (Neuman, 2003) could be

identified and noted. Interpretive research attempts to search and uncover meaning, values and explanations whilst also identifying, explaining and analysing any emerging concepts (Flick, 2009).

Since interpretative researchers place a strong emphasis on understanding phenomena that the participant has experienced, truthful reporting, first hand experiences, and quotations of actual conversations from insider perspectives (Merriam, 1998) are important. Interpretivist researchers employ data-gathering methods that are sensitive to context (Neuman, 2003), and which enable thick, rich, and detailed narrative of social phenomena by encouraging participants to speak freely. In my study, each female student-athlete had multiple opportunities to negotiate her reality, perceptions and meanings as she expressed and described her experiences at school and within sport. The perceptions of each participant are individual and unique, as there are multiple realities and truths, (complexity in action) even for the same phenomena (Flick, 2009; Silverman, 2005).

My study's ontology (beliefs about the nature of reality and humanity, Tuli, 2005) is one of emergentist, holding a belief that there is no universal truth or validity, but that truth holds a relative and subjective value according to context and perception (Crotty, 1998). This underpinning is important as it allows me to interpret individual perceptions and understandings but also views the complex, posthumanist and holistic nature of each individual within her daily experiences.

Within a complexity research paradigm, the researcher and the research participants (student-athlete, parent, educator, coach, sport club representative) are assumed to be interactively linked so that findings are literally created or emerge as the investigation proceeds. Guba and Lincoln (1994) emphasised that interpretation of these constructions is done best by using hermeneutical techniques ("literally means making the obscure plain," Blaikie, 1993, p.28), or through detailed reading or examination of text, which could refer to a conversation, written words, or pictures. Crotty (1998) highlighted how qualitative inquiry, which has a hermeneutical and dialectical emphasis, "seeks to uncover meanings and perceptions on the part of the people participating in the research.... with the researcher striving to see things from the perspective of the participants" (p.7). This view resonates strongly with the

purpose and focus of my study as my research project was situated within the meaningful interactions and perceptions of individual athletes, and their experiences within the “transphenomenal, transdisciplinary and interdiscursive” (Ovens et al., 2013, p.7) influences of their school, sporting environment, and family life. My research project endeavoured to provide multiple opportunities for each athlete to voice in depth the reality of her personal experiences, and to recognise the key influences, factors, opportunities and barriers that impacted on her level of performance, both as a student and as an elite athlete.

### **3.2.3 Posthumanism**

Wolfe (2009) described posthumanism as a set of questions confronting us, and a way of dealing with those questions when we can no longer rely on “the human” as an autonomous, rational being who provides an Archimedean point for knowing about the world (in contrast to “humanism” (p. 15), which uses such a figure to ground further claims). Wolfe’s posthumanism was essentially “after” humanism because it retained the fundamental gesture of leaving behind constraint in liberating their real selves. Wolfe, according to Pollock (2011), emphasised that all humanisms shared some conception of freedom – autonomy, agency, intention, and rationality – that secured exceptional ontological value for humans through nonhuman lack. Alternatively, posthumanism could be viewed as a supportive frame for discussions about medical enhancements and, more generally, as a concept through which contemporary ideas about ethics could be framed (Gordijn & Chadwick, 2008).

In contrast, Herbrechter (2013) questioned what it meant to be human in today’s world, and argued that current technological developments have increasingly eroded our traditional human reflexes, such as consciousness, emotion, language, intelligence, morality, humour and our sense of mortality. Herbrechter’s view that the unique character and value of human nature was no longer demonstrated was widely accepted as the inevitable next evolutionary stage that humans were facing (Graham 2002; Hayles, 1999; Nayar, 2014; Wolfe, 2009). Herbrechter explained that posthumanism was regarded as a discourse, which in principle includes everything that has been while also taking into consideration theoretical and philosophical assumptions, and social and political implications. His multidisciplinary and multifaceted debate on posthumanism shed light on the future of humanity, including

examples from the news media, popular culture, science and social media. The participants in my study are generationally of the twenty-first century, so Herbrechter's ruminations of future human conditions are relevant and appropriate to this study.

Posthumanistic theorists can be loosely categorised as philosophical, cultural or ethical (Gordijn & Chadwick, 2008). All three categories are pertinent to this study to some degree. In essence, philosophical posthumanism, as postulated by Ellul (1964) and Heidegger (1977), suggested that posthumanism was an ideology that framed the utilisation of technology, rather than an artefact that enabled new kinds of functionality; a kind of instrumental attitude that shaped the world we live in. Pearson (1997) described through Deleuze and Guattari (1987), the recognition of a shift in matter - symbiosis rather than hybridity – as a “desiring machine” (p.579), and when reviewing Stelarc's (1976 - 1988) work, Pearson (1997) proposed that the individual did not become a machine through his/her performance, but rather she/he was a becoming machine. Philosophical posthumanists were engaged, therefore, in broader aims with the ideal of aspiring to bring about progress through the employment of technology (knowledge). Within the context of my study, these distinctions were particularly relevant, primarily in relation to each female student-athlete's self-perceptions over time, her strategies and her coping mechanisms as a secondary school student, but also with regard to how she envisaged herself as a successful sportswoman in the future (aspirations and goals).

Cultural posthumanists such as Hayles (1999) and Haraway (2006) share Zylinska's (2005) view that technological development is not indicative of a “linear model of the development of the human, from the natural man to the post human cybernetic organism” (p.149). These theorists were united in their interest to provide a voice for marginal communities. Cultural theorists are concerned about narratives of otherness and their capacity to be politically divisive (Gordijn & Chadwick, 2008). Cultural posthumanism foregrounds the political process over and above the value of the individual agency and, in this domain, it differs from the priorities of philosophical posthumanists. Cultural posthumanists are also more likely to treat prosthetic devices as supportive of illness, rather than to espouse their potential to eventually surpass the normal range of human functioning and enhance humanity. In this respect, as



female athletes operating in the predominantly male-dominated cultural domain of sport, each student-athlete's story (Chapters 4, 5 and 6) provided an opportunity to reveal the political processes at play, over and above each athlete's individual agency as a competitive sportswoman. By adopting a posthumanistic view, greater insights were available for interpretation.

From another perspective, ethical posthumanist theorists, according to Gordijn and Chadwick (2008), considered the novelty of posthumanism as the rapid emergence of new ethical dilemmas that challenged our capacity to develop a new sociality of ethics. Within this context, Virilio (1995) claimed that the acceleration of society was an identifiable characteristic of the special discourses surrounding many emerging technologies. The ethical posthumanist theorists were concerned about the destabilising of humanistic values, such as the aspiration of perfectibility or the value of controlling nature. Ethical posthumanism is also pertinent and highly relevant to this research study as each student-athlete was intimately connected, interrelated and interdependent on technological advancements and devices. For example Aroha was able to determine with exact accuracy the extent of her ACL injury which provided her with information and a realistic timeframe within which to rehabilitate and return to competitive sport. Sandy developed a 'special' relationship with her apparatus in gymnastics and with her poles in pole-vault, to the extent that she was able to change her equipment during a competition if she was aware and 'felt' that the weight or length was not ideal for the environmental conditions. Sandy could also 'adjust' her equipment in gymnastic events to aid her performances, such as in asymmetric bars and vault. Rebecca on the other hand, questioned a disqualification at a national event due to video footage her father had taken during the race. Rebecca and her coach were constantly focused on achieved times to ensure that Rebecca's performances met national qualifying standards. Her training schedule was adjusted to sustain or increase her 'times' which relied heavily on accurate timing devices. Rebecca's role in this process could be viewed as a becoming machine (Pearson, 1997).

In summary, this research incorporates a posthumanist paradigm to further encapsulate the complexity of each student-athlete's experiences and meanings, with particular respect to her relationship with non-humanistic objects and things which had the potential to aid her attainment and performances. This research represents an

interpretivist epistemology and an emergentist ontology, which are underpinned by a complexivist posthumanist paradigm. The philosophical assumptions of complexity theory and thinking inform all parts of the research methodology, and provide a framework for the narrative analysis and interpretative inquiry of each case study.

### **3.3 Methodology: Narrative case study**

Narrative case study methodology aligns with my ontological and epistemological positions as discussed earlier because narrative inquiry and the holistic integration of personal experiences within a case complement the theoretical approach and complexivist posthumanist paradigm of this research project. Case study methodology allowed me to explore and describe an entity (a talented female student-athlete) in context using a variety of data sources, and to explore each individual athlete from simple to complex situations, in various relationships, as part of diverse communities, and as a participant in academic and sport programmes concurrently (Yin, 2003).

There are two key approaches that guide case study methodology: one proposed by Robert Stake (1995) and the second by Robert Yin (2003). Stake proposed that case study methodology used vigorous interpretation to examine meaning of the particularity and complexity of a single case, and to understand its activity within important circumstances. Yin (2003) argued that the choice of case study methodology depended on the study's research questions; for example "how?" or "why?" some social phenomenon worked, and whether the questions required extensive and in-depth description of a social phenomenon. Both Stake (1995) and Yin (2003) base their approach to case study methodology on a claim that truth is relative and that it is dependent on one's perspective. This paradigm "recognises the importance of subjective human creation of meaning, but doesn't reject outright some notion of objectivity. Pluralism, not relativism, is stressed with focus on the circular dynamic tension of subject and object" (Crabtree & Miller, 1999, p.10). The close collaboration between the researcher and the participant, while enabling the participants to tell their stories, is one of the advantages of this approach (Crabtree & Miller, 1999). Through a narrative case study methodology, each student athlete participant was able to tell her story and describe her view of reality, which enabled me as researcher to interpret and better understand the participant's actions, intention and individual

needs. To avoid the tendency to attempt to answer a question that is too broad or has too many objectives for one study, Yin (2003) and Stake (1995) suggest that placing boundaries on a case can prevent overload from occurring. Suggestions on how to bind a case study include: a) by time and place (Creswell, 2003); b) time and activity (Stake, 1995); and c) by definition and context (Miles & Huberman, 1994). Binding the case ensured that the study remained reasonable in scope.

### **3.3.1 Binding the study**

To ensure that the selected range of appropriate research methods and knowledge were utilised effectively, my investigation was conducted on the premises of three secondary schools in the greater Auckland region, and therefore bounded within the education domain. The schools had rolls varying from 1700 – 2700 students and socio-economic decile ratings from 7 – 10. The decile rating in New Zealand denotes the measure of socio-economic status in education, and is used primarily to target funding and support for needy schools. Decile bands are calculated according to household income, occupation (low skilled, unskilled or high skilled according to the Australian and New Zealand Standard Classification of Occupations), household crowding, educational qualifications, and income support (domestic purposes benefit, unemployment benefit, sickness benefit, invalid's benefit) (Statistics New Zealand, 2015). Therefore, the participants in my investigation were viewed as attending medium to high socio-economic status schools within the New Zealand education system.

The participants were identified as talented female athletes of national or international standing who were nominated by their school (Director of Sport, Sports Coordinator, or Head of Health and Physical Education) and were recognised as emerging representative young sportswomen. The study was therefore bound within a particular socio-economic group and level of sporting prowess for females.

### **3.3.2 Historical traditions of case study research**

Qualitative case study methodology provides tools for researchers to study complex phenomena within their contexts (Baxter & Jack, 2008). A case study methodology supports the deconstruction and, if appropriate, the reconstruction of various phenomena. Qualitative case study research is an approach that facilitates exploration

using a variety of data sources, which ensures that an issue is explored not through one lens, but through a variety of lenses to allow for multiple facets to be revealed and understood.

Historically, as Goode and Hart (1952) pointed out, “the case study is not a specific technique: it is a way of organizing social data so as to preserve the unitary character of the social object being studied” (p.311). Both Stake (1995) and Yin (2003) base their approach to case study methodology on a constructivist paradigm. Constructivists claim that truth is relative and that it is dependent on one’s perspective. This paradigm “recognizes the importance of the subjective human creation of meaning, but doesn’t reject outright some notion of objectivity” (Crabtree & Miller, 1999, p.10).

Constructivism is based upon the premise of a social construction of reality (Searle, 1995). One of the advantages of a constructivist approach is the close collaboration between the researcher and the participant, while enabling participants to tell their stories (Crabtree & Miller, 1999). Through these stories, the participants are better able to describe their views of reality, which enables the researcher to better understand the participant’s actions (Lather, 1992; Robottom & Hart, 1993).

According to Yin (2003), a case study design is appropriate when the focus of the research is: 1) to answer “how” and “why” questions; 2) when you cannot manipulate the behaviour of those involved in the study; 3) you want to cover contextual conditions that you think are relevant to the phenomena under study; or 4) the boundaries are not clear between the phenomena and the context. Miles and Huberman (1994) extended this idea further by stating that “a case can be defined as a phenomenon of some sort occurring within a bounded context” (p. 430). Thus, the case may be “an individual, or a role, or a small group, or an organization, or a community or a nation. It can also be a decision, or a policy, or a process, or an incident or event” (Punch, 2005, p.144). Brewer and Hunter (2006) identified six areas that could be the focus of case study research: individuals; attributes of individuals; actions and interactions; residues and artefacts of behaviour, settings incidents and events; and collectives. Stake (1995) distinguished three main types of case study:

Intrinsic case study where the researcher wants to understand in depth a particular case. Instrumental case study where a particular case is examined to give insight into an issue, or to refine a theory. Collective case study in which the

instrumental case study is extended to cover several case studies to learn more about the phenomena, population, or general condition (p.3).

For my research project I used Stake's (1995) intrinsic case study model in combination with Yin's (2003) exploratory and descriptive case study type. The case study aims to understand the case in depth, and in its natural setting, recognising its complexity and its context. It also has a holistic focus, aiming to preserve and understand the wholeness and the unity of the case. Therefore, the case is more a strategy than a method (Punch, 2005).

Punch concluded that there are four characteristics of case studies that qualitative researchers need to consider when choosing this approach. Firstly, the case is a bounded system. Yin (2006) points out that boundaries between the case and the context are not necessarily clearly evident; however, the researcher needs to identify and describe the boundaries of the case as clearly as possible. Secondly, the case is about something that gives focus to the research and makes the logic and strategy of the research clear. Identifying what the case is, is important in determining the unit of analysis when analysing collected data. Thirdly, there is an explicit attempt to preserve the wholeness, unity and integrity of the case. The word holistic is often used in this connection. Research questions help to define the focus of the inquiry. Fourthly, multiple sources of data and multiple data collection methods are used, typically in a naturalistic setting. Many case studies will use sociological and anthropological field methods, such as observations, interviews, and narrative reports, but also questionnaires and numerical data.

A common criticism of the case study as a research methodology is its generalisability. Case studies have had an ambiguous place in social science (Reinharz, 1992), and historically there has often been a disappointing attitude towards case studies. This attitude is usually based on the generalisability criticism. Punch (2015) countered this view by stating that "properly conducted case studies, especially in situations where our knowledge is shallow, fragmentary, incomplete or non-existent, have a valuable contribution to make" (p.147). Punch elaborated further by noting that case study research can: provide in-depth understanding of unusual, unique or not-yet-understood individuals, events, and situations; that only in-depth study can provide understanding of the important aspects of a new or persistently problematic research

area (particularly in social research); and a case study approach can make an important contribution in combination with other research methods, such as informing surveys before they are implemented.

Individual case studies cannot be generalised to other individual case studies even when the participants and context appear to be similar (Punch, 2005). For example, the intention of Stake's (1994) intrinsic case study was not to generalise, but rather to understand the case in its complexity and its entirety, as well as in context.

Generalisation was not the objective for a case that was so important, so interesting, or misunderstood that it deserved to be studied in its own right (Denzin, 1989).

According to Punch (2005), a case study can produce something that might be generalisable, by either conceptualising (using methods for analysis that conceptualise rather than describe) or by developing prepositions or hypotheses that link concepts or factors within the case. These can then be assessed for their applicability and transferability to other situations. For my research, the use of conceptualising and developing prepositions to find something that is broadly applicable to other student athletes' experiences is not the purpose or focus of this project. It is important to now demonstrate the use of narrative within the case study methodology.

### **3.3.3 Philosophies and principles of narrative case studies**

Narrative case study is a form of qualitative social research, which when applied rigorously, can become a valuable method to explore individuals or organisations, simple to complex interventions, relationships, communities or programmes (Yin, 2003). Within the context of talented young female secondary school athletes in New Zealand, a narrative research approach supplemented the qualitative case study methodology, interpretivist inquiry paradigm, and complexity, emergentist theoretical underpinning of my research project. Through skilful storytelling (a narrative), I had the task of making apparent an issue, question or event as seen through the eyes of the research participants and experienced by them. In Wolcott's (1990) words, "objectivity is not my criterion as much as what might be termed rigorous subjectivity" (p.133). It is important to note at this stage the dangers in analysing and reporting narrative research in a segmented rather than holistic manner, especially as Usher (1998) suggested that we might need to "deconstruct the dominant self of the story" (p.30) to see the lives under investigation as lives "in process" (p.27). It should be possible,

therefore, to be creative and flexible when analysing and reporting narrative research as long as the approach taken offers insights that are warranted by the data (Armour & Chen, 2012).

At its simplest, narrative research is about collecting data in the form of stories, and “storying” the lives, events, experiences, perspectives and actions of individuals or groups (Armour & Chen, 2012). Oliver (1998) argued that narrative analysis in research must move beyond telling a story; it must offer insight and explanation using the three key components of setting, character and plot. In this regard, Oliver concludes that physical education scholarship “needs narratives that touch the hearts and minds of readers” (p.257). This argument extends beyond teaching to any social setting where stories are likely to be defining and defined by daily context (Armour & Chen, 2012). Similarly, in the study of sports coaching, Jones and colleagues argued that, traditionally, research has been quantitative or positivist in nature, and that it has missed the “details and nuances on which much of coaching actually rests” (Jones, Bowes & Kingston, 2010, p.15). Sport coaching, these authors argued, is a dynamic, unfolding social activity requiring in-depth research methods. The potential dynamism of narrative research is, perhaps, something that is often overlooked by novice researchers (Armour & Chen, 2012).

To achieve valid, quality data, I needed to spend considerable time with the participants to represent their experiences in a credible way, in the context of the research questions. Once the decision to apply a narrative case study approach was made, choosing the design of the case study was the next hurdle to attempt.

### **3.4 Designing a narrative case study research model**

The selection of a specific type of case study design guided the overall study purpose. Yin (2003) categorised case studies as explanatory, exploratory or descriptive. He also differentiated between single, holistic case studies, and multiple case-studies. Stake (1995) identified case studies as intrinsic, instrumental or collective. For my research project I used a combination of Stake’s intrinsic case study and Yin’s (2003) exploratory and descriptive, single, holistic case study categories which were implemented using a narrative research model.

The rationale for choosing this type of combined case study approach lay in Yin's (2003) explanation of each type; exploratory as a study used to explore those situations in which the intervention being evaluated has no clear, single set of outcomes, and descriptive as a case that describes an intervention or phenomenon and the real-life context in which it occurred. Yin's exploratory and descriptive case study types match the focus of my research as the emergence of each student-athlete's story is prefatory to a descriptive medium, in the form of a narrative. At the same time, the outcomes of my research were complex, multiple, open-ended, and unique. Humans are social beings with the ability to utilise their social links to create cognitive unities that transcend the summed capabilities of the individuals (Davis & Sumara, 2006). Connections are also relational, meaning that, while they enable a means of exchange (such as the flow of ideas, information or material goods), the nature of the connection is biologically and culturally shaped, evolving and differentiated (Mutzel, 2009). Such a relational orientation acknowledges the phenomenal world of the individual as structured within ecological networks of meaning that enable goal-directed actions, while simultaneously being constrained within the limitations of the individual's embodied relationship with their world. When the form, nature, and content of human connections are in a constant state of change, caught in the rhythms and flow of human interaction over time, what may appear to be a linear and isolated process (the athlete practising and learning under the guidance of a coach), on closer inspection, actually reveals itself to be more complex (Ovens & Godber, 2013).

In addition to identifying the case and the type of case study conducted, I also considered whether to conduct single or multiple case studies to better understand the perceptions, meanings and experiences of talented female student athletes in New Zealand. The decision to pursue three single, holistic case studies was arrived upon once the phase one initial questionnaires and phase two semi-structured interviews were complete and had undergone initial analysis for the ten original student athlete participants. Each case study in phase three was stand-alone as the final three participants were from different schools, competed in different sports, and were at different ages and stages academically. The context for the final three participants was unique and therefore justified a holistic single case study approach



(Yin, 2003). At this juncture, it was also important to consider whether a conceptual framework was appropriate or not, given that a complexivist theoretical paradigm underpinned this research.

Both Stake (1995) and Yin (2003) referred to a conceptual framework as a helpful tool for case study analysis, but neither fully describe or provide a model for reference. Baxter and Jack (2008) emphasised that a framework develops as the study progresses, and that the relationships between the various constructs (aspects, issues, factors, influences) emerge as data are analysed. One of the disadvantages of a conceptual framework is that it may limit the inductive process when exploring a phenomenon (Baxter & Jack, 2008). To safeguard against becoming deductive, I recorded my thoughts and decisions, and discussed them with other researchers, colleagues and fellow students to determine if my thinking had become too driven by the framework.

A hallmark of case study research is the use of multiple data sources, which enhances data credibility (Patton, 1990; Yin, 2003). Within case study research, investigators can collect and integrate quantitative survey data, which facilitates reaching a holistic understanding of the phenomenon being studied (Baxter & Jack, 2008). Data from multiple sources, which in my research included a questionnaire, semi-structured interviews, a photo montage and narrative reports, converged in the analysis process rather than being handled individually. Each data source was regarded as one piece of the puzzle, with each piece contributing to my understanding of the student-athletes' perceptions and meanings, and the importance of their experiences, both in sport and within their school domain. The opportunity to gather data from various sources was extremely attractive due to the rigour associated with this approach; however, the use of a range of data sources generated potentially a voluminous amount of data, which needed to be organised and managed.

As in any other qualitative research study, the data collection and analysis occurred concurrently. Yin (2003) noted that one important practice during the analysis phase of any case study is the return to the propositions (if used) for several reasons: this practice leads to a focused analysis rather than analysing data outside the scope of the research questions; exploring rival propositions is an attempt to provide an alternative explanation of a phenomenon; by engaging in this iterative process the confidence in

the findings is increased as the number of propositions and rival propositions are addressed and accepted or rejected. One danger associated with the analysis phase, with the use of multiple sources of data, was the tendency to treat each data source separately and to report findings separately. This was not the purpose of this narrative case study methodology. I ensured that the data converged in an attempt to understand the overall case and applied a narrative of my interpreted story, not the various parts of the case or the contributing factors that influenced the case. Baxter and Jack (2008) emphasise that “there is no correct way to report a case study however, some suggested ways are by telling the reader a story, by providing a chronological report, or by addressing each proposition” (p.555). It was important at this stage to look back before moving forward. The following section establishes the groundwork on which the present study was founded.

### **3.5 Methodological process**

This research project built on and extended a study conducted in Auckland, New Zealand from 2010 – 2011 on “The identification of and provision for talented female athletes in New Zealand secondary schools” (Godber, 2012). The Auckland study, which involved qualitative data collection from four elite athletes, their parents and one of their educators, provided valuable insights and recommendations that highlighted the inconsistent and often haphazard identification methods and resulting provision for excelling female student-athletes in New Zealand.

My PhD project, a short, longitudinal individual case study design, aimed to investigate the interface between the domains of sports performance and educational performance for a nominated group of young female athletes. The project was conducted in four phases over a two-year period. To begin the methodological process and to prepare for the subsequent doctoral project, I ran a pilot study.

#### **3.5.1 Initial pilot study**

I designed, implemented, analysed and reviewed a pilot study of three talented female secondary school athletes in Auckland, New Zealand during January, 2013. The purpose of the pilot study was specifically to explore the consistency and robustness of a qualitative research methodology, as the precursor to my doctoral study. Full details regarding the effectiveness and appropriateness of bench-line procedures and

protocols, and the insights gained from the pilot research were presented at the AARE-UQ Health and Physical Education conference in Brisbane, Australia in June, 2013. Based on the methodology and results of the pilot study, I altered and designed four research phases to answer my research questions.

### **3.5.2 Research phases**

**Phase one** consisted of an initial questionnaire (see Appendix C(i)) to establish baseline information for each student-athlete and to aid the design of the semi-structured interviews that followed. The baseline information included preferred contact methods and times, previous (last five years) sporting and academic achievements, current accomplishments and levels of participation, future aspirations both academically and in sport, the positive and negative impact of sport on educational attainment as perceived by the student athlete, the positive and negative impact of academic requirements on sporting commitments as perceived by the student-athlete, and a rating of academic achievements since attending secondary school. The initial questionnaire also acted as a means of sampling for the longitudinal element of the project. Data collected from the initial questionnaire was collated using an Excel spreadsheet. Each Excel row represented a case (data specific to each student athlete) and each column represented a specific variable (Burgess, 2001); for example, past sporting achievements or positive and negative effects of sport on academic achievement. Each specific variable column represented data collected for all respondents. The spreadsheet was coded and analysed for commonalities and differences across all student-athlete respondents (see Appendix E).

**Phase two** consisted of one 30-45 minute, semi-structured interview with a cohort of ten student-athletes who participated in the phase one initial questionnaire (four phase one student-athletes did not continue). The respondents for phase two were selected on their availability to be interviewed and their willingness to continue with the phase three interviews, if required. Results from phase two provided information concerning educational and sporting performances, influences, opportunities and barriers, and student perceptions of their academic and sporting experiences. These interviews were augmented by the use of written cue cards (see methods section 3.6.5, p.109 for a description of cue cards as a method). Transcribed scripts of each interview were analysed using the Miles and Huberman (1994) qualitative data

analysis framework to reduce data bulk, to display the data in a workable format, and to draw and verify conclusions that were inducted from a complexityivist posthumanist perspective. Analysis of data at phase two established procedures for editing, segmenting, coding and memoing, which enabled the emergence of themes and patterns, meanings and insights, for this cohort of ten student athletes. These procedures were useful tools to prepare for more in-depth analysis of the final three case studies, during phase three of the research project. The collected and analysed data for the final three participants formed and informed each student-athlete's single, holistic, descriptive case study (Yin, 2003).

Tracking via regular researcher contact (email/Facebook/diaries) of the ten *phase two* participants was planned from the post semi-structured interview stage until the conclusion of the research project. The intention was to monitor the original sample identified in 2014 until the project concluded late in 2016, to ascertain their progress in sport and education, albeit at a cursory level. No new participants were introduced from 2015 onwards. Ideally, a range of sporting codes would have been preferred in this research study; however, as the research team did not select the athletes (nominated by their school), the range of individual and team-based sports was variable and random (see Table 1., p. 84).

**Phase three** consisted of two, 45-minute, semi-structured interviews to gain greater depth of data and to consider changes that occurred for each student-athlete, over time (12 – 18 months). The focus of the phase three interviews for the three student-athletes was to establish in more depth the meaning each athlete attributed to her experiences in each six-month period between interviews. Each student-athlete was asked to reflect, consider and discuss her thoughts and feelings in response to indicative questions (see Appendix D (ii and iv)), furthering questions, a photo montage and a narrative report (see methods section, 3.6.6, p.111-112 and 3.6.7, p.112-113 for a detailed explanation). The intention during research phase three and subsequently phase four was to create, collaboratively, each student-athlete's individual, personalised story. An integral part of the study was to explore in depth the athlete's experiences, particularly as she transitioned from year 10 to year 11, or from year 11 to year 12, as the perceived assumption was that these year changes signified critical increases in workload, expectations, assessments and exam pressure (academically),

while concurrent increases in performance level would also be making significant demands on the student-athlete's time and energy. The student-athletes were encouraged to draw on past experiences, including a reflection on changes that occurred between interviews, and their health and well-being. During this phase, the student-athletes nominated a significant other who also took part in a 45-minute, semi-structured interview during the same time period (See Appendix D (iii)).

Phase three student-athletes were selected for two 45-minute, semi-structured interviews with consideration given to student-athletes who were competing regularly at a high level (national and international), while concurrently working towards obtaining academic qualifications (Year 11 - 13). Nominated student athletes over 16 years of age did not require parental consent, but were also given the option to continue as a participant for the duration of the study (2014-2016), depending on their availability, workload, school/work/sport commitments, commitment to study, and support from their school/family/friends. An important consideration for the final three participants during this phase was that each interview was set at least six months apart. The interview schedule was designed to optimise the capture of significant changes, developments, progress and barriers, whilst not imposing too often on the student-athlete's time. The ethnicity of each participant was considered with regard to recognising and accommodating cultural customs, values and protocols. Māori and Pacifica athletes were offered an interview partner or to be interviewed as part of a small group if this method was preferred to a one-on-one situation. At this point in the research process, I took some time to re-establish a conducive relationship with each athlete to ensure that collected data was thick and not superficial or token.

Three female student-athletes from the original cohort of 14 student-athletes were randomly selected (picked out of a hat) to take part in the final two interviews of the research project. By chance, the final three athletes represented three different secondary schools. Two of the students were individual sportswomen and one was a team-based player. Their ages ranged from 14 to 16 years and all three were currently New Zealand representatives in their respective sports. All interviews were electronically recorded and subsequently transcribed for analysis.

**Phase four** involved analysis to develop themes and to assemble a comprehensive personal narrative for each participant. While the researcher did not intend to generalise the findings from this research to larger populations, there was an expectation that the emerging themes might inform the participants, their parents, their schools, and the sporting community that they were affiliated to. A final draft of the student-athlete's story was emailed to each phase three participant to ensure that my interpretation of her meanings, thoughts and feelings was true and accurate. The participant had the opportunity to amend, add to or delete any aspect of her story to ensure the validity and authenticity of the data.

### **3.6 Undertaking the fieldwork**

I began the consultative process with the participants' schools through a series of emails, phone contacts, and face-to-face meetings, specifically with the Director of Sport, Head of Health and Physical Education, or Teacher in Charge of Gifted and Talented Learners. Given the focus on attainment in sport and sustainment in education, it was important to develop a collaborative relationship with each participating school, not only from a sporting perspective, but also to gain insights about each participant's academic progress and achievements. The schools, without exception, were interested, supportive, and very willing to facilitate this research of talented female student athletes in their secondary school.

During the initial consultation process, the purpose of the research was discussed, along with the commitment required by the school and the students (from 6–18 months), and the guidelines for nominating participants. The positive response from the schools initiated a quick start with initial information, consents and questionnaires received and returned within a three-month period. Three of the phase two semi-structured interviews were also completed in this time frame.

#### **3.6.1 Negotiating and maintaining access**

A significant aspect of implementing a short, longitudinal individual case study approach was gaining access to the phenomena in context, over an extended period. Gaining permission to enter, however, was not the same as access. Glesne (1999) argued:

Access is a process. It refers to your acquisition of consent to go where you want, observe what you want, talk to whomever you want, obtain and read whatever documents you require, and do all of this for whatever period of time you need to satisfy your research purposes (p.33).

For my research, gaining access centred on receiving site consent from the school's Principal, establishing a collegial and collaborative relationship with the sport, PE or teacher contact, and developing an amenable connection with each participant to reassure her of her ongoing privacy and confidentiality. I entered the school as a PhD student but also as an experienced teacher and sports administrator/coach/official. I needed to build authentic, trustworthy relationships with my school contact person to maintain access to the female student-athletes nominated by the school during the research timeframe. This relationship building was beneficial as it gave me insights about the processes and policies of the school, the school's attitude and approach to talented female student-athletes, and how these athletes were managed on a daily and term-by-term basis.

Once consent was given, one of my challenges was to sustain these relationships and connections through regular contact and information sharing. The preferred and agreed method of communication was via email; however, better responses with two participants came through mobile phone text communication. Building rapport in qualitative research is important to establish the trust and understanding required (Rossi & Tan, 2012 cited in Punch, 2005). The schools and the participants understood my role as researcher and the need for me to remain in contact over an extended period; to gather data at six monthly intervals; to monitor and record changes or developments; to continue to examine the impact, or not, of academic requirements; to investigate the health and well-being of the participants during critical points in their sporting and schooling calendars; to gauge the effects of others on each participant's attainment and sustainment in her everyday life. This required regular but non-invasive, negotiated social interaction to maintain rapport and identity, while highlighting my intentions and ensuring ethical access (Chavez, 2008). This required, as Greene (2014) writes "a skilful performance on the part of the researcher to convince the participant of her true identity" (p.6), but without establishing such an emotional attachment to participants to form a challenge to objectivity and maintaining one's

analytic distance (Taylor, 2011). A commitment to reflexivity (see p.29) and data triangulation (p.39) facilitated the conscious moderation of multiple identities at play throughout the research process (Mazer, 2003). As researcher, I endeavoured to be open, sincere and authentic during all phases of data collection, analyses, and reporting to guarantee the validity and credibility of the research project, and the trustworthiness of the insights and understandings that emerged from this study.

### **3.6.2 Methods**

The utilisation of diverse methods to uncover and explore different kinds of knowledge (Tacchi, Foth & Hearn, 2009), coupled with a reflexive researcher position, were methods that have previously been noted as conducive to a collaborative approach between the researcher and the participants (McNiff, Lomax & Whitehead, 2003). The mixture of these data collection methods facilitated the broad data required to frame the diverse experiences of the female athletes as they negotiated their daily lives in sport attainment and educational sustainment. These methods also allowed the rich narratives of meaning, culture and negotiated reality of the student athletes to emerge, contributing to their individual case study development through all stages of the research. A range of data collection methods were utilised to gather thick, rich descriptions (Geertz, 1973) including an initial questionnaire, one 30 minute semi-structured interview, two 45-minute semi-structured interviews, cue cards, photography and narrative reports. The use of a diary or weekly journaling, whether handwritten or through online or digital devices was not implemented. This omission is a possible limitation as regular, ongoing data collection may have provided a greater depth of data. A factor which influenced my decision not to implement weekly journaling was the length of time data was collected (over a two year period) and my awareness as researcher of the intensive demands on each student-athlete's time, on a daily and weekly basis. Consequently, I adopted the following combination of methods. The implementation of multiple data collection methods in qualitative case study research has considerable support (Armour & Macdonald, 2012; Denzin & Lincoln, 2011; Punch, 2005).

### **3.6.3 Participant questionnaire**

The initial questionnaire provided baseline and background information to inform the selection of participants for phase two of the project, to inform the semi-structured



interview questions in phase two, and to validate the status of the students as talented female athletes (refer to Appendix C i, ii). The initial questionnaire also provided an opportunity for the student-athlete to self-review her current and projected attainment in sport and academic study. No standardised test or survey was used to establish background information from each student athlete or significant other participant. The initial questionnaire was designed to allow each participant to list, describe and evaluate her achievements, progress and future goals for both her sporting and schooling domains. Open questions were used; for example, “describe your sport achievements in the past five years” and “what are your strengths and weaknesses in academic learning?” to provide response depth and scope. Suskie (1992) commented that a carefully designed qualitative questionnaire helps to clarify the purpose of the study, provides an early opportunity to discuss the pros and cons of various questions (used in the data collection methods to follow), and facilitates the maximisation of responses to establish validity and reliability.

#### **Procedure for questionnaire**

On receiving a completed participant questionnaire and consent form, I was able to make contact with the nominated student-athletes (via email or phone) to arrange a convenient interview time. Although I had knowledge of the participants due to my involvement in the wider community of secondary school sport, I did not know the participants personally. Prior to the *phase two* semi-structured one-on-one interviews, indicative interview questions were sent by email to each participant (see Appendix D i, ii, iii), so that she had time to consider her responses. All information sheets, consent forms and interview details were received and distributed via the school contact person, who also maintained regular communication with the nominated student-athletes. The interest, support and cooperation of the participating schools were significant factors in the successful completion of this aspect of the research process.

#### **3.6.4 Interviewing: semi-structured interviews**

I applied Fontana and Frey’s (1994, as cited in Punch, 2005) semi-structured interview model in which some interview questions are pre-planned and standardised, while other questions are general in nature to get the interview going. The format of the interview was mainly unstructured and open-ended, without pre-established categories for responding. My intention was to probe, clarify and elaborate views and

opinions expressed by the participants, to elicit in-depth information about a particular research area or question (Creswell, 2003). The semi-structured interviews (used in phases two and three of the project) provided a framework for the interview whilst giving the participants ownership and space to answer on their own terms (for indicative interview questions see Appendix D i, ii, iii and iv).

Another advantage was to provide flexibility for the participant to pursue a line of thought, for me as researcher to delve deeper with appropriate furthering questions, and then to use the indicative interview questions to bring the participant back on track when required. Critical considerations, according to Punch (2005), are how the researcher makes contact with the respondents, and how s/he organises access, as these initial contacts can affect all stages of the interviewer-interviewee relationship, and with that the quality, reliability and validity of interview data.

### **Procedure for interviews**

During the interview process, each participant's involvement can be described in two parts. Firstly, the participant told their experiences of being a talented athlete (which were recorded electronically) in reply to question prompts by the researcher. As the interviewer, I asked questions to clarify understandings and to explore issues that arose in their accounts. Secondly, the participants became involved in the process of interacting with the exchanging of ideas, through the introduction of small cards during phase two on which the student-athlete could record her thoughts and ideas.

### **3.6.5 Cue cards**

Written prompts in the form of cue cards were used to provide time for the participants to reflect, ponder, and then express through the written word, significant people, events and influences on their attainment in both sport and education. Ong (1982) proposed that, although both oral and written accounts require the participant to self-reflect and self-interpret, it is likely that self-reflection is more effective when written. This is due in part to more time being allowed for responding to questions and can also take place without the pressure of continuing the conversation. Thus, the chances of a more ordered, coherent and deeper self-reflected account are increased, in comparison to just verbal accounts (Handy & Ross, 2005). I used cue cards in two of the three semi-structured interviews to provide variation in data collection, and to

allow the participant additional time to formulate her thoughts, feelings about, and perceptions of her experiences.

The cue cards generated a flow of ideas and contemplation, especially when the participant was asked to order or rank the issues or factors they had identified. This part of the process caused consternation for some of the participants as they viewed this activity as important, and wanted to give an accurate account of their perspective. Although Handy and Ross (2005) claimed that written accounts in qualitative research have proven to be a more time-efficient means of gathering quality descriptively rich data, the combination of the narrative strategy with written cue cards produced rich verbal accounts without in-depth written documentation in this study.

### **3.6.6 Photography montage**

The purpose of this method was for the participants to create a photo montage that would be used to facilitate discussion and dialogue during the first 45-minute interview in phase three (See Appendix F). Visual methods are, according to Harrison (2004), any research design that uses visual evidence. The general purpose is to further develop our understanding of the social world through studying images produced as part of a culture. For the student-athletes, their photo montage represented their sporting and schooling cultures. An often mooted value of visual methods is that they can offer a different way of knowing our social world, while possessing the ability “to amass complexly layered meanings in a format which is both easily accessible and retrievable” (Phoenix, 2010, p.94).

Visual methods are deemed to hold the potential to aid understanding of complex narratives that participants construct about how they experience life events (Keats, 2009). This view is particularly helpful in my research project as each participant potentially entered on a journey of self-reflection and possibly self-discovery through the methodological approaches she has agreed to take part in. In this respect, her photos may be able to “provide insight and knowledge about the human condition, and lead to a richer understanding of social, cultural, and contextual factors” (Keller, Fleury, Perez, Ainsworth & Vaughan, 2008, p.429). On the other hand, critics of visual methods highlighted the inadequacy of such methods to record non-visual sensory perceptions (Marks, 2000), or to only celebrate what we see instead of carrying out a

“dispassionate examination of relationships” (Grady, 2008). At a more practical level, the wider point of using a photo montage was to draw attention to both the mundane and the significant in relation to each student-athlete’s daily experiences. The use of this method then, suggests a quest for particularity, not sequence, aligning the athletes with the practical and the everyday, as opposed to the foundational and eternal (Deleuze & Guattari, 1983).

### **Procedure for photography montage**

To supplement the semi-structured interviews in phase three, the final three participants were given a twenty-four exposure disposable camera. They were asked to photograph significant events/people/places in her sporting and schooling domains. Each student athlete was asked to photograph an equal number of images from both domains, if possible (refer to Appendix F). Participants were encouraged to consider taking images that were also symbolic of what they liked/did not like and of influences they regarded as beneficial or as barriers to their success.

The processed images were discussed with the participant and then used to create a picture montage at the scheduled interview. The developed photographs provided a stimulus to an in-depth discussion with specific reference to each student athlete's unique life, experiences, difficulties and aspirations. At this stage of the research project, photography provided a valuable insight in to each participant’s sporting and educational socio-ecological environments.

### **3.6.7 Narrative writing**

In keeping with the narrative inquiry strategy that underpinned data collection for this research project, each phase three participant collaboratively constructed a story, shaped by my views and those of the participant, to represent a deeper understanding of the everyday experiences of each talented young female athlete (refer to Chapters 4, 5 and 6). The participants’ narratives assisted in “interpreting intention and meaning in context” and not on making generalisations (Dodge, Ospina & Foldy, 2005, p.299). The occurrence of critical incidents or saltation, as Walby (2003) postulated, can give rise to new paths of development or direction that are self-sustaining. Recording these critical incidents provided the researcher and the student athlete with valuable

insights and understandings of the unique position each young athlete was experiencing.

Narrative research methods are, according to Armour and Chen (2008, cited in Armour & Macdonald, 2012) where the art of storytelling meets the science of research. Armour and Chen state that narrative research is about collecting data in the form of stories, and “storying” the lives, events, experiences, perspectives and actions of individuals or groups. Oliver (1998) suggested that narrative analysis in research must offer insight and explanation, while Barone (2001) argued that narrative research strives to offer “a degree of interpretative space” (p.592), by using stories as a way of learning. In the hands of a skilful researcher, narrative research has the potential to be a powerful, dynamic, transformative research tool, and not simply a passive form of storytelling (Armour & Chen, 2012).

#### **Procedure for narrative writing**

Prior to the final interview in phase four, each case study participant was asked to reflect on or record her thoughts and perceptions about the previous eighteen months. These reflections were shared with the researcher as part of the final phase four interview, in response to furthering questions and in-depth discussion prompted by the student-athlete’s narration of her photography montage. Transcripts of the discussion and interview responses added to and enhanced the collaborative emergence of the athlete’s story, which she later checked to ensure validity, truthfulness and accuracy of interpretation. When the student-athlete and I were satisfied that the collected data was a true representation of the student-athlete’s thoughts, feeling, meanings and perceptions, analysis and interpretation of the data commenced. A reflexive approach was adhered to throughout the interpretative, analytic and synthesis processes, inherent in the narrative writing activity.

#### **3.6.8 Reflexivity**

Reflective practice is a process of learning from experience through some form of reflection (Mann, 2016). Reflective practitioners might reflect on themselves, the relationship between themselves and their practice, how they relate to their practice, relationships with others, and connections to their immediate and wider social and cultural context. Critical reflection can be viewed as moving beyond questions

concerned with whether or not practice is working, to the critical examination of values and ideologies (Zeichner & Liston, 1996). Zeichner and Liston expanded further by stating that “the practice of critical reflection is more likely to challenge assumptions, interrogate the ideological status quo, question institutional norms and confront inequalities, discrimination, gender bias, and marginalization” (p. 62).

Reflexivity on the other hand, while often used interchangeably with reflection, is narrower in focus and more concentrated on self-awareness. Reflexivity “is a stance of being able to locate oneself in the picture” where we “appreciate how one’s own self influences actions” (Fook 2002, p. 43). Finlay (2012) made the following short distinction:

The terms reflection and reflexivity are often confused. Reflection can be defined as ‘thinking about’ something after the event. Reflexivity, in contrast, involves ongoing self-awareness (p. 317).

Finlay’s focus on self-awareness in relation to research itself and its methodology is core. Finlay identified five ways to practise reflexivity: introspection, inter-subjective reflection, mutual collaboration, social critique, and discursive deconstruction – and discussed utilising these techniques in to understand the interviewer’s role in the interview context and how to use this knowledge to “enhance the trustworthiness, transparency, and accountability of their research” (p. 317).

Within different disciplines and intellectual traditions, definitions of (and distinctions between) terms like reflection, reflective practice and reflexivity, may vary considerably, producing multiple and contradictory understandings (Finlay, 2008). Dewey (1933) focused attention on the importance of the relationship between experience, interaction and reflection. Schön (1983) picked up Dewey’s arguments and distinguished between the synchronous reflection-in-action (thinking on your feet) and the asynchronous reflection-on action (reflecting after the professional incident or action). Killion and Todnem (1991) added the perspective reflection-for-action, a process of consciously identifying goals, steps or guidelines to follow to succeed in a given task in the future. In terms of reflection on qualitative interviews, Mann (2016) suggested that there may not always be much time for reflection-in-action in the already demanding process of maintaining concentration on what the interviewee is saying, and timing and formulating the next question. Good interviewers, however, are

able to monitor how the interview is progressing (whether the respondent is comfortable), and to think about and adjust how to handle the next stage differently or better.

The concept of reflexivity has risen to prominence in a variety of disciplines including sociology, education, ethnography, and psychology (for example, Clifford 1986; Latour 1988). Reflexivity is becoming increasingly important in research that crosses boundaries. In an era of increasingly multi-disciplinary, mixed-method, and multi-methods research, it is crucial to contemplate synergies, relations, and the points of congruence and dissonance (Mann, 2016).

### **Procedures for reflexivity**

Reflexivity was carried out through regular reflective note-taking and oral discussions with critical friends (supervisors, fellow researchers, colleagues). The use of critical friends throughout the qualitative data collection and analysis processes is valued in high-performance sport and educational research. Such discourse and rigorous reflection was a means of generating thought-provoking, challenging observations and interpretations (Skinner et al., 2014). Through robust discussion with my first and second supervisors, I was challenged to “take stock of my actions and my role in the research process, and to interrogate systematically my research relations” (Temple & Edward, 2002, p. 2). I engaged with my primary supervisor to interrogate the research method and my involvement in data collection. A secondary supervisor peer reviewed my data analysis, while doctoral colleagues shared anecdotal evidence and insights from their experiences. This enabled me to critically reflect upon the emerging data and my assumptions and self-awareness as a qualitative researcher, within a complexivist, posthumanist research paradigm. This process was ongoing and evolving, as reflexivity is “neither a given nor a static element” and it is an “ongoing dialogic element that is continually evolving” (Byrd-Clark & Dervin, 2014, p.2). Byrd-Clark and Dervin expanded their view further by stating that reflexivity is both socially situated and in motion, and involves a willingness to maintain engagement with complexity.

In addition to the use of critical friends, as part of the reflexive process, I embarked upon a continuing journey “to reflect on the ways in which I, as an individual with

social identities and particular perspectives, had an impact on the interpersonal relations of fieldwork” (Temple & Edwards, 2002, p. 10-11). I was aware of the need to increasingly focus on self-knowledge and sensitivity; better understand my role of self in the creation of knowledge; carefully self-monitor the impact of my biases, beliefs, and personal experiences on the research outcomes; and maintain a balance between the personal and the universal (Berger, 2015) throughout the research process. Takeda (2013) suggested that a reflective researcher does not simply report facts or truths, but actively constructs interpretations of his or her own experiences in the field, and then questions how those interpretations came about. This project passed through four distinct phases, each of which required critical reflection and reflexive practice before embarking on the subsequent phase. During the initial access and baseline information phase, reflexivity was achieved by discussing the appropriateness of the participant schools, the suitability of the purposive sample of students, and my intentions and attention to relevant theoretical perspectives and approaches. During data collection phases two and three, I considered my behavioural impact (methodological reflexivity) on the student-athlete participants, the interview environment, engagement level and rapport during each interview. Finally, during the narrative writing stage of phase four, I acknowledged the influence my previous experiences and belief systems had upon the research outcomes (epistemic reflexivity) (Johnson & Duberley, 2000). Such a reflexive and robust practice provided rigour within the research process (Reason, 2006).

### **3.7 Data analysis**

Results from the initial questionnaires, interviews, cue cards, photography, and narrative reports formed the body of data to be analysed. According to Schwandt (1997), the analysis of data is the process whereby the researcher endeavours to make sense of textual records. He further expanded by describing data analysis as “the systematic identification of relationships, patterns or essential features and their interpretation” (p.4). Like most qualitative data gathering processes, data collection and analysis occur more or less simultaneously (Merriam, 1998). This concept is explained in the work of Glaser and Strauss (1967) where they identified “data collection, analysis, and theory as being integrated because of constant comparisons being made throughout the development of themes” (p.109). Rossman and Rallis



(1998, cited in Cresswell 2003, p.192) described coding of data as “the process of organizing the material into chunks before bringing meaning to those chunks.” In my research project, coding involved categorising the data and attributing a label to a specific term or code. It was important to keep coding open to allow for emerging factors to be identified and recorded. In the initial stages of analysis, codes were frequently modified or completely changed in response to the accommodation of new data and new meanings that emerged.

To prepare for data analysis, each interview was transcribed shortly after it had taken place. All transcripts were read to gain a general sense of the participants’ responses. General notes of impression of the general themes were marked on the transcript and the coding of the data began by identifying key words and ideas. Qualitative research concentrates on the study of social life in natural settings (Punch, 2005). Punch also emphasises that multiple perspectives and practices in the analysis of qualitative data are required due to the richness and complexity of analysing social life. In this investigation, the NVivo 11 computer-assisted qualitative data analysis (CAQDAS) software tool was employed firstly to reduce data bulk, secondly to display the data in a workable format and finally to draw and verify conclusions that were inducted from verified propositions.

Punch (2005) stated that due to its very nature, qualitative analysis requires the researcher to consider the influence of comparing data, which is essential in identifying abstract concepts, especially between case studies. Punch summarised this view by stating that, “the systematic and constant making of comparisons is therefore essential to conceptual development at all levels in the analysis of qualitative data” (p. 204). Punch’s approach, however, was not appropriate or relevant to my research project as the case study of each student-athlete is individual and unique, specific only to her perceptions and the meanings she draws from her experiences. Comparative analysis between case studies was not employed; however, rigorous categorising and recategorising of the collected data did facilitate an iterative process between data collection, analysis and interpretation (Hammersley & Atkinson, 1995). The complexivist, posthumanist research lens was narrowed on key themes relating to the broader area of interest until saturation was deemed to be reached (Silk, 2005).

### **3.7.1 Reflection**

Reflective and reflexive processes formed an important part of the data analysis. A primary tool of the analysis process was to review my ideas, to reflect on what questions were asked and why, and what questions were not asked and why, in the base-line questionnaire and during the semi-structured interviews. I considered the balance between the student-athletes' perceptions and meanings, and those expressed by each student-athlete's nominated significant other. The blending and weaving of these thoughts and impressions required regular reflection on my part to monitor my interpretations, selection of themes, and data foci during analysis. The opportunity to regularly discuss, question and review the data with my second supervisor (critical friend) provided a robust reflexive process to identify, clarify and refine the emergent outcomes. In-depth reflection during data collection (note taking, memos, comments on transcripts), allowed me to collect and analyse data concurrently, which facilitated outcomes that were multiple, overlapping, relational, at times contradictory, but also individual, holistic and contextual (Ovens & Godber, 2013). With respect to the narrative case study design for this project, the reflective and reflexive processes I undertook provided multiple levels of critical reflection and learning, about the athletes, myself, and the research process in a short longitudinal study.

### **3.7.2 Interaction**

Over the course of the study, regular meetings with the participants, their school contact person and my supervisory team provided further opportunities for discourse, analysis and learning, about and through the research process. I was conscious of the need to establish convivial, collaborative relationships that were professional, but also open, friendly and non-threatening. My intentions were to develop a rapport with the student-athletes based on shared understandings in an attempt to engage their trust and confidence, and to reassure them of their privacy and the value of their contribution to the research. Member checking, in which the participants viewed their transcript and were asked to amend, add, delete or change the script as they saw fit, was another interaction that empowered the respondents and gave validity to the analysis process. During phase four of the research design, the intention was for the final three case study student-athletes to contribute (co-construct) to their own

personal narrative story by reading, commenting, suggesting, and reviewing their case study transcript. This phase aimed to provide a re-negotiation with each student-athlete of my interpretation of analysed data. The intention during this phase of data analysis was to create an interplay between my perspectives and interpretations and those of the case study participants, which was critical in developing a uniquely rich and subtle understanding of their life situations and experiences. Time constraints and concerns about the health and wellbeing of the case study participants were identified; one student-athlete was injured and not able to participate in sport, one was visibly fatigued and one dropped out before completing the second interview in phase three. These factors caused me to rethink this phase. I decided to cease any further transcript co-construction or re-negotiation with the student-athletes. This was a possible limitation to the data analysis methodology as contemporary anthropology and feminism often emphasise the study of lives from the narrator's viewpoint, with data seen as a shared production with the researcher (Manning & Cullum-Swan, 1994).

### **3.7.3 Procedures for interpreting emergent themes**

The data analysis process enabled themes and categories to be identified and progressively defined, which informed my direction and guided a conceptual framework from which to report the research. I used three computer software programmes (Windows Media Player, Microsoft Word, and NVivo 11) to aid with transcription, organisation of data, coding and thematic development. I transcribed the semi-structured interviews using Windows Media Player into Microsoft Word documents. The Word transcripts underwent an initial analysis with comments, categories, clusters and possible themes added using the Word tracking tool. The transcripts were then organised in NVivo 11 for ongoing analysis, identification, and refinement. In computer-assisted qualitative data analysis (CAQDAS), NVivo 11 proved to be compatible with my analytic approach, was easy to use, had an abundance of product support and an upgrade pathway, linked me to a supportive learning community, and was provided free through my student registration and enrolment. My choice of software tool influenced how each transcript was formatted, but also provided the flexibility for my input, creativity and intuition during the analysis process. Using NVivo 11, the data were designated themes, in synthesis and union with

my literature review. This culminated in the development of a thematic framework to inform my complexivist, posthumanist, theoretical perspective.

Two main operations were applied to the transcribed data: coding and memoing, along with abstracting and comparing. By applying the NVivo 11 analysis process, data reduction occurred in the early stages of analysis through editing, segmenting and summarising. In the middle stages, data was reduced through coding and memoing, and associated activities such as finding themes, clusters and patterns. Developing the thematic framework was essential to make sense of the likely diversity of themes and subthemes, yet still retain a close link to the research questions, and assist in theory building and testing. This framework emerged in the form of description, diagrams, and webs, not only for the phase one and two participants, but also for each of the final three student-athlete case studies. The thematic framework held central themes that were grounded in the research questions. Several sub-themes or categories based upon emergent findings or re-emergence from the literature that pertained to the research question, were also identified.

In the later stages, further data reduction occurred through conceptualising and explaining, since developing abstract concepts is also a way of reducing data. An essential component of not losing information through data reduction was to retain the data in its original context. Data displays helped me to know what had been displayed by organising, compressing and assembling the information. Within this study, the mode of display was selected to exemplify the characteristics of the qualitative, complexivist, posthumanist perspective, which was, non-linear, messy, dynamical, self-organising, adaptive, and emerging. As a consequence, webs, charts, diagrams of different types and models, and linked clusters of narrative were used at all stages of analysis because they provided a visual display to show what stage the analysis had reached and therefore the starting point for further analysis.

Accordingly, the final stage of qualitative analysis, of drawing conclusions, was conceptually distinct from the other stages, but occurred concurrently with them. Since conclusions also needed to be verified, the aim of the final stage of analysis was to integrate what had been done into a meaningful and coherent picture of the data. A thematic approach was used to generate common themes from the data collected.

The themes were developed inductively from the data and aimed to generate similarities and differences, rather than to verify theory (Eisenhardt & Graebner, 2007; Fereday, 2006; Hyde, 2000). The research started with an open mind, aiming to conclude with insights, understandings, and recommendations.

### **3.8 The write up**

Another important analytical tool in the analysis process was the write up. The process of writing is integral to the entire research process and the act of writing often produces new insights (Kirk & Casey, cited in Armour & Macdonald, 2012). Fletcher (2000) extended this view by stating that “good writing isn’t forged by magic or hatched out of thin air. Good writing happens when human beings take particular steps to take control of their sentences, to make their words do what they want them to do” (p.5). In this research, telling the story in Chapters 4, 5 and 6 converted data into evidence and drew meaning from the experiences of the participants. This descriptive story writing was another form of reflective thinking, enabling a deeper level of analysis in each chapter. Richardson (2000) argued that regardless of the topic, the genre of research or the discipline of the researcher, effective writing is a form of inquiry itself and is therefore a part of the research process. Writing up each chapter formed part of the wider reflective process and informed Chapter 7, the discussion. Chapter 7 synthesised the literature and academic theory with all the emergent findings from the participants’ experiences. This synthesis of data enabled me to explore and describe the links, key messages and recommendations that emerged from this thorough integration of student-athlete thoughts, feelings, perceptions and meanings, as presented in Chapter 8 – implications and future considerations.

Using the data analysed throughout the narrative case study write up, I described 1) what factors and influences affected young elite women athletes’ performances across sporting and schooling contexts, and 2) how social connections within a theoretical framework of complexity could uncover meanings and perceptions of talented female athletes’ experiences and attainment. Within the broader topic of attainment, I focused on the notion of meaning and how policy, procedures and programmes support and meet the needs of talented female athletes in New Zealand secondary schools. This view was considered against the context of global trends and initiatives. As a result, the research attempted to answer the main research question of how

female student athletes achieve in sport, while also attaining nationally set standards in their education. A schematic outline of the research outcomes, findings and the theoretical synthesis of the project as it passed through the reflective narrative case study phases can be found in Figures 7 and 8 in Chapter 7.

### **3.9 Time in the field and narrative case study timeframe**

As with any longitudinal qualitative research project, it was necessary to develop a flexible design that allowed for changes as they occurred, while still providing a framework for the research. The question of how long and how many participants was a matter of how much depth was required for each case to answer the research question (Armour & Chen, 2012), rather than considering how many stories were enough. The broad timeframe of the time in the field ran from November 2014 to September 2016 (one year and ten months). The number of research phases were determined by the availability of suitable participants (phase one initial questionnaire) and their willingness to take part in a semi-structured interview (phase two). Phases three and four focused on three elite student athletes who were selected at random from the phase one and two participants.

The interview timeframes were constrained by the school terms and academic year; however, during phases three and four, the case study participants were happy to negotiate alternative interview arrangements (at their home, prior to training, during a holiday break). Previously negotiated and agreed times for conducting interviews disappeared as demands from their sporting commitments and academic studies intensified (training hours, tournaments, travel, recovery time, injury/assignments, school tutorials, homework, tutoring, revision). As the research project progressed, so did the demands from the student-athletes' academic studies (NCEA, IB, or Cambridge external examinations), as they moved from year 9 to year 10, year 10 to year 11, or year 11 to year 12. As a consequence, interview timeframes needed to be flexible for each phase of the project. A detailed final timeframe of each of the research phases can be found in Table 2.

Table 2. Research Phases and Timeframe

Phase	Dates
Initial questionnaire	November 2014 – February 2015
Semi-structured interviews (all)	March 2015 – June 2015
Case study significant other interview (3)	August 2015 – January 2016
Case study semi-structured interview (3)	November 2015 – January 2016
Final interview and narrative story (2)	July 2016 – October 2016

### 3.10 Considerations of a qualitative approach

I used qualitative research methods to answer the research questions. The diversity and multiplicity of qualitative methodologies highlights the political nature of social research, and recognises that social research, like the other things that humans do, is “framed and presented within a particular set of discourses (and sometimes ideologies), and conducted in a social context with certain sorts of social arrangements, involving especially funding, cognitive authority, and power” (Punch, 2005, p.135). In qualitative research, the researcher and the participants are equally and actively involved in the research (Sarantakos, 2005). Qualitative researchers seek active participation by developing meaningful relationships with the participants, based on openness and integrity. According to Cresswell (2003), building a credible relationship is one way to become authentically acquainted with the world of the participants. The participants’ view of their own social reality with respect to their sporting prowess and subsequent recognition, helped to determine their perceived needs and aspirations. The meanings and perceptions of the participants were interpreted along with those of significant others such as parents, coaches, or educators, of whom the participant nominated.

In sync with a qualitative research approach, my purpose in this emergent, rather than prespecified qualitative methodology, was to capture data on the perceptions of the participants from the inside, through a process of deep attentiveness, empathetic understanding, and suspending preconceptions about the topic under discussion (Punch, 2005). A main task was to explicate the ways these participants in particular settings or circumstances come to understand, account for, take action, or otherwise manage their day-to-day situations. Many interpretations of this material are possible as relatively little standardised instrumentation is used in this research approach. As

researcher, I was essentially the main instrument in the study. Most analysis of the data was done with words that were assembled, subclustered, broken into semiotic segments and organised to permit me to contrast, compare, analyse and bestow patterns upon them (Miles & Huberman, 1994, as cited in Punch, 2005).

It was important to note some of the central elements of the qualitative approach that highlighted the research focus for this study:

- Qualitative researchers consider reality as subjective, constructed, multiple and diverse, and because there are as many realities as people, each person's reality is different.
- In qualitative research, human beings occupy a central position; not non-participant observers, but active creators of their world. However, patterns and irregularities of behaviour emerge as a result of social convention, established through interaction.
- Qualitative research is based on common sense, not on science and is inductive, proceeding from the specific to the general, and from the concrete to the abstract. Understanding meanings and interpretations is more important than knowledge derived from our sense experiences.
- Social inquiry has the purpose of helping investigators to interpret and understand:
  1. The participants' reasons for social action.
  2. The way participants construct their lives and the meanings they attach to them.
  3. The social context of social action (Sarantakos, 2005, p.40).

Sarantakos elaborated further by stating "it is the subjective meanings attached to social actions which are significant and not the observable social actions themselves" (p.42). A thematic approach was used to inform and reveal the intricacies of the participants' personal stories. Punch (2005) endorsed the narrative strategy as an appropriate method to collect "unique, rich and subtle" (p.217) data that has the potential to deepen an individual's understanding of the everyday experiences of others. Narrative inquiry, according to Dodge, Ospina and Foldy (2005), is a collaborative venture that results in the combined construction of a story, shaped by



the views of both the researcher and the participant, evolved from interpretation of collected data. The role of the researcher, therefore, is to investigate the experiences of participants as they tell their stories. The narrative strategy in this research allowed me to use intuitive and inductive reasoning, and to interpret data based on the focus of the narrative because generalisations are not central to this strategy, approach or paradigm. This was a most useful strategy for addressing the research questions.

Within this qualitative methods approach, I used the strategy of individual case studies to learn more about the phenomenon of talented female athletes in New Zealand secondary schools. The cases were bounded by each student's school and sporting fields in so much as data was collected with a focus on academic situations and experiences, and sport-related issues and events. Data collection was restricted to the fields of education and sport to reduce data bulk, to provide opportunities for themes and meanings to emerge, which represented the interrelatedness, interdependence, and discursive nature of the fields, and to provide meaningful insights and recommendations relative to the research question. A thorough exploration was carried out on factors, influences, opportunities and barriers that affected each student-athlete's performance in sport and education, and on her general health and well-being. Consideration was given to what forces, intentions and "lines of flight" (Deleuze & Guattari, 1987, p.4) emerged from the analysis of the data. Explicit attempts to preserve the wholeness, unity, and integrity of each case in a holistic manner was pursued by focusing on the research question.

### **3.11 The trustworthiness of the study**

A number of steps were taken to ensure the trustworthiness of the resultant data. Firstly, the study engaged in multiple forms of data triangulation, both internal (between multiple sources of data) and external (member checking and researcher analysis) to ensure not only rigour in the research process, but also dependability of data and analysis. Secondly, my long term relationship with both the field and participants facilitated relationships of trust and authenticity, which provided dependable information and also greater historical and personal context to the data and its analysis. Thirdly, the research design not only embodied a process of "disciplined activity, through which I will continually question and re-evaluate information whilst challenging my own personal bias and context" (Edwards & Skinner,

2009, p. 272), but also acknowledged the integral role of the researcher in the research process. To ensure that the data collected captured the complexity of the lived experiences of the participants, a variety of collection methods allowed for the generated data and the research process to be driven by the participants, thus enabling the student athletes to have a sense of ownership over the project. This was evident in particular during phases three and four of the interview process where the final three student athletes chose the subject matter for their second interview (photo images) and wrote or recorded a personal narrative for their final interview.

Merriam (1998) reasoned that one of the assumptions underlying qualitative research is that reality is holistic, multidimensional, and ever-changing; it is not a single, fixed, objective phenomenon waiting to be discovered, observed and measured as in quantitative research. This research project has used the participant's narratives to provide thick, rich description to communicate their lived experiences, and to produce valid and reliable knowledge in an ethical manner. The use of authentic scripts has ensured that rich and thick descriptions were captured to provide the reader with context and experiences, upon which to build a shared platform of insight and understanding. Undertaking these steps ensured the qualitative standards of credibility, transferability, dependability and confirmability (Lincoln & Guba, 1985).

### **3.12 The place of the researcher**

The issue of researcher interpretation was another consideration if the trustworthiness of this research was to be enhanced. The possibility of bias can arise from misinterpretations, misrepresentations, and a lack of pertinent information that can hinder the production of a careful and authentic representation of data (Ely, Vinz, Downing & Anzul, 1997). According to Merriam (1998), achieving an entirely objective position is problematic, due to researchers themselves being part of the world they are studying, and especially in qualitative methodology, the main instrument of research. Denscombe (2003) proposed that observations and analyses are influenced through the worldview of the researcher, through their personal values and perspectives.

My interest in the field of talented female athletes stemmed from previous associations and experiences with exceptional athletes in New Zealand and in the United Kingdom (UK). Early in my teaching career, I was aware that I had an easy

rapport with excelling young sportsmen and women, which developed further through my roles as a sports coach, a sports administrator, a secondary school teacher in charge of gifted and talented students (in Physical Education and Sport), a Master's degree researcher, and a lecturer in Physical Education and Sport and Recreation programmes at tertiary level. The more contact I had with elite young athletes, the greater my curiosity and admiration, as I observed how they seemed to be simultaneously excelling in their sport of choice, whilst also coping with other areas of normal life (academic, social, family, health, employment, career). It became apparent to me that, in general, female athletes were able to be successful in sport while continuing to sustain their education. On the other hand, excelling young male athletes appeared to commit fully to their sport, often at the expense of their ongoing education. An interest in the lives of young female athletes also stemmed from my own daughter's pathway as a representative basketball player, national official, and junior coach. Her progress within her sport, while studying at secondary school and at university, provided impetus for me to gain further insights and understandings about student athletes at national and international representative levels.

While narrative research may be regarded as demanding at many levels, Armour and Chen (2008, cited in Armour & Macdonald, 2012) suggested that it requires a unique form of researcher discipline to simultaneously see the perspective of the participant while maintaining the critical faculties of a researcher (fit for purpose, making best use of the range of appropriate methods and using the best research knowledge - and methods – available). My aim throughout this research process was to sustain an open, non-judgmental, inclusive and inquiring approach to facilitate authentic, meaningful, truthful, and socially and culturally sensitive data.

### **3.13 Ethical considerations**

All social research involves ethical issues. This is because the research involves collecting data from people, about people. While all social research intrudes to some extent into people's lives, qualitative research often intrudes more (Punch, 2005).

Punch identified issues that arise at various stages of a project:

Early in a project as: worthiness of the project, competence of boundaries, informed consent and benefits, costs and reciprocity.

Later in a project as: harm and risk, honesty and trust, privacy, confidentiality and anonymity, intervention and advocacy.

After a project as: research integrity, ownership of data and conclusions, use and misuse of results. (p.277-278)

Miles and Huberman (1994) pointed out that these issues typically involve dilemmas and conflicts; however, negotiated trade-offs are often needed, rather than the application of rules. Feminist approaches such as Mauthner, Birch, Jessop and Miller's (2002) view, contributed further perspectives on the ethical issues involved. Mauthner et al. highlight that ethical debates in society in general are increasingly wide-ranging, so ethical concerns in research need to be similarly wide-ranging, rather than covered by a sets of rules. A key theme is often responsibility and accountability when research is based on personal experience methodologies. Some of the ethical issues Mauthner et al.'s analysis exposed are questions of intention underlying the research, the many meanings of participation, and the idea that consent may need to be ongoing and negotiated throughout a research project (Punch, 2005).

A fundamental ethical principle of social research is that participation must be voluntary and informed (Snook, 2003). To ensure that the participants were fully aware of the research, their rights, their role and the voluntary nature of their participation, each nominated student athlete was sent a participant information sheet (see Appendix A(i)) and consent forms (see Appendix D (i, ii, iii)), to formalise their participation. This procedure was followed for all student athletes and their nominated significant others.

The participants' right to privacy was another important ethical consideration. According to Snook (2003), privacy is addressed either through anonymity or confidentiality. Anonymity is when the researcher does not know the participants; for example, in an anonymous survey. Confidentiality, on the other hand, means the participants' names may be attached to responses, but the researcher does not disclose the identity of the participants in the research study (Neuman, 2003). Confidentiality was given the highest priority due to the relatively small number of participants, and because some of the participants had a high media profile. For example, when the interview recordings were transcribed, the transcriber was asked to sign a confidentiality agreement (see Appendix G). In addition, all narrative case studies, where direct quotes were used, the participants' pseudonyms were given.

However, there was still a possibility that the questioning and probing at potentially sensitive areas would cause a negative experience. Furthermore, with the prolonged data collection period with the same participants (18 months) it was essential to prevent any form of deception and to develop an open, positive experience for all participants. To address these potential difficulties, I communicated with each participant initially through her school contact and then with herself and her parents via the student-athlete's preferred mode (mobile, text, email). The participants' names and all identifiable features were kept out of the transcribed scripts, reports and ensuing publications, and a coding system of pseudonyms was used from day one of data collection. Each participant was asked to check her transcript for additions, deletions, changes and omissions after each interview to ensure accuracy and transparency. In addition, to reduce misinterpretation and researcher bias (Cardno, 2003), the three individual case study participants were given the opportunity to collaboratively develop their narrative story with me, in their final interview. Further ethical considerations included the reduction of any coercive influences and power imbalances, openness and truthfulness, data management, and social and cultural sensitivity.

In accordance with ethical requirements, before undertaking the research project an ethics application was submitted to the Auckland University of Technology Ethics Committee (AUTEC) and was subsequently approved on 14 October, 2014 (Reference number 14/298) (see Appendix H).

### **3.14 Chapter summary**

In summary, I began this chapter by establishing the research site and the participants: female secondary school athletes from three different schools in the Greater Auckland Region. By establishing my research paradigm and epistemological assumptions, and the theoretical perspective that have underpinned this research, I was able to examine and clarify my beliefs about the nature of reality and humanity (ontological stance). My adoption of a qualitative, interpretivist paradigm and an individual narrative case study methodology was justified. I offered rationale for my posthumanist perspective, and explained the relevance and appropriateness of a complexivist theoretical framework for data analysis. I subsequently highlighted my personal history in relation to the research area, to clarify my position in the study, as the researcher. The

research design was further shaped by not only a desire to build understandings and insights, but to also explore an aspect of youth sport, which has previously had little in-depth attention. To meet this objective, narrative case study methodology was used for this research and was justified in detail. This was followed by an explanation of the research methods, analysis processes, the steps taken to ensure compliance with qualitative research standards, and the ethical issues addressed.

In drawing this chapter to a close, I want to leave the reader with a quote from Stake (1995) who commented that, “case study is not a methodological choice but a choice of what is to be studied” (p.443), which goes some way towards clarifying the purpose and potential value of this form of research. Case study research has been criticised for lack of validity and objectivity due to the freedom to select cases based on convenience and desire to learn, which may lead researchers to choose cases and interpret findings in ways that support and confirm existing assumptions and preconceptions. Yin (2006) countered this argument by reminding us that subjectivity and bias apply to all research methods.

## Chapter 4 Aroha's story

Chapter 4 provides a rich overview of Aroha, one of three talented female student athletes who completed all phases of the research project. This chapter highlights her sport attainment and education sustainment presented in the form of a narrative case study. Aroha's attainment is shown through the historical stories of Aroha as this study focuses on her sustainment. The narrative as a researcher interpretation was developed through a process of reviewing analysed data from Aroha's questionnaire, semi-structured interviews, written cue cards and photography montage. While this chapter presents Aroha's story from an analysis and interpretation of collected data, there is a good chance there are many other factors contributing to her narrative. For example, analysed data from a semi-structured interview with her Mum (Maree) was included, but the thoughts, feelings and opinions of her school, team mates, coaches and others directly connected with her, were not. The decision to bind the study within a timeframe, particular sites and limited participants has been justified (see methods 3.3.1, p.93).

The narrative was developed through philosophical assumptions of a complexivist posthumanist paradigm underpinned by an interpretivist epistemology and emergentist ontology. This means that through data analysis and interpretation, meanings and understandings emerged; however, they were unpredictable, diverse, open, non-linear, connected, recursive, self-organising and part of a dynamical system (Santonus, 1998, p.3). How these interpretations, meanings and understandings affected the complex connections and interdependencies between human and other-than-human subjects (Roelvink & Zolkos, 2015) has also been considered in telling Aroha's story. Aroha's story was told in the third person as I interpreted and documented her experiences from my perspective as researcher. Every effort was made to ensure the identity and school of the participant was concealed or removed, and pseudonyms were applied to ensure confidentiality and anonymity. Aroha's story follows her chronology in sport and education from early childhood to the present day (2016).

Aroha was interviewed from 2014-2016 as a Year 9 -11 high-performance student-athlete. She attended a large, co-educational secondary school in Auckland that offered Sports Academy scholarships in a range of team sports (rugby union and rugby

league for boys, basketball for boys and girls, and netball for girls). Aroha was 13-15 years old during time of the research. Her main sports were athletics, netball and touch rugby. Aroha was the middle child of three siblings (an older sister, Emma, and a younger brother, Jake, both of whom did not contribute directly to this research). Her mum, Maree, was a primary school teacher and her dad, Tamati, was a rugby league international who, now retired from competitive play, worked as a coach and mentor for rugby league in Auckland. Aroha's ethnicity was New Zealand European/Māori/Samoan. Aroha's story begins with a typical day and week in her life, as a 13-year-old female student athlete in Auckland, New Zealand.

#### 4.1 A typical day/week in the life of Aroha

*I wake up at 6:30/7am to go to school, and then by the end of the day (schools finishes at 3:10), if I had a [netball] training I'd go. If it's like 4:30 or 5 I'd probably wait around, and then go to training and then training would finish about... 7 or 7:30pm, and then I'd come home and have dinner and then have a shower. (Int1)*

*A normal week: We don't have anything on a Monday. Tuesday, they have training, so we will go straight from work to their training, which starts at 5:30 and finishes about 7:30. Wednesday night they have rep training. Thursday night they'll have a game. Friday they'll have off. Saturdays, they have games. And Sundays, when rep starts, they have rep tournaments. (IntSO)*

**Ledger:** Q = initial questionnaire, Int1 = semi-structured interview one, Int2 = semi-structured interview two, Int3 = semi-structured interview three, IntSO = semi-structured interview with significant other.

#### 4.2 Early life

Aroha was exposed to high level competitive sport and an active lifestyle from an early age. Her New Zealand European mum, a regular club netball and touch rugby player, continued to be involved at a social level in and around the sporting commitments of her three children as they grew and established their own interests and abilities in sport. As a preschooler, Aroha was aware that her dad (of Māori/Samoan descent) was also a very committed sportsman as she recalled spending many weekends on the side-line of one or other of her parents' sports, throwing a ball around with her older sister. This early exposure created an unspoken benchmark and a subtle expectation that all three children were encouraged to embrace. Within this context, the seeds of



sport attainment were sown, and sport became normalised as a positive, conducive family lifestyle.

Early in his career, Tamati's dedication and achievements as a professional rugby league player were rewarded with a two-year contract in France. Consequently, four-year-old Aroha was enrolled at a L'école Moyenne, the French equivalent to a kindergarten, at which French was the sole language of communication. Aroha and her older sibling, Emma, struggled to adjust to this new, foreign and unfamiliar environment. Maree described the girls' transition into a French schooling system in the following way:

*[Aroha] started at the Moyenne because she was a little bit younger. She had one year at the Moyenne and one year of the normal school... The girls took a long while to settle down – they went to a French speaking school. For both of them it was quite a difficult time. In Aroha's [school photo] her eyes are red from crying so much. She's got tears running down her face. (IntSO)*

Aroha recalled her educational experiences:

*It was hard when I went to France because I got put in to like an all French school. It was like challenging, cause like they learnt differently.... I think I fell a little bit behind because going to France, but then I caught on to it. (Int1)*

Maree attributed Aroha's difficult start to school in France as a contributing factor to her middle child's difficulties with spelling. Aroha had not experienced a school before attending the Moyenne in France:

*In terms of chronological knowledge and pronunciation of words and her spelling – she's a terrible speller – we think that's where it stemmed from. Obviously, the alphabet and the sounds are all different. So, she had to change that. (IntSO)*

However, on reflection, Maree and her daughters viewed the French adventure as a wonderful opportunity and in hindsight expressed some regrets for not embracing the cultural challenges in France with more enthusiasm. Maree identified positive opportunities for the children's development when travelling back and forth from France and England for Tamati's weekly international league games.

Aroha's view was more reserved and tentative as she remembered the difference between attending the Moyenne and being home-schooled in English in her second year in France. Aroha verbalised her experience by stating that "it was different, but it was good. It was a good different... so it was like hard but then I got home-schooled, and that was... yeah that was good". (Int1) These early recollections of sport and school helped to shape Aroha's view of her family life, of educational expectations and challenges, and to increase her growing awareness of her own abilities in physical pursuits. While in France, Aroha recollected that she "kind of dropped, didn't do anything [physical]" (Int1); however, on her return to New Zealand aged six, Aroha began to enjoy a wide range of activities, often in combination with her older sibling, Emma. Maree described how the two girls began to explore and discover their interest in physical activities and competitive sport:

*When Emma trained [Aroha] would go with her as you do. When I take Emma to her practices, Aroha would be there watching. Yeah, netball. Emma did athletics. They both did soccer. They did dancing for a while. They tried everything really... we just encouraged them. We would say, "What would you like to try?" and they would say, and we'd say, "We'll try and find a team for you" and we'd put them in that, and make sure they had the opportunities to try different things. (IntSO).*

### **4.3 Primary school foundation years**

The relationship between Aroha and Emma began to blossom with Aroha rapidly developing an admiring, aspirational connection to her sister. This strong tie was fuelled by a common passion for netball, and their similar talent and interest in athletics and touch rugby. As Emma developed her skills and abilities in sport, Aroha followed closely in her footsteps. Throughout her primary school years, Aroha participated in physical activities at every possible opportunity, in an attempt, according to Maree, to keep up with her sister. However, Aroha described her main motivation for participating in sport as a desire to get active and to be involved in whatever was happening. She explained:

*I always took part in the swimming sports, cross country and athletics day. I started netball in year 4. Like whenever they gave out forms for doing cricket or softball or something I'd take it and attempt to do it. (Int1)*

This have-a-go attitude was fully supported by Aroha's mum who commented that "as teams came up at primary school, we encouraged them to take part and try everything out". (IntSO) Emma and Aroha were encouraged to do the same out of school sports and activities so that Maree and Tamati could manage time wise. The girls played for the same clubs and were encouraged with comments like "Emma, you better... Aroha is catching you up", and when Aroha was discouraged she would be reassured with a gentle "don't worry, [Emma's] been playing sport a few more years than you. You'll get there". (IntSO) Maree noted that Aroha was the more "feisty" and outgoing personality with Emma being of a quieter temperament. Differences in stature and attitude also became apparent as Maree explained that "[Aroha] is very much like her father. We tease her that she has inherited his body shape, whereas Emma is much taller and quieter". (IntSO) Maree also observed that her youngest daughter often displayed an ambition to equal or exceed her older sister's physical prowess, and to achieve the same level straight away, without any concept of the "two-year difference". (IntSO) While this dynamic relationship had the potential to develop into sibling rivalry, this was not the case between the two sporty sisters. As evidenced later in Years 7 and 8, the bond grew stronger and more enduring, even though Aroha's achievements in sport soon began to accelerate at an unprecedented pace. In addition to sport development, Aroha's education was a priority now.

As a primary school pupil in Auckland, Aroha had to cope with a new educational philosophy and culture as she embarked upon the New Zealand Curriculum (2007), levels 2-4<sup>7</sup>. As a mandate of the curriculum, Aroha was required to focus on mastering literacy (listening, speaking, reading, writing and presenting) and numeracy skills (number and algebra, geometry and measurement, statistics), as well as her competencies in the arts, learning languages, science, social sciences and technology (Ministry of Education, 2007). Such requirements were a challenge for Aroha as her first experiences of literacy and numeracy had been through a French preschooling system. Aroha's attitude to these early expectations was positive as she explained, "I think I was pretty good cause my mum is a teacher. She would always like read with

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<sup>7</sup> NZ Curriculum levels 2-4 contain Ready to Read and *Junior Journals/text* crafted according to levelling criteria, to link to *the Reading and Writing standards* and *The Literacy Learning Progressions* for students in years 1-3 (aged 5-7 years).

me”. (Int1) To capitalise on Aroha’s early exposure to the French language, her parents enrolled her in an afterschool French speaking programme, which she attended weekly. Aroha’s thoughts on this educational opportunity were, “once I hit Intermediate we didn’t take any and it was too hard to do afterschool because of the sports. When I did [French] in Year 8...I was quite good”. (Int1) Aroha conceded that she wrote well at primary school, “my writing, I had good handwriting”. (Int1) Now Maree was a full-time primary school teacher and Tamati continued to play rugby league as a professional player in the National Rugby League (NRL) trans-Tasman competition. It was during her primary schooling that Aroha became aware of her preference to use her left hand. Her left-handedness, however, did not extend to her sporting pursuits as Aroha explained. “I kick with my right hand. I’m quite ambidextrous. I can use both hands. They’re not really, I don’t really have a dominant hand”. (Int1)

In 2010, National Standards came in to effect in New Zealand English medium schools for all pupils in Years 1 – 8. In 2010, Aroha was a Year 5 pupil at her local primary school in Auckland. She experienced the introduction of this new nationwide system, which set clear expectations in reading, writing and mathematics. It soon became apparent to Aroha and to her parents that she found mathematics a challenging area of learning. “Math.... I wasn’t too good at that, I found that quite hard”. (Int1) To address the perceived weaknesses in Aroha’s primary schooling, she received additional tutoring in mathematics and spelling.

#### **4.4 Intermediate school development years**

Aroha’s move to a Catholic intermediate school in 2012 (Year 7) represented another significant step in her pathway towards becoming an excelling young athlete. She described her intermediate as not focusing on sports, which was different to her primary school’s approach. Aroha had an increased incentive and energy to be involved and to participate fully in sport out of school, which was different to her primary school experiences. Aroha’s involvement and achievements in athletics, netball and touch rugby began to accelerate. She discovered an ability to sprint on the track, which transferred to successful performances in touch rugby. As a Year 7 pupil, Aroha became aware of a change in how she viewed herself. She had become a talented young sportswoman:

*In Year 7, I was quite into athletics, and doing the running, sprinting and all that. I did quite well in the school athletics and then I went to Zones. And touch, I played touch for Auckland, the Auckland team. (Int1)*

Aroha elaborated further about how her busy sports' schedule outside of school hours began to impact on her relationships at school, when she confided to Maree that:

*I loved my friends but I got tired of having to say no to going out or going to things all the time. They would say, "Oh, come on over and stay" but I had to say, "No, I've got training." (IntSO)*

It was at this stage that Maree noticed her middle daughter's development in physical pursuits. Maree identified a critical turning point for Aroha as she started to play and run for community teams and subsequently got accepted. In Maree's words, "coaches seemed to notice her and thought she had good skills and she showed some sort of talent in some areas". (IntSO) Aroha was also proving to be a versatile player, especially as a defender and shooter in netball. She noted that, because she was at this stage taller than many other girls her age, she could play defence and fill in as a shooter when required.

The late childhood, early adolescent stage of development (aged 10–14 years) appeared to be a critical phase in the consolidation of Aroha's physical abilities as an athlete and games' player. In her initial questionnaire, Aroha described her sporting experiences for this developmental stage based on recollections of her Year 5 – Year 9 sporting experiences. Her achievements during this five-year period focused on netball, touch rugby and athletics. In netball, Aroha played for her local club (with sister, Emma) as an under 13 and again as an under 15. Aroha was selected for the club tournament team in two consecutive years, while representing her local club. Now, she also represented in regional netball as the Year 7 team captain and was awarded the Most Valuable Player (MVP) and the Year 7 netball sportsmanship award for 2012, for her region. The following year, Aroha continued to captain the regional netball Year 8 team and in 2014, was selected to play for Auckland, as captain and MVP for Year 9. These achievements in themselves may have been perceived as extraordinary, especially by her family, but can also be interpreted as indications of development for a young athlete with talent in physical pursuits. It is interesting to note that, while Aroha was elated with the recognition her selections and awards represented, it was

also clear that she took each achievement in her stride and kept her focus on her long-term goals of becoming a Silver Fern and/or a professional sportswoman and coach.

#### 4.5 Secondary school specialisation

As a Year 9 14-year-old, Aroha reiterated her attitude towards achieving high level sport performances when she responded to the question “what keeps you motivated in sport?”, by saying:

*I think what keeps me competing is like the level of sport I play.... wanting to improve... what keeps me training is like just um just wanting to be the best I can be... I see myself as a developing player. Just keeping going. (Int1)*

Aroha also recognised other drivers in her quest for excellence as a netballer. She understood the importance of her team environment and team relationships, and the value in competing against high level competition:

*I think I like the best is just like being able to get so many opportunities, to go to places, and making teams, and being a part of like teams.... being with other really talented people... round me... I'd like to be in like the Silver Ferns and then do what my dad does, play sport and then also coach sport, like always involved in netball. Like to be in, play in the highest level for netball. (Int1)*

In this context, Aroha's reference to her dad suggested a strong bond and enduring connection to her biggest sports hero, mentor and role model. Aroha's relationship with her dad was one of adulation and aspiration. Aroha openly admitted that one of her key motivators in sport was to attain what her dad had achieved (as a professional rugby league player), and to stay involved and to give something back to her sport of netball, in the same way her dad had sustained his active involvement in league.

With respect to sporting aspirations and achievements, Aroha's mum's perspective was more grounded and cautious. Maree was aware of the pitfalls and possible disappointments for aspiring young athletes as she recognised that not all talented athletes make it professionally. Maree's view was that having fun was an essential component for success and vital to sustain involvement at all levels of sport participation. She commented that it was important to be realistic and to consider whether her daughters would continue to play netball if they didn't achieve a position

in the team they aspired to play for. Her view was that if enjoyment was absent from the sporting experience then sustaining effort, commitment and satisfaction at this age was more difficult. Maree's prudent approach provided a mature experienced view, which helped to guide and support her daughters' development and growth in physical pursuits.

Tamati (Aroha's dad), as documented by Maree, reciprocated this view. His guidance and input constituted support for most of Aroha and Emma's sport involvement; however, occasionally Tamati would preclude the girls from a team, a training session or a tournament, stating that "they need to have a rest, let them have a rest, they need to stop." (IntSO) His rationale was that unless the girls were playing for fun and enjoying the experience, they were likely to "lose their passion for the sport, to burnout, and to not want to play anymore." (IntSO) To succeed in sport, Maree and Tamati understood and valued the importance of sustained effort and commitment, but not at the expense of having fun and enjoying the experience. These beliefs and values were woven into and pervaded the support structures that Maree and Tamati created for their talented children. Aroha's interview responses suggested that her family's approach to sport and education was a positive and aspirational influence on both her sporting and schooling domains.

Each year, during the netball off-season (September until February), Aroha pursued and continued to develop her talents in touch rugby and athletics. In touch rugby, Aroha achieved Auckland representative status for two years for the Under 11, Under 13 and Under 15 age group teams. During the 2014/15 touch season, Aroha was selected for the New Zealand Touch Elite Development programme as an Under 21 age group player. Aroha downplayed this achievement in her second interview, but did again acknowledge the challenges she faced mentally when playing touch rugby. She explained that she worried all the time and felt stressed that she would make a mistake. Her anxiety in this sports environment seemed to stem from Aroha's dislike of being watched, of being on public display. She commented that, "with touch there are a lot of people watching and I find it a bit overwhelming." (Int2) When asked if she felt there were different expectations on her in touch (as opposed to netball or athletics), Aroha responded with, "sometimes but not really". (Int2) Aroha's mental and physical reactions to her performances in touch could be based on her perceptions of her

family's and others' expectations of her, due to her dad's achievements in rugby league. Aroha articulated this link when she stated that:

*It's really inspiring. I want to be like him when I'm older. Like do what he does, and to just like play the sport I love and also like coach and always be involved in it. Like there hasn't been a year when he's not ... like not involved in sport, he's always like, wakes up early to go to trainings... Sometimes I think I do [have a choice about being a top sportswoman] and then sometimes he pushes me a lot. It's good, yeah. But I want to. (Int1)*

Alongside these touch rugby representative selections, Aroha achieved a top 5 placement in the New Zealand Secondary School Athletic Nationals for the 300m sprint and early in 2015 was the 400m champion at her school. Her perceptions of her attainment in sport at this time can be gauged from her interview summary on athletics, touch and netball:

*I did quite well in the school athletics... It's hard... yeah. I don't, like I hate like the build ups to the competition, I don't like it, like I'm not doing it, I'm not doing it... then I do it, and I don't do too bad, and I like it. It's a love/hate relationship [athletics]. I think I like netball more – I find it a lot more... I enjoy it more. I used to really dislike touch but then after that tournament I really like it. I felt a lot more confident and I find it really fun now. I like touch I think it's fun but I like netball more and yes I do get injured in touch. (Int1)*

Aroha's passion for netball was evident as was her hesitation and reservations regarding athletics and touch. The tension and conflict Aroha described regarding athletics appeared to stem from expectations expressed by her school and her parents that she would participate and excel, even though athletics was not her preferred summer activity. Aroha's apprehension and discomfort seemed to lie in her knowledge that she did not train and prepare to the same extent as her opponents in athletics, a perception that caused her angst:

*I went to Champ of Champs. Last year I did go to the North Islands. Well, I think, I think I came like fifth and it was hard because I hadn't trained for athletics, then all the other people like were... I think that athletics is fine because I just do it for the school. (Int1)*

Each year, prior to the commencement of the athletics season, Aroha would be asked by her secondary school Director of Sport to participate in several track events. Maree



confirmed this expectation and verified that Aroha usually competed in the 200m and 400m sprints. Maree also conceded that she thought Aroha did not enjoy the individual aspect of athletics, that “she preferred a team sport environment” and liked having “the support around her of her teammates.” Maree’s perception was that because “she’s quite talented in athletics”, (IntSO) Aroha was expected to compete for her school each year. Aroha’s real passion, however, continued to be netball at which she aspired to excel at school, club, regional, national and eventually international levels.

#### **4.6 Influences on sport specialisation and performance**

Aroha’s aspirations, particularly in netball, were encouraged and influenced by regular mentoring from Maree and Emma, through regular conversations about netball. Maree revealed that she often discussed netball tactics, encouraged extra fitness, and always accompanied Aroha to all her netball tournaments and competitions. Emma was also a fully committed supporter of her sister’s development and achievements in netball. Both aspired to play for their school Premier Netball team, however, Emma’s ability was perceived (by Maree) to be on the fringe, whereas Aroha had displayed the self-determination, drive and skills to take her to the top (potentially). Maree articulated these differences in the following way:

*Emma is a fringe sort of player and Aroha seems to be still climbing and tracking along and making rep teams... I think the thing that is different between Emma and Aroha, is that Aroha is quite tough mentally. (IntSO)*

Maree further explained that Aroha’s “likeness” (IntSO) to her father, not only physically but also in attitude and mannerisms, was a key factor in her success in sport. An interpretation of Maree’s perceptions of Aroha’s sporting success could hinge on Maree’s intuitive awareness of each daughter’s personality, personal goals, motivations and physical abilities. In addition, her sporting success may have been influenced by the support structures, opportunities and influences acting on both sisters at various times, and how they responded to this constant exposure to sport and sporting environments. It is important to note that other factors and influences may have contributed to Aroha’s development as a talented young sportswoman; however, Aroha and her family may not have been aware of these influences. For

example, school, club and regional selection processes, the provision of funding and facilities to provide coaching, competitions and overseas opportunities, and the introduction of academies and institutes in schools to accelerate specific sports at secondary school level, to name a few.

As the pressures to succeed in netball increased, Maree noticed a shift in approach from Emma who had previously led the way for her younger sibling. As Emma began to accept her limitations in netball (as documented by Maree), she adopted the role of mentor, personal coach, and number one supporter for Aroha. Her younger sister was now demonstrating excellent progress and continued to be selected for exciting new opportunities in their shared passion of netball. From this time, Maree noted that Emma and Aroha were supportive of each other and if Aroha expressed doubts about her abilities, Emma would promptly reassure and encourage her. A conversation Maree overheard highlighted the sisters' relationship with each other and with netball. Aroha had commented, "I hope I make a team this year" (as she was now trialling as a senior player) to which Emma had replied, "Don't be silly, of course you are going to make a team!" (IntSO) Aroha's self-doubt may have also been seated in a growing awareness that she was no taller in the past year, which meant that her netball coaches had moved her from defence and occasionally shooting positions, to the mid-court.

An "awesome" (Int2) opportunity that occurred at Aroha's school each year was the sports trip to Singapore for 12 Year 9 and 10 netball players. As a Year 9 player in 2014, Aroha trialled and was selected for the November Singapore trip. During the week-long tournament, she was substituted on in each game, but rapidly became aware that she had been selected to learn and to observe, to progress her own game for the following season. In 2015, Aroha was again selected to take part in the school sports' trip to Singapore; however, on this occasion she attended as a key player and excelled, attaining the coveted mid-quarter player of the tournament. Aroha described her second trip to Singapore in the following way:

*I did go in 2014 and that was really fun but I didn't get much game time, and this year I got a lot more game-time and I got to play with all my friends. It was really fun. We won, which was good. I got mid-quarter of the tournament, so it was pretty good. (Int2)*

When asked what made her stand out above the other mid-court players at the tournament, Aroha explained that, “I worked hard and I kept going; I never slacked off in parts of the game. And also, being a lot shorter than the other people – some of them were a head taller than me”. (Int2) The issue of Aroha’s height was raised again when the netball coach for the Singapore trip, who was also coach/selector for the school senior netball teams, made a comment to Aroha’s mum about trying another player in Aroha’s position because, “I just want to see if a little bit more height will make a difference”. (IntSO) Maree reported that Aroha’s concern and growing self-doubt due to her height, increased in the lead-up to this prestigious sports trip. Maree commented that Aroha had begun to question her ability and selection, becoming more nervous at each training, as the sports trip drew closer. Aroha was quoted by Maree as saying, “Do you think I’m going to get on court? I think she thinks I’m too short”. (IntSO)

Contrary to previous school sports trips, Maree did not accompany Aroha on the second trip to Singapore. Maree was, however, quite worried about Aroha’s level of confidence and self-esteem so to help Aroha’s angst, she organised the family to make inspirational cards, one for every day that Aroha was away on her netball trip. On the first day the quote said, “Play hard, listen to your coach and your manager, and last of all make sure you have fun”. Maree explained that there were twelve cards and that Aroha was instructed to choose one for each day she was away, “just to give her a boost, because I knew she was nervous and a little bit uptight about it”. (IntSO) This level of support seemed to work for Aroha by reminding her daily that her family supported her fully. Aroha stated that “going over to Singapore...this year I got a lot more game time and I got to play with all my friends. It was really fun”. (Int2) Aroha confirmed that this trip was the highlight of her year.

Aroha’s selection as the best mid-court player at the Singapore Year 9 and 10 secondary school girls’ tournaments firmly established her as the best centre/wing attack netballer within her age group, not only in her school but also in relation to all mid-court players at the tournament. Maree attributed Aroha’s success to two key strategies: first, that she knew to analyse the opposition centre’s strengths and weaknesses during each warm-up, and second, that she applied tactics to overcome or counter each opponent; for example, to use her speed, footwork and court sense.

Maree could not suppress her genuine surprise and pride at her daughter's achievement when she commented, "she must have played well. The coach would have pulled Aroha off if she wasn't doing her job, so she must've played really well... Aroha got to play every game and her coach was a hard coach". (IntSO) When going through the data collection process, Aroha photographed and then described images that were significant to her. She summed up her thoughts about her favourite sporting opportunity in 2015 by saying, "This was another photo from Singapore, when we got the trophy. It was really cool – especially being in a different country so far away". (Int2)

## 4.7 Educational sustainment

Educationally in 2014, in her first year at secondary school, Aroha was presented with a different array of challenges and achievements. She had transitioned from a Catholic state-integrated intermediate for girls (decile<sup>8</sup> 5) to the second largest state co-educational secondary school in New Zealand (with a roll of 2,724 students, decile 7). This transition required Aroha to adjust to a different educational philosophy and focus, as well as different teachers, classrooms and school friends. While this expectation was in no way exceptional for many new Year 9 students in New Zealand secondary schools, for Aroha this opened the door to an aspect of her culture and heritage that she had previously not explored or given much thought to. Aroha's Māori descent meant that she was eligible for the "Puna"<sup>9</sup> form class, a vertical Year 9 – 13 group of students who shared a common Whakapapa<sup>10</sup>, that of identifying as Māori in Aotearoa, New Zealand. Aroha's perceptions of the Puna class indicated the value this group held for her on many levels: emotionally, spiritually, culturally, socially. Aroha described her bond with this group of students in the following way:

*Because I'm part Māori and I'm in Puna, which is just like a form class, we sort of have to do it but I also do Māori because I like doing it, but it's also really challenging. So, that's like a form class for all*

<sup>8</sup> Decile – school deciles indicate the extent the school draws their students from low socio-economic communities. We use decile ratings to target funding, for state and state-integrated schools, to help them overcome barriers to learning that students from lower socio-economic communities might face. The lower the school's decile, the more funding it receives. (Educaation.govt.nz)

<sup>9</sup> Puna – Māori term for spring (n) or to well up and grow (v).

<sup>10</sup> Whakapapa – Māori term for genealogy, lineage, descent (n), to recite in proper order (genealogies, legends, myths) (v).

*these Māori students and it's optional, you can be in there or not from all ages and it's boys and girls. It's about 50 [students], so two classes. I think just having, because basically we are pretty close like having a family at school. (Int3)*

Aroha elaborated on the significance of her Māori-Pakeha and Samoan heritage. She explained that she liked learning Māori although she found the language difficult; however, she did not enjoy Kapa Haka<sup>11</sup>. Her sentiments were clear when she said, “I don’t like doing Kapa Haka. I don’t like performing and all that in front of people. I like watching it but not performing”. (Int3) This revelation came as a surprise to me as through her competitive sports, Aroha was regularly performing in front of others. Aroha had a clear rationale to explain her apprehension regarding performing in culturally-based activities. She revealed that her family did not “keep in touch with their Māori and Samoan side as much as we should, not should but as much as other Māori and Samoan people and Pakeha<sup>12</sup> [do]”. (Int3) Aroha expanded her feelings of conflict about her cultural identity further when asked if the values and traditions of her ethnicity had a strong influence on her everyday life:

*Not really, I'd like it to be, I'd like to know the main customs of being a Māori and Samoan. The language... but it isn't but I'd like it to be. Also, because I don't think I look Māori or Samoan and I think if I were to be able to speak it fluently I could prove to people that I am, cause when I tell people that I am they give me looks like – are you serious? (Int3)*

During this part of the interview, it became apparent that the driving motivation behind Aroha’s subject choice (Māori) and involvement in cultural activities was due to her parents’ expectations. In her significant other interview, Maree corroborated Aroha’s perceptions about her involvement in learning Te Reo Māori and in performing Kapa Haka. Maree conceded:

*I think that she would find learning that language quite difficult, as a lot of us would. But we think it's quite an important thing for both to take... they are Māori, and their father has said “I've always wished I could speak Māori. I would love to be able to stand there and know my culture and be able to speak it and understand it, but I didn't give*

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<sup>11</sup> Kapa Haka – Māori term for cultural dance and action songs performed by a group.

<sup>12</sup> Pakeha – Māori term for person of European descent.

*myself that opportunity". He wants them to have that opportunity.*  
(IntSO)

Maree's view was based on the shared belief (with her husband) of the importance of preserving and developing the girls' unique heritage. Although Maree was aware that Emma and Aroha did not enjoy Kapa Haka – "they hate it because they are very shy girls", she was adamant about the value of their involvement; "When they get up there and they perform or they do a Haka for someone, nothing makes me more proud than to see our girls up there and doing it. I know they're not the best and I know they don't like it but it's a beautiful thing to see". (IntSO)

Involvement in the Puna form class afforded Aroha other benefits and advantages. Affiliation to the Māori whanau within her huge secondary school provided a sense of belonging, acceptance, familiarity (vertical form from year 9-13), mentorship, friendship and stability. Aroha acknowledged that being in Puna also meant that she received extra assistance with her school work. She explained that, "I think because I'm Māori and Pacific Island I got more help with my schooling. They give me tutoring and opportunities to go places at school, like events and all that". (Int3) One such event included a day trip to hear university students talk at another Auckland secondary school. Aroha's thoughts about this unexpected opportunity were expressed with gratitude and pleasure:

*We were doing this for English – I got chosen to go, and there were all different kind of schools. We were in a hall and people were just talking, kind of like a university lecture and it was really interesting.... Our Dean chose a couple of people. I was quite surprised I went to that. It was really cool. To see people talk, and see all different types of people. It made me think about what I was going to do in the future, and also in class, in school – to work hard and all that. (Int2)*

Aroha's progress at her new school hinged on many factors including subject choices, subject strengths, time management and motivation. Aroha identified science, English and Māori as her weakest subjects, but unexpectedly named maths as one of her strongest. While Aroha found Māori "really hard"(Int1), she persevered as her belief was that speaking Te Reo would be an advantage later (post-secondary school). Now Aroha admitted that she found mathematics easy even though previously at primary school she had needed extra tuition to address gaps in her learning. Aroha was almost

embarrassed to admit that she also enjoyed and was good at PE and Health. Once again, this accentuated Aroha's humble, unassuming disposition towards her achievements and abilities, especially within a physical domain.

Aroha rated herself as "above average" but not "excellent" for her academic achievements since attending secondary school. She explained that during Year 9, her strength was that she was "keen to learn and wanted to do well". (Q) Aroha did not rate herself as "excellent" as she recognised that she needed to "be more motivated to do homework" and that "not focusing" had affected her learning (Q). She recognised that her level of fatigue after sports trainings was a factor in her motivation to do homework at night. Maree was another strong influence on Aroha's efforts to achieve academically. As a primary school teacher, Maree reinforced the value of education for her children.

Issues with prioritising schoolwork over sport commitments, and the time management to achieve this balance, was clear cut in Maree's view. Her daughter's commitment to her studies was an absolute. Maree voiced strongly her belief that "education is first. Sports is next, comes second. I guess we put high expectations on them regarding education". (IntSO) Maree expanded on the importance of prioritising school over sport when she stated that the girls had received a consistent message that "if you start lagging behind or you are not keeping up with your schoolwork, you're going to have to drop one of your sports because your education comes first". (IntSO) Maree was aware of the additional stress this focus on education had on Emma and Aroha "with all the training and everything and having to keep up in that sort of way"; however, she believed that by putting their schooling first she had encouraged them to "be a little bit organised and to use their time wisely...for example, if they're waiting at school for a training, to go to the library and get some homework out of the way". (IntSO) To reduce the pressure on their afterschool time, Maree also encouraged Emma and Aroha to listen carefully in class and to complete all work within each lesson.

When she moved from Year 9 to Year 10, these time management strategies helped Aroha to cope with her sporting commitments and increased schoolwork relatively easily. Her ability to motivate herself to do extra schoolwork, however, continued to

be an issue for Aroha. “I’m finding it harder to do homework... and to be like, like wanting to do homework... like just getting home late”. (Int1) She explained that her daily schedule of school and netball training often left her feeling tired at the end of each day. During the netball league representative and tournament season, Aroha’s interest in schoolwork tended to wane further as she spent sometimes six days a week training or playing. Training and playing for three teams a week, often at high intensity, gave Aroha little down-time for other interests and activities. When asked how her commitment to netball impacted on her schooling, Aroha responded that she needed to be organised because, “I think I need to like study more, and make more time, and whatever time I get to do work I think I need to take it. Yeah, do it”. (Int1) Aroha appreciated the support she received from her school in this regard as she noted that due to “heaps of sporting people at this school, [the teachers] know what’s going on so they all understand”. (Int1) Aroha had taken advantage of extra tutorials at lunchtimes, in science and mathematics, (which were available to all students) to counteract her lack of extra effort with homework, during after-school hours. Aroha was not on a sports’ scholarship at her secondary school, so she had considered withdrawing from one of her netball teams in the future to focus more on her studies. “I think I might have to like not do club or school [netball] when I get a little bit older. I think... the schoolwork... will have to be a big priority”. (Int1)

At the end of Year 10, when Aroha reflected on her first two years at secondary school, she commented on her sports trips to Singapore, the value of belonging to the Puna form class, of her difficulties with science and Māori, that she had started to play social basketball, how pleased she was with her end of year exams, and that receiving an award for “Best All Round Junior Girl” had been a surprise. Aroha’s perceptions of her achievements in sport were still hampered by her concerns over her lack of height for netball. However, to overcome this perceived shortfall, Aroha had implemented strategies regarding her fitness, ball skills, speed, court movement and game tactic, which were encouraged and supported by her sister and mum. In her schooling, Aroha was pleased with her progress in mathematics, but continued to struggle with Māori and aspects of science. Aroha’s perception in this domain was that she needed to work harder, to listen more carefully, and to study more for exams. Aroha reflected that her main distraction from studying was, “Just being tired when I come home. I come home



and go to training and I get home quite late and I just can't be bothered. I just go to sleep". (Int2)

#### **4.8 Challenges in Year 11**

Prior to starting Year 11, Aroha commented that she had not competed in the National Secondary School Athletics Championships at the end of Year 10 because she didn't like doing athletics. She had participated in the past because "Mum makes me do it... once the race is over I do enjoy it". (Int2) Aroha expanded this statement further by explaining that she understood why her mum encouraged her to continue with her sprinting events. "She knows that I will enjoy it and that I will do well in it". (Int2) During my research, at the age of 15, Aroha began to question her involvement in some sporting activities, and to negotiate with her parents about her participation. Maree expressed her awareness of the intrinsic pressures on young student athletes when she stated, "I think there's just so much pressure too than to put those expectations on our children. I didn't want to go down that track and have those expectations". (IntSO) Maree's strategy to support and encourage her daughters in their sporting activities changed from someone who "was one of those side-line mums" who would say "Why did you do this? You played a terrible game", to a mum who actively reduced pressure on her talented daughters (by listening to their needs), as she thought "it probably made them more insecure... so I made sure I wasn't going to be that sort of mum". (IntSO) There was no evidence from Aroha's comments that Maree had been "one of those side-line mums" (IntSO), in fact Aroha had the contrary view, stating that "I put my parents first [as the most significant positive influence on her progress and development] because they've always motivated and encouraged me, and always taken me to trainings, and picking me up". (Int1)

During the summer of 2015/2016, Aroha focused on her touch rugby development. She played socially with her family team, trained and played competitively for her school, and trialled, trained and played tournaments for her Auckland representative age group squad. Aroha disclosed that she hoped to eventually play sevens rugby for her school and to gain selection to represent Touch New Zealand for a tournament in Australia, near the end of the season (in March). Aroha explained what happened during one of her Auckland rep tournaments:

*In January, I was training for touch to play for a tournament in March and I played that and then a little later in March I got injured... I tore my ACL and a little bit of my meniscus so I haven't been able to play at a touch rugby training session. (Int3)*

Aroha was amazed that she had injured her knee just by changing direction to chase a player. She had heard a “pop” sound and had been too scared to look at her knee, expecting that her knee cap had been dislocated. After many weeks of limping about and various consultations, a tear of her Anterior Cruciate Ligament (ACL) was confirmed and a surgery date was set for May, 2016. Aroha recalled that she felt much better after her knee surgery apart from her reaction to the anaesthetic and pain relief medication. She understood from her surgeon that part of her hamstring tendon was used to repair her ACL damage while her meniscus had been stitched. To prepare for her surgery, Aroha went to a physiotherapist twice a week for two months to strengthen the muscles that supported her knee, and completed exercises daily to accelerate her recovery. As she waited for her operation date, Aroha thought about her netball future:

*Just like how I'm going to come back after and like how long I'll be out for. I wasn't really thinking about much because I hadn't really started fully playing netball yet because I was on a break but when it came to like watching the games and all that then I was kind of like oh. (Int3)*

Two months post-surgery, Aroha could reflect on her injury and the implications this bump had on her sport aspirations for 2016. She stated that she was relieved to have already completed her school netball trials prior to the injury; however, Aroha had not anticipated the ongoing impact her recovery and rehabilitation would have on her overall health and well-being. As a member of her school Senior A netball team, Aroha continued to attend all games even though she could only sit on the bench and watch. She described her mental state as “pretty good” but qualified this statement with “I'm not that upset. I was pretty upset in the beginning but now I've come to accept it. I think when I come back it's going to be sort of weird and so different”. (Int3) Aroha's feelings of displacement and separation stemmed from her frustration at not being able to train or play netball. She described her feelings in the following way:

*It sucks watching because when you watch you actually see so much and I think I could go for that, I probably couldn't but you see all the*

*stuff that's going wrong and you think oh, you just want to go out there and do it for them, it's frustrating. (Int3)*

When asked how she thought she would cope when her injury had healed, Aroha responded by revealing two main concerns: "Like jumping I'm pretty scared about. Will I be able to jump for a ball or anything, and running? I'm looking forward to it but I'm quite nervous". (Int3) Her fears had been allayed somewhat by receiving assurances from her netball and touch coaches that "there is still a place for you", (Int3) once she had recovered fully. During her recovery period, Aroha had a lot of time to reflect and to plan. She had worked out that her best re-entry to competitive sport was to forego touch in the 2016/17 season so she could reintroduce herself to netball at full strength in 2017. She expressed her uncertainty about this dilemma when she said, "I'll definitely play next year but I haven't really thought about it. I don't think I'll be able to play touch. I don't think Mum will let me play touch again. I might, maybe". (Int3) However, when asked what her goals were for 2017, Aroha persisted with her original aspirations to be selected for her school Premier Netball team, and "one of the Touch NZ teams, and go over to Aussie". (Int3)

Now, Aroha also considered the impact her injury might have on her schooling. As a Year 11 student she had begun her first level of the National Certificate of Educational Achievement (NCEA Level 1), a standards-based national qualification that combined internal and external assessment methodologies. Aroha was required to achieve credits in several subject areas across the curriculum in Year 11 to be eligible to study at level 2 NCEA in Year 12. Aroha's knee surgery in May was perceived by Aroha to be at a crucial time in relation to her first NCEA Level 1 assessments.

*It was a bit hard because when I had the surgery it was a week before exams so I missed out on a whole week of study and all that.... I got work from my teachers but I couldn't study or anything because I was so sick [recovering from anaesthetic and pain-relief medication]. (Int3)*

Aroha was also able to view the timing of her injury in a positive light. She recognised that, due to her surgery occurring before her mid-year exams, she only needed to attend when an exam was scheduled, so she didn't have to do much walking during exam leave. Aroha was dropped off and picked up by her grandmother for each exam. These practical logistics may appear insignificant; however, from Aroha's perspective

they represented an important return to normality. She did not want to be treated differently to other students. While on crutches for many weeks, Aroha insisted on using the stairs, carrying her own bag, and attending all classes. She admitted that her progress from one lesson to the next was relatively slow and that she often arrived late, but her need to overcome her physical incapacity was greater than her need to be punctual. She explained her rationale:

*I didn't really want to be treated like I didn't want to take the elevator cause I had crutches and because I was injured, I just kind of wanted to be treated normally... It was ok if I came a little bit late, they said they didn't mind. Just when I walk up the stairs I just kind of wait a little bit until most people went past... because I was quite slow going up and down stairs. (Int3)*

Aroha also recognised an opportunity to “focus on school a lot more and do study... I don't have nights out at netball anymore”. (Int3) She also reflected that she needed to balance her efforts between rehab and schoolwork better because she liked doing rehab more than schoolwork. Aroha's injury had not impacted detrimentally on her classroom-based subjects such as science, mathematics, English and history, but her inability to participate physically did create another bump for Aroha and her teacher in NCEA Level 1 Physical Education (PE). The practical requirements of her standards-based credits in PE were not achievable while Aroha was recovering from her ACL and meniscus surgery. Aroha explained how her PE teacher helped to overcome this potential obstacle to success:

*The only teacher who really knows [about my injury] and he is my PE teacher and he's really understanding about it and I think cause I miss out on some credits because I can't play. I've trained myself in cross country and that's where I do need credits, but he said just bring in evidence that I played Auckland touch and he gave me the credits. (Int3)*

Aroha had also found another unexpected support person in her mathematics teacher. “My maths teacher knows about it pretty well because he was away for about a month cause he got a knee replacement so he was talking to me about it”. (Int3) Apart from her PE and maths' teachers, Aroha's view was that other teachers knew she was injured but not in detail. Her perception was that the school had not made any provision for her changed level of mobility (on crutches), but that she didn't expect

them to either. Her strategy was to carry on as normal. Aroha did, however, voice her feelings about the challenges she faced specifically during PE practical sessions:

*PE, I like PE but it's pretty sucky because I just watch when they do practical stuff but because we have a weights room with a bike and I just go on the bike but then coming back and seeing them playing.... I think I just want to go out there and run, I think I can go and sprint and just play but then reality, I take a reality check. (Int3)*

When asked what the main impact her injury and surgery had been on her, Aroha's responses were thoughtful and mature. She identified a heightened motivation to do her rehab, reminding herself daily that with every session she would "be able to come back stronger". (Int3) Aroha was aware of her current progress, when her next check-ups were, and what she needed to achieve ("I just need to get it straightened more" (Int3) before she could attempt to run. Aroha understood the process she needed to go through to return to full competition fitness; however, she also had nagging doubts about reinjury:

*I have a specialist appointment at the end of the month and then hopefully I'll be able to run straight lines and then I have tests maybe every month and all that to progress to the team and then jumping. I think I can run but if I were to run I think I might injure it again. (Int3)*

Aroha also noted that her injury had changed her attitude towards training and playing sport. In her final interview, she explained the value of these opportunities, which she had previously, on occasion, taken for granted by saying, "I don't want to go". (Int3) Her realisations now were that she could get injured at any time and never play again, so her attitude had moved to a sense of appreciation and a desire to "just go and do it and work hard and all that". (Int3) Aroha identified a change in her perceptions of herself, as a high performing athlete. She described her new injured state as normal because she had been injured for over six months. She described how at the start being injured felt "weird" but now Aroha thought that being "right" [injury-free] would feel "weird" (Int3). Her change in perceptions of normal may be attributed to her ability to adapt and adjust over time, to a new socio-ecological state or equilibrium (Barab & Roth, 2006). She elaborated further by explaining that "it honestly feels like I haven't played a sport for ages. It's only been about 6 months but it feels like I haven't

played in about a year. So, it will feel weird just running and catching a ball and jumping for a ball". (Int3)

Another impact on Aroha, due to her injury, occurred in her relationships with her sports teams. She was aware that her friendships were still strong "but not as strong as they could be" (Int3) with her school and representative team mates. Aroha attended all training sessions and games for netball and touch, but acknowledged that by not actually playing the games, she was missing out on the on-court or on-field bonding that previously she had been a key part of. She expressed her thoughts about watching instead of playing when she said, "I think that's kind of hard, good kind of disappointing... thinking that could be me but I think I've just accepted it now and just got on with it". (Int3) Aroha's sense of loss extended to her involvement in all levels of sport from March to July 2016. In July 2016 (two months post-surgery), she explained that her team mates knew that she was injured and that she tried to see them and "to see how they're going". (Int3) Aroha also kept regular contact with her netball association and her touch coach, "so I see them all down there. My Auckland touch coach, he was the coach for school as well, was there when I got injured. He did say that he'll leave a spot for me in the team for Auckland [for the 2017 season]". (Int3) Regular contact and assurances of future involvement helped to reassure Aroha that she would be able to return to high level competitive sport as soon as she had recovered fully.

#### **4.9 Next steps**

A return to high level competitive sport was not necessarily a foregone conclusion, from Aroha's perspective. She decided that because she had missed an entire netball season (2016) and expected to miss most of the 2016/2017 touch season, her plans to re-establish her sports would require careful management:

*So touch, I was lucky enough to be able to play at the beginning of this year and I finished off the season but I don't think I'll be able to play the next season cause I'll be able to trial and the tournament will be when I come back. I wouldn't want to play in that. I fully missed out on the netball season so I didn't get involved in reps [for netball]. (Int3)*

Aroha's plan was to keep her current netball and touch goals the same:

*I don't want to push myself so hard, I just want to ease into nicely and then just make the team that I make. If I get opportunities to play I'd take them. I don't want to pressure myself too much". (Int3)*

Her experiences of a debilitating knee injury had engendered a level of fear and nervousness about future trials. She commented that, "it's kind of like a shock to be injured quite badly, I don't really get injured, my ankles or anything". (Int3) Aroha was wary of trialling too early in her rehabilitation as a friend of her sister, Emma, who had also torn her ACL, had trialled early in her rehab and reinjured during the trial. Aroha had developed a pragmatic, positive outlook towards her ongoing involvement in sport. She stated that, "I don't think it [the injury] should affect my goals, it's just going to take a little bit longer to get there. I'm trying to be optimistic about it and being positive". (Int3)

Strategies to continue to take her forward included "just to keep doing rehab. I can water walk and swim, do core work and arm strengthening, and my upper body workouts. Possibly my knees and my legs now that I can progress". (Int3) Aroha had organised a membership at a local gym. She explained that "I'll mainly go to the gym just for my exercises, that the physio gives me to do". (Int3) Her strategies to regain her strength, fitness and confidence were grounded in a perception that she had in some way caused the injury by training, trialling and playing too hard in the previous summer. Aroha expressed this view when she said, "I don't know if I was putting myself under pressure but I think I had high goals". (Int3) Her understanding of her injury was that "it was bound to happen, whether I was playing netball or touch". (Int3) Aroha recalled that she had done a lot during the lead up to her injury, changing from touch to netball and back again, attending multiple trials for netball while also playing and trialling for touch teams. According to Aroha, fatigue was not a factor; however, she did report that "I just think I did a lot during that time, like a lot of trials for netball". (Int3) Information about Aroha's injury was limited to Aroha's impressions and perceptions, as her injury occurred four months after Maree was interviewed. Aroha did, however, acknowledge how helpful her family had been, especially with transport to and from school, while she was on crutches.

While she was injured, Aroha decided to concentrate her focus on her schooling. Mid-way through Year 11, Aroha identified subjects that she was "struggling with a bit"

(Int3) such as biology, Maori and mathematics. She had accessed tutors for these subjects, which had “helped a lot”. (Int3) On reflection, Aroha had decided to choose health instead of history for NCEA Level 2 in 2017. She explained that history had not been what she had expected. She didn’t know what she wanted to do long term, but had been thinking of studying and working in the Health Science area, so credits in health would be more useful.

Aroha’s immediate goal was to be able to run again. “I just think of the day that I will be able to run, that’s the day that I can’t wait for is when I run, I just think of that day...” (Int3) When asked what her plan was for her next NCEA exams, Aroha replied simply, “just studying, start studying now”. (Int3) In response to the question of whether she was looking forward to her next assessments, her reply was equally short, “no, not really”. (Int3) When asked what she would change if she could, Aroha replied, “I think I would change not being injured, I think I’d change that. I’d still like to be a little bit taller but I don’t really mind”. (Int3) Through further discussion about her height, Aroha revealed that she didn’t feel short when she was playing sport, that she felt the same height as everyone else. Only when she saw herself on a video did she realise “I’m quite short”. (Int3) Aroha had come to the realisation that her height was not a defining factor in her ability to excel in sport.

#### **4.10 Narrative summary**

Aroha’s story began by documenting the early life of the second child born to primary school teacher, Maree (New Zealand European ethnicity) and rugby league professional sportsman, Tamati (Māori/Samoan ethnicity). Aroha’s early life was defined by a supportive family culture in which sport and education were highly valued for all three children (Emma, Aroha and Jake). Aroha was provided with many opportunities to experience a range of physical activities and to play competitive sport from a young age (seven years old). She enjoyed being active and involved, and aspired to achieve in netball or touch rugby, what her dad had achieved in his sport of rugby league; professional status, national and international recognition, and an ongoing commitment and dedication to coaching and mentoring future players. Aroha’s development, specifically in netball and touch rugby, emerged out of a broad base of physical activities and sports, which included cross country, swimming, soccer, dance, cricket, softball, netball, track running, and touch rugby. During her primary school



foundation years, Aroha experienced some difficulties with aspects of her schooling. After-school tuition and extra help from her school teacher mum (Maree) helped Aroha to improve her mathematics, spelling and French. At intermediate school, Aroha displayed a strong aptitude for netball, initially as a shooter or defence player. She began to play netball at club level and to trial for representative teams. Aroha's performances were acknowledged by age-group accolades. She began to enjoy netball and to set long term aspirational goals in her team sport of choice. Now, Aroha could manage her school/sport balance well as her schoolwork was not particularly demanding; however, her sport commitments during Years 7 and 8 had increased substantially from previous years.

At secondary school, Aroha's interest in touch rugby was supported by her mum and dad, older sister and younger brother, as they all played in a weekly social mixed league competition. Aroha attended national development camps for touch and as a young teen, was monitored as a future New Zealand player. Aroha often felt anxious when playing touch as she worried about making mistakes and felt self-conscious about being watched while she played. This was not the case with netball. Aroha's main concern in netball was her lack of height. She had stopped growing taller at secondary school, which affected her playing position in netball. Aroha experienced a major challenge to her progress in sport at the beginning of Year 11 when she injured her ACL during a touch rugby game. Aroha was unable to train or play for nearly six months.

While at secondary school, Aroha had the opportunity to develop and understand her Māori ethnicity by taking Māori as a subject, and through her participation in a Puna (Year 9 – 13 Māori students) form class. To sustain her academic progress at secondary school, Aroha attended extra tutorials at lunchtimes and after school. By reflecting on her achievements in sport and her progress in academic study, Aroha decided that she needed to concentrate more on her schoolwork during Year 11, to achieve her best results in Level 1 NCEA internal assessments and examinations. Her knee injury had provided an opportunity for Aroha to review and reassess her priorities, in sport and at school.

## 4.11 Interpretation

Within this individual case study narrative, it was important to consider the complexity of factors and influences acting on Aroha. These factors and influences emerged as multilayered and multidimensional, requiring Aroha to adapt her systems (in this case, multiple social networks) in response to being acted upon by other interconnected, interrelated and interdependent systems, while also acting on these related systems herself. As stated previously, within a complexivist philosophy, the objects of study are commonly modelled as a system of interacting entities in which the system is perpetually constructing its own future as continuity and transformation (Stacey, 2001, cited in Ovens et al, 2013).

### 4.11.1 A complexivist view

To gain an understanding of Aroha from a complexivist posthumanistic perspective, one view is to consider that Aroha is only defined by the system she is part of (general systems theory, Ashby, 1956; von Bertalanffy, 1972) and therefore has no independent identity. Another view is to say that she is an entity that can enter and exit a system (DeLanda, 2006; Deleuze & Guattari 1980), subsequently adding qualities or removing them from that assemblage. The latter view suggests that Aroha's complex system territorialises (forms relationships with or connects to) forms of content (material forms), such as human and nonhuman bodies, actions and reactions, and forms of expression such as incorporeal enunciations, acts and statements (Deleuze & Guattari, 1980). An assemblage view of Aroha's experiences means that her system does not remain static, characterised instead by processes of deterritorialisation and reterritorialisation (with components exiting and entering the assemblage), with new connections (relationships) forged, constituting new assemblages (see Chapter 2).

A further interpretation of Aroha's assemblage could be gleaned from Kineman's (2007) concept of relationality in which relationships with other elements require relational information to cross the subject-object boundary and are not solid, so the system is constantly forming and reforming, rather than being fixed and stable. As a complexivist tool, relationality is helpful to explore the flow of information within, between and across multiple layers of Aroha's complex world of experiences. Figure 3 (enlarged in Appendix I) is a representation of Aroha's system or assemblage as interpreted from collected data. The purpose of an assemblage map is to highlight the



community and educational policy makers, as well as many other external forces and influences (top down and bottom up) including sport administrators, sport policy makers, officials, selectors, national and international sporting bodies, sports equipment, venues, weather conditions, regulations, rules, standards, etc. This entity hints at the potentiality of influences acting upon Aroha and the unpredictability of outcomes that could emerge in response to actions taken at various levels. Consequently, emergent behaviours and meanings had a concurrent effect on the Aroha and others to which she was directly and indirectly connected.

As stated in Chapter 2, complex systems tend to display features of multiple dimensions that are highly-patterned and ordered features while simultaneously being surprising and unpredictable (Morrison, 2008). In social systems “interactions between the components result in new properties of the system that cannot be found in the qualities of the components” (Fuchs, 2003, p.863). The emergence of order in a self-organising system includes bottom-up emergence (a perturbation that causes the system’s parts to interact in such a way that a new quality emerges) and downward causation (the new emergent qualities enable and constrain the behaviour of the system’s parts). Fuchs termed this process “top-down emergence” if new qualities of certain parts (seen as systems themselves) are evident. Mason (2008) supported this view by stating that complexity generally exists in situations in which many agents are connected and interacting together in dynamic ways. In my role as researcher-interpreter, I approached the task of creating meaning from the collected and analysed data by considering the influences acting on, within and across Aroha’s schooling and sporting fields, exploring the meanings and perceptions Aroha attached to her experiences as a secondary school student-athlete, and investigating the challenges and issues she encountered (termed “disabling factors”) in her quest to achieve aspirational goals.

#### **4.11.2 Influences**

This case study revealed emergent meanings pertaining to Aroha as a young female student-athlete in New Zealand. Her story was unique and individual. Interpreted data from Aroha and her nominated significant other (her school teacher mum, Maree) indicated that Aroha operated within and across her dynamical systems in a constructive and productive manner. She demonstrated behaviours and attributes that

were highly valued in her sport and education communities: adaptability, resilience, dedication, and creative and innovative problem-solving strategies (Bourdieu, 1985; 1986). Aroha learned to sustain her sporting attainment and educational achievement from her ongoing participation in these contexts. As a complex system herself, Aroha embodied her history and performed in a way that demonstrated her competence at being a member of her school and sport communities. Aroha was part of several strong support structures or systems (see Figure 3, p.158) in her family life, at school, and as a valued member of her sporting communities. The importance of Aroha's family on her participation, progress and achievements in sport and at school was evident from the collected data.

Aroha's parents provided the inspiration, aspirations, and opportunities for Aroha to experience high-performance sport situations, and educational tutoring, to sustain her abilities in both domains. For example, Aroha's dad, Tamati, provided a positive role-model as a retired professional rugby league player and current NFL coach. His dedication and consistency of approach and effort influenced Aroha's attitude towards high-performance sport. She expressed a desire to be like her dad:

*It's really inspiring. I want to be like him when I'm older. Like do what he does, and to just like play the sport I love and also like coach and always be involved in it. (Int1)*

From an educational perspective, Maree's careful monitoring of Aroha's progress provided another strong support structure. Aroha commented that "I think I was pretty good because my mum is a teacher. She would always like read with me". (Int1) When Aroha experienced difficulties with mathematics and spelling at primary school, additional tutoring was organised for her after school. When she struggled with her maths and science at secondary school, Aroha accessed additional tutoring during lunchtimes.

Another positive influence on Aroha was her older sibling, Emma, who took on the role of mentor and coach when Aroha displayed greater talent in netball and touch rugby than her. Emma became Aroha's main supporter, accompanying her to trainings and games, and advising her on tactics and strategies. Another influence on Aroha from a family perspective was an underlying expectation that she would excel in sport, as she "was like her dad" (IntSO). Aroha acknowledged her admiration for her father's

accomplishments in sport on many occasions, and aspired to emulate his achievements as a player and his commitment as a coach.

The influence of parents and siblings as documented by Côté, (1999, cited in Harwood & Knight, 2009) identified four stages of participation for parents of physically talented youth: sampling, specialising, investment, and recreation. Côté proposed that families played a central role in the athlete's development in the sampling years (Aroha's primary schooling) when family time was devoted to several activities, but much time was devoted to sport. This was the case, as reported by Maree and Aroha, regarding Aroha's early childhood experiences. Wolfenden and Holt (2005) confirmed that during this stage parents had to be highly committed to their child's sport, displayed through altered family routines as well as emotional and financial support. During the specialising stage, which occurred for Aroha during Years 7 and 8 (at intermediate school), sport-specific skills developed through practice, with a reduction in deliberate play (Côté & Hay, 2002). Aroha's parents encouraged her participation in school and club competitions, and supported her attempts to trial for representative teams. In this regard, Wolfenden and Holt (2005) identified an increased time commitment by parents such that other opportunities were sacrificed for the child's sport. Maree reported that their typical week involved transporting all three children to and from multiple sports practices, games or events, which she noted, would not be possible without help from her live-in mum.

The parents' role as nurturer and provider of moral and socio-emotional support was also emphasised during the specialisation stage of talent development. Côté & Hay (2002) identified the specialisation stage where the child pursues the aim of reaching an elite level in their chosen sport. At this stage, the parents' actual requirements may begin to decrease as coaches play a larger role. Aroha's data suggested that this specialisation stage occurred during Years 9 and 10, during her first two years at secondary school, as she increased the intensity of her commitment to netball and touch rugby by choosing to increase her deliberate practice (fitness routines, additional training with Emma and Tamati, netball talks with Maree). The parents' levels of support and interest in their child-athlete during this investment stage may result in them displaying different treatment towards their other children (Durand-Bush et al., 2004). The emergent meanings from an interpretation of Maree's data was

that Aroha was perceived as the talented sportswoman in their family while Aroha's older sister, Emma, and younger brother, Jake, had not displayed the same aptitude for high-performance sport.

Another influencing layer on Aroha's attainment in sport and sustained educational progress was her position in the family as the middle child of three children. Aroha spent much of her childhood keeping up, catching up and eventually competing with her older sister, Emma. From an early age, Aroha was under some pressure to pursue the same sports as Emma, as logistically, it was easier to transport the girls together. Interestingly, Aroha's younger brother of four years did not feature in the recorded data, apart from occasional comments by Maree. Sibling rivalry was not evident in Aroha's case study. To the contrary, the relationship between the sisters was reported as a strong, supportive friendship with both girls enjoying the company of the other.

At school, Aroha experienced some educational issues when she started preschool in France. On returning to New Zealand, Maree provided extra help at home and organised after-school tutoring to address Aroha's difficulties in spelling and mathematics. The socio-economic status of Aroha's parents enabled them to provide additional support to meet Aroha's learning needs. Barab et al., (1999) proposed that an autocatakinetic process starts where the system, drawing on available resources, develops a self-sustaining exchange with the environment. Later work by Barab and Roth (2006) argued that "life-world expansion, as the ultimate trajectory of learning, involves engaging in sets of experiences that have overlapping core components (multilayered) such that individuals build up "effectivity sets" (p.11) that span multiple affordance networks—potentially evolving into new ways of interacting with the world. The emergent outcomes for Aroha and the environment with which she was interacting (educational support) may be viewed as a process of creating beneficial relationships and connections within, between and across all entities involved.

Barab et al. (1999) elaborated further by saying that conditions in the environment needed to provide enabling constraints (affordances) that limit what the system can do, preventing it from being overwhelmed, but at the same time, offering openness to possibilities that the complex system can take advantage of. In Aroha's situation, her parents recognised Aroha's educational needs and acted to provide additional support.

This action had a long term beneficial effect as when Aroha experienced difficulties with some of her subjects at secondary school, she initiated access to additional tutoring at lunchtimes to sustain her academic progress. From another perspective, Aroha could access resources, information and extra support due to her Māori ethnicity. As a member of the Puna form class, Aroha could match her individual skills and needs (effectivities) with regions of functional significance (affordances) and an intention to act (Barab & Roth, 2006; Gibson, 1986), to develop her Māori language, knowledge and culture. Aroha could access resources from a range of environmental sources by dynamically actualising affordances through her behaviours and decisions. Aroha's process of knowing (Barab & Roth, 2006), enabled her to couple her effectivity sets (reciprocal skills) and affordance networks to achieve her goals in her educational and sporting environments.

In sport, the complexity of Aroha's support structures both enabled and disabled her progress and development in athletics, netball and touch rugby. Aroha's development as a talented athlete was evident during her intermediate school years when she began to play for multiple teams, to compete nationally in athletics (sprint events), and to gain selection at regional level and for national development camps. Throughout secondary school, Aroha sustained her involvement in athletics, netball and touch rugby, and took part in overseas sports trips with her school. Ovens et al. (2013) suggested that information flow within, across and between complex systems act to dampen, cancel or provide feedback. Aroha, as the centre of her complex system and while engaging in various sports, was able to afford different information, opportunities and resources. In consultation with her parents and her sister, Aroha often made decisions and enacted a strategy or plan to meet her needs (effectivity sets), and to progress towards achieving her goals. In netball, her main aspiration was to become a Silver Fern. Aroha did not express similar aspirations in touch rugby or athletics, as she had identified constraints on her performance level in these codes.

For example, Aroha's development in netball was rapid during Years 7 and 8 (intermediate school), which enabled her skills and game play to promote her quickly towards a representative level of performance. During her investment development period (Côté & Hay, 2002; Wolfenden & Holt, 2005) in Years 9 and 10, Aroha transferred her earlier experiences and learning in netball to achieve recognition as an



outstanding mid-court player in her age group, at school, club and inter-school overseas tournaments. In touch rugby, Aroha's talent development was similar to her pathway in netball; however, during the investment stage (notably in Year 9), Aroha was selected for a New Zealand development camp, which helped her overcome her apprehension and anxiety about touch rugby. Previously, Aroha's fear of making mistakes and her concern about being watched acted as disabling influences on her performances. It was not clear where Aroha's fear of failing in touch rugby stemmed from or why she was particularly nervous in this specific context. However, after the New Zealand touch rugby development camp, Aroha expressed a strong desire to represent New Zealand in touch or sevens, and to follow her dad's example as a professional player and coach. Aroha's perceived and actual success in this sporting event boosted her self-esteem and confidence. In this context, Aroha was self-organising her system in a dynamic, unpredictable and enabling manner. The anomaly here was Aroha's involvement in athletics.

At the end of Year 10 (aged 15), Aroha decided not to compete at the North Island secondary school athletic championships. She described her angst at competing without sufficient training and although she had previously run well, she was uncomfortable with the pressure she experienced from her mum and her school. Aroha's resistance to compete in athletics could be interpreted as a lack of match with the activity; that is, the affordances available through the athletic championships did not reciprocate her effectivities (needs), which reduced her intention to act (in this case participate).

Another possible explanation could be attributed to Aroha's increased confidence, autonomy, and awareness of her identity as a teenager who could now affect more beneficial outcomes from the decisions and choices she made. Alternatively, Aroha may have been unwilling to cooperate with her school and her mum's wishes based on her previous experiences of this event, which had induced a state of anxiety. The emergent behaviour was that Aroha did not participate at the athletic championships that year. Instead, she focused her attention and efforts on touch rugby training and trials, and on her preparations for the next netball season. Aroha continued to participate in netball and touch rugby at a representative level until she sustained a serious knee injury at the beginning of Year 11, aged fifteen.

#### 4.11.3 Meanings and perceptions

The time frame of Aroha's case study (Years 9-11) represented a critical transition period in her secondary education in New Zealand, from non-external examination schoolwork (Years 9 and 10) to national qualification preparation and assessment (Years 11-13) in Levels 1-3 National Certificate of Achievement (NCEA), the International Baccalaureate (IB), or Cambridge Examinations. However, Aroha indicated that although her school workload increased over the case study time frame, her skills in managing her time and addressing aspects of her studies she wanted to improve (science, mathematics, Māori) became easier. She attributed this change to a more focused approach towards her schoolwork, particularly in Year 11 when, due to her knee injury, she did not participate in sport for six months. This gave Aroha the opportunity to reflect and to reprioritise.

During her schooling in France and in New Zealand, Aroha experienced constraints on her development and achievements. Aroha's preschool was French speaking, she was home-schooled in English for a year, and then progressed through to Year 6 at her local Primary school in Auckland. Aroha's move to a Catholic intermediate school for Years 7 and 8 imposed constraints on her involvement in sport at school, but provided her with new opportunities in after-school activities, specifically in athletics, netball and touch rugby. Throughout this educational process, Aroha needed to adapt to different cultural norms, language, expectations, facilities and focus. Many of the decisions about Aroha's educational experiences were made by her parents, by their choice of schools, but also by their exhibited attitudes and role modelling of the value of schoolwork. The importance Maree and Tamati placed on education had a powerful impact on Aroha; however, as Aroha became more immersed in her sporting commitments (from Year 7-11), questions arose about the effect that Aroha's sports focus was having on her social, emotional and interpersonal development. From Year 7 to Year 11, training and playing were Aroha's main leisure/spare time activities, often to the exclusion of other relationships and social experiences. Aroha acknowledged that she didn't want to participate in sleepovers with her friends at intermediate school, and spending time with her sister was her preferred downtime whilst at secondary school. Aroha did not appear to have close friends at school, except for

those with whom she played sport. Her relationships with her teammates and her coaches, however, seemed to be strong, congenial, and enduring.

In the context of her sporting and schooling domains, Aroha experienced what Kineman (2007) described as “relationality”, “an ebb and flow of information between, across and within multiple systems” (p.2347), that is, elements can connect, exchange information with and influence others they form relationships with. For the purposes of this study, Aroha’s system included her sporting, schooling, and family experiences. During the two-year research project, Aroha experienced what Winker and Delége (2011) termed “intersectionality”, that is, a multilayered world view in which multiple points intersect (Aroha’s identity, sense of self in various teams, school subjects, social situations) and emphasise the interwoven nature of the micro, meso and macro categories, to mutually strengthen and weaken each other (Crenshaw, 1989). Winker and Delége (2011) proposed that social practice is linked through categories of difference (gender, ethnicity, socio-economic status, values and beliefs), interaction, interrelatedness and interdependence at all levels (micro, meso and macro). The notion of an intersectional, multilevel analysis considers reciprocal effects between the various levels and multilayering of a complex system. This means that through data analysis and interpretation, meanings and understandings emerged; however, they were unpredictable, diverse, open, non-linear, connected, recursive, self-organising and part of a dynamical system (Santonus, 1998).

One such system that Aroha was intimately connected to, interacted with, and was impacted by, was the complex system of her family and whanau (extended family). Tamati (Aroha’s dad) was a role model, motivator, inspiration, and the bench mark for Aroha’s achievements, particularly in sport. Maree’s role focused on organising, nurturing, providing academic support, and advising Aroha, especially in netball. Both parents were aware of the need for enjoyment to sustain effort and involvement in sport and physical activity. Their personal experiences tempered their approach to how often their children participated in sport. Tamati monitored the children’s activity levels and, at times, excluded one or all three from sport if he deemed this the best action to maintain their interest and enjoyment. Fatigue was reported as the reason for reducing or missing training, a tournament or an event.

Aroha's adoration and respect for her parents made it difficult for her to assert herself as she moved through the investment years (Years 9-11) of talent development (Côté & Hay, 2002; Wolfenden & Holt, 2005). However, the strong bond she developed with her older sister enabled Aroha to discuss options and alternatives, to consider her next developmental steps, and to implement self-improvement programmes to counteract her perceived shortfalls; her height in netball and her anxieties about touch rugby. Although not mentioned by Aroha, Maree acknowledged the contribution her live-in mother had on how the family functioned with so many sports commitments. Maree relied on her mother to help with transport to and from various trainings and games, and appreciated her mother's help in the home. As a full-time teacher, Maree was also under stress to prepare her lessons, mark schoolwork, and to complete other school-related administration tasks. She noted that, at times, she forgot to check on homework, and hoped that her three children had completed what was set. At such times, Maree conceded that the family's commitment to and involvement in sport created challenges in other areas of their lives. Aroha highlighted that as a family "we don't do much with our Māori/Samoan side. Not as much as we should" (Int3). Aroha was aware that sport was the focus of her family life, to the possible detriment of other activities and social events. She regarded her family's passion for sport as positive, beneficial and inspiring.

Gintis (2016) suggested that entanglements (a state in which human social life flows from social games within a society, which is itself a game with rules) are socially constructed, produce behaviours that are socially rational, and create social games that are played with a moral sense due to socially constructed rules. Sport may be viewed in this context as it provides a strong sense to play within the rules, while also striving to beat the opponent or opponents. Within the realm of sport, ethical considerations regulate acceptable behaviours, whether an official is imposing the consensual rules of the game or not. In Aroha's family dynamic, agreed understandings about sport existed as part of the fabric of their everyday life. As a sporting family, all the overt and subtle nuances of sport defined who they were as individuals, as a family system, and as a social phenomenon. Giddens (1994) proposed that viewing social phenomena as interconnected, unpredictable and inconsistent was not new. Open-ended evolutionary and performative interplay of human and non-human agency,

termed a “mangle” by Pickering (1993), was a valid tool to gain meaning from complex emergent systems. Within Aroha’s individual case study, her family represented a complex system that was dynamic and unpredictable, but also stable and ordered. Access to resources, information, opportunities and feedback via connections with her family enabled Aroha to adapt and self-organise her complex system (everyday experiences) and to implement actions to achieve her aspirations, in sport and in education. System events such as sports trips, career visits to another school, and prizegiving ceremonies afforded Aroha feedback, and both intrinsic and extrinsic rewards for her efforts and choices.

The Deleuzean “Line of Flight” (Deleuze & Guattari, 1987), interpreted by Massumi (1987) as an act of “fleeing or eluding” or possibly “flowing, leaking and disappearing” (p.17) was not evident in Aroha’s case study. To the contrary, Aroha presented as a quietly spoken, cooperative, conciliatory young woman who was compliant to the wishes of her family and school. Maree, however, described Aroha as feisty and able to express her thoughts and opinions effectively. This was not evident through the collected data, but Aroha did assert herself at the end of Year 10 by not competing for her school at the North Island secondary school athletic championships, and in Year 11 she decided to study biology instead of history as she wanted to study Health Sciences in the future. Aroha’s ACL injury during a touch game at the beginning of Year 11, and her subsequent abstinence from all physical activity for six months enabled her to reflect on her school/sport balance and to reprioritise her effort and focus, in sport, and at school.

A system event such as a serious injury has the potential to throw a complex system into chaos, disassociation, and instability (Mason, 2008). Aroha experienced a sense of disbelief and disorientation when her knee was diagnosed with an ACL tear and her recovery time was estimated at six months. She was in a distraught state for a week or two and then employed several strategies to reorganise her system, to manage her daily life. Aroha was transported to and from school by her grandmother, she moved about school on crutches and communicated with her teachers regarding the time she needed to get from one class to the next. Aroha attended all trainings and games for her sports teams and while she found this frustrating and emotionally challenging, Aroha could recognise the benefits of being in an observer role. Aroha’s system had to

self-organise and reorder itself. She had to adapt to a different mode of moving and to her incapacity as a sportswoman, which gradually over time, she could achieve.

Aroha's injury had implications for her NCEA assessments (in Physical Education), netball team selections, and future representation in touch rugby or sevens. Byrne (2005) and Cilliers (1998) agreed that the relationships between multiple elements give rise to emergent qualities that cannot be reduced to the sum of their constituent parts, or to a central agent responsible for overall control of the system. Aroha's injury impacted on the organisation and functioning of her complex system, but also on the systems of multiple others; members of her family, school friends, teachers, school management team, sport teammates, sport coaches, selectors, sporting bodies, etc. The emergent behaviours Aroha exhibited in response to this unexpected trauma to her system (her injury) could be viewed as adaptive, non-linear, self-organising actions. Late in her rehabilitation period, Aroha noted that her injured state had become her new norm as she had adapted fully to her non-active state. The thought of jumping and catching a ball seemed alien and unfamiliar. Aroha had adjusted fully to her state of being injured and now had to consider how she would reorganise her system to incorporate a physically active lifestyle again. This adjustment was not merely physical, but also mental, emotional and spiritual. Aroha's one ambition was to be able to run again. Her sense of self had changed during the months she had been injured. While she had been part of the trainings and games (as an injured player), she had also experienced being apart from the players, team and coach, as she was not in the activities or games in the same way.

It may be useful at this point to consider Gagné's (2003) interpersonal catalysts in relation to the self-organising aspect of complex systems. Gagné proposed that interpersonal catalysts such as physical motivation, volition, self-management and personality, in combination with environmental catalysts could assist an individual to find a new equilibrium. Environmental catalysts including milieu, other people, provisions and events, emerged in their complex system, from what could be regarded as the edge of chaos (a transition space between order and disorder, which exists within a wide variety of systems) (Pascale, 1999). Gagné (2003) offered a catalyst of chance, a notion linked to natural abilities where connections between chance and interpersonal factors and between chance and the environment, enabled an individual

to access certain people and provisions (resources), to have a positive or negative effect on their lives (agency), and to ascertain the suitability of the chosen field to develop skills (Barab & Roth's affordance networks, 2006). Aroha's adaptability and willingness to self-organise during Year 11 could be interpreted as becoming – the ability to carve out space rather than occupy the space created by a higher or pre-given ordering principle or process (Deleuze & Guattari, 1987).

During Aroha's foundation, practice and specialisation athlete developmental stages (Côté & Hay, 2002), Maree and Tamati influenced her sport choices, educational progress, emphasis on Māori, and other opportunities they regarded as beneficial. Collected data indicated that Maree had a strong intuitive bond with her children, especially with Emma and Aroha. She reported knowing their needs, being able to anticipate what was required, and to then provide. This mother-daughter relationship (connection) was further enhanced by regular netball chats, and Maree's ongoing involvement as a social club netball player at the same netball venue. Tamati's influence appeared to be less direct; however, he expected the children to learn Māori, which Maree supported and encouraged. Cultural institutions such as Te Reo Māori, the Puna form class, Kapa Haka group, and additional lunchtime tutoring afforded Aroha many opportunities to fulfil her parents' wishes and expectations in relation to Māori culture. Aroha's secondary school was proactive in this regard, providing culturally based programmes and activities to develop and promote Aotearoa New Zealand's indigenous heritage. The focus on high-performance sport through sports academies and exert coaching, and an acknowledgement and practice of bicultural perspectives, were two reasons stated by Maree for choosing this secondary school for Aroha and her sister.

As a talented female student-athlete, Aroha was under some pressure to perform and to excel in athletics, netball and touch rugby. Aroha was nominated for this research project based on her attainment at regional and national development levels. Aroha met the research criteria and in so doing, confirmed and acknowledged her identity as a talented young athlete. While the term talent is difficult to define (refer to Chapter 2), Aroha's Mum considered a talented sportsperson as "someone who stands out a little bit above the rest; it may be their speed, or their skills, or the way they play the game" (IntSO).

Maree expanded her view by stating that, “I think it’s the whole package, having the athletic skill, being a team player, wanting to learn and develop further” (IntSO). Maree regarded Aroha as a talented young sportswoman as she was self-motivated, worked on her fitness on her own, enjoyed her sports, and had everything there to be a professional sportsperson. The unknown factor in Maree’s view was whether Aroha’s talent “would be picked up or not”. (IntSO) Another view of talent, as expounded by Brown (2002), focused on “more than a special natural ability, capacity for achievement or success” (p.3), and viewed talent as one dimensional and multidimensional (performing at a high standard in many sports or activities). Factors that could undermine Aroha’s ability to sustain high level performances, particularly in sport, are discussed in the next section.

#### **4.11.4 Factors influencing tension**

Two key issues, with the potential to derail Aroha’s long term aspirations in netball and touch rugby (or sevens), emerged from an interpretation of collected data. The issues of management and motivation unfolded as possible influences of tension. As a secondary school student, Aroha was expected (by her school, teachers, family and herself) to sustain a satisfactory level of attainment in her academic studies, from Year 9-13. As a talented athlete, Aroha was expected (by her sport associations, coaches, school, friends, family and herself) to continue to train and compete in high-performance sport, achieving incremental steps towards her sporting goals. The issue of management focused on achieving a balance between school commitments and deadlines, and sporting demands. Aroha’s weekly and often daily dilemma centred on completing schoolwork before attending the next training session, and whether she would have enough time to study if she had a weekend tournament or an away fixture.

The multiplicity of Aroha’s sports engendered training and games for up to three netball teams a week, athletics competitions from December to March (with minimal training), alongside rugby or touch trainings and games from September to April. The cross over between sports, summer sports (athletics and touch) with winter sports (netball and sevens) meant that at critical times of the sporting year, Aroha was involved in both, one in full competition mode and the other in preparation and trial mode. It was a cross-over scenario between sport seasons that Aroha identified as a factor in her knee injury.



*I think I did a lot during that period of time like the changing between touch and netball a lot happened. There was a lot of touch going on and the netball trials were coming up and just... I think the different sports just... (Int3).*

Aroha reflected that “it was bound to happen whether I was playing netball or touch... I don't know I just think I did a lot during that time like a lot of trials for netball”. (Int3)

The management of Aroha’s time was influenced by her access to transport, especially for her sporting commitments, which drew in other members of her family to help meet this need. During Year 10, Aroha’s older sister, Emma, drove her to representative trainings and games, as her mentor and number one supporter. This relieved pressure from Maree who was also organising younger brother Jake’s sporting commitments. In Year 11, however, when Aroha was injured and unable to play, her grandmother met her initial transport needs, especially to school. From a complexity perspective, practical management issues emerged from the factors that influenced the time Aroha had to fulfil her sporting and schooling commitments (multiple team trainings, games and tournaments), the availability of resources she could access (transport, equipment, food and support), and whether she had the information she needed (homework tasks, assessment deadlines, lesson notes, sports fixtures, costs, time out of school) to satisfactorily meet all expectations. The impact of these multilayered influences and factors had the potential to affect Aroha’s overall health and well-being.

Motivation as a possible area of tension was another emergent issue from an interpretation of collected data. Aroha indicated that finding the motivation to complete her schoolwork was one of her greatest challenges as a student-athlete. She listened to Maree’s advice about going to the library when she had to wait at school for her netball trainings, but conceded that completing her schoolwork before training was not her top priority. When Aroha left her homework to late in the evening, she often reported to be too tired as she may have already had two training sessions (school and representative) or a training and a game (school and club). On the weekends, Aroha spent every Saturday at netball to play school games in the morning and club games in the afternoon. As she progressed through the grades, Aroha was expected to play in an evening league for her school, and against adult women for her club netball team.

Aroha's motivation in netball was strong and enduring for the duration of this research project; however, her motivation for athletics and touch rugby were variable. Aroha exhibited a high level of anxiety and eventually resistance to competing in sprint events for her school at interschool, interzone, Champ of Champ and North Island championship levels. Aroha's refusal to compete in the North Island secondary school championships at the end of Year 10 (aged 15) highlighted a turning point in her willingness to concede to the wishes of others in her complex system. In touch rugby, Aroha competed at times under duress, as she often experienced apprehension and worry about her performance level, and physical visibility. She documented a similar response to participating in Kapa Haka. Maree was aware of both Aroha's and Emma's feelings about performing on stage in front of their peers; however, these experiences were regarded as important to embrace their Māoritanga in full. Aroha took responsibility for a decision she made which resulted in her knee injury in Year 11:

*Well what I did on the day of my injury it was a tournament and I could either play that tournament or do Kapa Haka and I chose to go to the tournament so yeah if I chose Kapa Haka I could have had longer to play... I don't like just performing in front of people and talking in front of people. It's not my thing. (Int3)*

All aspects of netball participation and involvement were positive motivators for Aroha. She confidently stated that netball was her favourite sport. Two months after her knee surgery while Aroha was working on her rehabilitation, she reflected on her priorities. "I prioritise my rehab over schoolwork and I think I need to balance it a bit more. But I just like doing rehab more than schoolwork". (Int3) Aroha acknowledged that since she was no longer playing netball in the evenings, she had no excuse to not complete her homework or to commit to her studies, except that she often lacked motivation. "Yeah I got to focus on school a lot more and do study and all that... I want to learn Maori but I don't particularly enjoy the subject, but I think it will be good for me at Uni and all that". (Int3) Aroha, as a talented female student-athlete, simply wanted to play sport and to play as a professional like her Dad. She understood the need to apply herself to her schoolwork, but her heart was always in her sport, and her head in the next game. Aroha's absence from sport during Year 11 gave her an unexpected opportunity to reassess her options and future directions in sport and

education. She experienced first-hand the impact injury can have on a young sportswoman's pursuit of aspirational goals, both short and long term.

To conclude Aroha's story, a summary of the key interpreted themes, relative specifically to interconnecting influences and factors causing tension, are presented in Figure 5. The purpose of the schematic figure is to increase clarity and understanding by reducing some data into chunks, without losing the integrity and impact of the data (Huberman & Miles, 1994).

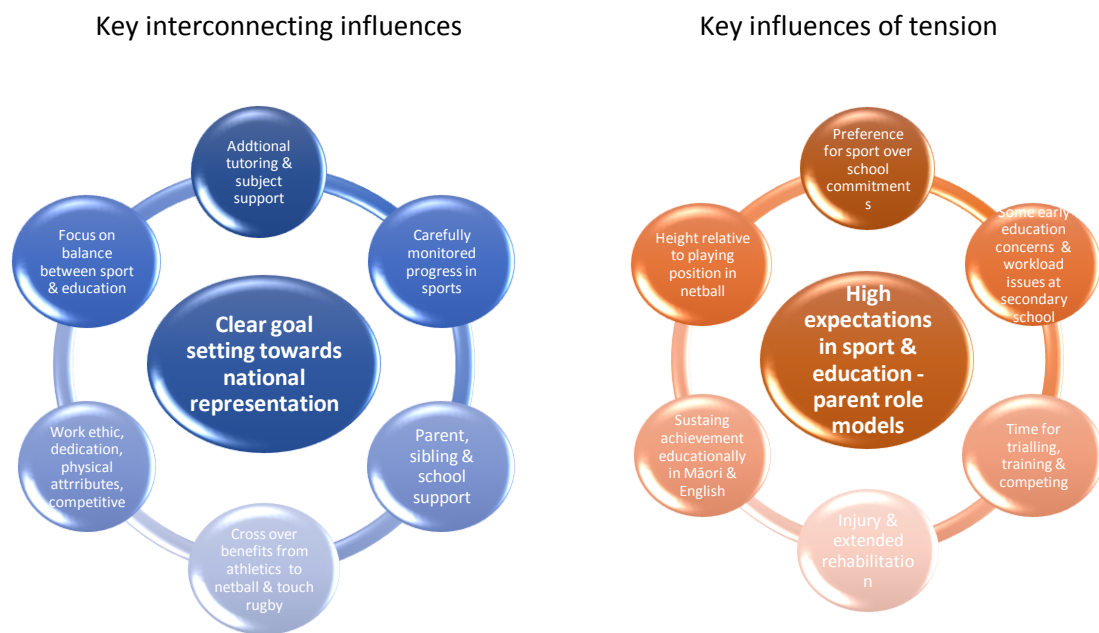


Figure 5. Summary of perceived interconnections and influences of tension – Aroha's case study.

#### 4.11.5 Interpretation summary

To gain an understanding of Aroha from a complexivist posthumanistic perspective, factors and influences that were multilayered and multidimensional, were explored. In response to being acted upon by other interconnected, interrelated and interdependent systems while also acting on these related systems herself, Aroha was required to adapt her complex systems to accommodate changes and developments within, between and across her family, sporting and education domains. Outcomes from the reorganisation of Aroha's systems, often in response to changing conditions, events and influences, emerged as mainly beneficial (team selections, overseas trips, awards, academic support), goal orientated, and intrinsically rewarding. Outcomes

that proved to be challenging for Aroha (aspects of her schoolwork, concerns relating to her physical attributes, and significant injury) forced her to access new information and resources. Aroha's system reconfiguration was significant during her ACL rehabilitation as she transitioned from a high-performance athlete to a spectator, and back again.

An interpretation of Aroha's everyday life experiences was based on DeLanda (2006) and Deleuze and Guattari's (1980) investigations of assemblages, in particular the strength of ties within, between and across her interconnected, multilayered systems. Key influences included Aroha's immediate family, specifically her parents and older sister, her close relationships with her netball and touch rugby coaches and team members, and her strong sense of belonging at school due to her inclusion in the Puna (Māori) form class. Aroha's parents were instrumental in her achievements in a number of ways. They provided positive role models, consistent boundaries and values, and a high level of support on many fronts, physical, emotional, intellectual, spiritual and social. Their influence and impact on Aroha was interpreted as being significant within the bounds of this research project. Other key influences that emerged from interpretation of the collected data were goal setting, work ethic, mental fortitude, adaptability, sociability, self-determination, and a commitment to excel in sport.

Complexitivist tools that were useful to gain insights and understandings included entanglements (Gintis, 2016), mangles (Pickering, 1993), lines of flight and becoming (Deleuze & Guattari, 1987), system instability and chaos (Mason, 2008), and Byrne's (2005) notion that the relationships between multiple elements give rise to emergent qualities that cannot be reduced to the sum of their constituent parts. Gagne's (2003) interpersonal catalysts, which enabled an individual (Aroha) to access certain people and provisions (resources), to have a positive or negative effect on their lives (agency), and to ascertain the suitability of the chosen field to develop skills (Barab & Roth's affordance networks, 2006), were also helpful as interpretative tools. Aspects of Aroha's daily life that caused difficulties and stress were interpreted against the theoretical frame of Côté and Hay's (2002) developmental stages, Kineman's (2007) relationality and Winker and Delége's (2011) intersectionality (see 4.11.3 meanings and perceptions).

The next chapter offers insights and understandings about Sandy, another young sportswoman who is committed to excel in sport while sustaining her academic achievements at a correspondingly high standard.

## Chapter 5 Sandy's story

Chapter 5 provides a rich overview of Sandy, one of three talented female student athletes who completed all phases of the research project. This chapter highlights her “sport attainment and education sustainment” presented in the form of a narrative case study. The narrative was developed through a process of reviewing analysed data from Sandy’s questionnaire, semi-structured interviews, photo montage and written cue cards. Analysed data from a semi-structured interview with her nominated significant other (her coach, Tania) was also included in her story. In the creation of the narrative, every effort was made to ensure the identity and school of the participant was concealed or removed, and pseudonyms were applied to ensure confidentiality and anonymity. Sandy’s story followed her chronology in sport and education from early childhood to the present day (2016).

Sandy was interviewed from 2014-2016 as a Year 9-11 high-performance student-athlete. She attended a large co-educational secondary school in Auckland, which offered a three-tiered Institute of Sport programme for student-athletes excelling in sport or other physical pursuits. Entry to the different levels of the Institute was based on current performance levels with regional representation required for level one up to national and international competitive status at level three. Aspiring (level 1) and excelling athletes (level 3) could remain at the level they were assigned if they continued to achieve appropriate results, in sport and academically. Sandy gained an Institute of Sport scholarship to her secondary school, based on her Year 5-8 performances competing for New Zealand in artistic gymnastics. During the research project, Sandy was aged 13-15 years. Her main sports were artistic gymnastics, netball and athletics. Sandy was the eldest of two children, with a two-year age gap between herself and her brother. Her story begins with a typical week, as a 13-year-old female student athlete in Auckland, New Zealand.

### 5.1 A typical week in the life of Sandy

During winter training, Sandy completed three to four hour pole vault sessions (4pm-7pm or 8pm) five days a week (Monday to Friday), with a 10am start and a full day of training on Saturdays (six hours). Sandy explained in detail the focus for each session:

*On Monday, we are doing a dual session at the moment so that's lots of technical specific to pole vault movements. So, that's helping us break down the vault and so we can put all those drills together. Mondays and Tuesdays we do a running session and a weight session. Running on Tuesdays we do towing, so running with resistance and then after that we do an arm session which is lots of exercises and weights... Wednesday we vault so that we start on 4 steps and then move back to 8 steps which is a shorter run up. My longest one I've ever had is 12 steps so it's just sort of working on technique without going full out. Then after that we do a leg session so leg weights. Thursday, we have a running session which is longer stuff so sets of 300s and then an arm session. On Fridays, we do a gymnastic session just to keep the movements and getting used to being upside down. We set the trampoline up and do flips and stuff. Friday fun day. On Saturday, we vault and do a leg session. (Int3)*

To help with recovery and to complete the week of training, Saturday sessions at the AUT Millennium included a 30-minute ice bath, which Sandy enjoyed and looked forward to. Her intensive week of training left only Sundays available for schoolwork. She explained:

*Sunday, Sunday is my day for school cause, I could do a bit during the week and I do when I have to but I feel like to get something done well I need to sit down and have a good hour or so to do it. By the time I get home from after school training I get home, I have dinner, I have my shower its 8.30 or 9 already and I'm off to bed. (Int3)*

On normal school days, Sandy would get up at 7am-7:15am.

**Ledger:** Q = initial questionnaire, Int1 = semi-structured interview one, Int2 = semi-structured interview two, Int3 = semi-structured interview three, IntSO = semi-structured interview with significant other.

## 5.2 Early life

Sandy was born in Auckland in 2000, the first of two children to active, supportive parents who, through their hard work and dedication, provided many sporting opportunities for their children. Sandy's dad played a lot of sport when younger and Sandy's mum enjoyed rowing for many years. Sandy reported that one of her grandfathers had also been a very good runner. Sandy's early physical experiences were initiated and encouraged by her parents and grandparents. She showed early promise in particular in running, swimming and netball, but enjoyed a wide variety of

physical challenges. As a young child, Sandy regarded herself as a “rough” as she liked to “hang out with boys playing running games and tag games”. (Int1) Sandy was acutely aware of her competitive nature and that often her main goal was to be better than the boys. She also recognised at an early age [five years] that she was “really quite good.” (Int1) She came to this realisation when she won her school cross country (year 1), attended Collegians’ netball and started gymnastics in year two, as a six-year-old. Sandy’s initial experiences of competitive sport were positive, successful and reported as enjoyable. She loved the physical aspects of each activity, responded positively to the mental challenges of competition, and began to show the attitude and discipline required to excel at higher levels. Her perceptions of her physical self at age five and six were that she was active, outgoing, “boyish,” (Int1) and enjoyed the outdoors. Sandy reported that she also loved the feeling of being first or the best.

Coming first at sport and in physical activities was something that Sandy did regularly during her childhood. Sandy was introduced to structured, organised sport through her participation in the invasion game of netball at a local club. At six years old, her involvement in a holiday programme started a passion for netball, which endured through to her secondary school years. Initially, Sandy simply enjoyed the excitement, pace and social aspects of this team-based passing game. As she developed her skills and knowledge of netball, Sandy began to seriously consider the possibility of becoming a Silver Fern. However, her introduction to recreational gymnastics in year two (concurrently with her first netball experiences) was to change her pathway and achievements in sport in unexpected ways. Sandy’s mum generously offered to be a parent helper at a popular, successful gym club, which was a relatively short drive from the family home. This meant that both mum and daughter were regular attendees at gym. Sandy quickly established basic mastery of locomotion, balance and coordination activities. At age seven, she was asked to trial for a competition squad, and was selected. Sandy explained:

*It was a test to see if I was good enough to do competitive... I got selected I guess, and I did a year of pre-comp, which was just getting ready for the competition season. Then I started competitive gymnastics. (Int1)*



At seven to eight years of age, Sandy began competing in Auckland-wide age group competitions. She recalled that her training sessions were 2-3 hours in length, three times a week, and that when she was “like not even that much older” (Int1) she travelled to compete in Tauranga, Rotorua and Hamilton. Sandy’s coach, Tania, said that her power and spring came to the fore particularly in tumbling tricks, which Sandy enjoyed executing. Sandy described her abilities by stating that “I was a tumbler. I was really powerful”. (Int1) In her Significant Other interview (IntSO), Tania outlined the qualities required for a girl to become a successful competitive artistic gymnast. Tania acknowledged the importance of specific attributes:

*For our youngsters it’s very much basics, so all their basic shapes, getting their strength up, getting their flexibility up, so they’re ready to learn the skills when they’re ...older. They need to be as strong as possible, increasing their strength all the time, increasing their flexibility. (IntSO)*

Tania noted that:

*Sandy struggled with her flexibility, that wasn’t something that she was that good at, but she was very determined. Strength.... she has always been a naturally strong child, so she did well in those areas. (IntSO)*

Sandy’s perceived weakness in flexibility appeared to be an ongoing concern for Coach Tania. She explained the importance of flexibility in competitive gymnastics:

*[Sandy’s] shoulders and back were quite good, legs...so for gymnastics we ask them to be able to split over 180 degrees. A big ask for any child, so that would have taken a lot of work, first to get it to 180 degrees, and then to over stretch it. (IntSO)*

Tania did note, however, that Sandy brought strengths of her own to this sport:

*Yes, yes she was very competitive. So, although she wasn’t the most naturally gifted gymnast, that competitive edge made sure that she worked hard. She always had a lot of power, so she’s always been good at vault, and the strength really helps with bars. (IntSO)*

Tania commented that Sandy’s potential as a long term competitive gymnast was not certain due to another weakness, “more the dancey artistic side, the polished side. It wasn’t something that came naturally to [Sandy]”. (IntSO) To combat these potentially

disabling barriers, Tania noted that Sandy continued to train and compete as she was instructed to, with many subsequent positive outcomes. Sandy's success, however, was not just within the realms of gymnastics. She began to excel in a wide range of physical pursuits.

At age seven, Sandy continued to play netball but also joined her local athletics' club. To Sandy, the athletics club night was interesting and exciting due to the variety of activities. Sandy revelled in the weekly opportunity to pit herself against other children, to see how she matched them on speed, strength and power. At this time, Sandy competed in 60m, 100m, 200m and long jump. She conceded that one girl at the athletics' club was a little better than her so Sandy resolved to try harder to beat her rival. "I always wanted to be better than her. When I beat her I was really happy". (Int1) Opportunities at her primary school to participate and to compete in sport were perceived by Sandy to be limited. She played netball for her primary school, but attended a Sunday clinic to experience Ripper Rugby and won an age group cross country, again at a Sunday event. By reflecting on her involvement in sport at this time, Sandy recognised that a large proportion of her non-school time was taken up with physical activity. When asked if she trained for her running events, apart from at her athletics club, Sandy said that she didn't have time.

Sandy's physical activity experiences at preschool and primary school were equally enjoyable and successful. Sandy preferred to be outside at her preschool, but did remember a learning activity that required gathering multiple words for the same starting letter. Sandy remembered this as a competition against her friends, who were mainly boys. At primary school, Sandy recalled her interest in colouring, maths and PE. She had vivid memories of playing dodge ball, octopus and other field games. Sandy's main recollection of primary school was that there were few opportunities to do sport, which was a key reason why she participated in many activities before and after school. She also acknowledged that "I've always been in to maths. I like maths, PE obviously". (Int1)

### **5.3 Big steps up – Years 7 and 8**

When Sandy left primary school, "that was when gym was getting really serious". (Int1) Sandy's gym training schedule moved from three two to three hour sessions per week

(up to nine hours) to four training days per week, with morning and evening sessions the norm. Preparation for national level competitions required a total of eighteen hours training per week. Tania highlighted the impact this increased time commitment and training intensity had on the young gymnasts in her care, “and before they know it they’re training for eighteen hours a week, and then their life will be changed forever”. (IntSO) Sandy explained how she progressed from one step to the next in rapid succession as she continued to achieve at artistic gymnastic competitions in New Zealand, and then in Australia:

*I competed at the New Zealand nationals....in Year 5 [nine years old] was my first nationals and I went to Australia and competed there in Year 5 and 6 (aged ten). That was when training um took off; training was four days a week. (Int1)*

Sandy expanded on how she perceived the increased expectations on her time and on her overall well-being as the gym difficulty level continued to increase each year:

*Then year six nationals were Level 4, and then they changed so it’s all really confusing, but when I started at intermediate I was step six and that is when gymnastics starts to get serious, proper gymnastics... so in year seven I was actually step seven so that was my first year of senior gymnastics... and step seven... on beam, I wasn’t really very good at beam, because I was all shaky. But I remember we had flicks, yeah and tumbling we had back lay-outs, handsprings, lay-out, back tucks, front tucks, step out, round-off back tuck. (Int1)*

While Sandy was beginning to doubt her ability to continue to compete at a senior gymnastic level, Tania held a different perspective on Sandy’s development and achievements:

*Nationally [Sandy] competed really well, and so she did nationals for... [New Zealand] level four, and [international] step six, seven and eight. So she did four nationals, and top of my head, she probably got medals at all of them. They were team medals or individual medals. Then for step eight, she also competed... over in Australia, as part of the New Zealand team. (IntSO)*

Tania was confident that Sandy was competent at a national level of competition, that she had won a lot of medals, and that her one international event in Australia was a noteworthy progression for her, in the Fédération Internationale de Gymnastique (FIG) steps programme. Tania explained that there were ten steps in international

competitive gymnastics so for Sandy to medal at step eight was a significant achievement for a young gymnast (aged 12). When asked if her gymnastic commitments impacted on her schoolwork and attendance, Sandy described her situation at intermediate school in the following way:

*I represented New Zealand in gymnastics at step eight, in Year 8. Actually I had a really understanding teacher who is currently now my brother's teacher at intermediate, and she... really pushed me in my schoolwork. She understood about my sport but I was top of the class, and top maths group. We didn't do any science there it was sort of English. (Int1)*

Sandy expanded on her experiences in Years 7 and 8, explaining that even if she didn't have gym training, she would still have other sports events or practices. During Years 7 and 8, she played volleyball, softball, netball and touch rugby at school, netball and athletics at club level, and gymnastics at national and international levels. She described a typical day at intermediate school from a sports' perspective:

*I was involved in so many things. I did everything there was. And that was before school, afterschool, [and] lunch time trainings. So sometimes I could end up having a before school training, a lunchtime training, and then a four-hour gym session after school. And Saturdays, yeah Saturdays we trained for six and a half hours. So I sort of got a one-day weekend. (Int1)*

Upon reflection, Sandy conceded that at this time in her sports' development, "I was training a lot, yeah, and really hard skills, a lot of stress, a lot of workload." (Int1) She also acknowledged that even when she didn't have gym sessions (two days a week were rest days to catch up on school work), she would have other sport at school. Tania shared the consequential outcome of Sandy's intensive and extensive training and competition schedule during her Intermediate years, noting that she had a predisposition to become injured:

*She struggled with injuries a bit. She had a stress fracture in her lower back. So that needed to be managed quite carefully. But she came back from that and... her other injury... was a hamstring injury. (Int50)*

Tania's explanation of the stress fracture of Sandy's back was delivered in a matter-of-fact manner, almost as if Tania was describing a sprained ankle (author's emphasis):

*Unfortunately, it's quite common... In gymnastics.... you do a lot of rebound work, a lot of bouncing work. I know we've had physios and doctors and everything to try to look to see if there's a pattern. As to what it is, nothing's been found so it is hard for us to know why... and we've stepped up all our core strength work, whether that has anything to do with it. (IntSO)*

When saying “stepped up all our core strength work” (IntSO), Tania explained that all competitive gymnasts were expected to do increased repetitions of their strength and conditioning exercises, or to complete these core strength exercises at every training session. During a four or six-hour training session, the gymnasts could also be expected to repeat core work more than once. At age 11 and 12, Sandy was at the Late Childhood stage in her athletic maturation (NZ Sport, n.d.). This stage presupposed that her physical growth continued to be slow until she reached puberty. Socially, she was becoming more independent, emotionally she liked challenges but disliked public failure, and cognitively she might begin to develop and display leadership skills. In relation to her sporting activities, Sandy displayed a high level of on-time tasks, took risks in games and activities, and participated in consistent and deliberate organised practice in sport-specific development (gym and netball). Sandy's response to the demands of her sporting commitments in years 7 and 8 revealed that something had to change. She sustained a serious injury; she became stressed, confused and unwell. She described her state in the following way:

*I was sort of not happy most of the time. I was really stressed, worried. I got sick quite easily, spending all the time at gym, I was pale ... I was so tired, like getting home, like training four to eight, getting home late like twenty past eight. Dinner, shower, any homework, yeah getting to bed quite late and at that time, at intermediate... I was involved in so many things. (Int1)*

It became clear to Sandy, to Tania and to her parents that a change in focus and direction would be necessary to retrieve this young athlete's balance and well-being. Tania encapsulated the dilemma when she said, “gymnastics takes up a lot of time, so for her to say ‘it's not going to be my main sport’ and still come eighteen hours a week, it's a lot of hours”. (IntSO)

Alongside all of her physical activities in years 7 and 8, Sandy was also completing her Level 2 and 3 NZ curriculum standards in preparation for her transition to secondary

school in 2014. Academic work did not appear to be an issue for Sandy. Tania's view was that there had been no concerns about taking the competitive gymnasts out of school or for them to miss the start of school when they had early training. She commented that the "schools had been brilliant" (IntSO) and supported the girls' variable attendance. Tania also explained that the weekly training programme was designed to ensure that schoolwork was accommodated for and not compromised. Two school days per week were non-training days "to give the girls two nights off to get homework done". (IntSO) The scheduling of competitions on Saturdays (from May to August) was also an advantage although national (September) and international events (October/November) required more time away from school. Tania regarded Sandy and other competitive gymnasts as well organised individuals. Her thoughts about the impact of training on schooling were emphatic and clear:

*Very few have to miss gym, even when it's exam time, because they are quite organised people. They have to be or they would struggle. We find the busier the children are, they're the ones who get their homework done. (IntSO)*

Tania's perception of Sandy was that she always did well at school. Sandy commented that "it was still a competition. I always think of school as a competition, you always want to be the best at each subject, do as well as you can". (Int1)

## **5.4 A new school**

Sandy's choice of secondary school and subsequent attendance was based on her receiving a sports' scholarship to a decile nine, co-educational school that had a clearly structured identification procedure for Year 9-13 sport performance students. Sandy's new school implemented a three-tier system of athlete identification and development. In Years 9 and 10, students could choose to participate in a Junior Sports Institute class based on their interest and achievement in sport for which no benchmark was set, regional representation was the minimum requirement for Year 10-13 students if they wished to be included in the Senior Sports Academy, and finally the admission criteria to the Elite Sports Academy was recent national or international representation. Sandy received entry to the Elite Sports Academy based on her achievements in gymnastics, when she represented New Zealand in Australia, in Year 8.

Sandy said that her new school had developed clear boundaries and consistent criteria for each scholarship student-athlete's selection to the three-tier Sports Academy system. In 2014, female athletes had parity with male athletes when being identified and identification was not code specific, because the same entry criteria applied to all athletes and was consistent for each tier. Other helpful processes that Sandy's school put in place to meet the academic needs of elite sport performers included mentoring and one-on-one support. It was during one of Sandy's mentoring sessions with her sports liaison teacher (Mr Smith) that a new direction was discussed. At this time, Sandy had started to train for step 9 in competitive artistic gymnastics, she was in her first term at secondary school, and a number of people had begun to notice her ill-health and lack of motivation. Sandy described the beginning of year 9 in the following way:

*In Year 9 I started at my [new school] as a school gymnast, because I represented New Zealand in gymnastics at step eight, in year 8, and then, I came to [this school] at step nine.... and there was a teacher, [Mr Smith] who I was working with. I always had weekly interviews with him to catch up, see how I was going, what I needed help with. And yeah.... he sort of said, and I'd heard it from a few people, "you're not looking well." (Int1)*

Sandy elaborated further:

*At the beginning of Year 9 was when the athletics season was, so I was competing at North Harbour, Auckland, and North Islands for athletics. I really enjoyed it. I had a successful season, and Mr Smith said 'do you want to stop gym?' and I said 'yeah I do' so I just stopped." (Int1)*

Sandy explained that she had "brain-stormed" with Mr Smith about possible solutions to retrieve her state of health and well-being. Together they identified athletics as the obvious next step and while Sandy considered pursuing long jump, hurdles and sprints as possible events to concentrate on, Mr Smith suggested that Sandy might give pole vault some serious consideration. During this period, Mr Smith facilitated Sandy's introduction to pole-vault by introducing her to the New Zealand pole vault coach. This occurred when Sandy attended one of her sprints and hurdles sessions at the AUT Millennium sports centre, on the North shore in Auckland. Sandy reported her initial experiences of this high bar event in a positive and enthusiastic manner. She also

acknowledged that pole vault had been suggested to her by her dad on a number of occasions, prior to her first attempt at AUT Millennium:

*I had been thinking about pole vault for a long time since I was little and I thought that would be cool. Dad has always said, "you'd be good at it, you should give it a shot." He sort of kept saying it but it never happened, until the day I was down at the Millennium training for ah, high jump actually. The New Zealand pole vault coach came in... I was introduced to him as an ex-gymnast.... we exchanged mobile numbers... I came in the next day, and I really liked it. (Int1)*

Sandy was pragmatic and realistic in her decision to pursue pole vault as an alternative to continuing as a competitive artistic gymnast. She recognised that although she was "top end of New Zealand for my age" (Int1) in hurdles, high jump, long jump and sprints, it was probably pole vaulting that could potentially give her an international pathway. Encouragement and acknowledgement from the New Zealand pole vault coach, "you're actually really good at this" (Int1) helped Sandy to change her competitive code, and to accept more challenging opportunities. Sandy expressed clearly how she felt about her new sport:

*I loved it. It was very technical and I was good with it because of all the gym... I enjoyed it. I loved the training... like in other athletic events like sprints you don't train so often but because I went from gym and training every day I was used to it. (Int1)*

Sandy's new training week looked different but was also similar to her old gymnastic schedule. On Monday she did pole vault, Tuesday hurdles, Wednesday pole vault, Thursday hurdles, Friday pole vault, Saturday pole vault and Sunday hurdles. Subtle differences existed in the length of training (maximum three hours) with no before school, only late afternoon/early evening training sessions, except on weekends. The transition from artistic gymnastics to pole vaulting was easier for Sandy and her family, than for Tania. Sandy's perception of Tania's response to her change of competitive sport included awareness that her coach was keen to provide some sort of compromise situation, to keep her involved in gym:

*My coach, I think she knew, because I was really enjoying my athletics and I was good at it. And she sort of was trying to keep me to stay, saying you can train these hours, these days but there'd be no point because I wouldn't be any good. You have to train a lot to be a top gymnast. And yeah so... she was sort of upset, yeah she said can you*



*at least stay to the end of this season, but that was the whole year so I said no, I can't do it. (Int1)*

Tania gave a thoughtful, reflective reply to the question about what prompted Sandy to change codes. As an experienced coach, Tania identified a number of pertinent influences on and possible factors about Sandy's somewhat sudden move to pole vaulting:

*She did a lot of soul searching, spoke to a lot of people, about what to do, but has my full support as she definitely did have limits... in gymnastics. Whereas in pole vaulting, she's very talented. I know it's quite normal for gymnasts to go to pole vault because they're really quite coordinated, they're not scared, they've got a lot of core strength that other sports wouldn't develop... for children. So it's quite a common crossover. (IntSO)*

Tania also noted that due to the seasonal nature of athletics (summer), Sandy's involvement in track and field events had never caused a clash with her competitive gymnastic season, however, this had not been the case with Sandy's involvement with representative netball, which Tania commented had, at times, caused problems with Sandy's gym commitments. Tania's attitude towards Sandy's change of code was supportive and accepting. She was realistic about the level of gymnastics in New Zealand relative to world standards and about her contribution as a development coach. Tania had a philosophical view about what young athletes gained from their participation in competitive gymnastics, and the role that she played, in this process:

*I teach a lot of goal setting, and make sure that they're here and working for the goals for them, not for me, not for their parents... I think that's really important. I bring them up such that they'll be well-rounded adults, with a love of sport. I see my job here for them to enjoy their sport, it gives them good other skills, like good time management, they know how to goal set, and other things that are transferable, in later life. (IntSO)*

When asked to elaborate on her thoughts about the term talented, Tania expressed her views by stating that "they're quick to learn skills, and they kind of look nice and well-presented without having to put much effort in... have a good understanding of their body, good body awareness". (IntSO) Tania identified a number of possible reasons for parents to commit their child to competitive gymnastics; improved coordination, socialising with different children, discipline, enjoyment, and developing

a work ethic to achieve goals. Tania also explained that once competitive gymnasts reached puberty, their body shape changed which made it more difficult for them to compete compared to reaching this stage of maturation. Tania described the issues associated with gymnasts as they became teenagers:

*The centre of gravity moves so everything they've learned, suddenly your centre of gravity's in a different place [because they are taller] so you have to adjust it all, it's hard. It's really hard for the girls... maybe get a bit more power for the vault... and floor... but in beam the centre of gravity becomes higher off the floor, so it's harder to balance. And to swing around the bars, it's a lot easier when you're little. (IntSO)*

The notion of body image, nutrition for gymnasts, and treatment of injuries were also discussed in depth with Tania. Her awareness of contentious issues associated with gymnastics, specifically with young female gymnasts like Sandy, were areas she was cautious to comment on; however, she did acknowledge that the sport had improved when the IFG changed the age to 16 years for Commonwealth, Olympic and World events. This initiative had helped address practices by some countries to delay the onset of puberty for female gymnasts. Tania reported that the higher entry age had increased the demand for power, which “you just can’t be that powerful when you’re little, you haven’t fully grown.” (IntSO) Tania reported that Sandy, as a New Zealand gymnast, would need to take up a scholarship in the United States if she wanted to continue to compete at an international level post 15 years of age. She commented, “if you get them past sixteen you’re doing well. But we’ve had a lot in New Zealand go off to scholarships in America. So that keeps them doing gym, in to their early twenties.” (IntSO)

Tania was complimentary of the States and Great Britain who were actively encouraging and promoting more mature female gymnasts in their competitive international programmes. She was also forthcoming about improvements that could be made for gymnasts in New Zealand, such as more affordable physio support, increased understanding about nutritional needs (pre and post training and competition), and a greater awareness of the financial cost to parents. When asked if there were issues about body image for Sandy and her competition squad, Tania replied:

*I'd like to think no but, they're girls, they're in leotards the whole time... they're probably aware how much harder it would be if they were heavier, but we don't, we don't have any children I think that... struggle with that. Yes, it's a tricky one. (IntSO)*

As a Year 9 13-year-old, Sandy found herself in this situation. She had experienced a sudden growth spurt, and was now too tall to be a serious competitive artistic gymnast.

## 5.5 Moving on

Once Sandy had decided on pole vault as her main sport, she continued to focus forward. She spent most of 2014 training in preparation for the 2014/2015 athletics season. Her transfer of skills and fitness produced some unexpected performances, especially for a novice pole vaulter:

*So I started proper at this time last year, and yeah I trained hard, trained a lot, and I... so it was my first season, like this summer that's just been (2014/2015) and I did really well. I came first in both age groups I did at New Zealand nationals, under 18, under 20. I went over to Australia, I came first in under 16, under 18 and my PB at the moment is 3 metres 75. Yeah, that puts me first in the world for under 16 in 2015. (Int1)*

During 2014, Sandy was also grappling with a new school, entry in to the Elite Sports Academy, different teachers each lesson, and finding her way around from classroom to classroom. She commented that she took some time to adjust to her new school routine and various teachers. She found it quite unsettling until she got to know her teachers better as she felt that “every classroom you go to is a new beginning, new impressions, teachers think of you differently.” (Int1) Sandy’s determination to “be the best” (Int1) translated to her studies in Year 9 where she also excelled in the end of year exams. She explained that:

*I was really sort of merits and excellences in all my assessments and tests and then ...exams at the end of last year, my first exams, they were quite scary. Yeah I got top of the class, seven merits, seven excellences, sort of up there. (Int1)*

Sandy rated herself as “above average” but not “excellent” for her academic achievements since attending secondary school. She explained that during Year 9, she “got top of the class with seven merits and seven excellences”(see introduction 1.2.3,

p.10-11). (Int1) Sandy did not rate herself as “excellent” as her results included some merit grades. She acknowledged her main academic strength as having a “hardworking positive attitude” and that she always “strives to do the best I can do” (Q). A positive effect of her sports commitments on her schooling was that she was “organised due to no spare time therefore nothing gets put off until later. I get it done”. (Q). Sandy recognised that high expectations regarding her sporting achievements and schoolwork acted as negative effects for her sustained attainment in sport and education. However, Sandy attributed her success to her study habits, especially prior to exams. She was also acutely aware that her academic success was an essential back-up in case she became injured and was unable to continue as a competitive athlete:

*I study a lot before exams.... I got food poisoning and so I was off training for quite a while. I was really sick. And fortunately that was right before exams so I got a lot of study time... I always think of it as a back-up plan if I do get a really bad injury....and I have to stop sport, if I've got nothing to fall back on, if I don't have good grades then I'm not going to go anywhere in life. I'll sort of get an average job, a normal family... yeah whereas if I do have to stop sport and I've got really good grades I can get a good job and good money. (Int1)*

Sandy acknowledged the support of her form teacher, Miss B. She recognised that Miss B coordinated, organised and disseminated information to ensure that Sandy knew when assessments were due and what arrangements had been made to cover her schoolwork when she was absent. This individual academic support was an integral part of the Elite Sports Academy and was designed to ensure that national and international student athletes did not have their schooling compromised due to their training and competition schedules. To Sandy's surprise and delight, Miss B also informed the school and staff of her achievements as they occurred. This form of recognition served as an extrinsic motivator for Sandy. She explained:

*Miss B is my form teacher. She sort of controls what I do, what my teachers do... she's really good. When I was in Wellington, I came back after nationals and I walked in to her class and all the teachers kept congratulating me on how I did. When I came back from Australia it was the same thing... so she shares my success.... knows what I'm up to... helps me balance... (Int1)*

The contribution and value of Miss B's support for Sandy's academic and sporting success was further emphasised when Sandy reflected on her school/sport balance near the end of the athletics season, and Miss B's role at this time:

*It would be difficult. I know that for a fact. March was an incredibly busy month for me. I had secondary school athletics going on and there were competitions almost every weekend, and then I went to Wellington for New Zealand nationals... and so I flew down there on a Thursday, so I missed the Thursday/Friday, came back Sunday night, I was back at school Monday, flew to Australia on the Tuesday. I was away for that week and then back to school on Monday, and so I was so tired, I was shattered... (Int1)*

Sandy acknowledged that she would not have managed her life at that time without the direct, proactive action of her form teacher:

*If I came back to school and was expected to catch up like that I wouldn't have been able to do it. Miss B helped talk to my teachers. They sort of gave me work. I managed to do some on the plane. Yeah, over in Australia we had a little homework session. It would've been really difficult, especially if I'd still been doing gym, it wouldn't have been possible. (Int1)*

During Year 10 (in 2015), Sandy experienced another innovative academic structure that she could access as an Elite Sports Academy student. Her school Sports Institute provided National Certificate of Educational Achievement (NCEA) credits in Year 10 that could roll over to Year 11 to reduce the overall workload on internationally competitive students, like Sandy. While this was not an unusual practice in many schools in New Zealand (termed acceleration), this provision was not normally implemented for physically able students. Sandy's school in this respect continued to be forward thinking, student-athlete focused, and open to a variety of alternative approaches to meet student-athlete needs, both academically and from a sports perspective. Once again, the contribution and value of these innovative strategies could not be underestimated and did not go unnoticed by Sandy. She described her academic plan in the following way:

*I know I'm working on a maths' internal, and we have the chance to get three credits, a maximum of three credits which is already a third of what you need in Year 11. So I can go into Year 11 with three credits. And in science I am doing an internal. I'll get some credits for*

*that, and that will roll-over to Year 11. In the Sports Institute I can get some credits which can go towards PE or English. (Int1)*

Through this discussion, Sandy began to verbalise a previously unspoken realisation. She reflected on the fact that her involvement in competitive athletics would be all year round. She expressed her concern by stating:

*That will be really difficult because... a New Zealand summer is overseas winter. So I'll have all year round athletics. So next year, if I do qualify for World Juniors in Russia it will be, I'll have the summer, October to March non-stop, then I'll have a few weeks of winter training, we go on a training camp, off in Europe and we'll be... yeah we'll be away. I'll be away for a lot of that one, that winter, and I'll come back and it will almost be time for athletics season again. It's sort of all year round. (Int1)*

Another concern that emerged from her reflective thinking was that a major stepping stone competition (the Commonwealth Games) would be a direct clash with her Year 13 external NCEA exams in 2018. While this was a possible barrier or potential derailleur to her short or long term success, Sandy had developed a “tight” (Int1) network of support people and structures who/which seemed equally intent on helping her to achieve her academic and sporting goals and aspirations. Sandy talked through how she thought her projected sports pathway would clash with her academic commitments:

*It'll be difficult especially when I get to... if I manage to qualify in 2018 for the Commonwealth Games I'll still be at school. Probably Year 13 and that is right before exams. So I'll come back and have like sort of two weeks maybe I've got an exam. (Int1)*

Sandy's strategies for managing her school/sport balance included paying attention while she was at school and completing all work during each lesson or at school, “cause lots of time it's like if it's not finished in class do it for homework. I have to get it done in class because, I just don't have time.” (Int1)

## **5.6 Relationships**

As Sandy progressed from her change-of code year to a full time pole vault athlete (during Years 10 and 11), her relationships both at school and at training adjusted. Sandy had experienced a very “tight” (Int1) supportive environment during her years

as a competitive gymnast, “We went through a lot together. Lots of tears, lots of... so we’re like life-long friends”; (Int1) however, Sandy’s athletic competitions put her in contact with a different cohort of young athletes, in quite a different environment. Sandy described this change when she stated that “I’ve got friends in Hamilton or something... and when we went to Australia I met a girl who’s going to the World Youth championships... yeah, you just meet people wherever you go”. (Int1) Sandy also reported friendships with non-sporty friends at school and that she had a group of peers in Year 9 who attended some of her competitions, to cheer her along.

Sandy alluded to a lack of time for socialising during Years 9-11 at school. Initially, her comments focused on how she responded to requests by school friends to attend parties, join a sleep over, or just to hang-out. She reported that her school friends didn’t understand what it was like to train so regularly, or how important it was to train and to compete:

*Lots of people say like “Oh Sandy do you want to come to this, do you want to come to this?” I say I can’t I’m training. “Oh, you’re always training.” Yeah. “Can’t you miss training this once?” No, I can’t miss training. Like every training matters. Like they’ll be training now, I have to train harder.” (Int1)*

Sandy identified the importance of several specific relationships during her transition from gymnastics to athletics. Sandy had the opportunity in this research to use cue cards to take time to consider who or what had influenced her success in sport. Sandy did not hesitate to name her parents as the most significant influence on her development and progress in sport:

*I’ve got Dad first and Mum, they’ve been my number one supporters, and yeah they are my ride everywhere. Sometimes I don’t even know what I’m doing. They just drive me there. They are very supportive, like I said they helped me get through gym. It was a pretty tough time for me. They helped me balance, good with my diet, helped me balance my schoolwork. They’re good at communicating with coaches, other parents and teachers. (Int1)*

Sandy acknowledged the impact her pole vault coach had on her achievements, especially in her first competitive season, and how knowledgeable and experienced he was on the international circuit. An important learning Sandy gained from her coach was, “he helped me a lot, not just learning pole vault but he taught me... how to be a

really good athlete, not just performance wise but how to act, sort of, taught me how to get to the top. And what I need to do..." (Int1) Sandy talked about his success with other New Zealand athletes, and about the positive impact he had already had on her development and growth as a pole vaulter, and as an aspiring international athlete:

*He is the head pole vault coach; he's a really well-known coach obviously for getting [my mentor] to where she is now. He also coaches a number of other events, but he's focusing just on pole vault at the moment. He's well-known around the world currently because of [my mentor] going to World Juniors and World Unis, and all these competitions. He knows a lot of people. (Int2)*

As a Year 10 student, Sandy experienced social situations within her school friendship group that she found stressful and challenging to cope with. The influence of social media seemed to exacerbate these friendship issues, which prompted Sandy to withdraw from Facebook, and to again focus fully on her studies and her sport. Sandy described this time as "tricky" (Int2) as she had in some way become embroiled in arguments between friends:

*There was nothing aimed at me, I've never been... bullied or anything but I'm always in the middle of it, between friends getting in to arguments and things. So it is quite hard on me, I just feel alone on it, at school. But homework is a good distraction. It's somewhere I can go and forget about all that drama. (Int2)*

Sandy commented on her own priorities and clarified verbally that athletics and her schoolwork were her focus areas. She stated strongly that "decisions that other people make I don't want that to influence my vaulting". (Int2). She showed concern for fellow students who in her opinion were, "at school, trying to grow up too fast and do things they shouldn't. Do things that they regret". (Int2) Sandy could reflect on the value of her friendships within her training squad, which included an age range of 15–24 years. "I have friends who pole vault who mentor... it's a good place that I can go and forget about the school drama and just go and have fun. Do what I want". (Int2) Sandy had formed a friendship with another novice vaulter, a year older than herself. Through regular contact at training and by sharing transport, Sandy had also become inspired by a Rio Olympic hopeful in her squad. For Sandy, following in her mentor's footsteps represented an amazing opportunity to realise her own dreams. Sandy clearly indicated what her aspirations were now that she had decided on pole vault:



*I really want to go to the Olympics. That's like the one thing I wanted to do since I was little. I didn't know what sport in but now I've found what I want to do... I know where I want to go. I know what I want to do, and I know how I need to get there. It's just a matter of whether I can stick to it. (Int1)*

## **5.7 The training treadmill and competitions**

At age 15, at the end of Year 10, Sandy reflected on her year of school and sport. She reported that “it was a really different year, but still a good one.” (Int2) Events that stood out in her mind included winter training, end of year exams, school prize giving and the national secondary school athletics championships. Sandy visually recorded some of her Year 10 experiences by creating a 24-shot photo montage. Sandy considered the impact and significance of various situations and events that she had encountered by talking about the circumstances and meanings of each photo. She began by describing her recent winter training programme. As I listened, it became clear to me that Sandy's technical knowledge regarding training methods and pole vault execution had advanced substantially since our previous interview in April 2015. Sandy was able to explain her winter training in detail and justify confidently the rationale behind various activities:

*So it's been off season so we've been doing lots of strength and conditioning work and fitness endurance... it's more skill-based so short run-ups, short poles... On Monday, Wednesday, Friday we do pole vault. And on Tuesday and Thursday we do running and weights so, on Tuesdays we do towing with a sledge and weights over a distance, and on Thursdays we did like long running, like 300s and lots of sets of that. Like in some sessions we start longer and get shorter so we do two 300s, two 200s, two 100s, two 50s, bringing it down. (Int2)*

Sandy explained that she would soon start Olympic weight lifting, which included “some snaps, jerks and cleans” (Int2); however, due to her age she was never pushed to fatigue, which was an expectation of “the older kids” (Int2). Sandy revealed that, due to her strength in upper body activities (from her gymnastic training), she could do “bench press... rope climb, and chin ups sort of stuff” (Int2) without much difficulty.

To progress, her pole vault performances during the competitive season (December to March), Sandy seemed to understand the need to develop her skills and vaulting fitness through off-season training. While she clearly understood the what, when, how

and why of her training, and had committed fully to this new routine, she had not anticipated or expected a major psychological barrier, which had the potential to derail her ongoing success. She explained this worrying phase in the following way:

*I had a mental issue going towards training... towards pole vault. I wasn't improving as much as I would have liked, and I kept telling myself I don't have a problem which wasn't really helping. 'I don't have a problem, I don't understand, I don't know what's happening, why am I doing badly?' It's all back into place now. (Int2)*

Sandy conceded that this aspect of her 2015 winter training "was quite difficult. That was hard". (Int2) She explained that her denial that there was a problem, and then negative self-talk had continued for most of the winter. She had persisted with training, but weekly observations of the progress of other athletes in her squad, further affected her self-belief. Sandy described her dilemma:

*I would try to visualise how to do it but every time I tried to do it in my mind I would sort of get all confused, like what way am I supposed to be going? Very difficult sport pole vault (sigh and grimace). I think I was quite tough with myself mentally saying "I've gotten quite bad at this" but... yeah it's all coming back into place now. (Int2)*

When asked what this mental challenge meant to her, Sandy responded with, "it was very difficult, because obviously I'm a lot happier when I'm vaulting well". (Int2) She expanded her thoughts about this phase further by stating that, "it was quite stressful to see others around me, improve a lot and they just kept improving and going through poles. I didn't know what I was doing, just still trying to figure it out". (Int2) On reflection, Sandy could rationalise why she had hit a brick wall in her training and development, and to see how the timing of this barrier could in fact have been beneficial rather than detrimental:

*It's always going to happen, to have a brick wall. Like, I had an amazing first season. Like no one jumps 3.75 in their first season. That was quite incredible. I knew it was coming but... it was pretty good timing; it was winter so... obviously if that was happening, coming in now, over the next month or two... that would have been a big issue because that is when it really matters. (Int2)*

Sandy commented that there were other possible factors and influences involved in her lapse of progress that year. She intimated that she had been unwell over the

winter, that she “was just really tired, exhausted really”. (Int2) After a thorough battery of tests, the prognosis was that “I wasn’t eating enough really”. (Int2) Sandy had experienced a major growth spurt in the period from April to December. Associated with this growth spurt had been a significant gain in her overall height and a noticeable reduction in her body weight, relative to her height. Sandy’s view was that “You need to be tall for pole vault. I like it. I want to keep growing. So yeah, it’s good”. (Int2) She also conceded that her eating pattern had changed during Year 10, “slightly yeah [it’s] gone back to where it was... probably a little bit less than what I used to eat”. (Int2) Sandy suggested that additional stress leading up to her Year 10 exams had also been a contributing factor to her poor mental health at this time:

*Year 10 and I go into NCEA next year, and they’re getting us ready for that. I was really stressed about that and that didn’t help with my training at all. Like I was up studying but it wasn’t sticking very well because I was studying till quite late... and trying to sleep straight after studying. It didn’t really work. (Int2)*

Sandy’s predisposition to strive for excellence and to “be the best” (Int1) became transposed to her schoolwork. While she was struggling to advance her skills in pole vault, Sandy decided to put maximum effort into her end-of-year exams. On reflection, Sandy acknowledged that she had put herself under enormous stress:

*I remember kids saying “oh they’re end of year 10 exams, they mean nothing” but obviously I wanted to do well, especially if I was going to do NCEA. I wanted to have confidence. I... did quite well in my end-of-year exams in Year 9, and so I just wanted to keep up there, wanted to sort of, do really well. So I studied really hard. I was sort of like doing the opposite of kids of my age. (Int2)*

Sandy’s parents were reported to have been concerned at Sandy’s behaviour with regard to her preparation and revision for exams. They encouraged Sandy to leave her room, to go for a walk, and even to spend time with friends, to balance her approach to studying excessively. Sandy was aware that she was not behaving according to the norm for her age group, “other parents are locking them (teenagers) in their bedroom for the weekend... forcing them to do work”; (Int2) however, her determination to succeed outweighed any social or peer pressure she was exposed to. Sandy understood what drove her to apply herself so intensely:

*It was put on by no one but me. My parents would tell me to chill, chill-out... I didn't see it as stress really because I wanted to hammer down and do the work. I wanted to get it all done. They weren't obviously that important, but they were in my mind... I didn't see it as stress as I just wanted to get the work done. (Int2)*

*It was one or two weeks out and I was so stressed out. I don't know why but I kept thinking "I'm so screwed, I don't know what I'm doing, I don't know anything, I'm teaching myself all this work, and I'm not going to remember it" and then... all that stress was for nothing really. (Int2)*

She also gained an intrinsic lift from her efforts, which she described as, "I actually love studying. I just love learning and I love the feeling of knowing things like going in to exams and knowing that you know everything. Like there's nothing else to know". (Int2) Whilst training as a competitive athlete, Sandy had regular contact with "a bright bunch of people" (Int2) in her pole vaulting squad, which added to her motivation to succeed academically.

## **5.8 Meaning making from a montage**

In her photo montage, Sandy pointed out photographs of her school, the annual school prizegiving, and her science classroom. At the 2015 end-of-year prizegiving, Sandy received awards for Junior Sportswoman of the Year trophy, the Junior Athletics cup, the Supreme Female Athlete award, Year 10 Science and Year 10 Social Studies awards, and second in all her other subjects. Sandy spoke in a quiet, humble voice when listing her achievements. She said that her accolades had come as a surprise to some of her school friends as they "had no idea that [I] did all that stuff". (Int2) Sandy revealed that she kept quiet about her sport as she didn't want to brag as "you always get kids that think you're showing off". (Int2) Her consolation was that her close friends knew how much effort she put in, and that her achievements were hard earned, often at the expense of her social life. Sandy shared how separate she felt at school:

*I'm in a completely different class, I'm in a completely different world... Like my friends, some of them play some sports but nothing like, what I do. They'll play netball in winter, but that's it. Yeah so there's no one at school... that I can relate to. That's why the institute is good because I'm surrounded by older kids who know.... (Int2)*

*[Being separate] it's kind of good in a way. It does give me sort of a look at life as a normal ... 15-year-old? I cope well because I have a good balance between school and sport. (Int2)*

Further discussion about Sandy's perceptions of her school/sport balance revealed that she viewed pole vaulting and schoolwork as quite different domains in her life. She stated that, "I don't see the relationship between school and sport really. I think of them as very different things". (Int2) She explained that because pole vault competitions were "out-of-season" (Int2) (not during school terms) they didn't matter as much as she would always have another competition if the previous jumps had not been her best. Sandy mentioned that there were many variables acting on her performances at pole vaulting competitions; weather conditions, how she felt on the day, the warm-up, and other competitors. In these situations, she could assess the conditions, "so you sort of, in your mind know... whereabouts you're going to be jumping. So you sort of prepare for that". (Int2)

These assessed and known factors appeared to give Sandy a sense of confidence and security, "you know roundabout what's going to happen". (Int2) Schoolwork on the other hand had caused her a good deal of stress (often self-imposed) but she admitted that she was gradually getting used to the assessment systems at her secondary school. The only area of conflict Sandy identified between her schooling and sporting life was in relation to off-season training at AUT Millennium, which ran six days a week, throughout the school year. Each weekday session was approximately three hours duration, with a morning start time on Saturdays. Sandy's athletics' training schedule had begun to mirror her previous gymnastic practices. When asked if she had any regrets about her change of sports code, Sandy was quick to reply, "No regrets, and no, not at all". (Int2) She confirmed that artistic gym was now just a memory for her, and that she had no thoughts of returning to competitive gymnastics.

A photograph of her secondary school prompted Sandy to talk about how important school was to her during . She acknowledged the support she had received, which had helped her achieve her academic and sporting goals. Sandy noted that not all schools were equally supportive. She stated:

*School's just... they're really supportive and understanding. So I can talk to my teachers and they all understand. I mean I know lots of*

*schools aren't like that. If you're not representing the school, they don't care. I know some schools that haven't let athletes have time off, for trips and things because they're not representing the school. (Int2)*

*That's where [my school] is really, really supportive. They want me to do well. They celebrate my achievements. They know all about it. I came back after the Australia Champs in March and everyone knew. They were all saying "Well done," congratulating me as I walked through the school. (Int2)*

Sandy noted that school played a big part in her life and helped to shape who she was. A subject that she had previously not enjoyed during Year 9, science, had become one of her favourites in Year 10, due to the content she had experienced in medical science. She had engaged fully with chemistry and physics and had plans to drop Spanish for biology in Year 12. She planned to pursue three sciences as part of her foundation for tertiary study in "physiology, biomechanics and human anatomy," (Int2) in much the same way as one of her pole vault mentors had. At this point in her education and sporting development, Sandy was realistic and grounded in her view of both fields. As previously noted she acknowledged that "if something does happen (major injury) I've got that [academic qualifications] to fall back on". (Int2)

A group of photos that were particularly significant and brought obvious pleasure to Sandy were taken at the New Zealand secondary school athletic nationals in Rotorua. Sandy summarised the importance of this event by saying that, "for most athletes that's the competition they build up to, but for me it was an early season (December), see-where-I'm-at sort of thing, because I've got competitions coming up all season." (Int2) Sandy did, however, confirm that her greatest pleasure at nationals was meeting and spending time with her Intermediate school friend whom she had previously been close to:

*We played every sport you can imagine... I just wish there were more people like [her] at my school. She is someone I can really relate to. She's really sporty. Quite academic as well. We both look really happy. (Int2)*

Sandy also expanded on the conditions of her pole vault competition; how hot the day had been, how long she had to wait until the bar was high enough for her to take her first jump, and how satisfied she felt placing second in New Zealand, at the 2015

secondary school nationals. This interchange of thoughts and feelings sparked a long in-depth conversation about the technical aspects of run-up steps, pole length, pole weight, pole temperature, the differences between male and female poles, and how athletes adjust to the weather conditions on the day. Once again I was astounded by the extent of Sandy's knowledge, in what seemed a relatively short period, from her first attempts at this challenging sport. She encapsulated the essence of pole vaulting when she explained:

*There's no point just going back to a longer run-up in the hope that I'll go higher. Like, it won't do my technique any good. You need to be able to vault properly before you can go back to the longer run-up... twelve steps are my full, it's the longest run-up that I've been on. (Int2)*

Photographs of the AUT Millennium sports centre prompted Sandy to describe her training space and to state, "That's where I do my sport, at the Millennium, where I spend most of my life". (Int2) Her plans and aspirations for her future pole vaulting development poured out when she expressed her short and long term goals:

*So it's complicated. In January I'm going to Brisbane for a training camp, without my parents. It should be good, very useful. It'll be hot... I would really, REALLY like to qualify for the Worlds Junior Champs. That was going to be in Russia, but because of the whole drugs scandal thing, they're either going to have it in Perth, Poland or India. I need to jump 4.5m to qualify for that and I have until April to do that so I think January should be a big help with that. (Int2)*

*Before that came on the radar we were going, we were planning on going to Germany, and then Holland, with another competition over there. Go for a few weeks, train, and then compete, yeah. (Int2)*

Sandy revealed that she was on track to follow the four-year cycle set by one of her mentors; the Olympic cycle, and then the Commonwealth cycle of international competition. She estimated that she would be 19, "so I'll be one of the younger ones but that's good cause it means I'll get almost an experience Olympics and the following Olympics would be like, Prime time". (Int2) Thoughts of pursuing a scholarship overseas had already been dismissed by Sandy as she commented that, "I don't have any thought of going overseas at this point because... My coach is here, I have world-class facility here, my family lives up the road... so it's all so cool, I love it in Auckland". (Int2)

## 5.9 Reflection and reaffirmation

At the end of my research data collection, Sandy elaborated on her training schedule, and as preparation for her Year 11 Level 1 NCEA externals, the importance of mock exams. Sandy's demeanour was quiet and somewhat weary. She admitted that:

*My muscles are a bit sore at the moment cause we did a very hard leg session last night because we've got in our programme, we've got easy week, medium week, hard week, recovery week. It's 'hard' week at the moment and it's definitely harder. (Int3)*

Sandy's normal week now included a Fun Friday session followed by a full day of training on Saturdays. Her next weekend, however, was going to be different. Sandy explained that due to her coach and mentor being away at the Rio Olympics, the pole vaulting squad were all going to another athletics' coach's house to watch the Olympic women's pole vault final. Training this Saturday had been cancelled. Sandy reconfirmed that she was trying to follow in her mentor's footsteps, in her four-year cycle, to do everything that she did, four years later. Sandy also reflected that, to date, she was on track with her goals and progress.

When asked about her increased workload at school, Sandy commented that "everyone's very stressed out... it's my first year of NCEA this year so I'm sort of getting used to it all". (Int3) Sandy reflected that she was doing well but had some doubts about whether she could achieve her aspirations at school. "I think I'm doing alright, doing pretty well but I set very high expectations for myself so I hope I can live up to those". (Int3) Sandy's state of physical fatigue was discussed in more detail when Sandy mentioned a two week break she had taken with her family to the South Island. Her relief at being able to stop training and studying and her gradual disbelief about how she had sustained her efforts in both realms for so long began to materialise for her. Sandy expressed her thoughts about her rigorous training and intensive school routine:

*Just after the season we had a few weeks off, I think we had two weeks and I went for a week's holiday to Queenstown with my family and it was really nice just to have a break because it was so full on and I just went 'phew'. (Int3)*

She began to realise what not training felt like:



*Well it was weird, you'd think it would be so different but half your day is just you get used to not doing anything and it was just like normal and at the time I couldn't imagine going after school every day and training for four hours. I just thought how do I do that, why do I do that, but you get used to the lifestyle you are in. (Int3)*

Sandy acknowledged that it was not possible for her friends at school to understand the extent and depth of the daily commitment she made every day to achieve her pole vaulting dreams:

*Yeah they're all expecting me to go to the Olympics. [I don't talk pole vaulting], not with school friends, they don't know what's going on... they don't really understand that, they know that I train a lot... but I don't think they quite understand what training a lot looks like and consists of. (Int3)*

When asked what her friendships within her Elite Sports Academy were like, Sandy stated that due to the many different sport codes (from cycling to synchronised swimming to sailing) within this group, their only common ground was that they all “trained a lot, all competed at a high level” (Int3) (and all tried to juggle school and sport commitments):

*So we can't really relate any of those sports because they are so different from each other and the trainings are so different... Well the cyclists all train in the morning, which is obviously very hard to get up very early in the morning but it means after school they've got about five hours before they have dinner, shower, bed whereas I've got half an hour. (Int3)*

The timing and duration of training each day was an issue for Sandy, but along with other athletes at her level of competition, she was locked into a routine with few perceived alternatives. She expressed this dilemma by saying:

*Well in the school holidays we get to train in the mornings, I wait for trainings in the morning, it's just after school you're tired and it's a drag and you've got training and then you're hanging around for ages but whereas first thing in the morning you are fresh. [My ideal would be] 10am every day, that's how we train on Saturdays and I really like it but I can't do that because of school... 10am trainings are really good. (Int3)*

Sandy elaborated further to sieve through possible solutions, but came to the same conclusion, that during the school term training was an extra and unavoidable routine

that did not fit easily into a normal school day. She acknowledged that many of her training buddies were in the same situation:

*We squeeze a lot in to a short amount of time because none of us like to get home very late and last night we had a really long vault session and so we started weights a bit later than usual and we were rushing through weights, we were going fast because we wanted to get home without it being 9pm. (Int3)*

If or when squad members, including coaches, become sick, there was a unanimous understanding that participants did not attend training, so as not to infect others. Sandy was particularly emphatic about avoiding ill-health.

She was also aware that she had a reputation to keep up at school, and that she was perceived by others as an athlete. Her perceptions of herself were also quite clear. “I obviously think of myself as an athlete and that’s what I am and that’s all I want to be”. (Int3)

Sandy’s reflective approach brought other revelations forward. She again acknowledged the incredible support she had received from her family, in particular her parents. She spoke highly of her pole vault coaches and training squad members of her athletics club, and of her teachers at school.

*So, I live with Mum and Dad and my brother and he’s very sporty as well. He’s always out of the house with sport as well and my parents are so good with it, like they’ll work around their schedules to get us to be where we need to be and pick us up on time and drop us off on time. They’re just very supportive which I’m so appreciative about. (Int3)*

Sandy reflected that not all parents were as accommodating and helpful as her mum and dad:

*There are people at training that, not necessarily in my squad but they must be home by this time, doesn’t matter if trainings finished or not. They’re leaving when their parents say they’re leaving but my parents are really good, like when you’re down. They make sure they are doing everything they can to make sure I’m going to be the best... [it’s really reassuring] to know that I have that extra support. (Int3)*

Sandy mentioned another area of support that had eventuated during Year 11. She had become an athlete on the Pathway to Podium programme, initiated and organised by the high-performance development arm of Sport New Zealand. A benefit of this programme was access to funding, but of more interest to Sandy were the workshops and tutorials, which gave information and advice on becoming a serious international competitor:

*So, it's for ages 16–20 and you go and there's been a few seminars this year but there was a drug free sports one, there was a supplements one, nutrition, things like that. They are just all the little bits you don't think of that help you to get better. They are working on those little things that will, along with us working hard and training, will make us be the best. It's basically all about preparing you for carding so you don't get thrown into international sport and you're freaking out, it's sort of easing you in. (Int3)*

Two other young athletes in Sandy's athletics training squad were also on the pathway, which again reassured her that she was on track, and provided a motivation for her to continue to train and to compete. Sandy was fully cognisant of the daily influence her squad members had on her. They had become her extended family, her closest friends, and her mentors. In particular, Sandy admired and appreciated her Olympic mentor, who was four years her senior:

*She's so lovely, she gives me rides to training, she gives me rides home, we talk all the time about things. She helps me out with stuff that I need, she's just so good to be around, she's always positive in giving me good feedback. (Int3)*

Sandy also recognised the generous and consistent support she had received from her local athletics club. She was humbled and felt privileged to have received funding from her club for her AUT Millennium training, overseas trips and other expenses involved with pole vaulting. Equally, she recognised that she had always been loyal to her athletics' club, attending regularly and competing when required. This relationship had provided a strong enabling influence on Sandy in her quest to succeed as a young athlete. While reflecting on key areas of support in her current life, Sandy again acknowledged the impact her school had previously, and continued to have, on her progress and development, both in her sporting endeavours and in her academic attainment:

*In the Elite Sports Institute that's what it's all about. If we are going away my form teacher will talk to my other teachers and let them know that I'm going to be away. My PE teacher... he knows what it's all about... he's saying that he can work like what he did with [my mentor], he worked internals around her, so I can handle it when it suits me. (Int3)*

When asked if there was anything that she would change at this mid-point in Year 11, Sandy replied that, "I don't think so, everything seems to be going the way it should, so yeah just keep working hard and it should all come together". (Int3) Again, she expressed her direction and her resolve:

*I just have goals and I know what I need to do to achieve them so that's my motivation and then I just need to put it into action so I manage that pretty well I think. (Int3)*

Sandy stated clearly what she believed she needed to do to succeed in her schooling and sporting goals:

*You have to be committed, you have to know what you want, you have to have goals and commitment, dedication and just yeah, you can't sort of half-heartedly be a pole vaulter. You've got to put everything into it if you want to be the best. (Int3)*

Sandy's final interview comment reflected on her pathway at her secondary school, over the previous two years. She mused that, "when I started here I was at gym, I was a gymnast doing athletics, doing netball.... a lot has changed since then like everything is now put into pole vault and that's the way I want it to be". (Int3)

## **5.10 Narrative summary**

Sandy's story began by documenting the childhood experiences in sport and physical pursuits of a physical child who preferred to play with and against boys in a competitive manner. As the eldest of two siblings and with parents and extended family previously involved in competitive sport, Sandy enjoyed an active, outdoor-orientated lifestyle during her childhood. Sandy reported that family weekends and holidays inevitably focused on being physically active with the whole family walking, running, swimming or cycling together. Sandy's family provided positive role models and consistent support for a young girl who loved to run, swim, play netball and to compete as an artistic gymnast.

Sandy's development in artistic gymnastics followed the standard Fédération Internationale de Gymnastique (FIG) talent ID model of early selection, graduated training as a squad gymnast over several years, leading to selection for local, regional, national and eventually international competition events. As Sandy progressed in gymnastics, she continued to pursue and develop her abilities in netball and athletics. During her primary school foundation years, Sandy enjoyed learning and became motivated to excel, not only in sport, but also in the classroom. She discovered that she had an aptitude for mathematics.

While Sandy continued to maintain a high standard of schoolwork at Intermediate school, her sporting commitments seemed to spiral out of control. In a normal week, Sandy trained 18 hours for gymnastics, trained and played for two netball teams (at school and representative level), attended her athletics' club and weekly competitions, plus took part in a range of school-based sports such as cricket, soccer, Ripper Rugby, and athletics and swimming sport days. During her intermediate school years, Sandy competed at national and international events in artistic gymnastics. She recalled that she experienced a high level of fatigue and then a stress fracture to her back, which precluded her from competitive gymnastics for six months. Sandy's gymnastics coach (of seven years) acknowledged that this was not uncommon in young gymnasts; however, Sandy's back injury forced her to review and reassess her ongoing involvement as a New Zealand representative gymnast.

At secondary school, Sandy sought counsel from her school mentor at the Elite Sports Institute and from her parents. Early in Year 9, Sandy decided to retire from competitive gymnastics and to focus her abilities and skills on becoming a competitive pole vaulter. Her transition to pole vault was relatively seamless as she changed her 18 hours of gym training per week to an athletics conditioning and pole vault specific coaching schedule of similar duration. The difference for Sandy, however, was almost immeasurable. As a 14-year-old novice pole vaulter in her first competitive season, Sandy won the Under 18 and Under 20 age group titles in New Zealand, and the Under 16 and Under 18 titles in Australia. In response to this successful start, Sandy and her pole vault coach set clear aspirational goals for the World Championships (2017), Commonwealth Games (2018) and the Olympics (2020), exactly four years after another young female New Zealand pole-vaulter was expected to perform well at the

2016 Rio Olympic Summer Games in pole vault. During Year 10, Sandy developed her general athletic conditioning (which included hurdles and long jump) to a more pole vault specific programme. This shift in focus created a phase of mental freeze for Sandy during pole vault training sessions, when she became confused, overwhelmed and anxious. For some months, her performances were erratic and her confidence depleted. With encouragement and guidance from her pole vault coach, squad members, and parents, Sandy persevered and eventually overcame this developmental block. During her Years 9-11 secondary schooling, Sandy accepted financial support from her athletics' club, was selected for the Sport New Zealand Pathway to Podium programme, and received school awards for her sporting successes and academic achievements. These extrinsic indicators of support and recognition boosted Sandy's motivation and renewed her efforts to achieve her goals in pole vault and in her academic studies.

### **5.11 Interpretation**

Within Sandy's narrative case study, it was important to consider the complexity of factors and influences acting on her as a student-athlete. These factors and influences emerged in response to how Sandy, as part of a collective (multiple complex systems), adapted and self-organised in relation to the constraints of her contexts as a talented young student-athlete. In relation to the process of data interpretation, Davis and Sumara (2006) stated that complexity thinking "helps us actually take on the work of trying to understand things while we are part of the things we are trying to understand" (p.14). This said, and by recognising that Sandy's data interpretation sits within a complexivist philosophy, the discussion on Sandy's data accentuates a form of interpretation that is "potentially generative of, and pays attention to, diverse sensibilities without making claims to or being trapped by, universals or absolutes" (Ovens et al., 2013, p.2).

#### **5.11.1 Complexity**

Sandy's social system included the family network (her mum, dad and brother), the family itself as a strongly connected, interacting and dynamic unity, and the myriad of connections (ties) she had with others, such as her gymnastics' and pole vault coaches, her gymnastics' and athletics' training squad members, fellow Elite Sports Institute students, netball teammates, her form teacher and school mentors, teachers, school

management team, school community, and educational policy makers, as well as many other external forces and influences (top down and bottom up) from sport administrators, sport policy makers, officials, selectors, national and international sporting bodies, etc. This list is not exhaustive, but hints at multilayered and multidimensional influences acting on Sandy that required her to respond and adapt her complex system while concurrently acting on and influencing other complex systems to which she was connected and interdependent with. Sandy's social system can be viewed as complex rather than static or chaotic as the following characteristics emerged (as gleaned from Davis and Sumara, 2006) from her data:

- Members of Sandy's system have become interlinked and co dependent with each other and with Sandy, in varying degrees, and for different timeframes. For example, Sandy's family are connected to other athletes, to Sandy's school friends, and to her coaches, teachers, school and sports clubs (self-organising).
- Information is exchanged between Sandy and her immediate friends, fellow athletes and family, so her social system's coherence depends on immediate agent interdependencies and not centralised control or top-down administration (short-range relationships).
- Sandy's social system is composed of and often comprised of other complex unities, thus giving rise to new patterns and activities, and new rules of behaviour (nested structure).
- Her system continuously exchanges matter and energy with the surroundings, so the edges may be variable (ambiguously bounded).
- Her system is closed in the sense that complex systems are inherently stable; that is, their behavioural patterns or internal organisations endure, even while they are exchanging matter and energy (organisationally closed).

If the system is taken apart, either physically or theoretically, it is the relational aspect that is destroyed, which subsequently prevents an understanding of the system's dynamics and properties (Byrne, 2005). This relationality suggests a need to view complex systems holistically, and to consider that when agents of a system are attracted to a certain activity (in Sandy's case netball, gymnastics and athletics), they will generate a pattern of behaviour (not necessarily a linear pattern) over time. Within my research context (sport attainment and education sustainment), Sandy's social

system represents her choices as an individual person who acts as a free and responsible agent, to determine her own development in sport and education.

### **5.11.2 Influences**

This individual case study narrative revealed emergent influences pertaining to Sandy as a young female student-athlete in New Zealand. Her story was unique and original. Interpreted data from Sandy and her nominated significant other (her artistic gymnastics coach, Tania), over a two-year period suggested that Sandy's resilience, hard work, high level of motivation, and task completion orientation were features that allowed her to succeed in both domains – sport and education. Sandy was part of several strong support structures or systems (see Figure 6 and Appendix J), in her family life, at school, as part of her gymnastics and athletics clubs, and as an emerging high-performance athlete at AUT Millennium. The importance of Sandy's family, on her participation, progress and achievements in sport and at school, was evident from the collected data. Barab and Roth's (2006) work on affordance and an affordance network is relevant here. In Sandy's family system, an affordance represents a possibility for action by an individual and an affordance network is the collection of facts, concepts, tools, methods, practices, agendas, commitments, and people that are distributed across time and space and viewed as necessary for the satisfaction of particular goal sets.

The strong close ties between the individuals in Sandy's family system afforded Sandy the physical, emotional, spiritual and social support and nurturing, that she knew she needed to facilitate her pole vaulting goals. Also pertinent to Sandy's family system is Roth's (2003) approach to effectivity sets (the dynamic actualisation of an affordance), and the availability of affordance networks (connections, relationships, interactions) leading to a continuous evolution of both individual life-world and communicative patterns with others.

Sandy often commented (Int1, Int2 and Int3) on the level of organisation and communication required within, across and between her family unit and other connected bodies (systems), to facilitate her development as a student-athlete in New Zealand. From an early age, Sandy's parents initiated and supported multiple opportunities for Sandy to participate regularly in a range of activities and sports.





Sandy's parents fulfilled Côté's (1999) four stages of parental participation for physically talented youth: sampling, specialising, investment and recreation. Sandy's sport participation from early to late childhood (5–9 years) exemplified Côté's sampling and specialising stages in which her parents initiated new sport situations, provided transport and access, altered family routines to accommodate training and competitions, and provided emotional and financial support (Wolfenden & Holt, 2005). The sport-specific skills of netball, gymnastics and athletics were emphasised during this period, with regular competitive opportunities to monitor Sandy's progress. As significant enabling influences, Sandy's parents progressed to what Côté (1999) described as the investment stage of parental participation when they supported Sandy's development as a regional and then national artistic gymnast (aged 9-12 years). At this point, Sandy's parents' overt interest and support decreased as the role of the sports coaches increased as Sandy progressed towards an elite level of performance (in gymnastics, athletics and netball). In the transition from specialisation to investment in gymnastics, Sandy (aged 10-12 years) experienced issues with time management and fatigue due to the multiplicity of her involvement in sport, both out of school hours and at school. A similar transition occurred for Sandy when she started pole vault as a new athletic event. Initially, she adapted to the novel training regime and competitions with outstanding results. Some six months later, Sandy experienced a block in her performances, especially during training sessions, which threatened to unseat her progress and development in pole vault entirely.

Another view, from a complexitivist perspective, considers Sandy's development, originally as a national artistic gymnast and then as a competitive pole vaulter, as emergent behaviours unfolding from many agents that are connected and interacting together in dynamic ways (Mason, 2008). In a similar vein, Byrne (2005) and Cilliers (1998) proposed that a system such as Sandy's was complex because the relationships between multiple elements gave rise to emergent qualities (Sandy's development in sport) that could not be reduced to the sum of their constituent parts (Sandy's attainment at times was unprecedented and unexpected), or to a central agent responsible for overall control of the system (no one factor was attributed to her achievements).

The strength of the ties (or connections) within, across and between systems in Sandy's constellation (Deleuze & Guattari, 1980) affected and influenced her emergent behaviours. Decisions made by her parents, coaches and teachers impacted on her experiences as a talented young athlete; however, her own physical, emotional, psychological and social responses and reactions also acted on and affected those to whom she was connected. These emergent behaviours were evident when Sandy exhibited distress during a period of extended injury (Int1), and when fatigued and unwell due to an extensive training and competition schedule, aged 10-12 years. Sandy's system and the systems of those to whom she was closely connected (family, sports clubs, school) had to adapt and adjust to the multilayered system of interacting entities in which "the 'system' is perpetually constructing its own future as continuity and transformation" (Stacey, 2001, cited in Ovens et al., 2013). Stewart (2001) explained that the interaction of individuals feeds into the wider environment, which, in turn, influences the individual units of the network; they coevolve, shaping each other. This coevolution requires connection, cooperation and competition; competition to force development and cooperation for mutual survival. The behaviour of a complex system as a whole, formed from its several elements, is greater than the sum of the parts (Bar-Yam, 1997; Goodwin, 2000). Sandy's system and the systems of others (to which she was connected) were between the states of order and disorder, "neither regular nor predictable in the way they act; however neither are they random or chaotic" (Morrison, 2008, p.28).

Durand-Bush et al. (2004) recognised that increased financial and time commitment pressures on parents of talented young athletes meant that other opportunities may be sacrificed for the child's sport. This was the case with Sandy who often turned down social occasions or sleep-over invitations with school friends due to her sport commitments. However, a high level of emotional support during stressful times was a central characteristic of the role of Sandy's parents, rather than leadership and direction. The strong tie Sandy shared with both her parents enabled her to continue to engage in multiple sports. Her parents consistently provided for her physical, emotional, psychological and social needs. Sandy's parents were documented throughout this research as supportive, helpful, positive role models. In this context

Sandy's parents were part of an affordance network that Barab and Roth (2006) described as "the collection of facts, concepts, tools, methods, practices, agendas, commitments, and even people, taken with respect to an individual, that are distributed across time and space and are viewed as necessary for the satisfaction of particular goal sets" (p.5).

At school, Sandy experienced conducive, positive relationships with her peers and teachers, especially in educational settings, which she enjoyed and excelled in. Sandy reported strong connections with her teachers and, due to her preference for playing active games outside, she related better to boyfriends rather than girlfriends. Sandy's overt expressions of physicality set her apart from other girls and precipitated her involvement in the domain of competitive sport. Her enjoyment of regular physical activity may have put her into tension with New Zealand cultural norms for female physicality. Becker's (2009) study on the complexities of life as a female athlete in a postcolonial western culture (for example in Canada, New Zealand, and Australia), are helpful here. Becker acknowledged that increased participation rates and significant performances of girls and women in sport over the past three decades suggested that the barriers and discrimination experienced in the past had been overcome. She contended, however, that sport as it currently exists continued to perpetuate gender inequality, and to build and maintain socio-cultural boundaries of normative femininity and heterosexuality.

Strong inter- and intrasystem connections (mainly through her parents' facilitation), combined with early recognition of Sandy's aptitude for performing well in physical pursuits (by her parents and coaches), accelerated her development and progress as a competitive athlete. The strength of the ties she and her family had with her gymnastics coach and the gymnastics club enabled Sandy to accelerate her development as an artistic gymnast. Regular, weekly participation at her local athletics club had a similar effect. Sandy's progress in athletics was significant. Her commitment to netball, gymnastics and athletics from a young age engendered a work ethic in relation to learning and competing, both in sport and in education. As a child, Sandy worked diligently at her schoolwork and sports. She made rapid progress in both, so much so that she was selected to compete for New Zealand, as an artistic gymnast, aged nine.

At this juncture, an influence on Sandy's sport attainment may also be attributable to her early identification as gifted and talented in physical pursuits. While her identification as talented was probably not executed in a formal manner, Tania (Sandy's gym coach) reported that "regular testing coupled with competition results are used to select children for higher levels of competition". (IntSO) Tania confirmed that Sandy had attained maximum development for her age group in artistic gymnastics, winning individual medals at regional and national championships, and team medals at an international level (in Australia), all prior to attending secondary school. Identifying her as a talented artistic gymnast aligned positively with Tranckle and Cushion's (2006) view of the value and importance of talent, that the detection and development of talent was a central concern for coaches, teachers, and researchers in sport sciences and education. Régnier et al. (1993) proposed that the detection and development of talent was based firmly on the premise of predicting future performance based on present knowledge, which underpins the competitive processes in sport and education contexts. From a complexivist perspective, Sandy's identification as a talented young athlete provided her with a level of access to resources, information and opportunities (equipment, coaching expertise, training schedules, competitive opportunities, selection processes) not readily available to other young athletes. An important mechanism within high-performance sport is the availability and management of resource (which is often scarce and in high demand); however, once identified, talented athletes generally have access to these resources, if their potential for future development and achievement has been predicted (by coaches, selectors, sport organisations, their school).

Csikszentmihalyi et al. (1993) argued that talent is socially constructed so that Sandy's identification as talented was "relative to a given context and labelled only as talent when valued and approved by the subculture and wider society in which it exists" (p. 223). Once identified (as talented), and the value of this attainment was approved (winning medals, national selections and international representation), the national gymnastic sporting network adapted by providing Sandy with access to resources that would benefit her most. Sandy's talent was also approved and valued within her local sporting network; she received a scholarship to her secondary school of choice (based on her achievements in artistic gymnastics), and financial support from her athletics

club when she began competing in pole vault. Sandy's parents were instrumental in her acceleration as a talented athlete and as an able student. They guided and advised Sandy with respect to the best schools to attend to accelerate her potential in sport, whilst also sustaining her academic abilities. At intermediate school, Sandy was fortunate to have a teacher who "really pushed me in my schoolwork" (Int1), but who was understanding of her sport. At intermediate school, Sandy discovered an aptitude for mathematics and achieved top marks in the top mathematics class. However, her involvement in sport at intermediate school, including before and after school training or games, began to have a negative impact on Sandy's health and well-being. In Chapter 2 (p.33), Gutman and Feinstein (2008) proposed that well-being has both physical and mental health dimensions and particularly close links with psychological health. They suggested that opportunities for social interaction provided by sport participation played a part in contributing to well-being effects (interpersonal skills, social acceptance, connectedness, self-confidence, and self-efficacy, a sense of belonging, improved body image and self-image).

During her intermediate schooling years, Sandy's training and competition workload became excessive. She reported that she was "not happy most of the time. I was really stressed, I got sick quite easily. I was pale and so tired". (Int1) In Year 8, Sandy sustained a stress fracture to her lower back. Tania commented that "unfortunately it's quite common... you do a lot of rebound work, a lot of bouncing work... we've stepped up all our core strength work, whether that has anything to do with it". (IntSO) Research by Valovich McLeod et al. (2011) maintained that "repetitive stress on muscles and joints without adequate and appropriate conditioning and rest can result in chronic or overuse injuries in athletes of any age" (p.206). The situation in children was reported as more complicated due to the growth process, which could result in a unique set of injuries among young athletes. Sandy's injury and visible ill-health precipitated what in complexity terms is described as a 'tipping point', that is, a critical point after which the system shifts radically and potentially irreversibly into a different equilibrium state (Scheffer, 2001). This adaptation or reconfiguration of Sandy's dynamical system from an artistic gymnastics focus to an athletics emphasis can be explained as emerging in response to the degree of affect her injury had on her health and well-being (Labouvie-Vief & Medler, 2002). Her back injury was a sufficiently

substantial incident to preclude her from training and competing for six months. The emergent behaviour of this affect size was to create a major shift in Sandy's system arrangement and alignment. One of the overt expressions of this level of injury was that Sandy was unable to continue as an IFG step nine competitive gymnast when she moved to secondary school. At this stage of her athletic development, Sandy was in a state of physical, mental and emotional exhaustion.

In Year 9, Sandy began to apply strategies to adapt her complex system in response to her new educational environment, health status, and the socio-cultural expectations on her as a 13-year-old Elite Sports Academy student-athlete. Sandy competed for her new school in athletics at interschool, Auckland interzone and then North Island secondary school championship levels. She enjoyed the experiences and was successful in her events of long jump, hurdles and sprints. She discussed her state of health with her Elite Sports Academy mentor, Mr Smith, who suggested that she stop gymnastics and focus on athletics instead. He specifically recommended that Sandy should give pole vault a try. This sudden, unexpected change of direction, precipitated by poor health, fatigue and injury, had the potential to provide new possibilities and novel situations for Sandy. This event was an example of Sandy's adaptability and self-organising processes so that her complex system could survive in a changing environment by creating new and emergent system-wide understandings and acting (Mason, 2008).

For the remainder of Year 9, Sandy applied herself to her academic studies and to becoming a pole vaulter. Sandy conceded that her first end-of-year exams were "quite scary" (Int1), but she had revised diligently and achieved top of her class with seven merits and seven excellences. Sandy's rationale for working hard at her schoolwork was as a back-up plan if she sustained a major injury and was not able to achieve her dream of becoming an Olympic athlete. Sandy explained that, "if I do have to stop sport and I've got really good grades I can get a good job and good money". (Int1) It is interesting to note that Sandy had a sense of where her life was heading, which impacted directly on the decisions she made on a daily basis in relation to her sport and schooling. From a complexity posthumanist perspective, Sandy adjusted, self-organised and reconfigured her complex systems to optimise her outcomes (Ovens et al.'s, 2013 information flow and feedback loops).

Another factor that influenced Sandy's progress and development as a talented young student-athlete was the depth of support she received from her secondary school. As a member of the Elite Sports Academy class, Sandy's sporting commitments were monitored, acknowledged and catered for by her form teacher, Miss B. This process of monitoring and recognising attainment can be viewed as an enabling constraint (Stacey, 2003) whereby the school encouraged and rewarded choices and behaviours that expanded particular behaviours, such as sustained educational achievement. Part of Miss B's role was to reduce pressure on each high-performance student-athlete by communicating with teaching staff and senior management, and by providing advice, options and pastoral care during times of additional stress. Sandy noted that Miss B's contribution to her sport/school balance was significant. "If I came back to school (from back to back events in New Zealand and Australia) and was expected to catch up like that I wouldn't have been able to do it. Miss B helped talk to my teachers". (Int1)

From a complexitivist standpoint, the relationality of the form teacher's complex system with that of Sandy's, acted to govern Sandy's educational activity, holding her accountable and on task. An "affect" of the close tie between Sandy and her form teacher was to also afford Sandy effectivities (resources and information to match her needs) through which she could adapt and self-organise her system, to avoid major disruption or complete chaos when her sport and education commitments clashed. Miss B's tangible support and effective communication skills assisted Sandy to sustain a sense of stability, in potentially destabilising circumstances. The flow of information between systems and across and within Sandy's school domain ensured that Sandy's daily life continued to be manageable and productive.

In Chapter 2, Winker and Delége (2011) considered the concept of intersectionality whereby an agent's (Sandy's) experiences can be viewed as multilayered and intimately interwoven. Winker and Delége proposed layers that included micro (student-athlete), meso (organisational level, school and sport) and macro (government policy, global factors) categories, which acted to mutually strengthen or weaken each other. In Sandy's situation, her school's flexible management of the meso and macro influences acting on her, assured Sandy of a less stressful transition between the, at times, conflicting demands of her sporting and schooling domains. A key point here is that the school was willing to be flexible to meet the student-



athlete's needs, while also providing a means to ensure that her education still proceeded. The school's system was, in this regard, adaptable rather than fixed.

During Year 10, while Sandy's efforts were concentrated on her schoolwork (as well as additional credits for the National Certificate of Educational Achievement (NCEA) mathematics, science and PE) and developing her pole vault technique and run-up, socio-cultural influences became prominent. Sandy reported that other Year 10 students began to behave badly and had started to make poor decisions, which Sandy viewed as putting themselves at risk. Initially, Sandy was involved in discussing these issues with her school friends, but eventually she removed herself from social media sites, stating that "at school, trying to grow up too fast and do things they shouldn't. Do things that they regret. Decisions that other people make I don't want that to influence my vaulting". (Int2) During this period, Sandy found solace and stability within her new pole vault training squad. This social network afforded Sandy "a good place that I can go and forget about the school drama and just go and have fun. Do what I want". (Int2) Sandy's pole vault squad also provided her with mentors, role-models and people she aspired to emulate in the next Olympic cycle. Sandy's pole vault training sessions quickly became the panacea to her school domain worries, especially as her pole vault coach guided and encouraged her to extend her run-up and to set future competition goals. Once again, Sandy displayed an ability to recognise and access beneficial effectivity sets (reciprocal skills) by knowing which system (group of friends, training squad) to connect with. Sandy's process of realising affordance networks, which is the coupling of affordance networks and effectivity sets in the service of particular goals (Barab & Roth, 2006), was evident in her friendship group choice.

It was now that Sandy also experienced athlete's block, a phenomenon in which the individual cannot distinguish clearly between specific instructions, ideas, images and/or information. This mental block occurred when Sandy was attempting to progress her technique in pole vault to a more advanced level. Sandy was unable to learn specific movements that represented the next stage in her development. She described this mental challenge pragmatically, "it's always going to happen, to have a brick wall. Like, I had an amazing first season. Like no one jumps 3.73m in their first season. That was quite incredible". (Int2) Sandy reported that she had experienced a

significant growth spurt at the end of Year 10, gaining several centimetres in height. Coupled with her additional height, Sandy's eating habits had become erratic, which had an impact on her energy, motivation and health. She noted that she had been unwell over the winter months, "really tired, exhausted really". (Int2) The prognosis was that Sandy was not eating enough to sustain her training and schoolwork demands.

Key influences acting on Sandy's complex system during Year 11 included stress and an increased awareness of her identity as a high-performance student-athlete. While Sandy admitted that she had learned a lot about stress leading up to her Year 10 end-of-year exams, which she had studied for in an intense and relentless manner, she conceded that her determination to be the best outweighed a sense of balance between work and rest. Sandy reported that her parents had asked her to take breaks, go for a walk, or to spend time with friends, to stop her from revising continuously. The learning Sandy took into Year 11 was that she could achieve top marks in all her academic subjects. By completing credits in three of her Level 1 NCEA subjects during Year 10, Sandy had effectively taken a lot of pressure off herself for the external exams at the end of Year 11. As an Elite Sports Institute athlete, Sandy realised that her classmates, while also performing at national and international levels, had little in common with each other. This realisation reinforced her feelings of isolation at school. She acknowledged that some of her school friends played sport, but not in the way that she did, "like there's no one at school that I can relate to" but "it's kind of good in a way... it does give me a look at life as a sort of normal... 15-year-old". (Int2)

### **5.11.3 Meanings and perceptions**

The time frame of Sandy's case study (Years 9-11) represented an important period of transition in her secondary education in New Zealand, from non-external examination schoolwork (Years 9 and 10) to national qualification preparation and assessment (Years 11-13) in Levels 1-3 NCEA. As an elite Sports Institute student and due to the flexibility of provision at her secondary school, Sandy could complete credits towards three of her NCEA subjects, as a Year 10 student. The benefit of this educational provision was significant, especially once Sandy realised that becoming a high-performance pole vaulter was an all year-round commitment:

*A New Zealand summer is an overseas winter, so next year if I qualify for World Juniors in Russia... I'll have the summer non-stop, then a few weeks of winter training off in Europe and I'll come back and it will be almost time for athletics season again! (Int1)*

Sandy's concern was that her projected sports' pathway would clash with her academic commitments in Years 11-13. To address this perceived clash, Sandy began to implement strategies such as completing all schoolwork at school, and paying full attention in each lesson to maximise her learning. Sandy's self-imposed expectations to excel academically created physical and mental health issues during the lead up to her Year 10 exams. During Year 11, Sandy reported that she was more confident about examination procedures and understood what she needed to do to sustain her academic standard. Sandy revealed that "I actually love studying. I love learning and I love the feeling of going in to exams and knowing that you know everything..." (Int2)

During her schooling in New Zealand, Sandy experienced various constraints on her educational opportunities and achievements. Even though she attended high decile schools and with the help of her parents, selected an intermediate and secondary school to specifically support and accelerate her aspirations in sport, Sandy was still subject to a myriad of constraints. Essentially, Sandy appeared to have an ideal educational pathway to realise affordance networks to achieve her goals; however restrictions on her time, physical boundaries, rules and regulations, expectations, deadlines and assessments, training and competitions, impacted on the range of possibilities for how she performed academically and athletically. Barab and Roth (2006, refer Chapter 2, p.6-7) commented on the constraints on individuals and how they interact to access affordances:

Life-world expansion, as the ultimate trajectory of learning, involves engaging in sets of experiences that have overlapping core components (multi-layered) such that individuals build up 'effectivity sets' that span multiple affordance networks – potentially evolving into new ways of interacting with the world (p.11).

Sandy's affordance networks enabled her to access resources, expertise, support, advice, facilities and equipment, opportunities to compete, feedback on her progress, travel, friendships, mentoring, role-models, etc. The multiplicity of her networks and effectivities provided her with an appreciation of the power a specific effectivity set

could exert in multiple situations even when the affordances were not readily apparent (Barab & Roth, 2006). In relation to Sandy's sporting domain, her skill set, knowledge and experiences in pole vault had rapidly catapulted her into "a completely different class, I'm in a completely different world (to other secondary school students)". (Int2)

This separateness worried Sandy; however, she accepted that others perceived her as different, stating that it was expected when someone was regarded as talented. "I cope well because I have good balance between school and sport". (Int2) In the context of her sporting identity, Sandy experienced what Kissinger and Miller (2009) described as 'the formation of an ego identity' in which student-athletes were recognised only for their athletic competence, therefore placing the individual under enormous pressure, with their sense of worth hinging on winning or producing best performances. Sandy's data suggested that she placed herself in this category. She exerted pressure on herself to study and train intensely, to achieve her own self-imposed goals, "It was put on by no one but me. My parents would tell me to chill... I didn't see it as stress really as I wanted to hammer down and do the work". (Int2) Kissinger and Miller's research suggested that the experiences of student-athletes with an ego identity were heightened as they perceived that everyone (parents, coaches, teammates, friends, family, supporters and media) expected them to perform at a high level both academically and competitively. Sandy's view of her sport/school balance, however, was very positive. She was happy with her identity as a pole vaulter and athlete as "everything seems to be going the way it should, so yeah just keep working hard and it should all come together". (Int3)

At age 15, Sandy's sporting life had evolved from one previously consumed by gymnastics, to a complex system solely focused on pole vault. Her perception of herself as a competitive artistic gymnast was now a distant memory. Sandy reported her identity as "the pole vaulter, as an athlete". (Int3) Sandy's sudden change from one sport code to another could be interpreted in Deleuzian terms as a line of flight where an individual or agent recreates or acts against dominant systems of thought and social conditions. Sandy's decision to stop training and competing as a representative gymnast allowed a new being or performance to form where a gap existed in an individual's everyday life (Deleuze & Guattari, 1987). For Sandy, an extended

rehabilitation period to recover from her back injury provided such a space. During this time she could contemplate options, alternative actions, and future directions. Sandy's decision to change her sport codes came as a surprise and shock to her gymnastics coach, and to her parents. Sandy's perception of her coach's reaction was that Tania wanted her to stay at gym, and was prepared to offer her an alternative training schedule, "you can train these hours, these days". (IntSO) Sandy, however, had already adjusted her view, reorganised her system and could justify her new position when she stated, "but there'd be no point because I wouldn't be any good. You have to train a lot to be a top gymnast". (Int1)

Sandy's decision, facilitated by discussions with significant others in her nested systems (parents, family, school mentor, sports coaches) provided enabling constraints (affordances) that limited what her system could do, preventing Sandy from being overwhelmed, but at the same time offering an openness to possibilities that her complex system could take advantage of (a new event in athletics). In this transformative process, Barab et al. (1999) emphasised that the system must have the capacity to retain products of previous exchanges, but also the ability to discard elements that were no longer useful. Sandy's decision to transfer her gymnastic experiences and skills to pole vault, exemplified a positive, beneficial reconfiguration of her complex system. She perceived that she could affect her developmental, functionally related worlds, through her actions (Barab & Roth, 2006) as she recognised the possible beneficial opportunities, resources and expertise available to her through pole vault.

An important influence on Sandy at this juncture was the mentoring counsel of Mr Smith at her secondary school. The strong tie that Sandy developed with her Elite Sport Institute mentor, afforded her information and advice, which she trusted and was confident to enact. Mr Smith facilitated Sandy's introduction to pole vault, which provided new opportunities, a different sub-set of complex systems to engage with (coaches, athletes, facilities, equipment), and a competitive pathway that Sandy recognised was no longer available to her through artistic gymnastics or netball. Sandy's capacity to "unlearn and adapt to uncertainty" (Bauman, 2001) provided her with unique experiences not previously obvious to her, prior to the reorganisation of her complex system.

The complexivist concept of mangles, as coined by Pickering (1993), highlighted a shift in interpretative sensibilities to aid Sandy to make sense of a world of decentred becoming, to gain meaning from emergent complex systems. In Sandy's situation, her decision to change from gymnastics to pole vault required a significant shift in not only the organisation of her system, but also a different level of knowing relative to her future opportunities and aspirations. Previously, through multiple selection, coaching and competition opportunities, Sandy was building her perception of her own success and future as a competitive international gymnast. During the stage of her back injury and subsequent physical fatigue and mental distress, a stream of feedback from others in her close social network (family, friends, coach, school mentor) forced Sandy to consider becoming an athlete rather than a gymnast (Pickering & Guzik, 2009).

Through pole vault, Sandy recognised a career pathway and a clear direction ahead, whereas in gymnastics she was acutely aware that her ongoing involvement had been compromised by injury and her maturation (increased height, higher centre of gravity, reduced power to weight ratio). Tania expressed her perception of Sandy's physical shortcomings when she commented, "internationally probably wouldn't have had the flexibility... and she's very tall... for a gymnast. For other sports [her height is] probably great". (IntSO)

A system event such as Sandy moving from gymnastics, netball and athletics to a full investment in pole vault did cause instability, chaos and disassociation to her complex system (Mason, 2008). Sandy's system reorganisation required a degree of "soul-searching" (IntSO) and careful consideration of the benefits and barriers. Sandy described this phase as "it was a pretty tough time for me". (Int1) However, her achievements in her first season of competitive pole vault afforded Sandy both intrinsic and extrinsic feedback, which reaffirmed her choice of focus and effort.

Sandy's connection, interrelatedness and interdependence with each family member and with her family as a dynamic system was positive, beneficial and empowering. Sandy reported on many occasions the level of support she received from all members of her family, including relatives living outside of Auckland and overseas. Her strong family social network assisted Sandy to review and reflect on the sporting and schooling spaces she was part of and to experiment with new directions, knowing that she always had her family to encourage, advise, and provide day-to-day support

(transport, food, clothing, love). The strength of Sandy's close tie with her parents was evident when she revealed, "they've been my number one supporters... good with my diet, helped me balance my schoolwork. They're good at communicating with coaches, other parents, and teachers". (Int1)

It may be useful at this point to consider Gilbert and Trudel's (2004) findings on the influence and importance of sports coaches on a young athlete's development and progress. Gilbert and Trudel considered a sport coach's overt approach (behaviour towards others, interpersonal skills, relationships) when coupled with internal role frame components (beliefs, values, perceptions, assumptions, goals, expectations of self, expectations of athletes, view of self as expert) constituted the coach's personal view of youth sport coaching. Sandy documented her gymnastics coach as "she wasn't like any other gym coach she really understood. She was really close with my family... we sort of babysat her child and she was really good about me doing other sport".

(Int1) Sandy's perception of her pole vault coach was that "he has done so much for me over this past year... not just learning how to pole vault, but he taught me how to be an athlete, not just performance wise, but how to act... how to get to the top".

(Int1) Both coaches had a significant impact on Sandy during different developmental phases of her sporting career. Tania's nurturing, flexible style engendered a close coach-athlete relationship, which grew to become an interacting, interdependent, interconnected system between her family and that of Sandy's. This strong, mutually beneficial tie afforded both Sandy and Tania multiple positivities, until a system event occurred to change the equilibrium of all sub-systems involved.

Research on the talent identification and development of young soccer players by Williams and Riley (2000) may be useful here. Williams and Riley reported that from a sociological perspective, "supportive parents, a stimulating permissive coach and the dedication and commitment of the athlete to spend multiple hours training and refining skills are the real determinants of excellence" (p.664). An outcome of their work was to highlight why "the pursuit of excellence should not be at the expense of the athlete's physical and emotional health, growth, and development" and that "appropriate familial, educational, and socio-cultural environments were essential in a balanced approach to child development, especially of elite players" (p.665). Research by Jenkins (2002) conferred that participants who comply with the set structure and

practices of a field, in so doing legitimise and reproduce such established practices as cultural norms. Work in this area of power relationships by McMahon, Penney and Dinan-Thompson (2012), highlighted bodily practices in adolescent female Australian swimmers. McMahon et al. emphasised that the long-term effects of embedded power structures, unchallenged ways of doing things and inculcated regimes and systems, can have and have had a long term detrimental effect not only on body image, but also on body practices. Adopting an interdisciplinary approach, physical cultural studies seek to identify “the role played by physical culture in reproducing, and sometimes challenging, particular class, ethnic, gender, ability, generational, national, racial, and/or sexual norms and differences” (Andrews, 2008, p. 54).

In Year 11, aged 15, Sandy’s selection for the Sport New Zealand Pathway to Podium programme exemplified a positive regional provision (driven from a centralised governing body) for identified young athletes, to progress each athlete towards top level international competition. Sandy’s response to her inclusion in this programme was, “it’s really good, just things I didn’t even think of. There was a supplement one and that was so interesting learning new things”. (Int3) This programme provided Sandy and two other pole vault squad members with recognition and encouragement as developing athletes, through a series of seminars, and with some financial assistance.

From a complexivist posthumanist viewpoint, Sandy’s complex system, made up of various people, ideas and things (equipment, training environments, weather, programmes, and pathways) can also be viewed as an assemblage. This concept, proposed by Deleuze and Guattari (1980), highlighted how the bodies (other entities) in close proximity to the principal entity (student-athlete) define the relationships and therefore demonstrate the social complexity of an assemblage. Deleuze and Guattari explained that assemblages “territorialize forms of content (material forms) such as human and nonhuman bodies, actions and reactions, and forms of expression such as incorporeal enunciations, acts, and statements” (p.322). According to this view, the ordering of bodies means that assemblages do not remain static, as they are also characterised by processes of deterritorialisation and reterritorialisation (with components exiting and entering the assemblage), with new connections (relationships) forged, constituting new assemblages. More recent research by



DeLanda (2006) developed assemblage theory further by examining exteriority, in which assemblage components are self-subsistent and retain autonomy outside of the assemblage in which they exist. Entities within Sandy's assemblage functioned in relation to Sandy, but were also connected and intersectional (Winter & Delége, 2011) with other assemblages. DeLanda asserted that "the social does not lose reality or its materiality, through its complexity" (p.13 ). In this way, DeLanda regarded assemblages as effective in their practicality.

As a talented female student-athlete, Sandy was under some pressure to perform and to excel, initially in athletics and then specifically in pole vault. As in any dynamic system, Sandy's education and sport domains were constantly interacting, interdependent and interrelated while also being open, unpredictable and discursive. Sandy's everyday life as a talented student-athlete engendered a variety of influences, not all necessarily beneficial.

#### **5.11.4 Factors causing tension**

An area of conflict between her sport and school domains arose for Sandy regarding her off-season training at AUT Millennium, which ran six days a week throughout the school year. Sandy's athletics training sessions had begun to mirror her earlier gymnastics schedule with three to four hour trainings in the week and a longer session on Saturdays. An important difference was Sandy's attitude towards her AUT Millennium training sessions. She looked forward to her training sessions due to the social connections she had established in her pole vault squad. While she stated that her ideal was to start training at 10am each day (as they did on Saturdays and during holidays), Sandy acknowledged that this was unrealistic given the hours of a normal school day. Sandy's hours of training were not something she could easily change so she had to reorganise her system to accommodate training every weekday evening. She did this by allocating most of Sunday for schoolwork, assignments and revision. An interpretation of Sandy's adaptability can be considered in relation to Barab et al.'s (1999) view that for a complex system to reorient itself to maintain coherence with the environment in which it is engaged, it must contain enough diversity in its make-up to adapt to the demands of the environment. Sandy learned the strategies that worked and those that did not, and implemented the strategies that were most beneficial to achieve her aspirations (in education and sport).

Injury and ill-health as possible areas causing tension were other emergent issues from interpretation of collected data. Sandy exhibited signs of fatigue, poor motivation and bouts of ill-health during Years 8 and 9. A similar pattern recurred near the end of Year 10 and Sandy reported significant muscle soreness and fatigue after heavy training sessions in Year 11. The increased physical and mental demands of pole vault, combined with an increase in the assessment level at school (Level 1 NCEA), had the potential to disrupt Sandy's short and long term sport and education goals. She reported that "my body was struggling a bit a few months ago so I was going to physio once every two weeks but we dropped that because I'm fine now... I just had sore muscles, hamstring, and glute sort of area". (Int3)

A predisposition towards injury was noted by Tania as a possible barrier to Sandy's ongoing success in gymnastics; however, Sandy remained pragmatic when discussing the increased demands of pole vault. "You can't sort of half-heartedly be a pole vaulter" (Int3) Sandy's data revealed that her main concern regarding injury was, "I got a really bad injury in... 2011 and that really set me back and I thought, "I'm never going to be able to play sport again, what am I going to do with my life"? (Int1) Sandy's concerns about injury were well founded. De Lench (2011) reported that participation in only one sport can result in increased risk of repetitive micro trauma and overuse injuries, and that multisport youth athletes who did not obtain sufficient rest between daily sessions or between seasons were at higher risk of overuse injuries. Sandy's resilience and preparedness to adapt and adjust her system to overcome setbacks helped her to circumvent potentially debilitating circumstances. Furthermore, sport and exercise/recreation in an organised context provided a social element, which can help tackle feelings of isolation, often a symptom associated with poor mental health (Cox, 2012).

Sandy's data indicated that she tended to become stressed in educational settings that tested her knowledge and skills. Her achievements in sport afforded her a confident, self-assured, self-identity. However, Sandy's approach to study was intense and exclusive of outside distractions or interference. Coupled with a high level of motivation to succeed, Sandy expressed uncomfortable levels of stress in relation to assessments and exams. In relation to her end-of-year exams in Year 10, Sandy reported "I don't know what I'm doing, I don't know anything" (Int2), whereas in Year

11 she was more relaxed and confident as she was conversant and familiar with the school's assessment methods and expectations. Retrospectively, Sandy reflected that, "all that stress was for nothing really". (Int2) Sandy's competitive attitude of wanting "to be the best" (Int1) both in sport and at school had the potential to undermine her self-worth if she didn't achieve the standards and goals she set for herself.

While Sandy's self-imposed schoolwork ethic had the potential to adversely affect her health and well-being, the same level of stress was not evident in her pole vault training sessions, except during Year 11 when Sandy found her weekly training sessions progressively more physically demanding:

*Muscles are a bit sore at the moment because we did a very hard leg session last night because we've got, in our programme we've got easy week, medium week, hard week recovery week. It's 'hard' week at the moment and it's definitely harder. (Int3)*

However, when given the opportunity to take a two week break from training, Sandy reflected:

*Well it was weird... but half your day is just you get used to not doing anything and it was just like normal and at the time I couldn't imagine going after school every day and training for four hours. I just thought "how do I do that, why do I do that?", but you get used to the lifestyle you are in. (Int3)*

She also commented on how much she enjoyed the late start during Saturday and holiday training sessions:

*Well in the school holidays we get to train in the mornings, I wait for trainings in the morning, it's just after school you're tired and it's a drag and you've got training and then you're hanging around for ages but whereas first thing in the morning you are fresh. (Int3)*

Sandy thought about her sporting lifestyle, her school life, and whether she was on track towards the next Olympic cycle (Tokyo 2020). "I think I'm doing alright, doing pretty well but I set very high expectations for myself so if I hope I can live up to those... they're all expecting me to go to the Olympics". (Int3) However, Sandy was aware that factors beyond her control were influencing her progress and development. The competition goals she set with her pole vault coach for 2016, had not come to fruition:

*Well it's been a quiet sort of season. We weren't able to go overseas; well we went on a training camp in Australia but we weren't able to go to any major competitions like last year. We went to the Australian nationals and we could do that because it was in Perth... and I'm not old enough to compete at world juniors so I couldn't go to that but next year [2017] is when everything gets a bit more exciting. (Int3)*

Pole vault competitions brought a different type of challenge for Sandy. While Sandy had learned a lot about pole vault in a relatively short time frame, she still needed to adapt and adjust her techniques to compensate for environmental constraints during competitions; for example, wind conditions, changes in temperature, and the vaulting equipment at each event. These variables had the potential to disrupt and disturb the stability of Sandy's complex system, and to detrimentally affect her performances. In these contexts, interconnecting influences that worked in her favour included advice, guidance and reassurance from her support networks (coach, parents, mentors, fellow competitors), as well as intrinsic and extrinsic feedback from herself. Sandy had also begun to consider whether her sporting and schooling commitments would clash:

*It'll be difficult especially if I manage to qualify in 2018 for the Commonwealth Games. I'll still be at school. Probably Year 13 and that is right before exams. So, I'll come back and have liked sort of two weeks before I've got an exam. (Int1)*

From a complexitivist perspective, practical management issues emerged from the factors that influenced the time Sandy had to fulfil her sporting and schooling commitments (training six days a week, weekend events, internal assessments, homework), the availability of resources she could access (transport to and from training, food, clothing, support, equipment), and whether she had the information she needed (homework tasks, assessment schedules, lesson notes, competition dates and venues, time away from school, costs, travel) to satisfactorily meet all expectations. The impact of these multilayered influences and factors had the potential to detrimentally affect Sandy's sport attainment and education sustainment, as a 15-year-old student-athlete in New Zealand.

To conclude Sandy's story, a summary of the key interpreted themes, relative specifically to interconnecting influences and factors causing tension, are presented in Figure 7. The purpose of the schematic figure is to increase clarity and understanding

by reducing some data into chunks, without losing the integrity and impact of the data (Huberman & Miles, 1994).

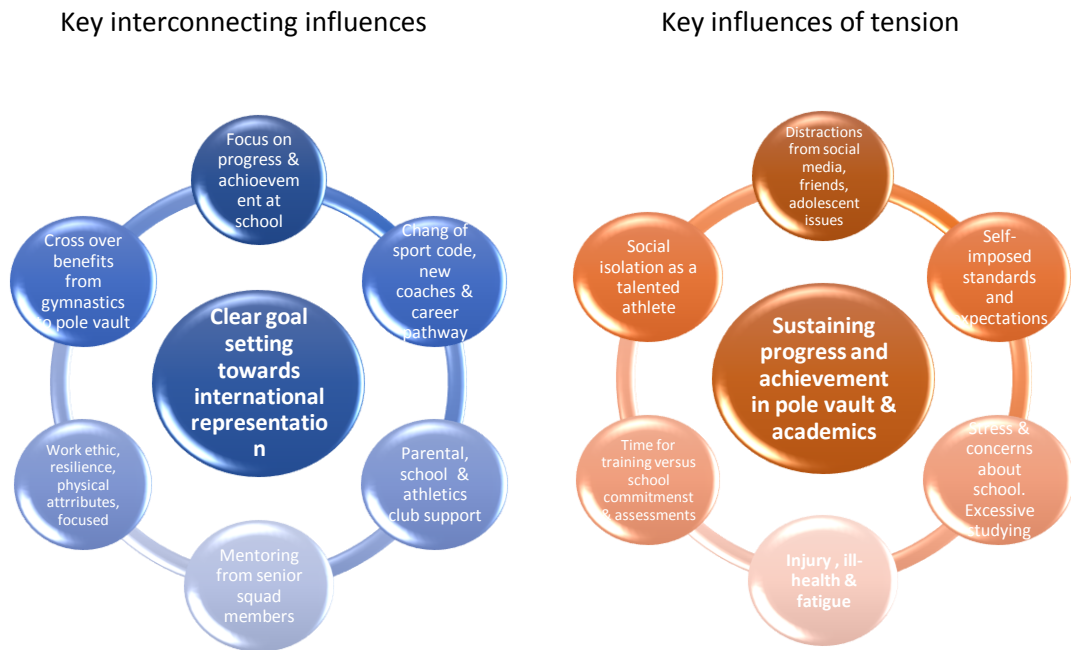


Figure 7. Summary of perceived interconnections and influences of tension – Sandy's case study.

### 5.11.5 Interpretation summary

To gain an understanding of Sandy from a complexivist posthumanist perspective, factors and influences that were interlinked and co dependent, were explored. In response to being acted upon by other multilayered, multidimensional interconnected systems, while also acting on these related systems herself, Sandy was required to adapt her complex systems to accommodate changes and developments within, between and across her family, sporting and education domains. Outcomes from the reorientation of Sandy's systems, often in response to changing conditions, events and influences, emerged as mainly beneficial (change of sports code, selection for her school sports academy, overseas trips receiving recognition and awards in sport and education), goal orientated, and intrinsically rewarding. One outcome that proved to be challenging for Sandy (a mental block during training) forced her to access new information and resources to overcome an actual rather than perceived barrier (both psychological and physical) to her development as a vaulter.

An interpretation of Sandy's everyday life experiences was based on DeLanda (2006) and Deleuze and Guattari's (1980) investigations of assemblages, in particular the

significance of exteriority (exchanges with entities outside her systems) and the deterritorialisation and reterritorialisation (entities exiting and entering the assemblage) through which new connections (and assemblages) were formed. Key influences included Sandy's immediate family specifically her parents, her elite sports academy mentor at school, and her friendship with a senior athlete in her pole vault squad. Sandy experienced a sense of isolation at school; however, within her sporting domain (in particular pole vault) she experienced a strong sense of belonging (Pickering, 1999; Pickering & Guzik, 2009). Sandy's parents were instrumental in her achievements in a number of ways. They provided positive role models, consistent guidance, clear values, and a high level of support on many fronts: physical, emotional, intellectual, spiritual and social. Within the bounds of this research project, the influence and impact of Sandy's parents on her development and achievements, was interpreted as significant. Other key influences that emerged from an interpretation of collected data were Sandy's early identification as talented, her intensive rigorous training regimes, access to expert progressive coaching, acceleration in gymnastics and mathematics, transfer of skills and experiences between sport codes, goal setting, work ethic, mental fortitude, self-determination, and a commitment to excel in sport and academically.

Complexitivist tools that were useful to gain insights and understandings included: becoming and knowing (Pickering & Guzik, 2006), mangles (Pickering, 1993), lines of flight, deterritorialisation and reterritorialisation (Deleuze & Guattari, 1987), assemblages and exteriority (DeLanda, 2006), intersectionality (Winker & Deléage, 2006), system instability and chaos (Mason, 2008), and Barab et al.'s (1999) notion of reorientation to and cohesion with changing ecological situations as part of a transformative process. Gilbert and Trudel's (2004) coach influence on youth sport participation and retention, De Lench's (2011) insights about the implications of early specialisation and Read et al.'s (2011) findings about gender issues and identity, were also helpful as interpretative tools.

Aspects of Sandy's daily life that caused difficulties and stress were interpreted against the theoretical frame of Côté and Hay's (2002) developmental stages, Andrew's (2008) interdisciplinary approach to power relationships, McMahon et al.'s (2012) hegemonic masculinity in sport, and Cox's (2012) study on mental health and feelings of isolation,

with specific emphasis on the emotional, psychological, physical, and social health of high-performance young athletes (see 5.11.4 disabling factors).

The next chapter offers insights and understandings about Rebecca, another student-athlete who is committed to excel in sport while sustaining her academic achievements at a secondary school in New Zealand.

## Chapter 6 Rebecca's story

This chapter provides a rich overview of Rebecca, one of three talented female student-athletes in this research project. Rebecca completed three of the four research phases; the initial questionnaire and two semi-structured interviews, the second of which involved an in-depth discussion prompted by Rebecca's photography montage. Rebecca did not participate in the final semi-structured interview (May-August 2016) due to her time constraints and commitments. This chapter highlights her "sport attainment and education sustainment" presented in the form of a narrative case study. The narrative was developed through a process of reviewing analysed data from Rebecca's questionnaire, semi-structured interviews, photography montage and written cue cards. Analysed data from a semi-structured interview with her nominated significant other (her coach, Margaret, a previous Olympic swimming medallist) was also included in her story. In the creation of the narrative, every effort was made to ensure the identity and school of the participant was concealed or removed, and pseudonyms were applied to ensure confidentiality and anonymity. Rebecca's story followed her chronology in sport and education from early childhood to the present day (2016).

Rebecca was interviewed from 2014-2016 as a Year 10-12 high-performance student-athlete. She attended a large single-sex secondary school in Auckland, which offered support via a teacher who was designated as the Coordinator for Gifted and Talented students. Rebecca also received direct support from her classroom teachers, although there were no specific or formalised programmes in place to provide for high-performance athletes in her school. Rebecca's secondary school had a strong sporting tradition and annually excelled in the national secondary school championships in a range of sports. Sporting prowess and achievement were recognised weekly through sports' assemblies, and a prestigious annual sports' dinner at which "colours"<sup>13</sup> and many sports awards were presented. During the research project, Rebecca was aged 14-16 years. Her main sport was swimming (at national level), but she also participated

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<sup>13</sup> New Zealand sport award for sustained high achievement at secondary school level, awarded by schools for an individual or team who have excelled in sport in the current year – 'Colours' in basketball, 2016.



in water polo and triathlon. Rebecca was the younger sibling of two children with a four year gap between herself and her older brother. Both of her parents were employed full time and as previously competitive sports people, they continued to enjoy an active outdoor lifestyle on weekends and during family holidays. Rebecca's story begins with a typical week as a 16-year-old female student-athlete in Auckland, New Zealand.

### 6.1 A typical day in Rebecca's life

Travelling daily to and from her morning and evening swim training sessions required a coordinated effort from Rebecca and her parents. She elaborated further about what a normal morning looked like when she was training for swimming:

*So, I wake up quarter to five. So the night before I'll pack all my school bags and swimming bags and stuff, and then I will go to swimming, have breakfast there. Catch a train to school, and I might be five minutes late, but I've talked to my dean about that. Then I go through school. After school, most days I just walk home and I get home at four, quarter to four. (Int1)*

Rebecca outlined what she squeezed in to her afterschool and evening time:

*And then I will have afternoon tea, and I will try and do my homework, or I will do my homework, from like four until five or quarter to five. Then I walk to swimming and swim. We do stretching and stuff before, and then we get in from six until seven or seven fifteen. Then Mum or Dad will come pick me up, and I'll go home, get changed, have a shower, have dinner, and then I just start getting ready for the next day again. (Int1)*

In a normal week, Rebecca would follow this routine four days a week with a later start time on Saturdays. The 10:00 a.m. training on Saturdays was her favoured training day and time. Rebecca often had games or tournaments on Friday nights and Sundays (water polo), or an all-weekend event (for swimming and/or water polo).

**Ledger:** Q = initial questionnaire, Int1 = semi-structured interview one, Int2 = semi-structured interview two, IntSO = semi-structured interview with significant other.

### 6.2 Childhood experiences

"Yes, I was definitely a physically active child." (Int1) Rebecca's recollections of her early childhood in Switzerland (until nearly five years of age), and childhood in New

Zealand included an array of activities. Rebecca recounted her involvement in ballet, tennis, cricket, netball, swimming, water polo and football. She attributed her enthusiasm for being active and taking part in sport to a number of factors and influences; that is, role models in her immediate and extended family, her older brother's achievements, the wide range of activities available to her at primary and intermediate school, encouragement and support from her parents, advice and guidance from her swimming coach, and the friendships she developed due to her regular involvement in sport.

Rebecca described her dad as a "marathoner" and her mum as "always out walking". (Int1) She acknowledged that her whole family were "very outgoing and sporty," with Christmas holidays spent outdoors playing "tennis, cricket, running, or going for walks" (Int1) Rebecca revealed that a number of her cousins were New Zealand representatives in various sports (running, hockey, rugby), which inspired her to compete at a national level as well:

*I guess if they weren't there, I wouldn't be as motivated to swim, because they're all representing New Zealand in whatever they're doing, so I want to be the same. (Int1)*

Rebecca acknowledged the impact her family had on her attitude towards sport, and her regular involvement in sport. At age five, Rebecca recounted an incident regarding making a choice between activities:

*Some of my activities (ballet and tennis), my parents encouraged me. I remember when I was five, I either had to do ballet or tennis, and I didn't want to do either. I hated both of them. But I had to choose one, because I had to do a sport. And I did tennis for a while, but then after that I started to want to do sport, when I was like seven probably. (Int1)*

Rebecca recalled that while at school she wasn't the sort of child "that would sit in the library", (Int1) preferring instead to be playing "lots of sports at school, and like at lunchtimes, we would be playing soccer and cricket and tag, and stuff". (Int1) Rebecca commented that at this stage her involvement in a lot of sport "was my choice". (Int1) She did note that from Years 5-8 the intensity of her participation was noticeably higher:

*I kind of just did everything, like in Year 5, 6, 7, 8, every night of the week, I was out doing water polo or cricket or tennis practice. It was what I spent most of my spare time doing. (Int1)*

Rebecca was also aware that she was influenced by her older brother's example in sport and at school. She recalled that, "My brother did a lot of sport, and he's four years older than me, so I guess I wanted to be like him". (Int1) Rebecca shared the extent of her emulation of her brother when she said:

*In primary and intermediate [school], I did [follow my brother's lead in sport]. He did cricket, so I did cricket. He did tennis, so I did tennis. He did water polo, so I did water polo. (Int1)*

She also reflected that "my brother was always really smart, so I guess I thought my parents had the same expectations for me". (Int1) Rebecca explained that she had found learning at school "quite easy" and that that she picked up new things quickly. She remembered being "fine at reading" (Int1) and that she enjoyed reading a good book but "I don't spend my spare time sitting down reading", (Int1) whereas she commented that her brother "doesn't do much sport anymore. He is 18 now and he's at university. He's really smart. He's doing like two years ahead of his friends at university. So, he's more academic and I'm more sporty now". (Int1)

Thinking back to her early experiences at school, Rebecca noted that "you start school when you're four in Switzerland, so I wasn't really a year ahead, because there isn't really that much to learn at that age, but yeah, I learned my alphabet and numbers". (Int1) From age five, Rebecca attended a primary school in Auckland that included Years 7 and 8, so she experienced a consistent teaching and learning approach from Years 1-8 in much the same way as her brother had. When asked if she had experienced any changes in her schooling due to her increased sporting commitments, Rebecca commented that:

*Intermediate was the same, really. Everything just got a bit bigger and a bit harder, but I never found school hard. I was in the top maths, like one of the top maths' group in intermediate. (Int1)*

Her perception of primary and intermediate school was:

*I wasn't really a competitive athlete... I was just doing everything, and I guess a lot of other people were. At intermediate, I guess it was the*

*same, but we never really had much homework in primary and intermediate, so it didn't really affect that.” (Int1)*

Rebecca commented with some hint of regret about her involvement in cricket at intermediate school. She explained that she had stopped playing because, “that was taking too much time and that was also affecting my swimming, because of the shoulder injuries, so I stopped that”. (Int1) Rebecca seemed genuinely pleased that her dad had been her coach in this sport and that he had, “got quite involved”. (Int1) Another area highlighted by Rebecca that she enjoyed as a child concerned her involvement in flipper ball. She described her feelings in the following way:

*I've always loved water polo. I played flipper ball in Year 4, 5, and 6, and our team... I just loved it. It was my favourite thing to do, but that stopped after intermediate. (Int1)*

When reflecting on her childhood experiences in sport, Rebecca concluded that, “my parents, they just helped me make all the decisions about what sports to do”. (Int1)

### **6.3 Aspirations and achievements**

Rebecca glossed over many of her early achievements and aspirations, possibly due to the interview situation (she was somewhat nervous), or perhaps she may not have regarded them as relevant or important at the time. Rebecca’s responses to her initial questionnaire some months prior to the interview, however, revealed a pattern of success that had created a strong foundation for her future aspirations in sport, and in her education. In her written questionnaire, in which Rebecca had time to think before she made her comments, she noted that, “I have achieved numerous things in both team/individual sports, and competitive/non-competitive [physical activities]”. She declared that her main sport was swimming and that she had competed at the New Zealand National Age Groups Swimming (NAGS) championships since the age of ten. She also mentioned her regular participation in water polo, netball and cricket, all of which she played competitively until the end of Year 8. Another activity that was not mentioned directly in her interviews but that appeared to impact on herself and her family was her Dad’s involvement in skiing (club president) and therefore her participation in the North Island Secondary School Skiing championships, in which she had placed in the top ten.

From an academic standpoint, Rebecca had set herself two specific personal goals within the subject of physical education. She explained that she “wanted to finish top in my [PE] class for both the 12-minute run and 10-minute swim, which I achieved”. (Q) Rebecca noted, again in her questionnaire comments, that during Year 9 she had achieved 8<sup>th</sup> at the National Short Course [25m] Swimming champs, in the under 15 age group for New Zealand. She aspired to achieve a medal (top three placing) by the end of Year 11 and to represent New Zealand internationally in the following five to ten years [aged 18-23]. In addition to Rebecca’s stated goals was an intention to, “coach younger kids, and to motivate them”. (Q) Her dream to represent New Zealand, however, was never far from her thoughts. In her first interview at the beginning of 2015 she commented:

*We have Nationals, week three of next term. So, we are training for that at the moment. We had two Nationals here, so we just trained for that most of the time. But yeah I guess the dream is the Olympics and Commonwealth Games. (Int1)*

Rebecca rated herself as “above average” but not “excellent” for her academic achievements since attending secondary school. She explained that during Years 9 and 10 she had achieved “highly in my academic achievements” (Q) with all excellences and a few merits in Year 9, and all excellences and two merits in Year 10. Rebecca did not rate herself as “excellent” as her success at school was only due to her strengths in maths, social studies and French. She recognised that English was her weakest subject so she did not warrant an overall rating of “excellent”. (Q) Another factor that influenced Rebecca’s sustained achievements academically were her parents: “they’ve always been smart when they were kids, so I’ve always just been the same, I guess. And my brother has definitely impacted on that”. (Int1) She identified factors that had affected her attainment in both her sporting and academic endeavours, during Years 9 and 10:

*The negative effects [are] the large amount of time taken up by swimming, which means I don’t have as much time as I would like to study and do homework. Since starting at secondary school I have lost a huge amount of sleep due to there simply being not enough hours in a day... I have occasionally had to miss training because I haven’t finished my homework or I have a test the next day which I hadn’t studied for. (Q)*

A positive outcome of her intensive swimming training (eight sessions per week as well as water polo and PE practices) was that she was “motivated to finish her homework” because she had “other things to do unlike my friends”. (Q) At the “End-of-Year School Sports Awards” (2014), Rebecca received a \$100 scholarship in recognition of her achievements in swimming, and to assist her with further development and events in her swimming career.

Rebecca’s explanation for her ongoing success in sport and at school included some critical self-reflection. She surmised that, “I have always been quite hardworking and determined. If someone says I can't do something, I have always wanted to prove them wrong”. (Int1) Rebecca also acknowledged that her home environment provided positive role models to motivate and to inspire her. She stated, “I feel that [attitude] comes from my family. We're all quite competitive, and we all want to win, which has helped”. (Int1) Rebecca also noticed that she had begun to change and that she could begin to take responsibility for her choices and to influence her performances directly by her actions:

*Last year at Nationals, I came 7th and 8th in my two main races. And at the other Nationals, I came like 4th, so I am definitely improving, and I think I still have a lot more to improve and get stronger. And a lot of other people my age are already doing weights, and they've kind of reached their maximum height and strength... I'm still growing and still getting stronger. (Int1)*

## 6.4 An emerging identity

Rebecca’s view of her current achievements and future aspirations were also influenced by her swimming coach Margaret:

*Our coach says, "You were born a breaststroker, and you can't do anything else," but because your feet are meant to turn out, so I could-- my feet turned out like breaststrokers, but I could also do the other things. (Int1)*

So Rebecca regarded herself as a “breaststroker” (Int1) even though she was aware that Margaret (who had previous experience as an Olympic swimmer) had confirmed that the 400 medley was probably her best event and distance. Rebecca discussed why she thought the 200 breaststroke and 400 medley were her strongest swimming events. She conceded that, “I'm not really a freestyler”, (Int1) which from her view also

had implications for swimming medley events. Rebecca outlined clearly what her optimal distances were, “I don't really do 1500s and 800s free, but I'm all right at backstroke; 200 back and 100 back I'm good at. I can do freestyle, I just don't... I'm not the best at it, so I don't race it, really”. (Int1) Year 9 (2013) was an important year that established Rebecca's identity as a young sportswoman. During Year 9, Rebecca recalled:

*Probably three-quarters of the way through the third term in Year 9, we were doing like 'boat off' in sets and I was leading the slowest lane, and I was keeping up with the fast lane. And I kind of realised that I wasn't that bad, and that I could do it. My coach kind of encouraged me to keep going and be better. (Int1)*

It was at this time that Rebecca realised that she didn't really enjoy racing, that swimming took up a lot of her time and that she wasn't sure if all the effort was worth it, then suddenly she “realised it was”. (Int1) Rebecca described her dilemma with regard to pursuing swimming long term:

*I kind of had to choose if I wanted to swim competitively or stop, because I could swim well by then. So Mum was happy for me to stop, but I kept going for another probably until halfway through Year 9 and then I really didn't like it. But Mum wanted me to keep doing it for another term, and then make a decision, so I did. And then I started to enjoy it, so I kept that going. (Int1)*

At the 2013 “End-of-Year Club Prizegiving”, Rebecca received the Most Improved Swimmer Award for her age group. During Year 9, she had won two golds, silver and a bronze at the Auckland under 15 age group championships, which signalled a new level of attainment for her. Rebecca explained that, “I had never really got medals before, so I was quite motivated to keep going”. (Int1) She felt encouraged to continue and consequently approached her swimming in Year 10 with renewed vigour. She explained that during Year 9 she had also grown taller and had become more confident to “start making decisions about what to do, because I couldn't keep doing all my sports”. (Int1) Rebecca elaborated that once she realised that she could swim well, she increased her training and started doing extra work outside of the pool, such as “dry land and stretch cords and stuff, and that definitely helped”. (Int1) Her decision to swim more seriously during Year 10 precipitated her decision to stop playing competitive water polo and to focus all her effort on excelling in swimming instead:

So I stopped water polo in Year 10, because of swimming and pressure from my coach and parents, and I wasn't really enjoying water polo then. (Int1)

The next few months, however, provided a number of challenges for Rebecca as she vacillated between committing herself to swimming, then water polo, back to swimming, and finally to water polo:

*And then swimming got... it was just a lot of training, eight times a week. And I enjoyed it for a while, but it was beginning to get a bit boring. So, I played water polo, joined at the start of this year [2015] and we have just had North Islands last weekend, and Nationals are coming up. And I think it's actually improved my swimming as well, because I've gotten stronger and fitter. (Int1)*

Her swim coach, Margaret, documented how water polo, in the form of flipper ball, had become popular at intermediate and now at primary school levels. She explained that to produce top level water polo players, 10,000 hours of training was required. In her view, the strategy of starting athletes at a younger age helped to meet this benchmark of training for swimming and water polo, but also had an impact on which sport children were committed to. Margaret had strong views on the effect the introduction of flipper ball at primary and intermediate levels had on swimming participation and commitment:

*Probably twenty years ago water polo, they started getting it into secondary schools, so we lost a lot of swimmers to water polo at secondary school. And the reason for that is, as a swimmer you're, there's only one or two major meets a year, you don't actually, you only really compete in one of those for your school, but for water polo you compete for the team. So when you compete for the school you get recognition from your peers and from the school, and that's um very important to a teenage athlete. (IntSO)*

Rebecca's final decision to pursue water polo as her main sport surprised and shocked her parents and swim club squad members, but her change of sport had a more profound impact on Margaret:

*A lot of its peer pressure. Being a swimmer there's peer pressure from others... like one of the things [they]... are told all the time, "It's so boring swimming up and down that black line"... "How boring, how boring you are, swimming up and down that black line. Can't you do something interesting?" (IntSO)*



Margaret also identified social factors acting on young swimmers:

*For a swimmer, I don't know if other athletes would have that... when you commit yourself to your training session, which is every night after school, you haven't got the time off to hang round at the mall. Peer pressure's their biggest problem, for a teenager athlete. And I think that's why Rebecca has gone to water polo, because um, there's a big group of them doing it. So she's not fighting that, that peer pressure. (IntSO)*

Margaret described her reaction to Rebecca's sudden decision in Year 11 to change from swimming to water polo:

*She was on a good path too. She was improving um... um... and yeah it was a...I couldn't believe it when I got the text from her. She didn't even talk to me or ring me. She sent me a text. Um... it came right out of the blue. (IntSO)*

Rebecca had been coached by Margaret from the age of nine. Rebecca had qualified for the National Age Group Swimming championships every year under Margaret's guidance and direction. During Year 9, when Rebecca had experienced some difficulties with her commitment to swimming, Margaret and Rebecca's parents had persuaded her to continue, and Rebecca had outstanding results in Year 10. At the end of Year 10, at Margaret's request, Rebecca had taken on the role of chairperson for a new initiative, a swimmers' committee. Margaret acknowledged Rebecca's organisation, attitude, and skills in this role. She quoted Rebecca as saying, "I am excited and ready to change the attitude of our club and turn it into a really positive, fast club". (IntSO) Margaret indicated that she thought there were other factors that contributed to Rebecca's decision to change codes. She noted that water polo, as a team sport, was perceived to be more fun, it had initiation activities for new team members (which Rebecca experienced and enjoyed at her first national water polo tournament), and the training and playing culture was not as strict as for swimming. She gave an example:

*I think a lot of it is... the schools have national tournaments. She went away to that, came back and said, "it was just so much fun." So swimming's hard work. And there's no alcohol or anything like that... [Whereas in water polo] you play the game and go out afterwards. Totally different. You don't have to get up in the morning... (IntSO)*

Rebecca's swim coach explained that for Rebecca to pursue her Commonwealth and Olympic goals in water polo, she would still need to train as a swimmer. Arriving at a mutually agreed new training schedule required discussion and negotiation between coach, athlete and parent; a system Margaret described as the "triangle" (IntSO), which in her view was essential for an athlete to succeed nationally and internationally in any sport. Margaret reflected further on Rebecca's decision to play water polo as her main sport:

*Rebecca is a very strong-willed girl, and when she makes up her mind, that's it. And at this point in time she's made up her mind that she wants to be a water polo player. So I don't actually think it's going to change but I think the meeting I had with her, a few weeks ago, I think she did listen to me... I said if you want to be a top water polo player, it's not going to happen unless you keep your swimming up and get to a certain level with your swimming. So I think she has resigned herself to the fact that she needs to keep swimming and keep at that level... So she's 'in' there, which is not far off the top level between first and the bottom. (IntSO)*

The outcome of this meeting was that Rebecca agreed to swim six times a week instead of eight, and to continue to enter and compete for her club at the NAGS each year. Rebecca revealed that she had found the transition from swimming to water polo difficult:

*I got sick quite a few times because I was running... I was doing a lot of things... like I was just getting through the week. I missed a few swimming trainings. I probably cut down to five or six at that time. I definitely had to keep swimming if I wanted to do water polo because it's such a major part of the sport. Yeah, like my parents were happy with it... glad I was doing something else. (Int2)*

However, at the beginning of Year 12, it was clear that she had made the transition from swimming to water polo successfully. Rebecca commented that, "I'll probably keep [water polo as my focus]... definitely this year and next year. I'm not sure what I'm going to do after school finishes". (Int2)

## **6.5 School, sport, life balance**

Balancing schoolwork with sport commitments was a well-practised time management skill that Rebecca learned early to help manage her daily routines. Each day she juggled multiple activities that required excellent planning, organisation, and communication

between Rebecca and her coaches, teachers and her parents. The quality and regularity of communication were important factors to ensure that Rebecca could sustain her education whilst also excelling in her chosen sport. Communication levels for Rebecca were regular and informative with her swim coach, Margaret. Rebecca communicated regularly with her dad when he dropped her off at swimming in the mornings and with Mum whenever Rebecca needed advice or guidance. Rebecca's support structures at home and at swimming were well established and reliable. In Year 11, however, Rebecca's contact with family members became less regular. She explained her situation:

*My mum's really organised as well and time management. And we're all really busy, our family. My brother is doing debating and doing, I think he's doing an extra university course this year that he shouldn't be doing. And Dad's working full-time and he's the president of our ski club, so he's always doing work on that. Mum's working full-time, cooking dinner and... running the house (Int1)*

Rebecca described her routine and how it impacted on her family:

*Well, Dad getting up in the morning to take me to swimming, it's good for him, because he gets up and goes for a run or whatever. My brother doesn't really know much about it, because he is always studying in his room. (Int1)*

When Rebecca began to combine water polo training with a slightly reduced swimming schedule, she required a revised strategy to get her where she needed to be. Rebecca described the logistics of a typical day of training for swimming and water polo, which represented her normal routine in Year 11:

*Yes, like on Thursday nights, I go straight from swimming to water polo, and someone has to take me. They're always picking me up from swimming, but I get myself there, if it's in the daytime. So, I walk to swimming or run to swimming at night, because Mum and Dad are at work. And like in the morning, I catch a train to school, so they're not as involved as other parents who, I guess, aren't working and are picking their kids up. (Int1)*

When asked if her move to water polo had in fact increased rather than reduced her sporting commitments, Rebecca replied that, "I have probably maintained it". (Int2) For Rebecca, Year 11 represented the first year of National Certificate of Educational Achievement (NCEA), which required her to complete a number of internal

assessments (to gain credits) in each subject, and to achieve a final grade (Excellent, Merit, Achieved or Not Achieved) by sitting external examinations at the end of the year. She shared her concerns about the increased workload in Year 11:

*It's definitely harder, a lot harder this year with NCEA and the internals and everything, but it seems to be going all right this term. Hopefully it stays the same for the rest of the year. It's going to be a lot harder around exam time when we have lots of subjects we are studying for, but I guess it's just preparing the notes now rather than when I have lots of other things to do. (Int1)*

When asked how she felt about doing NCEA assessments and examinations, Rebecca expressed her concern about time: “there’s not enough hours in the day... there’s just so much to do”. (Int1) She explained that on some evenings she would do her homework when she got home from swimming, but by going to bed later she would often be tired at school. Rebecca’s strategy was to dedicate at least half a day on the weekends to keep up to date with schoolwork. She acknowledged that she put herself under pressure with regard to achieving top results at school:

*I'm very competitive and always want to be doing as well as I can. So if everyone else gets it and is getting 'excellents' then I'll go home and teach myself and try and be the same. (Int1)*

Rebecca was aware that her time management and efficiency were different to that of her friends. She explained that, “I'll spend half an hour doing something that my other friends will spend an hour and a half doing, because they'll get distracted or because they have the whole evening to do it, they don't have anywhere to go”. (Int1)

Rebecca’s effective time management didn’t stop her from being distracted by her phone, which she admitted was something she was working to overcome. She quoted her swim coach Margaret’s advice for time management, “we just need to treat every second, like use every minute we have of the day”. (Int1)

By reflecting on her academic progress in Year 11, Rebecca identified other aspects that influenced her sustained attainment:

- Insufficient time to revise for tests or assessments.
- Feeling tired at school due to her training schedule out of school.
- Internal and external pressures to succeed.

- A lack of support for competitive student athletes at her school.

She expressed her frustration when trying to balance schoolwork with her sport commitments:

*Well, I guess if I wasn't swimming, I'd be doing other things. But most of the time, I'm doing as well as I want to, but occasionally I just won't have had time to learn my French words or something. I get really annoyed at myself when I don't do as well as I should. (Int1)*

Rebecca acknowledged the direct impact her swimming and water polo training sessions had on her motivation to study and to meet deadlines at school. She expressed the inherent dichotomy and duality of her sport/school relationship:

*Well, it's all about time, really. I guess if I wasn't swimming, I wouldn't have the motivation to do the work, but sometimes I think I should be spending more time doing this [schoolwork]. But I just have to be awake and focused in class, because if I miss something in class and have to do it for homework, then I won't understand it. I guess I learn things quite quickly... I just think if I wasn't swimming, I would find school easier, but then I guess on the other hand I wouldn't, because I wouldn't have the motivation to finish something before I leave. (Int1)*

She continued to reflect on what motivated her to strive at school:

*I guess it's my expectations, but I feel like I have pressure from my brother, but I don't think my parents really do, but I feel like they do. And he was always getting 'excellents' and 100%, so I want to be like that. (Int1)*

She considered the pros and cons of seeking help to compensate for her sporting commitments:

*But [at my school] there isn't really any support I guess. I could ask for an extension from my teachers, they would probably say yes, but I feel like they've given a deadline, so I should meet it. I got the late pass, because if I catch the train, sometimes it's late or whatever. But I had to ask for that, they don't really give-- I don't know, I've never really seen any opportunities to have support. (Int1)*

Rebecca decided that additional sport commitments did not justify a need for extra support with her schoolwork in Year 11:

*But I don't really need any [support]. If a teacher says this is due next week, then I don't really see any reason why I shouldn't because I swim. (Int1)*

About her reflection on the support systems:

*I guess I think they just need to be more aware of the people doing extra sport. Other people, my friend does gym a lot, like every afternoon from 3pm until 8pm, so there's people that have it worse than me. So, I wouldn't say there's anything that needs changing, because I think it's my responsibility and I have chosen to swim, so I should keep up with my schoolwork when I have time. (Int1)*

She did, however, acknowledge that when she was absent from school for national events:

*Then I guess I'd ask my teacher for an extension, but there's always time between the sessions... So I have just got to be organised before I go, ask my teachers what they'll be doing and take it away with me. (Int1)*

In this respect, Rebecca noted that some teachers were more helpful than others, and that if she had issues with balancing her schoolwork and sport, she was not sure who to talk to. Rebecca did not seem to be aware of the support systems available to her, through her school:

*I'm not sure if they've done any sport themselves, but I think my tutor teacher knows I swim, but I actually don't know. Yeah, my dean knows I swim, because of the leave pass. But I guess they try to understand, but I haven't really talked to my dean much at all. (Int1)*

For Rebecca, there was no question about her priorities between school and sport. Rebecca recognised the importance and significance of her schooling success. While Rebecca had set clear achievable goals in sport, she had also set equally critical goals academically:

*School, [is priority] probably. But there's always time to do it, and there is always time to swim. But yeah, I guess school is the one that is going to get me a job in the future. (Int1)*

In relation to sport, her goals remained the same as stated in her initial questionnaire; however, Rebecca's response became tempered with advice from her swim coach and her parents:

*I guess Olympics and Commonwealth Games, and that's just training more, and getting stronger and fitter. But school does come first. I want to go to university, whether it's before or after I achieve, if I achieve my goal. A lot of people have a gap, stop, don't do university for a few years while they swim and then go back to it. So, yeah, I will see what happens there. (Int1)*

To continue to find a productive, enjoyable and workable balance between the multi-faceted, dynamic systems of her everyday life, Rebecca set clear goals, prepared and organised herself, applied herself consistently and with enthusiasm, and reviewed her progress in light of her goals. Aspects of her lived experiences in Year 11 had met her need to be part of a team and to have fun in and through her sport (of water polo); however, the necessity to continue to train and compete in swimming, to support her ongoing fitness and speed in water polo, had the potential to create new challenges for this talented young athlete, as she moved into Year 12.

## **6.6 Water polo experience**

Rebecca mentioned that she had felt stressed about her NCEA examinations and resulting grades. The pressures she imposed on herself were based on how she perceived her parents' unspoken expectations, elicited from her brother's outstanding scholarly achievements. Rebecca felt the need to achieve equally high academic results. Rebecca rationalised her (self-perceived) lower academic success (in comparison to her brother) by stating that she was the "more sporty one". (Int1) She was, however, very pleased with her Level 1 NCEA results:

*Really good. I got endorsed with excellence overall, which is what I wanted to do. And I was really pleased with Maths especially, and English. My Level 1 subjects were Maths, English, Biology, Physics, Geography, Sports Science... and French... My brother is really smart. He's at Auckland University at the moment. I guess I just wanted to do well as well. But keep everything else up at the same time. (Int2)*

This outcome provided Rebecca with a sense of relief and also boosted her confidence leading in to her Year 12 studies for Level 2 NCEA. She noted with some apprehension that, "apparently it's much harder". (Int2) The positive juxtaposition to Rebecca's

academic concerns was her focus on exploring and discovering the world of water polo. Rebecca revelled in the team ethic, which engendered an array of new experiences. She described some of the differences she had observed:

Water polo was really good and I really enjoyed the team, aspect of it. And like getting to know the new team... Like the environment. I really liked before games.

Rebecca began to recognise the value of school team sports:

*We all like work together really well and... support each other. Like at swimming... you're by yourself. If you do it wrong... it's all your fault. There's no one else to... like be there. (Int2)*

She acknowledged that her school “doesn’t really do swimming apart from swimming sports, zone and interzone, and Auckland championships”. (Int2). The secondary school national swimming championships were scheduled, “right in the middle of exams. Like the week of exams” (Int2) so this prestigious event excluded all Year 11-13 student swimmers. Water polo, however, provided all year round competition, monthly mini-tournaments, and significant national championships for school and club teams. Rebecca’s decision to focus on water polo as her main sport provided the affiliation and interdependent team relationship that she had previously struggled to find in swimming. She described her training week and competitions for water polo in the following way:

*So we had skills just for term one. Sometimes three trainings a week and then one or two games in the weekend. And you had nationals in the holidays, in the term one holidays. And then club started, half way through term two. And training twice a week half of term two and all of term three and then we had nationals in term three holidays. (Int2)*

As a school and club-based sport, the water polo season was organised to work within school terms and holidays and to cater for student commitments at school:

*We tend to have more meets during the start of the year because at the end of the year everyone has exams and, they don't really want to have many competitions, but, there's one little one, which is like an Auckland-based competition once a month. And then there's like three or four Auckland Champs, a year. There are two nationals. So... there are probably six others in total. (Int2)*



*During term four, when most senior students were on study leave to prepare for external examinations, water polo was reduced to a minimum. Rebecca explained that, "I only had one water polo training in term four, which was Wednesday mornings so that was alright." (Int2)*

However, her club swimming training continued, which forced Rebecca to make a choice. She commented that "I had swimming. I just kept swimming... around exam time like when exams were on I didn't go swimming." (Int2)

## 6.7 Sport identity

At the conclusion of a full year of water polo and swimming, Rebecca identified herself as more of a team player, rather than an individual sportswoman. She also commented that the culture at swimming had changed, in part she thought, due to her change in approach and attitude. She recognised that she could make a difference, not necessarily to the whole swim club, but certainly to her immediate swim squad members. She explained these revelations in the following way:

*I'm really a team player now and at swimming we all try to make it more of a team environment. Because it is... like a team sport in a way, because we're all training together and seeing each other so many times... so at swimming I'm aware of what everyone else is doing and how fast people are swimming. We can just like encourage them and we all encourage each other during sets, when we're struggling. (Int2)*

It was clear that Rebecca was excited by the possibility of improving the social structure and interpersonal relationships of her swim squad. She began to believe that the feeling' she had as part of her water polo team was also possible with the people she trained with for swimming:

*It's not that different [from water polo] because I, it's me, like I can't change the whole thing but I've definitely changed it, with like the people I train with, around me... everyone else is kind of catching on to it and encouraging more as well, which is definitely good. It's still not, it's obviously not a team sport yet.*

Rebecca concluded that swim training had become "more fun, a better environment. Like you want to go to training to see everyone, not just swimming up and down the pool... by yourself". (Int2)

She also acknowledged that her swim squad friends were surprised that she had decided to focus on water polo in Year 11 and ongoing, especially as she had trained hard for swimming in the season prior to her decision. Rebecca reported that the swim squad had accepted her change of focus and that, “everyone is so busy in their own real lives they don’t really notice, what else is going on”. (Int2) The socio-ecological advantages of water polo were again evident in Rebecca’s comment that, “I’ve definitely got more friends and stuff at water polo. [My support structures] are basically the same thing at swimming. My parents still the same, my coach... I’ve got extra coaches at water polo now”. (Int2) When asked if swimming and water polo intersected in some way, Rebecca replied emphatically that they were quite separate. She admitted that focusing on water polo, “was definitely, it’s been a big change”. (Int2) When asked about her aspirations longer term, Rebecca offered the following comment:

*I don't know. Yeah, I guess, but I want to go away for university. I don't really want to stay in Auckland. So, I don't know... I mean, they do have the American universities and scholarships, but whether I get that or not, I don't know. Our coach says it's almost impossible to do university and swim. So, I'll make that decision when it comes. (Int1)*

## 6.8 Integration

The transition from one sport code to another, especially at a high level of competition, had the potential to produce a number of challenges and obstacles for Rebecca as a student-athlete, especially in her academic qualification years at secondary school. Rebecca reflected on this aspect in her second interview when she expressed her thoughts about the process of integrating into an established team:

*I didn't play [water polo] in Year 10. I guess everyone else already knew each other... I knew most people already but like they are all really close. But I think, because I'm a swimmer they think, they respected me more because I was like one of the fast people, and I fitted in straight away... it was so much fun. (Int2)*

Rebecca assessed herself as one of the strongest swimmers in her school team, but viewed herself as an average player due to her break from water polo in Year 10. To her advantage, she had played in a club team during Year 11, which she thought had

helped to develop her skills. Her prediction was that, “I think I will be a lot better this year. We’ve had that extra two terms of playing”. (Int2)

Another element to consider in her transition to water polo was the need to continue quite intensive swimming training and competitions to support high level performance in water polo. Rebecca described a difficulty when participating in national championships for two sports:

*One holiday we went down to Wellington for nationals for water polo. It was a lot of fun and... swimming nationals as well, which is two weeks later, in Wellington again was also lots of fun but I wasn’t really that fit because I’d been focusing a lot on my water polo. (Int2)*

Rebecca went on to explain that she was used to having a week off training after swimming nationals, but on further reflection remembered that, “you think it’s not much but it really does affect you”. (Int2) She noted that her worries were more mental than physical, “thinking you’re physically tired”, (Int2) which made it difficult to perform at her best. In this regard, Rebecca’s swim coach Margaret had also reported a state of complete inactivity when top level young athletes had a week or two off swimming; “they go home, turn the television on and get nothing done”. (IntSO) She expected that they would use this time to catch up on schoolwork, but inevitably “they got further behind. They were being normal”. (IntSO) Margaret commented that some secondary schools in Auckland were incredibly supportive and understanding of student-athletes’ needs, while others were disinterested or unaware of the pressures on students who represented New Zealand in sport:

*A student should be able to get the [school]work done that they need in six hours. That’s a long time. And they should be able to pursue other things after school. Okay, an hour or so of homework after school a day but some of these kids are getting three to four hours of homework, on top of a six-hour day at school. (IntSO)*

When asked how she thought others perceived her now that she was a water polo player, Rebecca commented that her parents view was much the same. She qualified this with another comment on her level of enjoyment and consequential state of personal happiness:

*I guess I'm enjoying water polo more... I was enjoying swimming but not really much but now that I'm doing water polo I enjoy swimming more. I'm like happier... (Int2)*

Rebecca's personal aspirations in water polo extended to "be captain of the school team in Year 13"; (Int2) however, she was not sure what her plans and goals were for water polo when she finished secondary school. (Int2)

## **6.9 New responsibilities**

Year 12 was described by Rebecca as "not a sleep year. [I'll] not get as much sleep this year". (Int2) Her assessment of Year 12 was based on extra responsibilities she had taken on as a school sports' captain. At the end of Year 11, Rebecca had applied to be a sports' captain for swimming, but had been selected to help manage her schools' triathlon teams instead. In her role of sports' captain, Rebecca was expected to attend monthly meetings as a member of the School Sports' Committee, report results and events at sports' assemblies, and assist in the organisation and delivery of whole school sports' events and activities, as well as help to organise and coordinate three triathlon events. Initially, Rebecca rationalised this extra responsibility as a student leader in sport, in a cursory manner:

*Not too bad because... triathlon is quite a small sport at our school. Not many people do it so I just have to organise three days... which is fine. (Int2)*

When added to her already comprehensive swimming and water polo training schedules, and expected increase in schoolwork, Rebecca began to perceive Year 12 as one of her busiest years yet:

*Like just to keep my swimming up and to keep fit with it, keep competing. And water polo, I'm not, I'll see how it goes in term one, because I'm, it'll be so busy at school and stuff with swimming... cause all of swimming zones and stuff in term one, and all the water polo's in term one so... I'm not sure; I'll see how it goes. (Int2)*

She outlined what she expected her training week would look like, during Year 12:

*Four mornings for swimming... and then three water polo trainings after school, and then if I like, swimming on the other two days so... I'll have something on every afternoon. And I do homework... I will have time like before or after the water polo swimming in the*

*afternoon... I'll definitely have water polo games. I won't have swimming competitions every weekend. (Int2)*

Rebecca agreed that she was in fact training and competing in two sports now that they were separate from each other, and made different demands on her. She also acknowledged that she had achieved a similar level in water polo to what she had previously achieved in swimming, after just one year of training and competing in both codes. Overall, she seemed happy with the balance in her sport domain, but indicated some concerns as to whether she would be able to sustain her academic standard (set by her results for NCEA Level 1) while also achieving her sport aspirations during Year 12.

### **6.10 Reflecting on Year 11**

The photo montage section of Rebecca's second interview elicited some strong messages related to her sport attainment and education sustainment from her perspective. She selected photographs of three sporting activities (water polo, swimming and triathlon), and highlighted images of her school environment, specific subjects and important friends. She began her discussion by explaining her role in the school water polo team as the "player who swims for the ball". (Int2) Rebecca had earlier commented that she was one of the fastest swimmers in her team so it was not surprising that she had responsibility for securing the ball at the start of each game. She became animated and excited when describing each water polo image, especially about herself in various situations; ready to start, blocking an opponent, playing goalie, and as one of the team in the team photo. Rebecca emphasised how much she had enjoyed the team ethic and environment, and mentioned again that she brought a range of useful skills and attributes to her water polo team. In particular, she viewed her background in breaststroke as particularly beneficial:

*I'm quite good because I'm a breastroker at swimming so that's the same kind of movement as the eggbeater. (Int2)*

Rebecca expressed obvious pleasure and a degree of pride when explaining a photo of her running. She had taken part in an interschool team run in which she placed 26<sup>th</sup> as an individual, but she received a silver medal due to the combined effort of her team. Rebecca's satisfaction in and enjoyment of team activities was once again evident.

When discussing a selection of swimming photos, Rebecca highlighted an incident that happened at her most recent national championships. She documented how she had been disqualified in one of her final races, for breaststroke, and how her dad had lodged an appeal, provided video evidence, but without any change to the outcome. Rebecca described this upset in the following way:

*I didn't do very well. Like I got disqualified in the final... Like I went like this (shows hand position on wall). My dad filmed it, and I shouldn't have got disqualified and so he showed them the video and they said, "oh no, it's too small" so we put it on a laptop and then showed it to them and they said, "oh no, it's too blurry... that was quite annoying. (Int2)*

Another concern that Rebecca raised focused on her mixed squad training in swimming, in terms of how her swim coach viewed the advantages and disadvantages of teenage boys and girls training regularly together. Rebecca quoted Margaret as stating that, "girls have more stamina and guys have more speed so it's a good training because... we have to go faster for longer and they... [have to maintain their speed for longer]". (Int2) In contrast to Rebecca's disappointing result at swimming nationals, she pointed out a photo of her club water polo team after they had won silver at the club championships.

When asked whether Rebecca had time to socialise with her water polo and swimming friends, she responded by saying, "I have [time] in the holidays but yeah I'm not sure how it's going to go during this year". (Int2) Doubts and worries about whether she would be able to manage her two sports, her triathlon captaincy, and her increased NCEA workload, started to become apparent. Rebecca confided that she was not so worried about the extra responsibilities in sport, but that she was, "more concerned about the school workload". (Int2)

In her photo montage, Rebecca pointed out and explained a number of school-based photographs. She commented on her favourite subject of sports science by describing images of her classmates, classroom activities, the recently finished sports centre, and how quickly she had become close to other students through a fun approach to learning. Rebecca elaborated further by stating that, "I like all sports really... that's where we do sports science and PE. Which are, I really enjoy both subjects so I spend a lot of time in there [sports' centre] I expect. (Int2)

At this stage, Rebecca talked about her school experiences in mathematics, and as part of the broader school environment, her relationships and friendships within her form class. Rebecca considered why these relationships were important to her, and how they met many of her social, emotional, mental and psychological needs as a 16-year-old student athlete. She began by discussing her streamed maths' class:

*I guess it's one of my strongest subjects and I enjoy it. Well like most. And yeah we were all really good friends by the end of the year... [Only] Maths is streamed... Not much competition because we didn't have many tests during the year, just end-of-year exams. (Int2)*

When discussing the photography montage, she mentioned how important her tutor room and the members of her form class were to her:

*The back [entrance] but, that's the way I walk in every day. Yeah that's the gate I walk in. My tutor class is just here (points at door on photo). And that's my form class. And we're having a shared, in the classroom we're having a shared breakfast on the last day... I have really good friends in there, spending a lot of time with them. (Int2)*

Rebecca recalled that they had chosen a LEGOLAN© theme for their athletics day dress-up, that most days she would sit in a circle with, "there is probably ten of us. But I am friends with other people as well" (Int2) to eat lunch, and that she was "definitely" happy with the social aspects of her school life.

Near the end of the interview, Rebecca reflected on what her secondary school meant to her. She explained that, "I guess it's where I learn and stuff but, like I definitely have made lots of friends, over the time I've been there, and have fun". (Int2) She conceded that schoolwork was something that she worried about, but that her experiences of NCEA at the end of Year 11 had reassured her and helped her to be more confident going into Year 12:

*Yeah. I think I was a bit too stressed the whole time, like it wasn't as bad, nowhere near as bad as I thought it was going to be... I think I'll start studying earlier, but I always say that but... I think I will definitely be less stressed before exams. (Int2)*

In response to the question about what had been most beneficial to her in the past 12 months, Rebecca replied, "the team environment I guess and like working together, at swimming and water polo, and trying to fit in skills. I've learnt a lot of time

management with finishing schoolwork”. (Int2) Her decision to focus on water polo as her main sport she recognised “helped as well”. (Int2) The balance that Rebecca had been pursuing since 2013 seemed to have materialised for her:

*I don't have to do it but I... I just want to and... enjoy it. I just want to do everything like go to all the trainings but... no I don't really have too high expectations of myself. I guess a little bit because also it's expensive, but not really. (Int2)*

Rebecca acknowledged her new state, which was tempered with some caution, learned perhaps from her experiences of the previous few years as a high performing student and athlete. She expressed her current position by stating, “I think I have got a good balance but... I think, I'll see how it goes this year”. (Int2)

### **6.11 Narrative summary**

Rebecca's story began by documenting the childhood experiences in sport and physical pursuits of a physically active child who arrived in New Zealand from Switzerland at the age of five. As the younger of two siblings and with parents and extended family previously involved in representative competitive sport, Rebecca participated in a range of team and individual sporting activities. She also experienced an active, outdoor-orientated family lifestyle throughout her childhood.

Rebecca's family provided positive role models and consistent support for a young girl who loved to run, play cricket, tennis, netball and football, and to compete as a club swimmer. Rebecca's development as a club swimmer followed the High Performance Swimming New Zealand (HPSNZ) guidelines and talent ID model of early selection, graduated training as a squad swimmer over several years, leading to selection for local, regional, national and eventually international competition events. As Rebecca progressed in competitive swimming, she continued to pursue and develop her abilities in flipper ball, netball and skiing.

During her primary school foundation years, Rebecca enjoyed learning and became motivated to do as well as her older brother at school. She discovered that she had an aptitude for mathematics, but struggled at times with English. While Rebecca continued to maintain a high standard of schoolwork at primary and intermediate school level, her sporting commitments increased to include practices or games after



school each day, as well as weekend matches or tournaments in a range of sports. During her intermediate school years, Rebecca began to compete at a national level in swimming. Her best events were breaststroke and individual medley. She recalled that she also played water polo, cricket and netball competitively until the end of Year 8. Rebecca acknowledged that her sporting commitments became too much with shoulder injuries from cricket impacting on her swimming. It was at this point that, in consultation with Rebecca's swimming coach and parents, a decision was made for Rebecca to stop playing water polo and cricket, so she could focus her efforts on becoming a New Zealand representative in swimming.

At secondary school, aged thirteen (Year 9), Rebecca achieved 8<sup>th</sup> place in the under 15 girls' swimming National Championships and set goals to achieve a top three placing by Year 11, and to represent New Zealand internationally aged 18-23 years (post-secondary education). Rebecca's sporting identity had emerged as a swimmer, predominantly as a breaststroker. By the end of Year 9, Rebecca realised that she could swim "well", which encouraged her to focus all her training effort on competitive swimming during Year 10. Consequently, Rebecca stopped playing water polo. However, throughout Year 10, Rebecca vacillated between swimming and water polo. She struggled with the increased intensity and demands of her club swimming programme, preferring the team bonding and social aspect of her school and club water polo teams. At the beginning of Year 11, Rebecca decided to pursue water polo as her main competitive sport. The resulting transition caused some ill-health and a complete reorganisation of Rebecca's homework and training schedules as she was effectively participating in two sports; water polo training, games and tournaments as well as 18 hours of swimming training per week to support her water polo fitness. During her Year 9-12 secondary schooling, Rebecca received sporting accolades and recognition, and was selected as a school sports' captain in Year 12. She excelled in her academic studies, particularly in mathematics and science. These extrinsic indicators of support and recognition boosted Rebecca's motivation and renewed her efforts to achieve her goals in water polo and in her academic studies.

## **6.12 Interpretation**

Within Rebecca's case study narrative, it was important to consider the complexity of factors and influences acting on her as a student-athlete. These factors and influences

emerged in response to how Rebecca, as part of a collective or assemblage (multiple complex systems), adapted and self-organised in relation to the constraints of her contexts as a talented young student-athlete. In relation to the process of data interpretation, Davis and Sumara (2006) stated that complexity thinking “helps us actually take on the work of trying to understand things while we are part of the things we are trying to understand” (p.14). They expanded their view by explaining that in a complexity approach “we can never develop an objective appreciation of something of which we are part... that we are woven into what we research, just as it is woven into us” (p.14). In my research, while I could define or distinguish the physical and conceptual boundaries of Rebecca’s complex systems, I was also compelled to consider my influence on the interpretation of her data, and to acknowledge that my description of the world exists in complex (that is nested, co implicated, dynamic, ambiguously bounded) relationships with the world. This said, and by recognising that Rebecca’s data interpretation sits within a complexivist posthumanist philosophy, the discussion on Rebecca’s data accentuates a form of interpretation through which “new and often unexpected properties, patterns and behaviours can emerge which cannot be predicted from an analysis of the individual system components, nor the way these components interact” (Mason, 2008, p. 36).

### **6.12.1 Complexity**

To gain an understanding of Rebecca within this research context, a complexivist approach was aligned with the following foundational characteristics: co-dependent agents, self-organising, open to disturbance, sites of co emergent learning, open to varying experiences, and able to evolve her structures in response to feedback (Storey & Butler, 2010). When considering Rebecca’s experiences, an appreciation of her routine as a sustainable and adaptive system may be useful here. Sustainability, adaptive potential and her engagement level in her daily activities and tasks emerged as insights about Rebecca’s ability to manage and sustain the demands of her academic and sporting commitments. From a complexivist perspective, high levels of sustainability and engagement, which include key concepts from systems’ literature such as attractors, affordances, attunement and disturbances, are identifiable and manipulatable dimensions within a complexity thinking framework (Storey & Butler). Davis (2004) elaborated further by stating that “members of the same class of

phenomenon have the capacity to respond differently to the same sorts of influences...” and that “...complex systems embody their own histories” (p.94). From Davis’ perspective, Rebecca’s unique combination of interacting factors and influences represented her state at a particular juncture; however, due to the dynamic nature of her systems, her position or place within and as part of that system, changed, emerged and evolved.

Stewart’s (1991) work on emergence proposed that the interaction of individuals feeds into the wider environment, which in turn influences back into the individual units of the system; they coevolve, shaping each other. This view considered emergence as the co-partner of self-organisation. The experiences, perceptions and meanings that emerged from Rebecca’s interpreted data were “not according to a grand design, a deliberately chosen trajectory or a set of purposes” (Casti, 1997, p.90), rather, self-organisation emerged as a result of interactions between the organism (Rebecca) and her environment (family, sporting and schooling domains), and new structures (such as strategies, behaviours, decisions, opportunities, pressures, expectations, perceptions) that could not have been envisioned initially (Merry, 1998). A posthumanist perspective of Rebecca’s system, according to Roelvink and Zolkos (2015), encompassed:

Embodiment, connectivity and co-evolution, which are not enclosed within intra-species boundaries of existence, but acknowledge the complex, adaptive placement of the human within the other-than-human world, including animals, plants, and things (p.1-20).

As Wolfe (2009) explained, posthumanist research seeks to not only shift the thematic focus of research, but also to challenge the thinking about the human, and to draw attention to the ethical assumptions and consequences of researchers’ thinking. This view forces a rethink of “taken for granted” modes of human experience, by reconceptualising human perceptual and affective states as part of the evolutionary history and behavioural and psychological repertoire of being human (Roelvink & Zolkos, 2015). A posthumanist approach also insists that attention is drawn to the specificity of the human; that is, its ways of being in the world, its ways of knowing, observing and describing, by acknowledging that humans are fundamentally a “prosthetic creature that has coevolved with various forms of technicity and

materiality, forms which can be regarded as ‘not human’ and yet nevertheless have made the human what it is” (Wolfe, 2009, p.16).

Interpretation of Rebecca’s collected data through a complexivist posthumanist lens is represented in Figure 5, Rebecca’s assemblage map. Rebecca’s system collective or assemblage (DeLanda, 2006; Deleuze & Guattari 1980) as depicted by an interrelation, interconnected and interdependent map, highlights the dynamic nature of Rebecca’s system as she negotiated multiple influences and factors in her sporting and education fields. Key factors influencing her assemblage were the strength of ties (Barab & Roth, 2006; Granovetter, 1973), the number of ties, or the role various individuals and entities played.

The complexity of Rebecca’s assemblage (see Figure 8 and Appendix K) included the complex systems of each family member (her mum, dad and brother), the family itself as an interacting and dynamic unity, the complex systems of her swimming and water polo coaches, those of her swimming and water polo training squad members, her training and competition venues, officials and spectators, fellow high performing students at school, form teacher and school dean, teachers, school management team, school community and environment, and educational policy makers, as well as many other external forces and influences (top down and bottom up) from sport administrators, sport policy makers, officials, selectors, national and international sporting bodies, rules and regulations, policies and procedures, etc., within, across and between her systems.

This list of connections is not exhaustive, but hints at multilayered and multidimensional influences acting on Rebecca, which required her to self-organise and change her complex system while concurrently acting on and influencing other complex systems to which she was connected and interdependent with. As stated in Chapter 2, if the system is taken apart, either physically or theoretically, it is the relational aspect that is destroyed, which subsequently prevents an understanding of the system’s dynamics and properties (Byrne, 2005). This suggests a need to view complex systems holistically, and to consider that, when agents of a system are attracted to a certain activity (in Rebecca’s case swimming and water polo), they will generate a pattern of behaviour (not necessarily a linear pattern) over time.

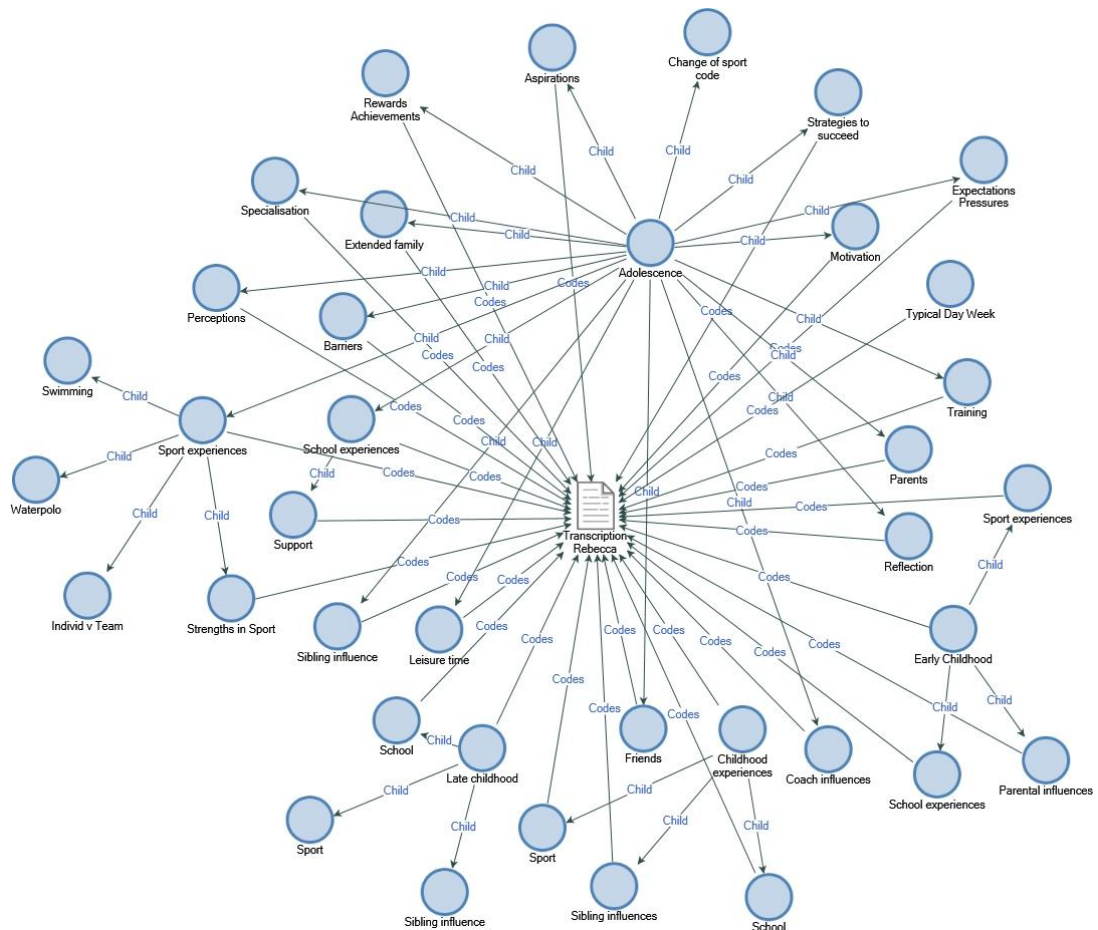


Figure 8. Assemblage map of Rebecca's interpreted data to demonstrate theme-based connections (See Appendix K for an enlargement).

### 6.12.2 Influences

This case study narrative revealed emergent meanings pertaining to Rebecca as a young female student-athlete in New Zealand. Her story was unique and original. Interpreted data from Rebecca and her nominated significant other (her swimming coach, Margaret), over a two-year period indicated that Rebecca normally operated within and across her dynamical systems in an effective manner. She demonstrated behaviours and attributes that were valued and admired in her sport and education communities; resilient, hard-working, highly motivated, task completion orientated, and determined to excel in both domains – sport and education. Rebecca was part of several strong support structures (systems): in her family life, at school, as part of her swimming and water polo clubs, and as a high performing student-athlete at her secondary school, which had a national reputation for excellence in sport. The importance of Rebecca's family, on her participation, progress and achievements in

sport and at school, was evident from the collected data. For example, from an early age, Rebecca's parents initiated and supported multiple opportunities for Rebecca to participate regularly in a range of activities and sports. Rebecca commented that she "wasn't really the kind of person that would sit in the library or whatever". (Int1)

Rebecca's parents actively encouraged her involvement in a range of team sports from age five, and specifically in swimming from age nine. Rebecca's dad organised and provided transport while Rebecca's mum provided for her daily needs. The strong ties between Rebecca and her parents afforded Rebecca multiple resources, opportunities, experiences and unconditional support. Both parents offered guidance and nurturing, and as previously competitive sports people, provided positive role models. During this research, Rebecca reported that her parents continued to enjoy and participate regularly in an outdoor, physically active lifestyle. Her brother, who also afforded Rebecca a high bench mark to aspire to, continued to study and excel at university, ahead of his chronological age.

Parents who play a critical role in children's socialisation to sport and throughout their sporting lives (Brustad, 1996; Fredricks & Eccles, 2004; Wuerth et al., 2004), fulfil three fundamental roles in their child's sport experience. These are as provider (of opportunities, finance, transport); as interpreter of the sport experience for their child (emotionally reacting to competition in adaptive manners); and as role model (modelling the ideal attributes and behaviours in sport). The extent to which these roles are fulfilled by parents influences a child's beliefs and values and in turn, their motivated behaviours and performance (Fredericks & Eccles, 2004). Rebecca's parents also fulfilled Côté's (1999) four stages of parental participation for physically talented youth; sampling, specialising, investment and recreation. Rebecca's sport participation from early to late childhood (5-9 years) exemplified Côté's sampling and specialising stages in which her parents initiated new sport situations, provided transport and access, altered family routines to accommodate training and competitions, and provided emotional and financial support (Wolfenden & Holt, 2005). Rebecca was provided with a similar support system to her older brother who had previously excelled in similar sports (cricket, swimming, water polo, soccer); however, as Rebecca reached adolescence, her family were notably less overt in their support. Rebecca commented on the logistics of attending multiple trainings and/or games without full

transport from her parents, “because mum and dad are at work... so they’re not as involved as other parents who, I guess, aren’t working and are picking their kids up”.  
(Int1)

The sport-specific skills of netball, football, tennis and swimming were emphasised during her early years, with regular competitive opportunities to monitor Rebecca’s progress. As significant enabling influences, Rebecca’s parents progressed to what Côté (1999) described as the investment stage of parental participation, when they supported Rebecca’s development as a regional and then national competitive swimmer (aged 9-12 years). At this point, Rebecca’s parents’ overt interest and support decreased as the role of sport coaches increased. In particular, Rebecca’s swimming coach played a major role in Rebecca’s progress and development towards achieving national qualifying times in swimming. In the transition from specialisation to investment, Rebecca (aged 10-12 years) experienced issues with time management and fatigue due to the multiplicity of her involvement in sport, both out of school hours and at school.

Another view that supports a complexivist humanistic perspective, considers that Rebecca’s development as a competitive national swimmer arose due to the relationships within, between and across the elements of her dynamic systems from which emerged new qualities (improved performance, competitive confidence, motivation to train, enjoyment and pleasure, internal and external rewards) that could not be reduced to the sum of the constituent parts (Rebecca’s achievements, decisions and behaviours were unpredictable and surprising at times), or to a central agent responsible for overall control of the system (no one factor was attributed to her development in swimming or to her decision to change to water polo in year 11) (Byrne, 2005; Cilliers, 1998).

Durand-Bush et al. (2004) described an increased financial and time commitment by parents of talented young athletes, such that other opportunities may be sacrificed for the child’s sport. A high level of emotional support during stressful times was a central characteristic of the investment years in which the parents’ role was to provide support and encouragement, rather than leadership and direction. Rebecca’s parents were documented throughout this research as supportive, helpful, positive role

models. During Year 12, however, Rebecca did note that “Mum and Dad work full time so I spend a lot of time getting myself to swimming and catch the train into school” (Int2). Rebecca noted that this was a change in the level of support for her sporting commitments relative to her earlier experiences of and perceptions about her parents’ input.

Another influencing layer on Rebecca’s attainment in sport and sustained achievement in education was her position in her family as the younger child of two siblings. Rebecca’s older brother by four years excelled at school and was a committed sportsman in a range of sports. Rebecca described her brother as “really smart... like two years ahead of his friends at university”. (Int1) As the younger sibling, Rebecca appeared to have set her attainment standards according to the benchmark her brother had set; however, she did acknowledge a shift in perceived abilities: “my brother doesn’t do much sport anymore... he’s more academic and I’m more sporty now”. (Int1) Indications of sibling rivalry or disharmony were not evident. A possible interpretation of Rebecca’s admiration and idolised behaviour towards her older brother was reflected by Furman’s (1995) research on sibling rivalry. Furman found that when children perceived parental partiality, it increased feelings of competition, conflict and jealousy amongst siblings. This was not evident in Rebecca’s collected data. Another possible interpretation, proposed by Sailor (2014), suggested that while all family relationships are important, the parent-child relationship had the greatest impact on sibling relationships. Rebecca reported a close, loving bond between herself and her parents. She was also aware of parental expectations: “my brother was always really smart, so I guess I thought my parents had the same expectations for me”. (Int1) A key finding that sibling influences emerge not only in the context of siblings’ frequent and often emotionally intense interactions, but also by virtue of each sibling’s role within the family system dynamics, was highlighted by McHale, et al.’s (2012) research.

At school, Rebecca experienced conducive, positive relationships with her peers and teachers, especially in educational settings that she enjoyed and excelled in. Rebecca reported school as “quite easy” (Int1) and that she picked up new things quickly at primary and intermediate school levels. At primary and intermediate, with less emphasis on schoolwork, Rebecca was afforded ample time to participate in her



preferred competitive sports and outdoor activities. Becker's (2009) study on the complexities of life as a female athlete in a postcolonial western culture (for example in Canada, New Zealand, and Australia) are relevant here. Becker acknowledged that increased participation rates and significant performances of girls and women in sport over the past three decades suggested that the barriers and discrimination experienced in the past had been overcome. She contended, however, that sport as it currently exists continued to perpetuate gender inequality, and to build and maintain socio-cultural boundaries of normative femininity and heterosexuality (2009). Rebecca's overt expressions of physicality set her apart from other girls and precipitated her involvement in the domain of competitive sport. Rebecca's need for regular physical activity was satisfied through her involvement in multiple afterschool and weekend activities, through school, club and family opportunities. Her physical predisposition may have, however, put her into tension with New Zealand cultural norms for female physicality.

Rebecca's early morning and late afternoon swimming schedule had a significant influence on her sport development and work ethic in relation to learning and competing, both in sport and in education. By late childhood (10-12 years), Rebecca had established a diligent approach to her schoolwork and sports. She made rapid progress in both, so much so that she was selected to compete in the National Age Group Swimming (NAGS) Championships from age ten. The strong ties Rebecca enjoyed with her swimming coach, squad members, club members and supporters, facilitated her progress to build and develop "effectivity sets" (Barab & Roth, 2006. p.11) that spanned multiple affordance networks; potentially evolving into new ways of interacting with the world.

At this juncture, an influence on Rebecca's sport attainment may also be attributed to her early identification as gifted and talented in physical pursuits. While her identification as talented was probably not executed in a formal manner, Margaret (Rebecca's swimming coach) reported that "[Rebecca's] in there, which is not far off the top level between first and the bottom [of the top 10 at national level]". (IntSO) Margaret confirmed that Rebecca had the potential to achieve her original Commonwealth and Olympic goals as a swimmer. Identifying Rebecca as a talented competitive swimmer aligned positively with Tranckle and Cushion's (2006) view of the

value and importance of talent, that the detection and development of talent was a central concern for coaches, teachers, and researchers in sport sciences and education. Régnier, et al. (1993) proposed that the detection and development of talent was based firmly on the premise of predicting future performance based on present knowledge, which underpins the competitive processes in sport and education contexts. Csikszentmihalyi et al. (1993) argued that talent is socially constructed so that Rebecca's identification as talented was "relative to a given context and labelled only as talent when valued and approved by the subculture and wider society in which it exists" (p. 223). Rebecca's talent was approved and valued as she received monetary rewards, medals, selections and regular acknowledgement, based on her achievements in swimming.

Rebecca's parents were instrumental in her acceleration as a talented athlete and as an able student. They guided and advised Rebecca with respect to the best schools to attend to optimise her potential in sport, whilst also sustaining her academic abilities. At intermediate school, Rebecca was fortunate to have a teacher who had taught her older brother and who "understood our ability... I never found school hard. I was in the top maths' group at intermediate". (Int1) However, her involvement in sport at intermediate school, including before and after school training or games, began to have a negative impact on Rebecca's health and well-being.

During her intermediate schooling years, Rebecca's training and competition workload for swimming increased. She reported that she stopped playing competitive cricket (with her dad as coach) because "that was taking up too much time and that was affecting my swimming, because of the shoulder injuries". (Int1) Research by Valovich McLeod et al. (2011) maintained that "repetitive stress on muscles and joints without adequate and appropriate conditioning and rest can result in chronic or overuse injuries in athletes of any age" (p.206). The situation in children was reported as more complicated due to the growth process, which could result in a unique set of injuries among young athletes. Rebecca's shoulder injuries and reported fatigue and ill-health precipitated what in complexity terms is described as a tipping point; that is, a critical point after which the system shifts radically and potentially irreversibly into a different equilibrium state (Scheffer, 2001). Rebecca stopped playing flipper ball during intermediate to reduce her weekly training and playing schedule. She commented that

"I played flipper ball in Year 4, 5 and 6... it was my favourite thing to do". (Int1)

Rebecca was unable to continue to play multiple competitive sports and had to choose which sport to focus her efforts and energy on. Her parents and her coach advised her to concentrate on swimming.

In Year 9, Rebecca's coach began to apply strategies to accelerate Rebecca's swimming targets, by increasing her training to eight times per week, as well as additional dry land work for strength and conditioning. After six months in this advanced programme, Rebecca stated that she wasn't enjoying her sport and wanted to stop. Rebecca was persuaded by her parents and swim coach to persevere until the end of Year 9. She began to excel at regional level swim meets, winning medals in the under 15 girls' short course events. This outcome motivated her to continue with her training. A sudden, unexpected change of attainment, precipitated by additional training and concentrated effort, had the potential to provide new possibilities and novel situations for Rebecca. Winning medals in the pool represented achievement, which influenced Rebecca's self-organising processes. Her connections to other complex systems became stronger in some instances (family, swim coach, squad members) and weaker or redundant with other systems (cricket and water polo school and club teams). Rebecca's altered perception of her abilities (reinforced by winning competitive events) created new and emergent system-wide understandings and acting (Mason, 2008). Rebecca commented that her parents and coach were pleased with this outcome. Her swimming coach, Margaret, commented, "She's in there. Not far off the top level". (IntSO)

Academically, Rebecca applied herself diligently throughout Years 9 and 10. She achieved all excellences and a few merits in Year 9 and all excellences and two merits in Year 10. Her strongest subjects were mathematics, social studies and French. Rebecca did not rate herself as excellent because she regarded her English grade as lower than other subjects, and therefore not worthy overall of an excellent rating. Rebecca's rationale for working hard at her schoolwork was based on expectations of herself and from her parents: "they've always been smart when they were kids, so I've always been the same, I guess... and my brother has definitely impacted on that". (Int1) Rebecca's strong ties with her older brother and her parents (especially as role models) afforded her a specific effectivity set; that is, she was more likely to perceive

and interact with the world in certain ways—even noticing certain shapes of networks that were unavailable to others. This knowing, described by Barab and Roth (2006) as the process of being able to realise affordance networks, when coupled with a conducive effectivity set (the role modelling of high attainment), motivated comparable performances (educational and sporting excellence) from Rebecca.

Another factor that influenced Rebecca's progress and development as a talented young student-athlete was the perceived lack of support she received from her secondary school. As a competitive club swimmer, Rebecca's sporting commitments, competitions and achievements were relatively unknown to her teachers, form teacher or senior management team. Rebecca's attitude was that because she chose to swim competitively she did not expect special consideration or additional support: "I don't really need any [support]. If the teacher says this is due next week, then I don't really see any reason why I shouldn't because I swim". (Int1) However, when Rebecca needed to be absent from school for a national competition, she admitted that "I could ask for an extension from my teachers, they probably would say yes, but I feel like they've given a deadline, so I should meet it". (Int1) Rebecca wasn't sure who to talk to at her school if she needed guidance to balance her academic workload and sport commitments, but assumed that her Year 12 Dean would be aware of her involvement in competitive sport as Rebecca had a pass that allowed her to arrive late to school after her morning training sessions. Rebecca's secondary school had a strong, well-established Sports department and a large Health and PE department with experienced and dedicated staff, but did not offer scholarships or sport academies to talented young athletes.

Rebecca was acutely aware of the lack of recognition for swimming at her secondary school: "we don't do swimming as a sport at my school". (Int2) Water polo on the other hand, was a highly revered and successful team sport, which attracted a large following at Rebecca's school. When Rebecca was absent from school due to a national swimming competition, her form teacher became more cognisant of Rebecca's level of performance. Prior to being absent, Rebecca would approach her teachers to obtain work to complete while she was away. From a complexivist standpoint, the relationality of Rebecca's complex system with that of her teachers and form teacher, afforded Rebecca effectivities (resources and information to match her needs) through

which she could self-organise her system to avoid major disruption or complete chaos. Rebecca was reliant on the tangible support and effective communication skills of her teachers and form teacher to assist her; to sustain a sense of stability, in potentially destabilising circumstances. The flow of information between systems and across and within Rebecca's school domain ensured that Rebecca's daily life continued to be manageable and productive. As noted in Chapter 2, Winker and Delége (2011) considered the concept of intersectionality whereby an agent's (Rebecca's) experiences can be viewed as multilayered and intimately interwoven. Winker and Delége proposed layers that included micro (student-athlete), meso (organisational level, school and sport) and macro (government policy, global factors) categories that acted to mutually strengthen or weaken each other. In Rebecca's situation, her school's management of the meso and macro influences acting on her, gave Rebecca some level of assurance of a less stressful transition between the, at times, conflicting demands of her sporting and schooling domains. A point worthy of note here is that Rebecca's school was willing to accommodate her sporting commitments and needs (late start to her school day after training, absence from school for national events), an indication that in this regard, the school system was flexible and adaptable, rather than being fixed.

During Year 10, while Rebecca's efforts were concentrated on her schoolwork and swimming, socio-cultural influences became prominent; for example, Rebecca's identity as a team player versus an individual sportsperson and her need to be part of a team environment as opposed to training as an athlete within a squad. These influences helped to create a resurgence for her in water polo. Rebecca reported that the school Year 10 water polo team were short of players and had asked her to fill in for one of their games. As a national age group competitive swimmer, Rebecca was able to transfer her swimming skills to the invasion game of water polo effectively. Rebecca used her sprinting ability to swim for the ball at the start of each game, and adapted her breaststroke kick quickly to the demands of the eggbeater kick, which is a basic skill in water polo. Rebecca immediately connected with the team ethic and environment of this exciting, physical, passing game. She enjoyed the social dynamic that emerged from a shared goal and revelled in the open play environment, which contrasted strongly with the discipline and structure of her lane swimming. Gutman

and Feinstein (2008) proposed that well-being has both physical and mental health dimensions and particularly close links with psychological health. They suggested that opportunities for social interaction provided by sport participation played a part in contributing to well-being effects (interpersonal skills, social acceptance, connectedness, self-confidence, self-efficacy, a sense of belonging, improved body image and self-image). Rebecca displayed an ability to recognise and access beneficial effectivity sets (reciprocal skills) by knowing which system (group of friends, water polo team) to connect with. Rebecca's process of realising affordance networks, that is the coupling of affordances and effectivity sets in the service of particular goals (Barab & Roth, 2006), was evident in her decision to play water polo again, albeit socially at this stage.

At the beginning of Year 11, Rebecca again experienced the dilemma of which sport to concentrate her time and effort on. The tension she experienced when crossing the boundary between, across and within the systems of her sporting codes (swimming and water polo) created a conflict that Rebecca needed to negotiate to manage different socio-ecological contexts. In her swimming domain, she had established systems, networks and effectivities that provided her with known, consistent, stable outcomes (Barab & Roth, 2006). The complex system of her swimming club afforded her transfer of learning (from club to school events), discipline, commitment and a static social dynamic. Rebecca knew everyone in her club and they all knew her. As a seasoned club member, Rebecca was integrated into the system of her swimming club, and in recent years was recognised and admired as an elite squad swimmer. A sense of loyalty and gratitude, interdependency and friendship coexisted with the repetition, sameness and long hours of isolated lane training. Rebecca also began to consider the impact on her education of swimming competitions at local, regional and national level in comparison to how water polo was structured to fit in and around the schooling year, especially for senior students who were involved in external examinations at the end of each year.

As a club swimmer, Rebecca was expected to continue to train throughout the year. As a school and club water polo player, she had reduced training and games to accommodate the academic calendar. Rebecca explained: "I only had one water polo training [a week] in term four... but I had swimming... around exam time, when exams

were on I didn't go swimming". (Int2) From a complexivist stance, Rebecca's system self-organised to adapt to perceived and actual external demands. At the end of Year 11, Rebecca's interaction with her swimming club, educational institution and water polo teams enabled emergent properties to unfold that could not be reduced to the sum of their constituent parts, or to a central agent responsible for overall control (Byrne, 2005; Cilliers, 1998). During term four, Rebecca prioritised her time, energy, and effort to achieve previously set academic goals. While she remained connected to and interdependent on her sporting systems, her focus and intention was firmly adjusted to access the effectivities she needed from her educational domain. Essentially, Rebecca had reorganised and transformed her complex system.

Key influences acting on Rebecca's complex system during Year 11 included the socio-cultural aspects of participating in a team sport. Rebecca found water polo exciting, unpredictable and demanding. She felt challenged to master new skills, to understand rules and tactics, and to combine with other players to achieve common goals. Research by Anshel (1997) suggested that elite athletes are predisposed to higher amounts of risk-taking, sensation-seeking and competitiveness than non-elite athletes. Rebecca's involvement in water polo challenged her physically, mentally and socially, which appeared to satisfy her desire to try new experiences that tested her. Rebecca recognised that her swimming and water polo domains were quite different:

*It's been a big change. I've definitely got more friends and stuff at water polo... at swimming my parents are the same, my coach is the same... whereas at water polo I've got extra coaches now. (Int2)*

Rebecca enjoyed the social elements of her water polo teams and actively worked to incorporate a new culture within her swim squad by instigating a positive, encouraging, supportive attitude and approach. Rebecca explained that as she was now a team player rather than an individual sportswoman, she tried to transfer a team ethos to her swim training sessions, to enable a fun, social environment for everyone. A gender-based, socio-cultural influence was also highlighted by Rebecca as a poignant difference between her water polo and swimming domains. Her water polo teams were single sex and her swimming squad was mixed gender. Rebecca enjoyed the close bond afforded by her all female team members, especially when they travelled away to tournaments, which she described as "so much fun". (Int2)

Post her Year 11 NCEA exams, Rebecca reflected on how she coped with academic stress relative to the perceived and actual demands on her as a high-performance athlete. She concluded that she worried more about schoolwork than her multiple sporting commitments. While Rebecca admitted that she had learned a lot about stress leading up to her Year 11 end-of-year exams, which she had studied for in an intense manner, she conceded that her determination to attain an excellent standard (as her older brother had) was a key motivator.

There was no question about Rebecca's priorities. She recognised the importance and significance of her schooling success: "I guess school is the one that is going to get me a job in the future". (Int1) Her Commonwealth and Olympic goals were still present but somewhat tempered with caution: "That's just training more, and getting stronger and fitter. But school does come first. I want to go to university, whether it's before or after I achieve, if I achieve my goal". (Int1) Through a complexity posthumanist lens, Rebecca recognised constraints on her system (demands on her time, energy and effort from school and sport) that could mediate the stabilising influence of an attractor's (properties that allow individuals to self-reference within an organisation or system) power to control the system (Davis & Sumara, 2006), which could result in unique and unexpected behaviours or outcomes. Rebecca demonstrated some cognition and a willingness to self-organise in response to the complexity of her daily life as a talented female secondary school student-athlete in New Zealand.

The learning Rebecca took into Year 12 was that she could achieve top marks in all her academic subjects. She revealed that schoolwork was something that she worried about; however, her results from NCEA Level 1 were reassuring and increased her academic confidence going in to NCEA Level 2. Rebecca also noted that she had achieved in water polo after one year of dedicated training and playing, a similar competition level to her achievements in swimming. Again, Rebecca's fast development in water polo encouraged and verified her decision to change codes. A factor acting on Rebecca at this time was her need to be make decisions for herself, to be self-reliant and more independent of her family's complex system(s). Rebecca confirmed that the friendships she had developed at school and within her water polo teams were satisfying and empowering on many levels. Once again, in an astute manner, Rebecca acknowledged the importance to her of the bonds she established



with her friends at school (form class and lunch-time chat group), through her water polo team members and coaches (shared sport identity), maths and science classes (advanced academic groups), and while away on sports trips (national swimming and water polo championships).

As an emergent water polo player, competitive swimmer, sports' captain and Year 12 secondary school student, Rebecca realised that competing in two sports and taking on a school-wide leadership role would be more demanding and challenging than her workload and sport commitments were in Year 11. Rebecca predicted that Year 12 would be a "no sleep year". (Int2) Mason (2008) suggested that for a complex system to reorient itself to maintain coherence with the environment in which it is engaged, it must contain enough diversity in its make-up to allow it to adapt to the demands of the environment, and that if there is sufficient commonality among the agents that make up a system, if any part fails, the other agents can compensate. Rebecca's willingness to self-organise her complex system to satisfy her intrinsic and extrinsic needs (team environment, positive challenges, skill development, learning, friendship, fun) enabled her to extend her social networks to access new experiences and knowledge, and to establish a different level of stability and order, which as Rebecca stated: "I think I have got a good balance but... I'll see how it goes this year". (Int2)

### **6.12.3 Meanings and perceptions**

The time frame of Rebecca's case study (Years 10-12) represented an important period of transition in her secondary education in New Zealand, from non-external examination schoolwork (Year 10) to national qualification preparation and assessment (Years 11-12) in NCEA Levels 1 and 2. As a high-performance student-athlete initially in swimming and then from Year 11 in water polo, Rebecca had to organise and time manage training and competition schedules for two sports. Dove-tailed with her sport commitments, Rebecca managed an assessment schedule that included regular internal assessments for six subjects as well as a term four external examination (in each subject), for each assessment year. In Year 12, Rebecca accepted a sport leadership role as a school Sports captain in triathlon, which in itself was not arduous. However, as a member of the school sports games committee, Rebecca was also expected to help organise and run whole school events (swimming sports,

athletics day, zone and interzone championships) while also coordinating triathlon as a school sport (trials, interschool competitions, results, reports).

Rebecca's dilemma was that her projected sports' pathway (Commonwealth representation for swimming and/or water polo in 2018) required dedicated training and her full focus to achieve. At the beginning of Year 12, Rebecca reported that she was on track to achieve her goal, although she did intimate that she wasn't as clear about her water polo pathway as she had been about achieving a place in the NZ Commonwealth team for swimming. Her transition to water polo as her main sport had the effect of destabilising her goal setting and future planning in sport. To gain a New Zealand selection in water polo (as a team sport) depended on multiple factors: skill level, fitness, speed, tactical knowledge, decision making, communication, team cohesion, creativity, problem solving, cooperation, team support, etc., whereas if Rebecca made the qualifying times in swimming, she had a good chance of being selected. To address this issue, Rebecca continued to work closely with her swimming coach, Margaret, to ensure that her fitness and speed remained high. To meet her education requirements, Rebecca implemented strategies such as completing most of her schoolwork at school, paying full attention in each lesson to maximise her learning, and setting aside dedicated time on the weekends for assignments and revision.

Rebecca's self-imposed expectations to excel academically created physical and mental health issues during the lead up to her Year 11 exams. Rebecca confessed that she was "very competitive and always want to be doing as well as I can", (Int1) but that she often felt pressured by insufficient time: "there's not enough hours in the day... there's just so much to do" (Int1) and was always aware of the unspoken expectations of her parents due to her brother's scholarly achievements.

Rebecca acknowledged a positive behaviour that emerged from her intense, at times, quite stressful lifestyle. She reported that her time management with regard to schoolwork and homework was very efficient. Her view was based on a comparison of approach between herself and her school friends: "I'll spend half an hour doing something that my other friends will spend an hour and a half doing, because they'll get distracted or because they have the whole evening to do it". (Int1) Rebecca's swim coach reinforced this efficient use of time when she stated that "when you commit yourself to your training session, which is every night after school, you haven't got

time to hang round at the mall”. (IntSO) Rebecca conceded that she did find her phone distracting.

During her schooling in New Zealand, Rebecca experienced various constraints on her educational opportunities and achievements. Even though she attended high-decile schools within the “Grammar” zone of central Auckland to support and accelerate her aspirations in sport, while also sustaining her educational attainment, Rebecca was still subject to a myriad of constraints. Essentially, Rebecca appeared to have an ideal educational pathway to realise affordance networks to achieve her goals. However restrictions on her time, physical boundaries, rules and regulations, deadlines and assessments, training, games and competition schedules, expectations, her health and well-being, and transport issues impacted on how she performed academically and as a competitive female athlete in sport. Barab and Roth (2006) elaborated further:

Life-world expansion, as the ultimate trajectory of learning, involves engaging in sets of experiences that have overlapping core components (multi-layered) such that individuals build up ‘effectivity sets’ that span multiple affordance networks – potentially evolving into new ways of interacting with the world (p.11).

Rebecca’s affordance networks enabled her to access resources, expertise, support, advice, facilities and equipment, opportunities to compete, feedback on her progress, travel, friendships, mentoring, role models, etc. The multiplicity of her networks and effectivities provided her with an appreciation of the power a specific effectivity set could exert in multiple situations even when the affordances were not readily apparent (Barab & Roth, 2006). In relation to Rebecca’s sporting domain, her skill set, knowledge and experiences in swimming helped her integrate rapidly in to the domain of competitive high-performance water polo. She explained that “because I’m a swimmer they think, they respected me more because I was like one of the fast people, and I fitted in straight away”. (Int2) Maintaining quite an intense level of swimming to support her progress in water polo precipitated a new barrier that neither Rebecca nor her parents had anticipated. Rebecca was now competing at a national level in two sports. During Year 11, Rebecca competed in the water polo national secondary school championships and two weeks later, competed in the club national age group swimming championships. Rebecca commented that “swimming nationals in Wellington was lots of fun but I wasn’t really that fit because I’d been

focusing a lot on my water polo". (Int2) She revealed that by having one week off from swim training "it really does affect you... thinking you're physically tired". (Int2)

Rebecca's decision to transfer high-performance swimming to high-performance water polo emerged from a number of socio-cultural and socio-ecological factors. Rebecca's view was based on the team environment and how positively her swimming skill set fitted in to the social and cultural norms of her water polo teams. Her need for affiliation, recognition and acknowledgement were met by the team bonding, ethos and support, something that she had struggled to find within her swim squad previously. The sudden change in Rebecca's sport identity was a shock to her swimming coach, but was accepted by her swim squad members and parents, almost without question. Rebecca's view of her squad's lack of reaction was that "everyone is so busy in their own real lives they don't really notice, what else is going on". (Int2) Margaret rationalised Rebecca's sudden change of code as peer pressure, "Peer pressure's their biggest problem for a teenage athlete. I think that's why Rebecca has gone to water polo, because there's a big group of them doing it. So she's not fighting that, that peer pressure". (IntSO) Rebecca, however, had a different view:

*Like at swimming... you're by yourself. If you do it wrong... it's all your fault. There's no one else to... like be there. In water polo we all like work together really well and... support each other. (Int2)*

It became apparent to Rebecca and to others around her that she now identified herself as a water polo player. While her sporting identity gave her social capital (Bourdieu, 1984), especially within her school and sporting environments, some sense of separateness and isolation, a sense of being different was inevitable. Kissinger and Miller (2009) described the phenomena as "the formation of an ego identity" (p.6) in which student-athletes were recognised only for their athletic competence, therefore placing the individual under enormous pressure, with their sense of worth hinging on winning or producing best performances. Rebecca's data suggested that she placed herself in this category. She exerted pressure on herself to study and train intensely, to achieve her own self-imposed goals, "I don't have to do it but I just want to... and enjoy it. I don't really have too high expectations of myself. I guess a little bit because it's expensive, but not really". (Int2) Kissinger and Miller's research suggested that the experiences of student-athletes with an ego identity were heightened as they

perceived that everyone (parents, coaches, teammates, friends, family, and supporters) expected them to perform at a high level both academically and competitively. Rebecca's view of her sport/school balance, however, was positive leading in to Year 12.

From another perspective, Rebecca's sudden change from one sport code to another could be interpreted in Deleuzean terms as a line of flight (see Chapter 2) where an individual or agent recognises a gap or space in their system, and acts to become more a tuned to their self-perceived identity. Rebecca's decision to stop competing as a national level swimmer, especially when she had been successful for the previous four years, came as a surprise and shock to her swimming coach. Rebecca had sent a text to Margaret, informing her that water polo was now her preferred competition sport. Rebecca's decision to continue to swim at a reduced training rate, was facilitated by discussions with significant others in her nested systems (Margaret and her Mum) and provided enabling constraints (affordances) that limited what her system could do, preventing Rebecca from being overwhelmed, but at the same time offering an openness to possibilities that her complex system could take advantage of (a new balance in her training schedule). In this transformative process, Barab et al. (1999) emphasised that the system must have the capacity to retain products of previous exchanges, but also the ability to discard elements that were no longer useful.

Rebecca's decision to transfer her swimming experiences and skills to water polo exemplified a positive, beneficial self-organisation of her complex system. She perceived that she could affect her developmental, functionally related worlds, through her actions (Barab & Roth, 2006) as she recognised the possible beneficial opportunities, resources and expertise available to her through water polo. An important influence on Rebecca at this juncture was the wise counsel of Margaret, an ex-Olympian herself in swimming and water polo. The strong tie that Rebecca developed with her swimming coach afforded her information and advice that she trusted and was confident to enact. Margaret proposed a manageable training programme to support Rebecca's aspirations in water polo:

*I said if you want to be a top water polo player, it's not going to happen unless you keep your swimming up and get to a certain level*

*with your swimming. So I think she had resigned herself to the fact that she needs to keep swimming and keep at that level... (IntSO)*

Rebecca's transition to water polo provided new opportunities, a different sub-set of complex systems to engage with (coaches, athletes, facilities, equipment), and a different competitive pathway. Rebecca's capacity to "unlearn and adapt to uncertainty" (Bauman, 2001, p.15) provided her with unique experiences not previously obvious to her, prior to the reorganisation of her complex system.

The complexivist concept of mangles, as coined by Pickering (1993), highlighted a shift in interpretative sensibilities to aid an individual to make sense of a world of decentred becoming, to gain meaning from emergent complex systems. Previously, through multiple selection, coaching and competition opportunities, Rebecca was building her perception of her own success and future as a competitive international swimmer. During Years 10 and 11, at the stage when Rebecca began to question her long term career path in swimming, her decision to change from swimming to water polo required a significant shift in not only the organisation of her system, but also a different level of knowing relative to her future opportunities and aspirations. Through water polo, Rebecca recognised a career pathway and a clear direction ahead, which was team based and enjoyable. However, she also recognised that her experiences and skills in swimming were advantageous to her development and success in water polo.

A system event such as Rebecca moving from competitive club swimming to a full investment in water polo caused instability, chaos and disassociation to her complex system (Mason, 2008). Rebecca's system reorganisation required a degree of self-reflection and careful consideration of the benefits and barriers. Described by Margaret as, "a very strong willed girl, and when she makes up her mind, that's it", (IntSO) Rebecca, however, viewed this change as an opportunity to share the feeling she had at water polo with her swim squad community:

*I can't change the whole thing but I've definitely changed it, with like the people I train with, around me... everyone else is kind of catching on to it and encouraging more as well, which is definitely good. (Int2)*

Rebecca's progress and achievements in her first year of competitive water polo afforded her both intrinsic and extrinsic feedback, which reaffirmed her choice of focus

and effort: “I was enjoying swimming but not really much but now that I’m doing water polo I enjoy swimming more. I’m like happier”. (Int2)

Rebecca’s connection, interrelatedness and interdependence with each family member and with her family as a dynamic system, was positive, beneficial and supportive. Rebecca reported on many occasions the level of support she received from her parents and the influence her older brother had on her as a role model. Her strong family social network assisted Rebecca to review and reflect on the sporting and schooling spaces she was part of and to experiment with new directions, knowing that she always had her family to encourage, advise, and provide day-to-day support (transport, food, clothing, love). The strength of Rebecca’s close tie with her parents appeared to undergo a transition during the research timeframe, as Rebecca became more independent and self-reliant. During Year 11, Rebecca reported that she took responsibility for a large part of her transport to training sessions, but was picked up by either parent afterwards. Rebecca also noted that, due to her parents working full-time, they were “not as involved as other parents who, I guess, aren’t working and are picking their kids up”. (Int1)

It may be useful at this point to consider Gilbert and Trudel’s (2004) findings on the influence and importance of sports coaches on a young athlete’s development and progress. Gilbert and Trudel considered a sport coach’s overt approach (behaviour towards others, interpersonal skills, relationships), when coupled with internal role frame components (beliefs, values, perceptions, assumptions, goals, expectations of self, expectations of athletes, view of self as expert), constituted the coach’s personal view of youth sport coaching. Rebecca made little direct comment about her swimming coach, Margaret, except during her cue card responses when she identified Margaret as one of the main influences on her progress and development as a competitive swimmer. Rebecca’s comments about her water polo coaches were equally sparse, but she hinted at the environment created by these coaches as being positive, encouraging, supportive and fun. Rebecca’s admiration of the style of coaching at water polo propelled her to transfer a similar team philosophy to her swim squad sessions. The interconnectedness and discursive nature of both sporting domains made Rebecca’s input plausible and acceptable. Margaret was impressed at the leadership role that Rebecca had willingly taken on within the squad, and Rebecca

was pleased with how her squad members had reacted to a more positive and encouraging training environment.

Both her swimming coach and her water polo coaches had a significant impact on Rebecca during different developmental phases of her sporting career. Margaret's disciplined, structured, 10,000 hours of training philosophy had taught Rebecca about goal setting, dedication, perseverance, and loyalty. The close coach-athlete relationship between Rebecca and Margaret grew over many years to become an interacting, interdependent, interconnected system of multiple families; Rebecca's, Margaret's, and the family of each of her squad members. This strong, mutually beneficial tie afforded both Rebecca and Margaret multiple positivities, until a system event occurred to change the equilibrium of all sub-systems involved. Rebecca's decision to pursue water polo as her main sport forced Margaret and the elite swim squad to reorganise and adapt their dynamic systems in response to changes in Rebecca's complex system(s). During Year 11, when Rebecca immersed herself in the water polo domain, she represented the agent who made significant adaptations and changes to her system. During this transition phase, Rebecca needed to integrate, find acceptance and to connect with the coaches, players and systems of the water polo community. This she was able to do successfully.

Research on the talent identification and development of young soccer players by Williams and Riley (2000) may be useful here. Williams and Riley reported that from a sociological perspective, "supportive parents, a stimulating permissive coach and the dedication and commitment of the athlete to spend multiple hours training and refining skills are the real determinants of excellence" (p.664). While this is a narrow view that excludes social influences and how particular activities are culturally valued, their work did highlight why "the pursuit of excellence should not be at the expense of the athlete's physical and emotional health, growth, and development" and that "appropriate familial, educational, and socio-cultural environments were essential in a balanced approach to child development, especially of elite players" (p.665). In Year 11 aged 16, Rebecca's selection for the secondary school national water polo championships and club national age group swimming championships exemplified a positive national provision to showcase and develop young athletes, and as a site for talent identification towards top level international competition. Rebecca's physical



(fatigue) and mental (worry) responses to competing at a national level in two sports highlighted some important health and well-being issues, which would need to be addressed for Rebecca to sustain this level of competition and achievement, during Years 12 and 13 of her secondary school education.

As a talented female student-athlete, Rebecca was under some pressure to perform and to excel, initially in swimming and then by her own choice, in water polo. As in any dynamic system, Rebecca's education and sport domains were constantly interacting, interdependent and interrelated while also being open, unpredictable and discursive. Rebecca's everyday life as a talented student-athlete engendered a variety of influences, not all necessarily beneficial.

#### **6.12.4 Factors influencing tension**

An area of conflict between her sport and school domains arose for Rebecca regarding her swimming training, which ran throughout the year, apart from a two-week break after the final national championships in August each year. Trying to sustain her swimming training leading up to and during external NCEA examinations, proved to be too difficult and too stressful. Rebecca missed her swim training at these times. On one hand, she understood the importance of maintaining her training as "you think it's not much but it really does affect you" (Int2) if you have a week off training. On the other hand, Rebecca prioritised her schoolwork over her sporting commitments to ensure that she maintained an excellent standard. She admitted this pressure to excel academically was self-imposed and at times caused frustration:

*Most of the time I'm doing as well as I want to, but occasionally I just won't have the time to learn my French words or something. I get really annoyed with myself when I don't do as well as I should. (Int1)*

Rebecca was also astutely aware of how good time management impacted on her ability to complete schoolwork and to attend all her training sessions, games and events. She explained how intricately her school and sporting domains were connected, to enable and/or disable her success in one or both:

*If I wasn't swimming I wouldn't have the motivation to do the work, but sometimes I think I should be spending more time doing this [schoolwork]. I just think if I wasn't swimming, I would find school easier, but then I guess on the other hand I wouldn't, because I*

*wouldn't have the motivation to finish something before I leave.*  
(Int1)

Once Rebecca was entrenched in her dual water polo and swim training schedules, her week became a continuous roundabout of travel, training, travel, school, travel, training, travel, home. Rebecca's hours of training were not something she could easily change so she had to reorganise her system to accommodate each training session or game. She did this by allocating part of her weekend for schoolwork, assignments and revision. An interpretation of Rebecca's adaptability can be considered in relation to Barab et al.'s, (1999) view that for a complex system to reorient itself to maintain coherence with the environment in which it is engaged, it must contain enough diversity in its make-up to adapt to the demands of the environment. Rebecca learned which strategies worked and those that did not, and implemented the strategies that were most beneficial to achieve her aspirations (in education and sport).

Injury and ill-health as possible areas of tension were other emergent issues from interpretation of collected data. Rebecca exhibited signs of fatigue, poor motivation and bouts of ill-health during Years 10 and 11. In Year 11, the increased physical and mental demands of sustaining two sports combined with an increase in the assessment level at school (NCEA Level 1) had the potential to disrupt Rebecca's short and long term sport and education goals. She reported that she had experienced a serious lack of sleep and that "I think I was a bit too stressed the whole time, like it (NCEA exams) wasn't as bad, nowhere near as bad as I thought it was going to be". (Int2) Rebecca's concerns about her health were well founded. De Lench (2011) reported that participation in only one sport can result in increased risk of repetitive micro trauma and overuse injuries, and that multisport youth athletes who did not obtain sufficient rest between daily sessions or between seasons were at higher risk of overuse injuries. Rebecca's resilience and preparedness to reorganise and to adjust her system to overcome setbacks helped her to circumvent potentially debilitating circumstances. Furthermore, sport and exercise/recreation in an organised context provide a social element, which can help tackle feelings of isolation, often a symptom associated with poor mental health (Cox, 2012).

Rebecca's data indicated that she tended to become stressed in educational settings that tested her knowledge and skills. During Year 11, Rebecca noted a number of

barriers she perceived would undermine her ability to sustain her educational goals; insufficient time to revise for tests and assessments, feeling tired at school due to her training sessions before and after school, self-imposed and external pressures to succeed, and a lack of actual support for high-performance student-athletes at her school. However, in Rebecca's case, this stress appeared to be unfounded as she achieved NCEA Level 1 in mathematics, English, biology, physics, geography, sports science and French, endorsed with excellence overall. Rebecca's approach to study was intense and exclusive of outside distractions or interference which, when coupled with a high level of motivation to succeed, created uncomfortable levels of stress for Rebecca. She verbalised her stress as:

*I guess it's my expectations, but I feel like I have the pressure from my brother, but I don't think my parents really do, but I feel like they do. He was always getting excellents and 100%, so I want to be like that. (Int1)*

Leading in to Year 12, Rebecca was more relaxed and confident as she was conversant and familiar with the NCEA assessment methods and expectations. Retrospectively, Rebecca reflected that, "all that stress was for nothing really". (Int2) Rebecca's competitive attitude of wanting "to be the best" (Int1) both in sport and at school had the potential to undermine her self-worth if she didn't achieve the standards and goals she set for herself. Her achievements in sport, however, afforded her a confident, self-assured, self-identity.

Rebecca thought about her sporting lifestyle, her school life, and whether she was on track towards her short term goal of being the school water polo captain in Year 13 and her longer term goal to represent New Zealand in water polo, after secondary education. "I think I'm doing alright, doing pretty well but I set very high expectations for myself so if I hope I can live up to those". (Int2) However, Rebecca was aware that factors beyond her control could have a beneficial or detrimental influence on her future aspirations and achievements:

*Our coach says it's almost impossible to do university and swim. So, I'll make that decision when it comes. I want to go away to university. I don't really want to stay in Auckland. They do have American universities and scholarships, but whether I get that or not, I don't know. (Int1)*

These variables had the potential to disrupt and disturb the stability of Rebecca's complex system, and to undermine her performances. In these contexts, interconnecting influences that worked in her favour included advice, guidance and reassurance from her support networks (parents, coaches, team mates, squad members, school friends, teachers and school administrators), as well as intrinsic and extrinsic feedback from herself. Rebecca had also begun to consider whether her sporting and schooling commitments would be manageable in her final years at secondary school:

*I'll see how it goes in term one [with swimming and water polo] because it's so busy at school with swimming zones and stuff, and all the water polo's in term one so... I'm not sure; I'll see how it goes. (Int2)*

To conclude Rebecca's story, a summary of the key interpreted themes, relative specifically to interconnecting influences and aspects of tension, are presented in Figure 9. The purpose of the schematic figure is to increase clarity and understanding by reducing some data into chunks, without losing the integrity and impact of the data (Huberman & Miles, 1994).

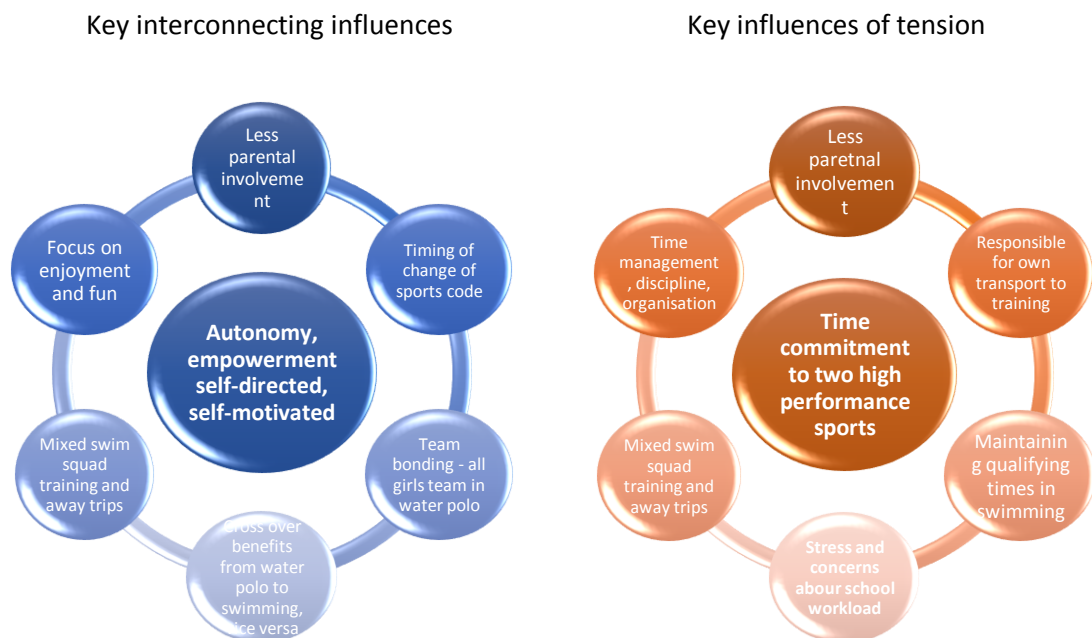


Figure 9. Summary of perceived interconnections and influences of tension – Rebecca's case study.

### 6.12.5 Interpretative summary

From a complexity posthumanist perspective, practical management issues emerged from the factors that influenced the time Rebecca had to fulfil her sporting and schooling commitments (training five to six days a week, weekend events, internal assessments, homework, and a sports' captain leadership role), the availability of resources she could access (transport to and from training, food, clothing, support, equipment), and whether she had the information she needed (homework tasks, assessment schedules, lesson notes, competition dates and venues, time away from school, costs, travel) to satisfactorily meet all expectations. The impact of these multilayered elements and factors had the potential to influence Rebecca's sport attainment and education sustainment, as a 16-year-old student-athlete in New Zealand. Rebecca's perceptions and the meanings she made from her experiences could determine whether Rebecca achieved her goals and aspirations or needed to reorganise and refocus her direction and expectations. One emergent outcome that proved to be particularly challenging for Rebecca was her strong desire to be part of a sport team ethos and environment. This socio-cultural need forced her to access new information and resources (in water polo) whilst also removing herself (temporarily) from one of her strongest complex systems (her swimming coach, squad, club trainings, swimming pool, daily routine). During this transition period, Rebecca and those she was closely connected to (in her family and swimming domains) experienced disruption, confusion, and disbelief. For Rebecca, this was a transformative process to overcome actual and perceived barriers (psychological and physical) to achieve her long term goal of representing New Zealand in water polo and/or swimming.

In this chapter, the interpretation of Rebecca's everyday life experiences was based on DeLanda (2006), and Deleuze and Guattari's (1980) investigations of assemblages, in particular the significance of interpersonal ties (Barab & Roth, 2006: Granovetter, 1973), the strength of these ties and the time over which they operated. Key influences included Rebecca's immediate family, her older brother and her parents, her expert swimming coach, and her friendships within sport and in her everyday school community. Rebecca experienced a strong sense of connection and belonging at school; however, within her sporting domain (in particular swimming) she struggled to sustain her motivation to train at the intensity required to maintain a top eight

ranking in New Zealand for her age group (Stewart, 1991; Storey & Butler, 2010).

Rebecca's parents were instrumental in her achievements in a number of ways. They provided positive role models, guidance, clear expectations, and a high level of support on many fronts; physical, emotional, intellectual, spiritual and social. Within the bounds of this research project, the influence and impact of Rebecca's parents on her development and achievements was interpreted as significant. Other key influences that emerged from an interpretation of collected data were Rebecca's exposure to a wide range of sporting and physical activities from an early age (5 years old), her specialisation in water sports (particularly swimming) with their inherent intensive rigorous training regimes, access to expert progressive coaching, transfer of skills and experiences between sport codes, goal setting, acceleration in mathematics (from age 11), a strong work ethic, mental fortitude, self-determination, and a commitment to excel in sport and academically.

Complexivist tools that were useful to gain insights and understandings included unpredictable emergent outcomes in response to influences and changing socio-cultural and socio-ecological needs (Davis, 2004; Stewart, 1991); the complex, adaptive place of the human (Rebecca) within other-than-human worlds (Roelvink & Zolkos, 2015); assemblages and the strength and duration of interpersonal ties (DeLanda, 2006; Granovetter, 1973); system instability and chaos (Mason, 2008), and Wolfe's (2009) notion to challenge how we think about being human, and the specificity of human actions such as knowing, observing and describing. Gilbert and Trudel's (2004) coach influence on youth sport participation and retention, De Lench's (2011) insights about the implications of early specialisation, and Davis and Sumara's (2006) work about understanding entities (Rebecca and her experiences as a student-athlete) while we are part of the things we are studying, were also helpful as interpretative tools.

Aspects of Rebecca's reported daily life that caused difficulties and stress for her were interpreted against the theoretical frame of Barab et al.'s (1999) research on adaptability and system reorientation, De Lench's (2011) findings on overuse injuries, ill-health and burn-out in young athletes, and Cox's (2012) suggestions regarding the emotional, psychological, physical, and social health of high-performance young athletes (see 6.12.4 disabling factors).

The next chapter includes detailed discussion based on emergent themes from the interpreted research data, with clear links to the project research questions.

## Chapter 7 Discussion

Now that the narratives have been presented and interpreted, it is time to discuss the understandings and insights about the meanings that Aroha, Sandy and Rebecca brought to their everyday experiences, both as competitive representative athletes and as secondary school students. The reconstructed narratives provide powerful insights about the everyday life of each high-performance athlete. Each student-athlete's story represents one view created through the interpretative perspective of myself, as a researcher and comparable complex open system. My interpretation portrays each student-athlete's experiences, influences, perceptions and meanings, as she came to terms with the daily challenge of weaving sporting commitments and demands with commissariat schooling requirements and pressures. Furthermore, as the study progressed, the demands and expectations in both sport and education intensified exponentially. As each student-athlete progressed in her sport, the intensity of her academic studies also increased. From Year 11 onwards (aged 15-16 years) each student-athlete was required to train hard, attend more pressurised competitions and still concentrate more intently on gaining academic qualifications at her secondary school. Somewhere within this process of waking, dressing, transporting, training, transporting, eating, studying, eating, studying, transporting, training, transporting, showering, eating, studying, packing and sleeping, a young woman was also changing, growing, exploring and discovering who she was, what was important to her, and at times questioning whether she could achieve her dreams and aspirations, in sport and at school.

### 7.1 Themes

Thematic analysis of the narratives using a complexivist posthumanist lens and the NVivo software package revealed key intersecting themes or nodes, underpinned by several subthemes, presented schematically in Figure 10. The combination of themes and subthemes was different for each student-athlete case; however, common nodes are included to summarise key findings (See Figures 4, 6 and 8). The interacting, connected themes included role models, expectations, influences, and support systems, strategies for success, aspirations, explained using the titles of meanings, perceptions, and disabling factors to discuss these themes. In a bid to inform and



enlighten sport performance, youth sport literature to this date has been disproportionately orientated towards investigating talent identification, developing sport programmes, examining the role of coaches, parents, peers, facilities and programmes (see Csikszentmihalyi, et al., 1993; Durand-Bush & Salmela, 2000; Tranckle & Cushion, 2006). To inform and enlighten stakeholders about the life and world view (including her education attainment and progress) of young sportswomen in New Zealand, analysis of the case study narratives implemented a balance in focus between sport attainment and education sustainment, using a holistic approach. To highlight factors and influences acting on the student-athlete while she concurrently acted on and influenced the systems and environments with which she was connected (Barab et al., 1999) required active listening, furthering questions during interviews, an open mindset, and a sensitivity to each student-athlete's perspective.

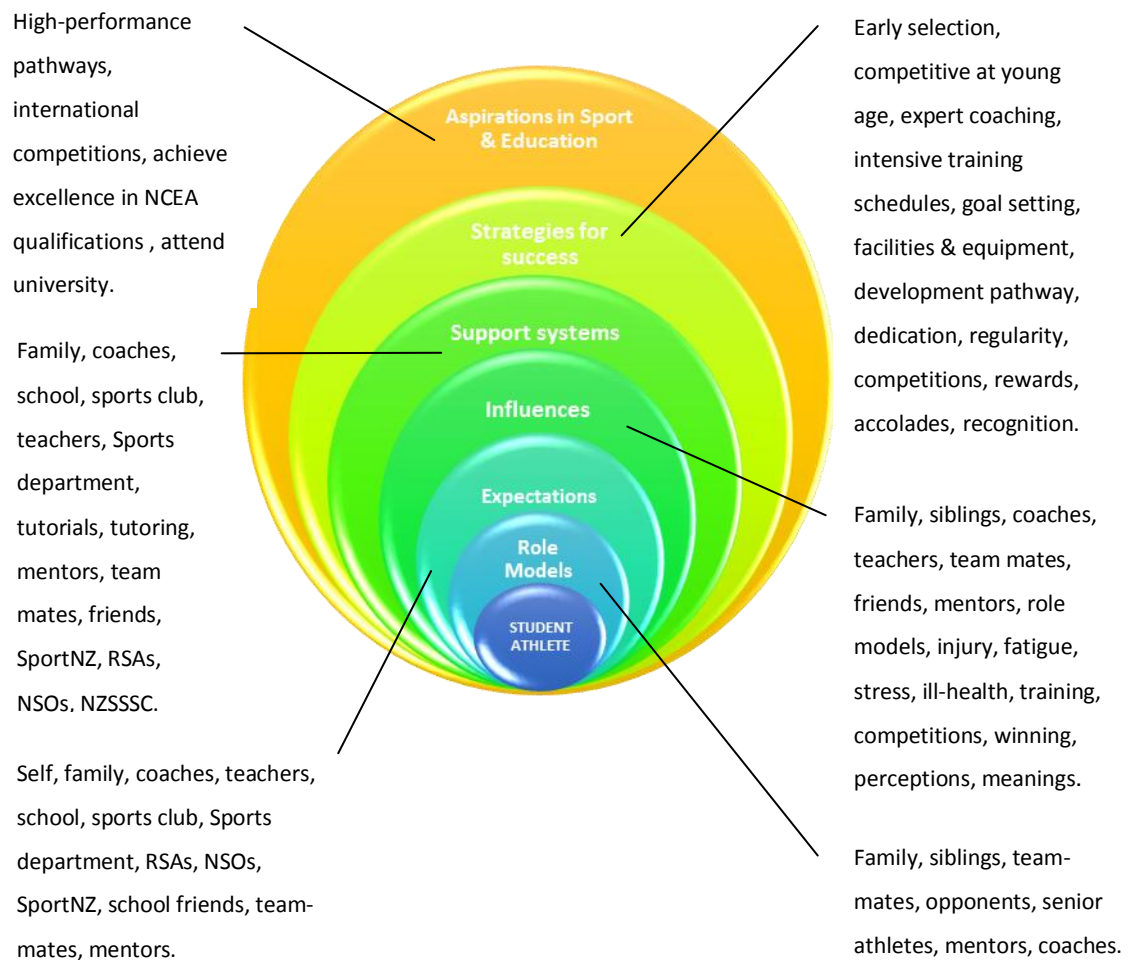


Figure 10. Schematic diagram of themes (nodes) and sub-themes identified from interpretation of student-athlete narratives.

The student-athlete-researcher relationship, as a dynamic interrelated, interdependent and interconnected system, created opportunities to explore and share thoughts and feelings, while also at times creating tensions and particularities, which was interpreted as indicative of an evolving, non-linear, unpredictable complex system.

Each student-athlete's narrative was based on an interpretation of collected data to represent in an honest and authentic manner, the thoughts and feelings of each young woman in this research. As stated in Chapter 1, the narratives represent one story that could be told; therefore, my narration is partial and limited due to the tools available to understand and tell each student-athlete's story. That is, the story as told is a series of interpretations; the student-athlete had to find a way of reducing embodied life experiences within the language (written and verbal) and time she had to respond to interview methods. As researcher, I interpreted what was said orally and converted this to written text, possibly minimising the dynamic flow of conversation in the process. Each student-athlete's narrative was created from my researcher-narrator perspective and represents only one interpretation of her story. Due to the qualitative interpretative process of interviewing, recording, transcribing, analysing, and writing, the student-athletes' stories as presented may not convey the same meanings as were originally experienced (Ovens et al., 2013). However, since little research in this field has existed previously in New Zealand and internationally, the insights and understandings that emerged from my study are significant and educative.

Guiding the process of this chapter are the two research questions underpinning this study (see Chapter 1, p.6). The first three sections of the discussion will focus on the underlying factors and influences as depicted in Figure 10; role models, expectations and influences, as they were identified as key factors influencing student-athlete choices, behaviours and functioning, within, across and between their complex systems. The latter sections in this chapter discuss how the student-athletes developed *support systems* and *strategies* to achieve their *aspirations* in sport and education, while considering the effect of *disabling factors* and how the young sportswomen *perceived* and made *meaning* from their experiences.

**RS1** *What factors and influences affect young women athletes' performances across sporting and schooling contexts?*

## 7.2 Role models

Each narrative presented in the previous chapters (four, five and six) provided insights into the student-athletes' perceptions and interpretations of their sporting and educational situations, highlighting how they reacted to their respective environments, to the people they connected with in those environments, and whether those relationships were conducive, incidental or unhelpful. Granovetter's (1973) seminal work on the creation of favourable environments to optimise goal attainment, introduced the concept of interpersonal ties, and the relative strength of these connections between contacts within a dynamic system. A preponderance of weak ties was regarded by Granovetter as being of greater benefit to create new opportunities, whereas strong ties, usually with immediate family and friends, afforded security and access to complex information, but limited an individual's ability to develop quickly.

Each student-athlete alluded to the importance and influence specific role models had on her aspirations, motivation, and long term goals and career choice. Aroha wanted to emulate her father's model as a professional sportsman and respected coach, Sandy aspired to achieve similar heights in pole vault as her senior squad member mentor, and Rebecca regularly commented on her older brother's achievements academically, which she aspired to equal through her sporting achievements. As stated in Chapter 5, the strength or weakness of ties within, between and across interconnected, interrelated and interdependent systems was influenced by other factors; the number of interacting elements, the number of connections between elements, the diversity of elements, and the length of time elements were interacting and evolving. Essentially, the people each student-athlete connected to strongly within, across and between her systems, created a role-model relationship; for example, with coaches, parents, siblings, peers, team mates, squad members and excelling athletes in own code.

## 7.3 Expectations

Evidenced from the case study narratives, the impact of perceived versus actual expectations was significant for each student-athlete. Rebecca expressed concerns regarding unspoken expectations that she would excel academically as her parents were "bright" and her older brother "gifted" (Int1). Rebecca rationalised that she was the "sporty one" (Int1) in the family, although her achievements educationally were consistently high. Rebecca was fully aware of the expectations of her coach and

parents with regard to her swimming pathway and future. Bourdieu's (1984, 1985 & 1986) work on social and cultural capital, dominant versus dominated spaces and positions, and McMahon et al.'s (2012) findings about Australian female swimmers' experiences in a masculine hegemonic training regime, are relevant to Rebecca's perceptions of power relationships and her embodiment as a young female swimmer. As a former Olympian, Margaret (Rebecca's coach) described Rebecca's potential to swim at Commonwealth and Olympic levels and Margaret expected her to continue to train and compete as she was, as a 14-year-old, on track to swim internationally for New Zealand.

Aroha reported on educational expectations that were voiced clearly and often as "education comes first" (IntSO). Aroha was expected to learn Te Reo Māori and to sustain her academic studies alongside her sporting interests. As the second child of two previously successful sports people, Aroha revered her parents and continued to strive to meet their overt and inferred expectations, in sport and in education, throughout this research process. Chambers (2005) and Thorpe's (2012) research on increasing understandings of the practices and politics of physically active female bodies, especially when women enter male-dominated fields (such as touch rugby for Aroha), revealed that many female athletes make adaptations and adopt strategies to "manage the masculine culture into which they are entering" (p. 342).

From another perspective, Sandy conceded that she placed high expectations on herself, at times to an extreme, especially when studying for assessments and external examinations. Sandy described her need to excel. She was fully cognisant that her effort and behaviours were self-determined and occasionally detrimental to her well-being and health (see Chapter 5, p.199). It was evident from Sandy's story that her connection to her athletics club facilitated her development in athletic events. This was also the case for Rebecca through her swimming club, and for Aroha as a valued member of her family touch rugby team. The expectations perceived about these community-based systems focused on regular participation, commitment, hard work, individual and team effort, congenial relationships, competitive attitude, and winning. Research by Jenkins (2002) highlighted that by complying with the set structure and practices of the field, young female athletes in so doing legitimised and reproduced

such practices. The student-athletes in this study were fully cognisant of the focus on excelling, in sport and educationally.

## 7.4 Influences

Research undertaken by Walby (2003) showed that relationships within and between systems, of which the student-athletes were a part, both educational and sporting, could have significant bearing on the opportunities, obstacles and outcomes each individual experienced. Decisions made by a government department, national sporting organisation, or by the school's Board of Trustees could impact on the student-athlete's level of provision without the athlete being cognisant of these influences (Ministry of Education, 2000; 2002; 2004; 2005; Ministry of Health, 2012; Sport NZ, 2011; 2015). Conversely, the needs and demands of the student-athlete's individualised micro environments (her sporting and educational systems) could also inadvertently impact on the policies and procedures which existed in her macro environment (policy writers, senior management team, regional sports associations, national sports body, government department). Sudden critical turning or tipping points, which Granovetter (1973) termed saltation, emerged from the interaction and linkage between macro and micro systems, which, when acting on the athlete in her socio-cultural environments and vice versa (micro systems acting on macro systems), created unexpected, unpredictable, nonlinear, emergent outcomes that caused the systems involved to self-organise (Walby, 2003).

The notion of sudden critical turning points, where small changes in the context of complex systems (lines of flight where gaps or spaces are identified), can give rise to new pathways that are self-sustaining (Deleuze & Guattari, 1987). These lines of flight were evident with Sandy and Rebecca who decided to change sport codes in Year 9 and 10, respectively. While the tipping point was different for each athlete (injury and excessive training for Sandy, a need to be more socially connected for Rebecca), the change for both young women was positive, developmental and life-changing. The loose interpersonal tie Rebecca had with the water polo environment afforded her new pathways and opportunities not previously envisaged. Sandy's connection with athletics was secondary to her main focus of artistic gymnastics; however, when she pursued pole vault specifically, her progress in and accommodation to this new sport was exceptional. From the interpreted narrative data, there was no clearly defined

critical turning point for Aroha; however, when she sustained a major knee injury in Year 11, her ability to self-organise by resetting goals and adjusting her aspirations was a system transformation, albeit relatively short-term.

## 7.5 Support systems

The research findings identified support from multiple avenues as beneficial, conducive and significant for each student-athlete. Support structures were evident in particular from immediate family, specifically parents and for one student-athlete from her older sibling. The importance and impact of family support for youth athlete development has been documented extensively (see Bryant & Crockenberg, 1995; Fraser-Thomas, et al., 2005; Furman, 1995; Godber, 2011; Sailor, 2004). The participants reported that they enjoyed intensive attention from immediate family from an early age to ensure every opportunity to develop and achieve in sport and schooling was accessed. For example, Aroha and Sandy played netball from age five years, Rebecca “had a go” (Int1) at many sports and physical pursuits throughout her childhood, and all three athletes experienced additional help with their schooling in one form or another; Aroha with after school courses and tutoring from her primary school teacher mum, Sandy through acceleration classes (specifically in mathematics) during Intermediate school, and Rebecca was encouraged to work diligently to achieve her older sibling’s academic results.

Another emergent support system identified from the analysis and interpretation of each student-athlete’s story was the coach-athlete relationship. Kidman and Hanrahan (2011), along with several other authors, including Cassidy and Potrac (2006), Nakamura (1996) and Smoll and Smith (2002), paid particular attention to the notion that coaches can have a dramatic influence on the development and lives of those they coach. Kidman and Hanrahan supported an athlete-centred approach to coaching young athletes, a philosophy still in transition for many experienced sports coaches whose mantra was, for example, from Margaret:, “ten years or 10,000 repetitions” (IntSO) to embed fitness, skills and techniques. Alternatively, Kidman and Hanrahan’s (2011) approach encouraged athletes to take ownership of their learning, to strengthen their abilities to retain key skills to make effective decisions during competition. The strength of the coach-athlete relationship and the timeframe over which it evolves has been documented as significant in the attainment of sustained

high level performances in sport (Horn & Harris, 2002; Andersson, 2000; Cassidy et al., 2009; Reeve, 2009). Aroha commented on her netball coach as a person of significant influence in her development as a mid-court player. Aroha recognised the importance of getting on with the coach as team cohesion, cooperation and support for each other were highly valued memes (Kidman & Hanrahan, 2011; Kornspan, 2009) in the netball community at her school. Aroha's selection for a prestigious netball trip to Singapore on two consecutive years, indicated that her relationship with this coach provided her with social and cultural capital (Bourdieu, 1984). Sandy acknowledged the importance and impact of her world-recognised pole vault coach. His patient, understanding and experienced approach was documented by Sandy as reassuring and encouraging. She had also established a special relationship with her gymnastics coach over many years as a representative artistic gymnast. Sandy regarded Emma as part of her extended family and vice versa, as she had looked after Emma's children from time to time. Rebecca also had a long, enduring relationship with her coach, Margaret, through many years of swimming training and competitive events. Conversely, the coach-athlete relationship was documented by Emma and Margaret to be significant and important, from their perspective as a sports coach.

Both Rebecca (in swimming) and Sandy (in artistic gymnastics) experienced long hours of repetitive training from an early age. Perhaps due to the nature of the sports code or because of other factors - change of body shape, power to weight strength, increased technical difficulties, subjective nature of competitions in gymnastics, socio-cultural factors of normativity for gymnasts and swimmers, individual versus team-based - Rebecca and Sandy decided to stop competing in the sport they had trained for, for more than six years. As an outcome, the support system that existed between the athlete and her coach became redundant. This was followed by an expected period of readjustment for both parties, expressed as a sense of loss and disappointment, but also with understanding and empathy. Tania commented, "she did a lot of soul searching, spoke to a lot of people, about what to do, but has my full support as she definitely did have limits... in gymnastics" (IntSO). Previously, a strong focus on mutual respect and common goals connected each athlete and her coach. Within her narrative story, each student-athlete acknowledged the impact her long term relationship with her coach had on her motivation, dedication, self-belief, and performances. The depth

and intensity of these relationships was evidenced from the coaches' responses when Rebecca and Sandy changed sport codes. The emergent upset, disbelief and disappointment from the coaches' perspective revealed how important and strong the coach-athlete tie had been. By extracting themselves from the coach and their coaching environment, Rebecca and Sandy effectively severed this connection and therefore had to transform and reorganise their systems, emerging with a different configuration.

Crenshaw's (1989) notion of intersectionality, which stressed the interwoven nature of micro (lived experiences), meso (social structures) and macro (global influences) categories operating in an organisation or system, was expanded by Acker (2006) who stated that socio-structural inequality regimes exhibit "loosely related practices, processes, actions and meanings that result in and maintain class, gender and racial inequalities within particular organisations" (p.443). Within the sport and educational contexts of this research, support systems outside the student-athlete's micro category were identified as having a significant impact on how she ordered and organised her daily life. Another example of the meso system was that the social dynamic in Rebecca's swimming squad and water polo teams provided her with contrasting influences. Rebecca preferred the team emphasis and collaborative attitude of her coaches and team members in the water polo social system (meso). Decisions made at regional and national levels relative to competition structures and dates (macro) had a beneficial effect on Rebecca's ability to balance her sport and school demands, because weekly competitions and national tournaments considered the secondary school academic calendar. In this regard, the organisation of Rebecca's sport supported her sustained achievements educationally. As a club swimmer, Rebecca found that training and competitions were scheduled throughout the academic year, with little regard for her school commitments and pressures. This approach forced Rebecca to choose studying for her examinations over attending daily training sessions, which created some disquiet for the athlete.

Another meso support system of significance existed within the education domain. As a scholarship holder in the Institute of Sport at her school, Sandy had access to weekly mentoring, an exclusive class for national and international student sport representatives and flexibility with her classes, assignments and assessments if they



clashed with her competitive events. She experienced an efficient means of acknowledging and rewarding achievements, both informally and formally. Sandy commented that she felt different and at times socially isolated at school, “I’m in a completely different class, I’m in a completely different world... so there’s no one at school... that I can relate to. That’s why the institute is good because I’m surrounded by older kids who know...” (Int2). Aroha’s challenges were more academic-based. She focused on accessing additional support in English, mathematics and science as she approached Year 11 NCEA assessments and examinations. Identifying as Māori/Pacifica, Aroha had open access to lunchtime tutorials to support and accelerate her learning. Her Puna classroom also afforded her extra exposure to Māori protocols, practices and philosophies, which were beneficial to embed Māoritanga in her everyday life. Rebecca’s educational support system concentrated primarily on her ability to complete schoolwork at school, homework after school but before attending a training session, or on weekends when she did not have a swim meet or water polo games. Of the three student-athletes, Rebecca appeared to have less educational support, confiding that, “I’m not sure if they’ve done any sport themselves, but I think my tutor teacher knows I swim... my dean knows I swim, because of the leave pass (Int1). Rebecca’s attitude was that she did not expect to receive special consideration regarding schoolwork or assessments, because “there isn’t really any support I guess. I could ask for an extension from my teachers, they would probably say yes but I feel like they’ve given a deadline, so I should meet it”. (Int1)

The combination of micro, meso and macro influences as support structures were positive and conducive for Sandy. She was able to concentrate her efforts on competitive events throughout the summer months and apply herself to intensive after school training during her normal school terms. Initially this structure appeared ideal; however, as Sandy progressed in pole vault, it became apparent that she needed to attend international events that would clash with her New Zealand winter training and therefore create issues with her NCEA internal assessments. Support in the form of regular interviews with her Sports Academy mentor assisted Sandy to plan and anticipate pressure areas in her school and sport programmes. Sandy also accessed additional support from the Pathway to Podium Sport New Zealand initiative for developing competitive athletes.

Aroha's educational support from the macro system represented a top-down emergent provision, specifically for Māori and Pacifica secondary school students. Ministry of Education statistics indicated over many years the disparity in educational achievement of Māori and Pacifica students against other ethnicities (NZCER, 2003-2017). This educational support focus has been investigated by Fitzpatrick (2011; 2012) who reported that the complex identities of Māori and Pacifica students were not generally considered in relation to educational success and achievement statistics. Fitzpatrick (2011) proposed that Māori and Pacifica students were constructed historically as disadvantaged and underserved socio-economically, with their students identities and attitudes to schooling (and ultimately their schooling success) were framed by wider social and political circumstances. Although a range of support (micro, meso and macro) systems existed for Aroha, Sandy and Rebecca, not all were easy to access or necessarily appropriate to meet the student-athlete's needs.

## **7.6 Strategies for success**

Strategies identified as precursors to ongoing sport development and success were the sustained practice of early sport participation and the provision of competitive situations at a young age (see Chapters 4, 5 & 6). Aroha, Sandy and Rebecca recalled their involvement in competitive sport from age five or six, initially in team activities and later for Rebecca and Sandy, with a focus on individual pursuits (dance, tennis, gymnastics, swimming). Goal setting, the use of role models combined with parental encouragement and support featured as critical factors to produce beneficial outcomes for the student-athletes in this research. The availability of and access to expert coaches and facilities emerged as significant at later stages of the student-athletes' development, in particular in high-performance sport. In addition, their ability to sustain long intensive training schedules, to control the pressures inherent in top level competition environments, and to manage their time and life efficiently, was recognised as an important determinant of sustained achievement (Ericsson et al., 1993; Ericsson & Lehmann, 1996; Baker et al., 2003; Baker & Horton, 2004).

Sandy, in particular, alluded to the anxiety she experienced during pole vault competitions. To achieve her optimal performances, Sandy considered the weather conditions, the length of her run-up, which pole to use and whether she had warmed up enough. Her coach's input assisted her to make some decisions within her

competition environment. As she became more experienced, Sandy noted that she could change her equipment, run-up and mental attitude, as well as evaluate each performance to adjust the socio-cultural and socio-ecological factors acting on her next jump. The competition situations for all three case studies (Aroha in netball, Sandy in pole vault and Rebecca in water polo) can be viewed as complex systems; structure determined – able to change its own structure as it adapts to maintain its viability within dynamic contexts; complex systems embody their histories; they learn (Davis & Sumara, 2006). All three student-athletes indicated that they could adapt and adjust their performances to accommodate changes that occurred, especially in the social dynamics (socio-cultural) and environmental factors of competitions, such as weather, spectators, equipment or facilities (socio-ecological). A variable that was not easy to define or investigate was the socio-economic status of each athlete in this project. However, the provision, support and multitude of opportunities, both academically and in sport, indicated that all three young women enjoyed a level of financial support that provided every opportunity for their advancement.

In educational contexts, strategies to sustain achievement hinged on regular school attendance, meeting assignment deadlines and revising intensively for examinations. The key focus on academic success concerned time spent on tasks and completing tasks on time. Rebecca explained her dilemma with time management when she stated:

*The negative effects [are] the large amount of time taken up by swimming, which means I don't have as much time as I would like to study and do homework. Since starting at secondary school I have lost a huge amount of sleep due to there simply being not enough hours in a day... (Int1)*

De Lench (2011) found that specialisation in one sport may be associated with nutritional and sleep inadequacies, psychological or socialisation issues, and ultimately burnout, which might be avoided with a balanced lifestyle and a strong support system made up of parents, friends, coaches, and healthcare providers. Recent research on the academic achievement of high performing athletes by Yu (2012) and Gil (2014) confirmed that athletes managed their time better in season than out of season, and that student-athletes prioritised their academic study and their sport above their social life. Ferris and Finster (2004) found that “female athletes are more willing and able

than other groups of athletes to transfer the skills that they have used to be successful in a sport domain, such as effort and time on task, to the academic domain” (p.11).

Another important contributing factor on each student-athletes’ attainment level, especially in sport, was her health and well-being status and whether she had sustained a serious injury or not. Of the three athletes in this study, two experienced debilitating injuries that prevented them from training and competing for at least six months. Aroha reflected on her ACL injury, sustained during a netball trial at the beginning of Year 11. She noted that after a period of upset and disappointment, she regarded her injury as an opportunity to concentrate on her academic studies, although it was frustrating to watch from the sideline while others played her position. She was acutely aware that her knee injury could preclude her from competitive sport ongoing, so achieving a full recovery was essential to avoid a recurrence. Sandy’s fractured back from gymnastics was a factor in her decision to change from artistic gymnastics to athletics. The relentless training required to maintain her competitive standard in gymnastics affected her mental and emotional health, which precipitated her change of sport code during Year 9. De Lench stated that young athletes who participate in a variety of sports tend to have fewer injuries and play longer, thereby maintaining a higher level of physical activity than those who specialise before puberty. He expanded his recommendations further by advocating that youth athletes be encouraged to participate in multiple sports and recreational activities throughout the year to enhance general fitness and aid in motor development, and that athletes take time off between sports seasons.

Many factors and influences emerged as significant, some as important, and others as incidental; for example, the graduated competition structure in netball, athletics and swimming provided achievable progress and attainment for all three student-athletes. The availability of rewards, accolades and recognition from a variety of agencies (school, club, regional, national and international) reassured and encouraged each athlete. These tangible achievements were available academically and within each sporting context. Personal attributes of resilience, dedication, positivity, self-belief and reliability contributed to each athlete’s development and success, in both domains. Less valued factors appeared to be socio-culturally biased, such as school friends, social media, siblings and extended family.

## 7.7 Aspirations

The ambition of achieving something beyond her current skills and performances was significant for each student-athlete. Linked closely to goal-setting, thoughts of attaining ultimate goals such as competing in the world championships, Commonwealth and/or Olympic Games, provided the impetus and motivation for each young athlete to train and compete in her chosen code or codes, for many years. Studies by Edger (2016) and Leith (2003) reinforced the importance of goal setting on short and long term athletic performance. Leith emphasised that student-athletes need to learn how to set systematic goals that are focused on process and performance, rather than on the outcome of competition. Similar research by Cohn (2008) and Kornspan (2009) reiterated the value of process and performance goal setting that was athlete driven, to increase motivation and commitment. An understanding of the commitment and effort required to attain her dreams in sport, while also sustaining acceptable educational standards, was evident for the student-athletes in this research. Their baseline target to achieve excellence in sport and education (specifically Sandy and Rebecca) added additional pressure to the at times frenetic pace of their everyday lives. Rebecca reported that:

*Since starting at secondary school I have lost a huge amount of sleep due to there simply being not enough hours in a day... I have occasionally had to miss training because I haven't finished my homework or I have a test the next day which I hadn't studied for. (Q)*

Sandy shared a similar view when she commented:

*You have to be committed, you have to know what you want, and you have to have goals and commitment, dedication... You can't sort of half-heartedly be a pole vaulter. You've got to put everything into it if you want to be the best. (Int3)*

In contrast, Aroha aspired to "do well" (Int1) academically; however, she confirmed that her main focus was achieving and excelling in sport (as her Dad had done previously). Aroha cooperated and was compliant with the wishes and expectations of her family and school, until in Year 10 she decided to stop competing in athletics at a representative level. Aroha's assertive action surprised her Mum and her school's Director of Sport; however, she explained during her interview that she needed to focus fully on her preparations for netball trials while also playing touch rugby during

the summer months. Aroha's need to concentrate her efforts to achieve her aspirations in sport were totally justified in her mind:

*I think I like the best is just like being able to get so many opportunities, to go to places, and making teams, and being a part of like teams... being with other really talented people... round me... I'd like to be in like the Silver Ferns and then do what my dad does, play sport and then also coach sport, like always involved in netball. Like to be in, play in the highest level for netball. (Int1)*

Clear, realistic, achievable goals inspired and encouraged the research participants, especially when they reached a bench mark in their goal-setting, whether achieving excellence in an exam, or being selected for an overseas tournament. Each small success was significant, giving reassurance and encouragement for each young athlete to "keep going, keep doing what I'm doing". (Sandy, Int2)

## **7.8 Factors influencing tension**

The health and well-being of each student-athlete was a focus area in this research. Concerns about the emotional, psychological, physical, and social health of high-performance young athletes has been documented in international literature (Cox, 2012; De Lench, 2011; Gil, 2014; Grimmer et al., 1999; Gutman & Vorhaus, 2012; Yu, 2004), indicating a growing interest in the disabling effectivity effects on children and youth of accelerating physical performance during the critical formative childhood, late childhood and adolescent years of maturation. Intensive, prolonged training with insufficient rest and in some cases inadequate nutrition has signalled the need for a review of how young athletes are managed and the implications of competitive play on their well-being from an early age. The New Zealand Ministry of Health (MOH) provides guidelines for the recommended minutes of physical activity per day for various age groups (60 minutes per day for children and youth aged 5-15 years). However, the MOH does not provide guidance on the maximum recommended hours per day; for example, for children and youth involved in competitive sport. The decisions about how often and how much a child or young person trains and competes are almost entirely down to their coach and sport organisation. A general perception was that the more an athlete trains, the better their performances will be (Baker & Horton, 2004; Simon & Chase, 1973). Rebecca's swim coach insisted that to achieve

Commonwealth and Olympic standards, her swimmers had to do a “minimum of ten years or 10,000 hours of training”. (IntSO)

Another potentially concerning factor that emerged from this research focused on the socialisation of each student-athlete. Interpreted data revealed that Aroha, Sandy and Rebecca experienced something of a disconnect from school friends due to the demands of training and competition commitments. Aroha and Sandy mentioned not being able to accept social invitations as training was always a higher priority. Friends who were not directly involved in the student-athlete’s sport, therefore, tended to become disengaged from their everyday social contexts, as shared experiences were limited. Rebecca, however, maintained a friendship group at school based on regular lunchtime chats. Her mix of friends was more diverse (not necessarily involved in sport or in her sports), which seemed to give her a balanced perspective of the experiences of other similar age students. Rebecca’s comment on her school social environment was, “everyone just sits in circles with a group of friends, and... eat. There are probably ten of us. But I am friends with other people as well”. (Int2) All three student-athletes reported on close and significant relationships within the social contexts of their sports.

Time management as an area of tension was common to the research participants, from the initial 14 student-athletes in phase one and two to the final three case studies in phases three and four of the study. Aroha experienced difficulties with managing her time in relation to training, trialling and playing multiple sports while attending to her school commitments and assessments. Her schoolwork was often completed immediately after school while she waited for a training session to start at school, or between games when she was at a netball or touch rugby game or tournament. Inevitably, Aroha’s homework was not completed and carried over to her next school day or weekend if she wasn’t playing sport. Maree confirmed that she was not able to check on Aroha’s schoolwork as often as she would like to, due to her own pressures of teaching and transporting three children involved in sport. Gil (2014), however, reported that juggling the two (sport and academic study) can benefit both academic and sporting performance. Gil’s research suggested that for student-athletes to put their training and sport in perspective, and to allow them to deal more effectively with the challenges of sport, including setbacks and injury, they needed an

outlet of interest other than sport. Gil also noted that the self-discipline required in top level sport lends itself well to academic focus.

Sandy's issues with time management focused on the minimal space between one activity and the next, especially during evenings when she normally completed a four-hour training some distance from her school. The impact of repetitive intensive training schedules on the health and sustained motivation of young athletes has been highlighted through Lamb and Lane (2011) and Merkel's (2013) findings on youth sport participation and retention. Merkel confirmed that in the United States, increased sports-related injuries (2.6 million emergency room visits a year for those aged 5–24 years) contributed to a 70%–80% attrition rate by the time a child was 15 years of age, and programmes overemphasising winning were problems encountered in youth sport. Sandy relied on her dad as her main means of transport, which created pressure for Sandy and her dad to be ready and punctual for every training and event. On the whole, Sandy appeared to have effective systems in place to organise her intensive weekly schedule. However, the toll on Sandy during Year 10 was that she displayed signs of exhaustion and poor motivation. Eventually, she was diagnosed with insufficient food intake for her growth spurt and activity level.

Rebecca reported concerns with her sleep pattern as a result of early morning and evening trainings for swimming, as well as after school and some evening and weekend trainings or games for water polo. She described Year 12 as a "no sleep year", (Int2) as she anticipated the extent of her expected training, assessment and leadership commitments. A significant time issue for Rebecca was her need to transport herself to or from many of her trainings and games, with her parents only available to drop her off early or collect her late at night. Rebecca noted that it was tiring and time consuming to catch public transport or to walk each day. Reduced direct parental involvement at this stage of Rebecca's sport development and schooling was not unusual (see Côté, 1999; Côté & Hay, 2002; Wolfenden & Holt, 2005); however, Rebecca indicated that this made sustaining her sport and school activities more difficult. Refer to Tables 3, 4 and 5 in each narrative case study for a summary of identified enabling and disabling factors for each student-athlete.



**RS2** How can social networks within a theoretical framework of complexity uncover meanings and perceptions of talented female athletes' experiences and attainment opportunities?

## 7.9 Perceptions and meanings

The impact of the multilayered, dynamic, interdependent factors and influences acting on each student-athlete and her reciprocity to her perceived socio-economic, socio-cultural and socio-ecological factors can be viewed from many perspectives. The overlapping experiences identified from analysis of student-athlete narrative biographies are presented schematically in Figure 11. This diagram displays a chronological sense of overlapping and connected phases and stages, which facilitated sport attainment and education sustainment for each student-athlete. The future directions layer formed the background base of the diagram as it represented the underlying aspiration, motivation and ultimate dream in sport and education.

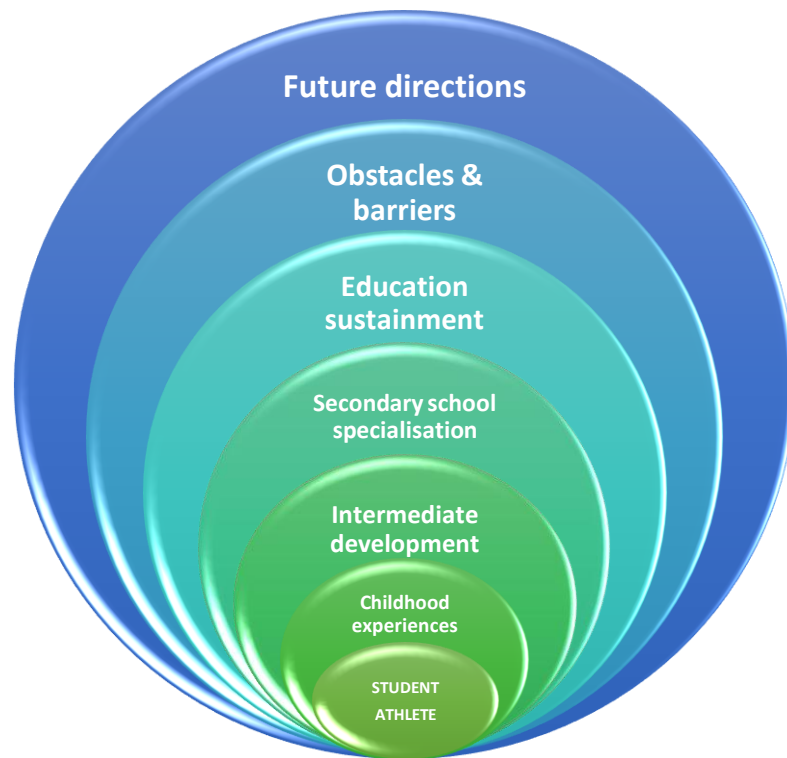


Figure 11. Schematic diagram of overlapping experiences identified from analysis of student-athlete narrative biographies.

Each of the earlier layers impacted and acted on the feasibility of achieving long term goals, by acting on, through and with other influences, past, present and future, as

part of a self-organising, evolving, complex system (Byrne, 2005; Cilliers, 1998; Mason, 2008; Santonus, 1998).

My analysis and interpretations for each case study was embedded in a complexity posthumanist approach. The emergent meanings from analysed and interpreted data were unique, interesting and informative. Key meanings and perceptions expressed by Aroha focused on her relationships, based in particular on her sport experiences, but also through her friendships with staff and peers at school. Described by Maree as a quiet girl, Aroha's enjoyment of social situations, the inclusivity of a team dynamic, and her best friend bond with her older sister, revealed a need for depth and integrity in her social and whanau connections. Aroha commented on the positive influence her family had on her development in sport and her ability to sustain an acceptable standard educationally. Aroha also expressed the significance of her Pakeha/Māori/Samoan ethnicity on the sports she chose (athletics, netball and touch) and what she aspired to achieve based on her role models and mentors. Educationally, her mixed ethnicity meant that she could access additional support. Extra tutoring gave Aroha confidence in her abilities and proved beneficial to her progress and academic outcomes. Aroha's perceptions of her physical limitations (specifically her height) acted to undermine her self-belief, specifically regarding her long term aspiration of becoming a Silver Fern.

Another area reported by Aroha as important to her motivation and drive to achieve was the clear expectation set by her parents, "that education always comes first". (IntSO) Aroha confided that her preference was to excel in sport; however, her respect and admiration for her parents meant that she complied with their wishes and accepted every opportunity available to her, to improve and develop, educationally and in sport. This included training and trialling for multiple netball and touch teams, taking part in school and national representative camps and tournaments, and reflecting on the value of these experiences relative to her future aspirations. In response to a serious knee injury at the beginning of Year 11, Aroha took time to reflect deeply on her direction, options and choices both educationally and in sport. She noted that her injury had occurred at a beneficial time as during her six-month rehabilitation, she could concentrate her time and energy on her Level 1 NCEA examination preparation.

Aroha's calm, pragmatic approach to a debilitating injury aligns well with research by Williams and Krane (2001) in which elite young athletes displayed increased resilience, higher levels of self-confidence, better concentration and were less likely to be distracted from their performance, than non-elite performers. Williams and Krane proposed that successful athletes experienced less anxiety before and during competition and could control what anxiety they did experience in a manner that facilitated performance (using anxiety to psych up). They were also more likely to rebound from mistakes [and disappointments] than less successful counterparts.

Aroha perceived her ability to self-organise her systems to accommodate her changed state of functioning (while injured) as the best possible outcome. She accepted her new state of being and implemented strategies to sustain her education and involvement in sport (albeit as a spectator). Gagné's (2003) interpersonal catalysts in relation to the self-organising aspect of complex systems is helpful here. Gagné proposed that interpersonal catalysts such as physical motivation, volition, self-management and personality, in combination with environmental catalysts could assist an individual to find a new equilibrium. Environmental catalysts according to Gagné, including milieu, other people, provisions and events, emerged in the individual's complex system from what could be regarded as the edge of chaos (a transition space between order and disorder that exists within a wide variety of systems) (Pascale, 1999). Aroha's adaptability, positivity and willingness to evolve assured her of favourable outcomes, even when a major system event (the ACL injury) was perceived to have an irreversible detrimental "affect" on her aspirations in sport.

Sandy made meaning from a number of key areas in her experiences as a high-performance athlete and secondary school student. She recognised the value of her support systems at home, at her school, through her pole vaulting coaches and squad, and from her athletics club of which she had been a member since age five. Sandy recognised the worth of her own attitude and behaviour towards excelling at school and in sport. She was cognisant of the pitfalls and barriers associated with top level competitive sport; however, she counteracted most barriers by enacting a highly organised determined focus on her goals, and by applying herself diligently as she worked towards making her dream of becoming an Olympic athlete, a reality. Sandy's view of the balance between sport and school was pragmatic and forward thinking:

*I always think of it [school] as a back-up plan if I do get a really bad injury... and I have to stop sport, if I've got nothing to fall back on, if I don't have good grades then I'm not going to go anywhere in life. Whereas if I do have to stop sport and I've got really good grades I can get a good job and good money. (Int1)*

The attitude of school friends, as perceived by Sandy, assumed her long term success in pole vault, without taking into consideration her daily routines planning, organisation, repetitive training, maximum effort, and fatigue:

*Yeah they're all expecting me to go to the Olympics. [I don't talk pole vaulting] not with school friends, they don't know what's going on... they don't really understand that, they know that I train a lot... but I don't think they quite understand what training a lot looks like and consists of. (Int3)*

Sandy noted that when she stopped training and had time to reflect (on a family holiday) she was surprised at how intense her normal days were:

*Well it was weird, you'd think it would be so different but half your day is just you get used to not doing anything and it was just like normal and at the time I couldn't imagine going after school every day and training for four hours. I just thought how do I do that? Why do I do that? But you get used to the lifestyle you are in. (Int3)*

Rebecca's primary issue focused on having sufficient time to complete all facets of her life each day. The complexity of her system was exacerbated in Year 11 when she changed sport code, effectively taking on a second high-performance sport, as she was advised to continue training and competing in swimming to support her performances in water polo. The addition of a sport leadership role at school in Year 12 was perceived by Rebecca as another call on her already limited time:

*Sometimes I think I should be spending more time doing this [schoolwork]. But I just have to be awake and focused in class, because if I miss something in class and have to do it for homework, then I won't understand it. I guess I learn things quite quickly... I just think if I wasn't swimming, I would find school easier, but then I guess on the other hand I wouldn't, because I wouldn't have the motivation to finish something before I leave. (Int1)*

Another recurring perception shared by Rebecca was the pressure she felt to succeed, from her parents and herself, especially academically.

*I guess it's my expectations, but I feel like I have pressure from my brother, but I don't think my parents really do, but I feel like they do. And he was always getting 'excellents' and 100%, so I want to be like that. (Int1)*

Rebecca rationalised her demanding daily routine as a means to an end, but acknowledged that the impact on her physical and mental health concerned her. After her Year 11 NCEA examinations, Rebecca learned that she was more capable than she had expected.

*I think I was a bit too stressed the whole time, like it wasn't as bad, nowhere near as bad as I thought it was going to be... I think I'll start studying earlier, but I always say that but... I think I will definitely be less stressed before exams. (Int2)*

Meanings that emerged from Rebecca's collected data in relation to her long term aspirations included her belief that she would represent New Zealand internationally, and that she could not attend university (successfully) until after her competitive sport career was over. Her perception was clearly that she could not be an international athlete and attend tertiary education simultaneously.

*I guess Olympics and Commonwealth Games, and that's just training more, and getting stronger and fitter. But school does come first. I want to go to university, whether it's before or after I achieve, if I achieve my goal. A lot of people have a gap, don't do university for a few years while they swim and then go back to it. So, yeah, I will see what happens there. (Int1)*

## **7.10 Summary**

To conclude this chapter, I wish to reiterate that my perspective and view are foregrounded by my experiences, perceptions and meanings as a sportsperson, HPE teacher, sport coach, official and administrator, within, across and between the complex systems of performance sport and secondary school educational contexts. Chapter 7 was structured, using discussion linked to literature, of the themes that emerged from in-depth analysis and interpretation of qualitative data. The data was collected from student-athlete questionnaires, semi-structured interviews, the use of cue cards and a photography montage. Emergent themes were part of the co evolution of each student-athlete's complex systems and those of my own as researcher-narrator. The themes and subsequent discussion were unique, original and authentic,

being representative of thoughts, feeling, perceptions and meanings expressed and recorded at the time of the study (2014-2016). Further analysis and interpretation may yield a different set of themes and associated discussion; however, for the purposes of this doctoral thesis, the findings, implications and suggestions for future consideration as presented here, are honest, truthful and valid for the participants in this research. An interpretation of the themes along with multiple related subthemes, addressed the research questions underpinning this study. Using a complexivist posthumanist theoretical framework, the complexity of each student-athlete's systems were discussed to explore salient factors and influences that acted within, between and across her dynamic systems.

Complexity generally exists in situations in which many agents are connected and interacting together in dynamic ways (Mason, 2008). However, systems may become more or less complex dependent on a number of factors; the number of interacting elements, the number of connections between the elements, the diversity of elements involved, and the length of time they are interacting and evolving (Simon, 1962). In the context of this research each student-athlete, as an acting entity within, between and across dynamic systems, interacted with and was subsequently changed or precipitated change to her systems and to the multiple systems to which she was interdependent, interrelated and interconnected with. Each student-athlete's complex systems were viewed as open, discursive, evolving and self-organising (Davis & Sumara, 2006).

## **Chapter 8 Implications and future considerations**

My research and subsequent thesis investigated the experiences, meanings and perceptions in a previously unexplored context. I have presented the data as unique and authentic individual research narratives, reconstructed from detailed analysis and interpretation of student-athlete accounts, collected over a two-year period. The approach of my study brought a degree of originality to the research of talented female athletes, broadening ways of thinking about the policies, programmes and practices in sport and education, for student-athletes in New Zealand. In Chapter 8, I highlight the key learnings gained and the significance of my contributions to this field of study, in particular, the voice of these young women as they negotiate their dynamic lives, implications for future practices in sport and education, and avenues for further exploration within and beyond the context of youth sport development. The chapter is structured under two key headings: implications and future considerations. The implications section comments on the importance of storytelling as a mode of presentation, followed by the relevance of this research against a complexivist posthumanist perspective. Brief, but relevant excerpts illustrate the complexity of the three case study participants, Aroha, Sandy and Rebecca. Discussion on the implications of support structures and mechanisms and the viability of achieving a sport/school balance follows. In the future considerations section, recommendations are outlined with final thoughts about future areas for investigation, within the domains of student-athlete sustained attainment in sport and education.

### **8.1 Implications**

#### **8.1.1 Storytelling**

While it may be convenient and efficient to draw common themes and trends from the interpreted data, this was not the original purpose or intention of this qualitative, interpretivist research project. Given the complex nature of an individual excelling in sport while also attending secondary school, the aspects from which to view this phenomenon are many. As researcher, I chose to orientate each student-athlete's story from her perspective so the telling was about Aroha, Sandy or Rebecca, with some supporting comments and evidence from her nominated significant other (coach or parent). This approach, I believe, gave each athlete a voice and the reader an

opportunity to hear the strong messages and subtle inferences of each individual student-athlete, as revealed through my interpretation of her questionnaire, interviews, cue cards and photography montage. Any variance from the student-athlete's perceptions and meanings was due to miscommunication, misunderstanding or an unwillingness to reveal sensitive details. In this regard, every effort was made to create a supportive, conducive interview environment; however, this was not always possible given the number of interviews per subject and the busyness of daily life for the students and researcher.

### **8.1.2 Relevance**

The findings that emerged from my study have implications for many stakeholders; in education, sport coaching, school HPE and co curricular activities, youth development programmes, sports' departments, sport coordinators and sports' administrators, local sport clubs, regional and national sport associations and governing bodies, proponents of athlete health and well-being, government policy writers and consultants in sport, high-performance sport and career pathways, and parents, athletes, peers and siblings. The window the student-athletes in my study willingly opened provided insights not previously known and understandings not previously imagined. Their experiences, perceptions and meanings, as interpreted from collected data and expressed through individual narrative case studies, highlighted the layering, overlapping, multifaceted nature of being a talented young sportswoman while at secondary school. To investigate further the implications of each student-athlete's perceptions and meanings relative to her experiences and attainment opportunities, a discussion of complexity, which includes socio-economic, socio-cultural and socio-ecological factors and influences, follows.

### **8.1.3 Complexity**

A necessary quality of a complex system is that they are open (Urry, 2010). Complex systems constantly exchange energy, matter and information with their contexts. In the process, they affect structures of both themselves and their environments. Urry proposed that a complexivist perspective investigates "emergent, dynamic and self-organising systems that interact in ways that heavily influence the probability of later events and that these systems are irreducible to elementary laws or simple processes" (p.3). Relationships between variables in a complex system can be non-linear with



abrupt switches occurring, so the same cause can, in specific circumstances, produce different effects (Urry, 2010).

### **Aroha's case**

Urry's interpretation of complex systems is relatable to Aroha's socio-cultural and socio-ecological experiences in her secondary school, which offered a Puna classroom, sport academy scholarships, and an educational philosophy that encouraged excellence in sport and in education, concurrently. Aroha negotiated multiple influences and expectations on her time, energy and motivation. She complied and cooperated with her teachers, coaches, parents, sibling and friends to meet expectations to sustain her education while excelling in sport. Aroha's socio-economic status meant that she had access to resources, facilities, equipment, experts and experiences that may not have been available to others of similar talent, but different economic circumstances. The relationships between the variables and elements in Aroha's complex systems were influential in her short and long term emergent outcomes, as a talented female student-athlete in New Zealand.

Central to a complexitivist approach is the idea of emergence, how components of a system through their interaction spontaneously develop collective properties or patterns, not implicit with the individual components (Nicolis, 1995). Emergent properties are never purely social and the kinds of processes that generate them are also not simply social. Complexity would argue against the thesis that phenomena can remain bounded, that social causes produce social consequences. Causes are always overflowing, tipping from domain to domain and especially flowing within and across supposedly distinct physical and social domains. From a complexitivist view, "the emergent properties are irreducible, interdependent and mobile" (Urry, 2010, p.8). Urry explained further that chaos and order are seen as interconnected as large-scale systems move in and through time-space.

### **Sandy's case**

An understanding of Sandy's socio-ecological influences may be helpful to highlight another key learning gained from this research. Sandy's acceptance in to a secondary school Institute of Sport as an Elite Sports Academy athlete in Year 9 afforded her an array of privileges, resources, facilities, support structures and recognition within the

highly valued socio-cultural system of high-performance sport. As a national artistic gymnastics representative, Sandy met the required criteria and even though she changed her sport code to pole vault during Year 9, her status as a high-performance student-athlete continued due to her performances in pole vault events. Sandy was introduced to an international level pole vault coach and invited to join the AUT Millennium High Performance Centre, on the North shore in Auckland. The learning gained was that not all talented student-athletes have access to the resources and expertise they need to accelerate their progress and development. Sandy was fortunate to recognise new effectivity sets (Barab & Roth, 2003) that were reciprocal to her needs and facilitated the achievement of her goals. The strong bond Sandy established with her Millennium training squad and in particular her senior squad member mentor, provided her with a positive, supportive socio-cultural context upon which to build her skills and confidence. Sandy's socio-economic situation did not appear to in any way adversely affect her sport attainment or sustained achievement in education.

To draw further learning from Aroha, Rebecca and Sandy's individual narrative case studies as complex systems, a deeper exploration of Davis and Sumara's (2006) perspectives on complexity was helpful. Davis and Sumara suggested that for a phenomenon to be classed as complex, several necessary qualities needed to be evident: self-organised, bottom-up emergent, short-range relationships, nested structure, ambiguously bound, organisationally closed, structure determined, and far-from-equilibrium (see Chapter 2). In summary:

Complexity thinking helps us take on the work of trying to understand things while we are part of the things we are trying to understand. It foregrounds that we can never develop an objective appreciation of something of which we are part. We are woven into what we research, just as it is woven into us (Davis & Sumara, 2006, p.14).

Within complex systems, Davis and Sumara considered the learner as simultaneously a coherent unity, a complex of interacting unities, or part of a grander unity. Of considerable relevance to both education and educational research, Davis and Sumara's view confirmed that complexity thinking foregrounds the role of the observer in the phenomenon observed. In a similar vein, Cilliers (1998) reported that if

our view of something is complex then the implication is that our knowledge of it will always be limited. Cilliers proposed that we cannot make complete, absolute or final claims about complex systems, as an analysis of them as a unity and as combinations of unities and interacting elements, reveals how there is order and disorder, simultaneously. When Aroha, Sandy and Rebecca experienced disruption or a protuberance in their daily life, many aspects of their world continued as normal; however, when the disturbance or disorder became critical, each student-athlete took action to adjust and self-organise, to accommodate a new state of being. Their ability to self-organise their dynamic systems facilitated their ongoing attainment in sport, while concurrently sustaining their progress and achievements in education. Each student-athlete's astute (author's emphasis) awareness of her needs and options, combined with a belief in her abilities and support systems, assured all three athletes of positive short and long-term outcomes.

### **Rebecca's case**

The analysis and interpretation of Rebecca's experiences highlighted how the interactions of components in her complex systems spontaneously emerged as new understandings ("I am a team player... this is a no sleep year", Int2) which precipitated actions to self-organise her systems. Rebecca texted her swimming coach, trialled for her school water polo team, and talked to her parents about changing her sport. Training and competing in two sports during Years 11 and 12 meant that Rebecca moved literally and figuratively from one sport domain to the other, combined with the daily physical, mental, emotional and social movements within, across and between her school and sport domains. The emergent properties (Urry, 2010) of her new equilibrium were difficult to fully comprehend, but appeared to provide sufficient stability to sustain each system. The socio-cultural variants between her team-based water polo and individual focus swimming squad environments were recognised by Rebecca as influential factors in her choice of water polo over swimming as her main competitive sport. Rebecca alluded to the impact having both her parents work full-time had on her day-to-day time management and transport issues. While her socio-economic status afforded her multiple opportunities and experiences (in sport and in education), the reduced availability and therefore direct support of her parents was cited as not ideal, from Rebecca's perspective. The emergent behaviours and decisions that evolved from Rebecca's perceptions of her everyday life, were interpreted as

negative; however, this may not have been the case. Sumara and Davis (2006) postulated that complexity thinking compels researchers to “consider how they are implicated in the phenomena that they study, and more broadly, to acknowledge that their descriptions of the world exist in complex (that is, co implicated, ambiguously bounded, dynamic) relationships with the world” (p.13). They questioned the suggestion that individual experience is sufficient for claims of factuality because it ignores the linguistic bases and other collective aspects of interpretation. By orienting attentions, a knower’s knowledge necessarily affects the way a phenomenon is perceived and how the knower acts in relation to that phenomenon. Therefore, complexivist truth according to Davis and Sumara, is about “holding all of the dynamic, co-specifying, conversational relationships while locating them in a grander, more-than-human context” (p.12). As a researcher, this is a challenging context within which to gather, collate, analyse, interpret and report on data. However, the intention throughout my study has been to provide authentic, original, unique representations of each student-athlete’s meanings and perceptions about her experiences, so acknowledging research limitations is essential to meet this aim.

#### **8.1.4 Support structures and mechanisms**

Important lessons emerged regarding the impact and value of support systems and structures, to organise and regulate daily routines, and help each student-athlete cope with unexpected occurrences (such as poor performances, injury or illness, fatigue and stress). Côté et al. (2003) found that athletes who were unable to access certain emotional and financial resources faced a qualitatively different road to accumulate the high levels of practice necessary for expert performance. Similarly, Alber (2011) argued that to sustain academic attainment, student-athletes needed access to appropriate teaching support, equipment and facilities. The term academic support could refer to a wide variety of instructional methods, education services, or school resources provided to students in the effort to help them accelerate their learning progress, catch up with their peers, meet learning or assessment standards or generally succeed in school (Alber, 2011).

In my research, Aroha accessed tutoring and lunchtime tutorials to assist her to improve her Te Reo Māori, English, mathematics and science. Her aim was to maintain an acceptable standard of educational achievement. However, Rebecca and Sandy

accessed additional educational support (through streaming) to recognise and accelerate their identified academic ability in mathematics. While different in focus, both support structures were effective in meeting the individual needs of the student-athletes in this study. Lamb and Lane (2011) reported that to help student-athletes meet the demands of both academic and sporting commitments, there was “a need for personalised and tailored individual support” (p.150).

Another critical support mechanism identified as key to the student-athletes ability to sustain her education and schooling was her level of organisation coupled with efficient time management skills. Part of each day was consumed with planning and preparing for the training and schoolwork of the next day, as well as setting up systems for her the organisation of her transport, travel and accommodation needs. In all three case studies, parental support was essential to meet these needs as none of the athletes were self-sufficient with regards to transport. The commitment made by parents to drop off and collect their daughter from every training and competition or game was in itself substantial. Research by Yu (2012) of 456 college student-athletes established that they prioritised their academic study and their sport above their social life, and that female athletes were more academically self-motivated. Ferris and Finster (2004) supported this view when they stated that, “female athletes are more willing and able than other groups of athletes to transfer the skills that they have used to be successful in a sport domain, such as effort and time on task, to the academic domain” (p.11).

Coaching and financial support accessed directly from local clubs or indirectly from national governing body initiatives were recognised as significant support structures to encourage and motivate the student-athlete. Access to regional and national programmes, training camps, tournaments and sports trips contributed positively to each student-athlete’s progress and development as an aspiring young sportswoman. The experience of travelling and competing overseas was noted as significant and intrinsically rewarding for each athlete, as was receiving recognition through awards or monetary scholarships from her school or club. Once again, the reliability and consistency of these provisions strengthened the athlete’s self-belief, and reassured her that she was on track to achieve her goals.

A commitment to attend and participate fully in all training sessions and competitions emerged as a positive influence on sustained attainment. Conversely, erratic and irregular participation and effort was found to have detrimental effects on the physical, psychological and social aspects, in particular in high-performance sport contexts. Recent research from the USA (NCAA GOAL, 2015) indicated that the average time spent on sports activities (practice, conditioning and competition) ranged from 27-42 hours per week, depending on the sport and the level of competition. The results from 21,000 participants did not include non-athletic activities such as meetings with coaches, team functions, video-study, travel, etc. Concerns about the workload on student-athletes, especially within the College programmes in the US, were symptomatic of the drive to win, which became a baseline focus for coaches, administrators, and stakeholders in high profile sports (NCAA GOAL, 2015). In New Zealand, the structure of team sports generally follows a two trainings plus one game per week system. For high-performance sport, however, this is extended to 20+ hours of training per week (sport and age dependent), as well as competitive fixtures after school, during club evenings and on weekends (school, club, representative, events and/or tournaments). An able, young athlete can quickly become involved in multiple sports, trainings and competitions with counterproductive results. Aroha, Sandy and Rebecca experienced excessive involvement in sport and sport-related activities during their intermediate school years (aged 10-12), with exhaustion, injury, ill-health, and increased anxiety as reported outcomes.

#### **8.1.5 Sport/School balance, or not?**

Acknowledging the intentioned multilayered, wide view approach undertaken in my study, presupposed that a complexivist perspective was transphenomenal (required awareness of phenomena at different levels of organisation), transdisciplinary (required border crossing between theoretical frames), and interdiscursive (required an awareness of how discourses intersect, overlap and interlace) (Davis, 2008; Davis & Phelps, 2005). Davis and Sumara (2006) pointed out that when a researcher used a complexivist approach, this prompted a sort of:

...level jumping between and among different layers of organisation enabling attention to be orientated towards other dynamic, co-implicated and integrated levels, including neurological, the

experiential, the contextual/material, the symbolic, the cultural, and the ecological (p.26).

This process in itself suggested the evolution of a complex system, evolving as the research project took form, began to develop direction and momentum, existed in multiple formats, was processed repeatedly, and finally revealed insights and understandings, framed against a complexivist posthumanist theoretical view. To develop insights and new learning from this research process, an investigation of the balance between each student-athlete's school and sport domains, was informative. International research in this area reported that juggling the two (sport and academic study) could benefit both academic and sporting performance (Gil, 2014). In the UK, Gil noted that student-athletes need to put their training and sport in perspective to allow them to deal more effectively with the challenges of sport, including setbacks and injury. Gil also reported that the self-discipline required in top level sport, lends itself well to academic focus.

The positive spin-off from a student-athlete's highly organised, intensive weekly schedule could be viewed as "their weeks are very pressurised, so top sportspeople are extremely organised, disciplined and efficient with their time, which are useful skills in the academic side of their lives" (Guardian article, 4 August, 2014).

Alternatively, De Lench (2011) argued that specialisation in one sport may also be associated with nutritional and sleep inadequacies, psychological or socialisation issues, and ultimately burnout. De Lench proposed that serious ill-health in student-athletes might be avoided with a balanced lifestyle and a strong support system made up of parents, friends, coaches, and healthcare providers. The view that young athletes who participate in a variety of sports tend to have fewer injuries and play longer was considered to be a preferred option. These young athletes were able to maintain a higher level of physical activity than those who specialised before puberty (De Lench, 2011). In my research, the original 14 student-athletes reported high levels of personal organisation and efficient time management. For the three narrative case study student-athletes, time management, task completion, and effective organisational skills were a daily necessity to avoid creating situations or issues that could undermine the achievement of short term goals and long term aspirations.

While current research recognises the benefits and difficulties student-athletes face as they persevere with their studies and commitments, the value of affiliation and a sense of belongingness was identified as a critical influence on sustained effort and satisfaction, in sport and education. Developing meaningful, trustworthy relationships with teachers, coaches and team mates had a beneficial impact on their sport/school balance, for the student-athlete participants in my research.

### **8.1.6 Researcher-narrator role**

My aim throughout this research process was to sustain an open, non-judgmental, inclusive and inquiring approach to facilitate authentic, meaningful, truthful, socially and culturally sensitive data. By acknowledging my influence as researcher-narrator on the emergent outcomes, I also recognise that my role was inextricably bound and woven with that of each student-athlete's shared experiences. This is a recognised potential weakness in the research methodology, but is unavoidable in qualitative, interpretivist research of this kind. Nevertheless, the value inherent in the stories of the three research case study student-athletes has unfolded and can be heard, through my thesis journey.

Due to the individual nature of each case, I aimed to keep the unity and integrity of the young student-athlete's experiences as honest and truthful as possible. As previously noted, any variance in meaning from the student-athlete's intention could be attributed to a misunderstanding or misinterpretation of the transcribed data, coloured by my personal experiences and views, within the context of talented female student-athletes in New Zealand.

## **8.2 Future considerations**

The present research contributes to literature pertaining to talented young athletes, female athletes, youth sport development, sport policies and programmes both national and international, secondary school policies, assessments systems in New Zealand, socio-economic, socio-cultural and socio-ecological factors acting on student-athletes, issues of attainment and sustainment in sport and education, and the health and well-being of young athletes as they strive to meet expectations, achieve standards and follow their dreams. The literature presented in this thesis showcased seminal and contemporary thinking within the contexts of sport, talent, education,



policy, programmes, influences, socio-cultural factors, sport education balance and sustainability. The lack of research pertaining to talented young female athletes in New Zealand is addressed through my research.

My small study is limited by its size and scope; however, to continue to gain “thick rich description” (Geertz, 1973) about the experiences, meanings and perceptions of young athletes in New Zealand, further in-depth exploration about the lives of talented student-athletes is needed. Additional research could focus on the experiences of different ethnicities within the socio-cultural context of sport, such as young Māori, Pacific and Asian athletes. Additional research is needed to investigate similarities and differences in experiences, emergent outcomes, and current provision for talented student-athletes from diverse cultural and socio-economic backgrounds, to better meet their educational and sporting needs. Research in this area in the past decade has focused on educational attainment standards without a consideration of other poignant factors and influences; socio-economic, socio-cultural and socio-ecological. A more holistic approach based on the unique, authentic voices of these young people is needed to inform policy, practice and provision in sport and education.

A research area for future consideration could focus on the experiences, meanings and perceptions of New Zealand student-athletes relative to the sport/school balance and management strategies of student-athletes internationally, for example in Australasia, Asia, the United States, and European and African nations. Learnings from these studies could improve understandings to inform policy and provision for young athletes in New Zealand. Presently, further research is needed to uncover how best to support and provide appropriate opportunities in sport and education, for talented female student-athletes, in New Zealand secondary schools.

In this research thesis, key themes were identified from in-depth analysis and interpretation of three individual case study narratives. The insights and understandings that unfolded were unique to each student-athlete as she focused on achieving her aspirations in sport (international representation) while simultaneously completing academic qualifications as a 15-, 16- or 17-year-old adolescent, over the two-year duration of this study. All three participants reported experiencing health issues, in particular stress-related responses to school examinations and the day-to-

day management of their sport trainings, which were interwoven with their schooling day and weekends. Significant injuries were reported by two of the student-athletes in this research, as a direct outcome of their training and competition schedules. Sandy fractured her back in gymnastics and Aroha tore her ACL during a touch rugby tournament. Each student-athlete expressed concerns about her educational achievements, but was more relaxed and confident in her sporting domain. The question of whether these three young women were recognised, supported, and had access to provision and programmes commiserate with their abilities, was critical to an understanding of their experiences, thoughts and feelings as talented female secondary school students, in New Zealand. Miller and Kissinger (2009) noted that pressures such as time constraints, use of drugs, alcohol consumption, and student athlete identity can affect the ability of student-athletes to function within normal society. Miller and Kissinger suggested that the formation of an ego identity, which recognises student athletes only for their athletic competence, places the individual under enormous pressure where their sense of self-worth hinges on making big plays and winning. According to Miller and Kissinger, all the experiences are heightened because everyone (coaches, teammates, friends, family, the supporters and the media) expects the student-athlete to perform at a high level both academically and competitively.

### **8.2.1 Recommendations**

Based on my research findings, the following recommendations have emerged to inform future practice, policy and perceptions of talented female student-athletes. These recommendations arose from a process of consideration about the socio-cultural, socio-ecological and socio-economic influences on each student-athlete. While socio-economic factors did not appear to be significant, socio-cultural and socio-ecological forces were evident in their impact and importance, to the participants (student-athletes and significant others) and to their ability to operate within, between and across their complex systems. Recommendations which emerged from this study were:

1. Youth athletes be encouraged to participate in multiple sports and recreational activities throughout the year to enhance general fitness and aid in motor development.

2. Student-athletes take time off between sports seasons if they participate in a single sport year-round (De Lench, 2011).
3. Schools monitor and assess the sustainability of sport training and competitions against increasing educational demands, from Years 9-13.
4. Accurate and up-to-date records are kept to track education achievement and sport attainment, to ensure a balance is achieved and sustained.
5. A flexible approach to school hours, attendance and assessment deadlines relative to the regularity and level of representative competitions.
6. Regular tutorials and mentoring to track student-athlete health, well-being, and time management strategies. "A need for personalised and tailored individualised support" (Lamb & Lane, 2011, p.150).
7. That the current Ministry of Education policy for gifted and talented students in New Zealand is reviewed to recognise coherently the diversity of exceptional abilities, and how best to provide for all students who excel.
8. Stakeholders (including parents, coaches, educators, administrators, governing bodies and government ministries) need to be aware of the additional pressures placed on talented young athletes who are not only training, competing, travelling and studying, but also coping with an array of social, personal and interpersonal challenges, as an adolescent.

To summarise, my research recommended that adults in responsible roles, such as educators, senior management, parents, whanau, administrators, policy-makers, regional and national organisations and governments agencies view 'talent' as individual, multi-layered, complex, and evolving. The needs of each student-athlete must be focal to and commensurate with reasonable realistic training, competition and academic workloads, to sustain attainment and enjoyment in both arenas.

### **8.2.2 Final thoughts**

From my research, it is clear that the everyday lives and experiences of young women, who simultaneously strive to achieve excellence in sport and education, are complex, dynamic, evolving and unpredictable. Multiple influencing factors that overlapped, interlaced and bound their systems together could just as easily create a disturbance or disruption, which preclude the original interconnected and interdependent relationships from continuing. Negotiating changes, transitions and unexpected

challenges were integral for each student-athlete's ability to sustain her achievements academically and in her chosen sport. The reliability and consistency of her support systems, combined with open access to information, resources and opportunities were also salient determinants of each student-athlete's sustained effort to pursue her sporting and educational goals.

The decision to use a complexitivist posthumanist perspective as the underlying theoretical framework for this thesis research was based on a number of factors. Firstly, the need to view each student-athlete holistically as a dynamic, evolving entity operating in novel socio-cultural and socio-ecological contexts. Secondly, a qualitative theoretical model was required to provide a multilayered, multidimensional, discursive approach to analyse and interpret each young athlete's experiences in sport and education, simultaneously, and thirdly, this theoretical model offered a range of complexitivist tools to tease out subtleties and important nuances that were unique and individual to each young athlete, to represent her meanings and perceptions in an honest and authentic manner. Finally, the complexitivist posthumanist philosophy aligns with my views and perceptions of the importance of providing "a source domain that is rich with possible analogies for understanding human action, knowledge, identity and learning" (Stacey, 2001, cited in Ovens et al., 2013).

A justification for posthumanism as an underlying construct of this research springs from my intention to challenge my thinking and to explore emerging theoretical views that may or may not prove useful in sporting and educational contexts. Roelvink and Zolkos (2015) stated that posthumanist research enables a description of the human and its characteristic modes of communication, interaction, meaning, social significations, and affective investments. Wolfe (2009) explained that posthumanist research seeks to not only shift the thematic focus of research, but also to challenge the thinking about the human, and to draw attention to the ethical assumptions and consequences of researchers' thinking. A posthumanist approach also insists that attention focuses on the specificity of the human; that is, its ways of being in the world, its ways of knowing, observing and describing. A posthumanist approach acknowledges that humans are fundamentally a "prosthetic creature that has coevolved with various forms of technicity and materiality, forms which can be

regarded as 'not human' and yet nevertheless have made the human what it is" (Wolfe, 2009, p.16).

These distinctions are important as on one hand, there is hyperhumanism, which seeks to manage and ultimately master the ecological crisis, and on the other hand, recognition that human life is and has always been entangled with other species and the environment in webs of interdependence (Dibley, 2012). On this note, I will conclude by returning to the meanings and perceptions expressed by student-athlete Sandy:

*If I came back to school and was expected to catch up like that I wouldn't have been able to do it. Miss B helped talk to my teachers. They sort of gave me work. I managed to do some on the plane. Yeah, over in Australia we had a little homework session. (Int2)*

*School's just... they're really supportive and understanding. So I can talk to my teachers and they all understand. I mean I know lots of schools aren't like that. If you're not representing the school, they don't care... They want me to do well. They celebrate my achievements. They know all about it. (Int2)*

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## Appendices

### Appendix A. Participant information sheets

#### i. Student athlete



### PARTICIPANT INFORMATION SHEET

#### Student-athlete

**Title: Sport attainment and education sustainment of talented female secondary school athletes in New Zealand.**

#### An Invitation

My name is Kath Godber and I am currently undertaking a Doctorate in Philosophy (PhD) with the School of Health and Environmental Sciences at the Auckland University of Technology (AUT). I have previously completed a research project on how talented female athletes in New Zealand secondary schools are identified and provided for, as part of my Master of Education (MEd) degree through the University of Auckland, New Zealand.

You have been identified as a talented female athlete. I am writing to invite you to participate in a research project in which a significant adult identified by you (one of your parents, your coach or educator from your school), is also involved.

Participation in this research project is on a voluntary basis. You have the right to withdraw from this study at any time, or to withdraw information you have provided prior to the completion of data collection. Please inform me if any aspects of the study cause you concern because of your cultural, religious or traditional customs or beliefs.

Information gathered will be analysed and reported in a general form. We will make every attempt to maintain the confidentiality of the data. As the interviewer, I pledge to keep everything discussed during the individual interviews confidential. At the completion of the study, you will receive a summary of the main findings. The final study will be submitted for assessment for the Doctorate of Philosophy from the Auckland University of Technology (AUT) and a copy of the thesis will be available at the library. Findings will also be used for publication and conference presentations. In all cases, no identifying information will be included. Permission to interview female athletes at your school has been sought and granted. Your Principal has given his/her assurance that your participation or non participation in this study will not affect your grades and standing in the school in any way.



### **What is the purpose of this research?**

The aim of the study is to investigate from an attainment and sustainment perspective, the experiences of talented young female athletes (Years 9-13) who are competing at a national and/or international level while also striving to achieve their best results academically. At present, in-depth educational research within this perspective of gifted and talented education does not exist in New Zealand. Through this research, I intend to find out what factors influence attainment and sustainment levels and would value your input as a selected talented female athlete from your school. The study will investigate:

1. What factors and influences affect female student athletes' performances across sporting and schooling contexts.
2. How the study of social networks can uncover meanings and perceptions of talented female athletes' experiences and attainment opportunities.

The research outputs from this project will be a thesis as part of the Doctorate in Philosophy (PhD), a conference paper, a journal article and other academic publications.

### **How was I identified and why am I being invited to participate in this research?**

You have been identified as a talented female athlete at your school. I contacted your Director of Sport/Sports Coordinator/Head of Health and Physical Education to enquire whether athletes from your school would be willing to participate in this research. Your school was asked to distribute an advertisement to invite potential participants according to the following criteria:

- A full-time student in Year 9, 10 or 11.
- A regional, national or international representative athlete who is competing regularly.
- Female gender.

The recruitment of participants is solely from self-nomination.

### **What will happen in this research?**

If you decide to participate in this research project your participation will involve:

1. A questionnaire that will take 15 – 20 minutes (returned to me in the stamped addressed envelope provided).
2. One initial 30-minute interview for selected students (phase 2).
3. One or two 45-minute interviews over a period of two years (phase 3), conducted at your school at a convenient time and place.
4. A request to write a short story about your experiences in response to some cues that I will provide, or to discuss some photographs that you have taken.
5. A request to keep a diary.
6. A request to your school to access your academic information (see Consent Form).

### **What are the discomforts and risks?**

It is very important that you feel confident to speak freely. If you agree to participate in this research, I would like to electronically record your interviews. This may be a new experience for you. If there are any aspects of the study that cause you concern because of your cultural, religious or traditional customs or beliefs, I will encourage you to inform me. Your school may be asked to provide information about your academic progress and achievements. If unforeseen circumstances arise (a health issue or unacceptable practice is identified) that does cause you distress, the researchers will engage the support and advice of the AUT Counselling Team, or the Executive Secretary of AUTECH.

### **How will these discomforts and risks be alleviated?**

I have set up the following procedures to make sure your comments are kept private between me and you, and that any discomforts and risks are alleviated.

- You will be interviewed separately from your identified significant adult and other participants.
- I will store your comments by using a pseudonym for your name.
- Your achievements and your school could be identified because of the small number of schools taking part, so I will ensure that all identifying features are removed.
- During each individual interview, you can request that the electronic recorder be turned off at any time.
- A transcript will be sent to you after each interview so you can verify that it is an accurate record, or you can make changes.
- You can withdraw information or yourself from the project at any time prior to the completion of data collection without any affect on your grades or standing in your school or sporting environments.

### **What are the benefits?**

Completion of this research project will enable me to submit my thesis for examination for the Doctorate in Philosophy (PhD) at the Auckland University of Technology (AUT), New Zealand. You will be contributing towards increasing awareness and understanding of talented female secondary school athletes in New Zealand. This information will benefit current athletes, and those of the future.

### **How will my privacy be protected?**

The audio files from the electronic recordings of the interviews will be stored on a password-protected computer that only the researchers will have access to. The transcriptions will be assigned a code so the

participant cannot be identified. The transcriptions will be stored in a locked cabinet separately from the consent forms and code book. All data will be stored for six years and then destroyed. Paper data will be shredded and the audio-files deleted. The audio-recording of each individual interview will be transcribed by an approved transcriber who will sign a confidentiality agreement.

### **What are the costs of participating in this research?**

The expected time per participant is 15-20 minutes for students who complete the initial questionnaire (phase one), and three to four hours over a two-year period for student athletes involved in phases two and three of the project (semi-structured interviews).

### **What opportunity do I have to consider this invitation?**

Your decision to participate needs to be confirmed within two weeks of receiving an initial contact from your Director of Sport, Sports Coordinator, or Head of Health and Physical Education at your school.

### **How do I agree to participate in this research?**

To confirm your participation, you can request a questionnaire from your Director of Sport, Sports Coordinator, or Head of Health and Physical Education at your school. She/he will provide you with a research pack which will contain:

1. A Participant Information Sheet
2. A Consent Form
3. An initial questionnaire
4. Instructions and contact details from the researcher

### **Will I receive feedback on the results of this research?**

At the completion of the study, you will receive a summary of the main findings. The final study will be submitted for assessment for the Doctorate of Philosophy from the Auckland University of Technology and a copy of the thesis will be available at the AUT library.

### **What do I do if I have concerns about this research?**

Any concerns regarding the nature of this project should be notified in the first instance to the Project Supervisor, Dr Lynn Kidman, [lkidman@aut.ac.nz](mailto:lkidman@aut.ac.nz), phone 09 921 9999 ext 6678 or 5187.

Concerns regarding the conduct of the research should be notified to the Executive Secretary of AUTEK, Kate O'Connor, [ethics@aut.ac.nz](mailto:ethics@aut.ac.nz), phone 921 9999 ext 6038.

**Whom do I contact for further information about this research?**

**Researcher Contact Details:** Kath Godber, [kgodber@aut.ac.nz](mailto:kgodber@aut.ac.nz) , phone 09 921 9999 ext 8122.

**Project Supervisor Contact Details:** Dr Lynn Kidman, [lkidman@aut.ac.nz](mailto:lkidman@aut.ac.nz) , phone 09 921 9999 ext 6678 or 5187, Dr Jennifer Nikolai, [jnikolai@aut.ac.nz](mailto:jnikolai@aut.ac.nz), phone 09 921 9999 ext, Dr Alan Ovens, [a.ovens@auckland.ac.nz](mailto:a.ovens@auckland.ac.nz), phone 09 6238899 ext 48605.

Yours sincerely

A handwritten signature in blue ink that reads "K.A. Godber". The signature is written in a cursive style with a horizontal line underlining the text.

Kath Godber (MEd hons)

*Approved by the Auckland University of Technology Ethics Committee (AUTEC) on 14 October 2014,  
Reference number 14/298.*

- ii. Significant other



## PARTICIPANT INFORMATION SHEET

### Significant others

**Title: Sport attainment and education sustainment of talented female secondary school athletes in New Zealand.**

#### An Invitation

My name is Kath Godber and I am currently undertaking a Doctorate in Philosophy (PhD) with the School of Health and Environmental Sciences at the Auckland University of Technology (AUT). I have previously completed a research project on how talented female athletes in New Zealand secondary schools are identified and provided for, as part of my Master of Education (MEd) degree through the University of Auckland, New Zealand.

You have been identified as a 'significant other' by a talented female athlete who is participating in this research project. I am writing to invite you to participate in this study as one of the student-athletes has identified you as someone she regards highly, in her schooling and sporting domains.

Participation in this research project is on a voluntary basis. You have the right to withdraw from this study at any time, or to withdraw information you have provided prior to the completion of data collection. Please inform me if any aspects of the study cause you concern because of your cultural, religious or traditional customs or beliefs.

Information gathered will be analysed and reported in a general form. We will make every attempt to maintain the confidentiality of the data. As the interviewer, I pledge to keep everything discussed during the individual interviews confidential. At the completion of the study, you will receive a summary of the main findings. The final study will be submitted for assessment for the Doctorate of Philosophy from the Auckland University of Technology (AUT) and a copy of the thesis will be available at the library. Findings will also be used for publication and conference presentations. In all cases, no identifying information will be included.

Permission to interview your daughter/student/athlete has been sought and granted. The Principal of her school has given his/her assurance that your participation or non participation in this study will not affect your daughter/student/athlete's grades and standing in the school in any way.

## **What is the purpose of this research?**

The aim of the study is to investigate from an attainment and sustainment perspective, the experiences of talented young female athletes (Year 9-13) who are competing at a national and/or international level while also striving to achieve their best results academically. At present, in-depth educational research within this particular perspective of gifted and talented education does not exist in New Zealand.

Through this research, I intend to find out what factors influence attainment and sustainment levels and would value your input as a selected talented female athlete from your school. The study will investigate:

1. What factors and influences affect female student athletes' performances across sporting and schooling contexts.
2. How the study of social networks can uncover meanings and perceptions of talented female athletes' experiences and attainment opportunities.

The research outputs from this project will be a thesis as part of the Doctorate in Philosophy (PhD), a conference paper, a journal article and other academic publications.

## **How was I identified and why am I being invited to participate in this research?**

You have been identified as a significant person in the life of a talented female athlete (at your school, at your club, at home). I contacted the Director of Sport/Sports Coordinator/Head of Health and Physical Education at your athlete's school. The student-athlete has agreed to participate in this study, based on the following criteria:

- A full-time student in Years 9, 10 or 11.
- A regional, national or international representative athlete who is competing regularly.
- Female gender.

The recruitment of participants is solely from self-nomination.

## **What will happen in this research?**

If you decide to participate in this research project your participation will involve:

1. A questionnaire that will take 15 – 20 minutes (returned to me in the stamped addressed envelope provided).
2. One or two 45-minute interviews over a period of two years (phase 3), conducted at a mutually convenient time and place.

## **What are the discomforts and risks?**

It is important that you feel confident to speak freely. If you agree to participate in this research, I would like to electronically record your interview/s. If there are any aspects of the

inform me. If unforeseen circumstances arise (a health issue or unacceptable practice is identified) that does cause you distress, the researchers will engage the support and advice of the AUT Counselling Team, or the Executive Secretary of AUTECH.

### **How will these discomforts and risks be alleviated?**

I have set up the following procedures to make sure that your comments are kept confidential, and that any discomforts and risks are alleviated.

- You will be interviewed separately from other participants.
- I will store your comments by using a pseudonym for your name.
- During each individual interview, you can request that the electronic recorder be turned off at any time.
- A transcript will be sent to you after each interview so you can verify that it is an accurate record, or you can make changes.
- You can withdraw information or yourself from the project at any time prior to the completion of data collection without any affect on your grades or standing in your school or sporting environments.

### **What are the benefits?**

Completion of this research project will enable me to submit my thesis for examination for the Doctorate in Philosophy (PhD) at the Auckland University of Technology (AUT), New Zealand. You will be contributing towards increasing awareness and understanding of talented female secondary school athletes in New Zealand. This information will benefit current athletes, and those of the future.

### **How will my privacy be protected?**

The audio files from the electronic recordings of the interviews will be stored on a password-protected computer that only the researchers will have access to. The transcriptions will be assigned a code so the participant cannot be identified. The transcriptions will be stored in a locked cabinet separately from the consent forms and code book. All data will be stored for six years and then destroyed. Paper data will be shredded and the audio-files deleted. The audio-recording of each individual interview will be transcribed by an approved transcriber who will sign a confidentiality agreement.

### **What are the costs of participating in this research?**

The expected time per participant is 15-20 minutes to complete the initial questionnaire (phase one), and 45-90 minutes over a 12-month period for the phase three semi-structured interview/s.

### What opportunity do I have to consider this invitation?

Your decision to participate needs to be confirmed within two weeks of receiving an initial contact from me, as the researcher, so that I can make appropriate arrangements.

### How do I agree to participate in this research?

To confirm your participation, you can simply respond positively to my phone call and/or email request. I will send you a research pack that will contain:

1. A Participant Information Sheet
2. A Consent Form
3. An initial questionnaire
4. Instructions and contact details from the researcher.

### Will I receive feedback on the results of this research?

At the completion of the study, you will receive a summary of the main findings. The final study will be submitted for assessment for the Doctorate of Philosophy from the Auckland University of Technology and a copy of the thesis will be available at the AUT library.

### What do I do if I have concerns about this research?

Any concerns regarding the nature of this project should be notified in the first instance to the Project Supervisor, Dr Lynn Kidman, [lkidman@aut.ac.nz](mailto:lkidman@aut.ac.nz), phone 09 921 9999 ext 6678 or 5187.

Concerns regarding the conduct of the research should be notified to the Executive Secretary of AUTEK, Kate O'Connor, [ethics@aut.ac.nz](mailto:ethics@aut.ac.nz), phone 09 921 9999 ext 6038.

### Whom do I contact for further information about this research?

**Researcher Contact Details:** Kath Godber, [kgodber@aut.ac.nz](mailto:kgodber@aut.ac.nz), phone 09 921 9999 ext 8122.

**Project Supervisor Contact Details:** Dr Lynn Kidman, [lkidman@aut.ac.nz](mailto:lkidman@aut.ac.nz), phone 09 921 9999 ext 6678 or 5187, Dr Jennifer Nikolai, [jnikolai@aut.ac.nz](mailto:jnikolai@aut.ac.nz), phone 09 921 9999 ext, Dr Alan Ovens, [a.ovens@auckland.ac.nz](mailto:a.ovens@auckland.ac.nz), phone 09 6238899 ext 48605.

Yours sincerely



Kath Godber (MEd hons)

Approved by the Auckland University of Technology Ethics Committee (AUTEK) on 14 October 2014, Reference number 14/298.



## iii. Site Access



## PARTICIPANT INFORMATION SHEET

### Site Access

**Title: The sporting attainment and education sustainment of talented female secondary school athletes in New Zealand.**

#### Researcher introduction

My name is Kath Godber and I am currently undertaking a Doctorate in Philosophy (PhD) with the School of Sport and Recreation at the Auckland University of Technology, New Zealand. I have previously completed a research project on how talented female secondary school athletes in New Zealand are identified and provided for, as part of my Master of Education (MEd) degree through the University of Auckland, New Zealand.

#### Project description and invitation

Your school has been identified as having many talented female athletes. I am writing to invite nominated students from your school to participate in a research project in which other identified significant adults (parents, coaches, teachers or administrators) may also be involved. This project aims to provide insights and understandings by talking to young elite sportswomen about their involvement in top level sport. We are trying to understand the experiences of young female athletes (Years 9 – 13) who are concurrently competing at a national and/or international level while also striving to achieve their best results academically. At present, in-depth educational research within this perspective of gifted and talented education does not exist in New Zealand. Through this research, I expect to increase knowledge, understandings and awareness of factors that influence the experiences of these student athletes, and would value your input as a selected secondary school of talented female athletes.

The study will investigate:

- What factors and influences affect young elite women athletes' performances across sporting and schooling contexts?
- How social networks within a theoretical framework of complexity can uncover meanings and perceptions of talented female athletes' experiences and attainment opportunities.

Three secondary schools from the greater Auckland area will be involved in this research, with up to 15 participants in total. The research will operate in three phases – initial questionnaire (phase 1), 30-minute interview (phase 2), and two 45-minute interviews (phase 3).

Two groups of participants will be asked to take part in the study from September 2014 – December 2016:

1. *Female student athletes* from Years 9-11, nominated by your school educator or similar representative. Each athlete will complete a 15 – 20-minute questionnaire. A small number (approximately 3 - 4) will continue and complete a 30-minute informal interview (phase 2) followed by a 45-minute interview (phase 3) to the conclusion of the study (December 2016). Interviews will be at your school at a convenient time.
2. *Significant others* (as identified by the student athlete) will take part in a 30-minute interview (phase 2) and a 45-minute interview (phase 3) at a date, time and venue to be agreed.

A representative from the school and sporting organisation (Director of Sport, senior management team, head coach, CEO) may also be required to provide one 45-minute interview later in the project.

I am writing to request access to the Health & Physical Education department in your school, for the purposes of nominating suitable student participants for this research. Participation by the students is voluntary. If you agree for a number of talented female athletes to be invited to participate in the study and they agree to participate, the students will complete an initial questionnaire, followed by individual interviews (up to three over a three-year period), which I would like to record electronically. Because it is important that the participants can speak freely, all participants will be interviewed separately and the following procedures will be used to ensure confidentiality of information.

### **Project Procedures**

- I will store comments anonymously and use a pseudonym for each participant's name.
- Identifying features will be removed so sporting achievements and the participant's school cannot be identified.
- During each individual interview, participants can request that the electronic recorder be turned off at any time.
- A transcript will be sent to each participant after each interview so that she/he can verify that it is an accurate record, or to make changes.
- All student participants are assured that their participation or non participation in this research will not affect the support/relationship and marks they receive from your school. Similarly, the significant others' comments will be kept private and any comments will not jeopardise his/her employment in your school.

### **Data storage/retention/destruction/future use**

The audio files from the electronic recordings of the interviews will be stored on a password-protected computer that only the researchers will have access to. The transcriptions will be assigned a code so the

participant cannot be identified. The transcriptions will be stored in a locked cabinet separately from the consent forms and the code book. All data will be stored for six years and then destroyed. Paper data will be shredded and the audio-files deleted. The audio-recording of each individual interview will be transcribed by an approved transcriber who will sign a confidentiality agreement.

### **Right to Withdraw from Participation**

Your school has the right to withdraw from this study at any time, and participants have the right to withdraw information they have provided up to one month after each interview.

### **Anonymity and Confidentiality**

Information gathered will be analysed and reported in a general form. We will make every attempt to maintain the anonymity of the data. The interviewer pledges to keep everything discussed during the individual interviews confidential. At the completion of the study, the participants will receive a summary of the main findings. The final study will be submitted for assessment for the Doctorate of Philosophy from the Auckland University of Technology and a copy of the thesis will be available at the Auckland University of Technology library. Findings will also be used for publication and conference presentations. In all cases, no identifying information will be included.

### **Contact Details and Approval Wording**

If you have any queries or wish to know more please contact me, in the first instance on [kath.godber@aut.ac.nz](mailto:kath.godber@aut.ac.nz), or by text/phone on 0272 399135. You may also contact my research supervisors **Dr Lynn Kidman** on 09 921 9999 or email [lkidman@aut.ac.nz](mailto:lkidman@aut.ac.nz), **Dr Jennifer Nikolai** on 09 921 9999 or email [jnikolai@aut.ac.nz](mailto:jnikolai@aut.ac.nz) and **Dr. Alan Ovens** email [a.ovens@auckland.ac.nz](mailto:a.ovens@auckland.ac.nz). If you have any enquiries regarding the conduct of the research please contact Dr Simeon Cairns, Head of Post Graduate Study, School of Sport and Recreation on 09 921 9999.

Yours sincerely



Kath Godber (MEd hons)

*Approved by the Auckland University of Technology Ethics Committee (AUTEC) on 14 October 2014, Reference number 14/298.*

## Appendix B Participant consent forms

## i. Parent/guardian consent for Student athlete under 16 years

**PARENT/GUARDIAN CONSENT FORM****Student-athlete under 16 years**

**Title: Sport attainment and education sustainment of talented female secondary school athletes in New Zealand.**

**Project Supervisor:** Dr Lynn Kidman

**Researcher:** Kath Godber

- ☐ I have read and understood the information provided about this research project in the Participant Information Sheet dated 14 October 2014.
- ☐ I have had an opportunity to ask questions and to have them answered.
- ☐ I understand that notes will be taken during the interviews and that they will also be audio-taped and transcribed.
- ☐ I understand that the photographs our child takes as part of this study will remain her property and will not be used for publication, display, or for any other purpose by the researcher.
- ☐ I understand that I may withdraw my child/children and/or myself or any information that we have provided for this project at any time prior to completion of data collection, without being disadvantaged in any way.
- ☐ If my child/children and/or I withdraw, I understand that all relevant information including tapes and transcripts, or parts thereof, will be destroyed.
- ☐ I give consent for the researcher to have access to my child's academic information (*please tick ONE*). Yes ☐ No ☐
- ☐ I agree to my child/children taking part in this research.
- ☐ I wish to receive a copy of the report from the research (*please tick ONE*). Yes ☐ No ☐

Child's name : .....

Parent/Guardian's signature: .....

Parent/Guardian's name: .....

Parent/Guardian's Contact Details (if appropriate): .....

Date: .....

*Approved by the Auckland University of Technology Ethics Committee (AUTEC) on 14 October 2014, Reference number 14/298. **Note:** The Participant should retain a copy of this form.*

- ii. Student athlete under 16 years



## ASSENT FORM

### Student-athletes under 16 years

**Title: Sport attainment and education sustainment of talented female secondary school athletes in New Zealand.**

**Project Supervisor:** Dr Lynn Kidman

**Researcher:** Kath Godber

I have read and understood the information provided about this research project in the Participant Information Sheet dated 14 October 2014.

- ☐ I have read and understood the sheet telling me what will happen in this study and why it is important.
- ☐ I have been able to ask questions and to have them answered.
- ☐ I understand that notes will be taken during the interviews and that they will also be audio-taped and transcribed.
- ☐ I understand that while the information is being collected, I can stop being part of this study whenever I want and that it is perfectly okay for me to do this.
- ☐ If I stop being part of the study, I understand that all information about me, including the recordings or any part of them that include me, will be destroyed.
- ☐ I agree to take part in this research.
- ☐ I wish to receive a summary of the findings (please tick ONE). Yes ☐ No ☐

Participant's signature: .....

Participant's name: .....

Participant Contact Details (if appropriate):

.....

.....

.....

Date: .....

*Approved by the Auckland University of Technology Ethics Committee (AUTEC) on 14 October 2014, Reference number 14/298. **Note:** The Participant should retain a copy of this form.*

## iii. Significant others



## CONSENT FORM

### Student-athlete over 16 years and significant others

**Title: Sport attainment and education sustainment of talented female secondary school athletes in New Zealand.**

**Project Supervisor:** Dr Lynn Kidman

**Researcher:** Kath Godber

- ☐ I have read and understood the information provided about this research project in the Participant Information Sheet dated 14 October 2014.
- ☐ I have had an opportunity to ask questions and to have them answered.
- ☐ I understand that notes will be taken during the interviews and that they will also be audio-taped and transcribed.
- ☐ I understand that the photographs our child takes as part of this study will remain her property and will not be used for publication, display, or for any other purpose by the researcher.
- ☐ I understand that I may withdraw my child/children and/or myself or any information that we have provided for this project at any time prior to completion of data collection, without being disadvantaged in any way.
- ☐ If my child/children and/or I withdraw, I understand that all relevant information including tapes and transcripts, or parts thereof, will be destroyed.
- ☐ I give consent for the researcher to have access to my child's academic information (*please tick ONE*). Yes ☐ No ☐
- ☐ I agree to my child/children taking part in this research.
- ☐ I wish to receive a copy of the report from the research (*please tick ONE*). Yes ☐ No ☐

Participant's signature: .....

Participant's name: .....

Participant's Contact Details (if appropriate): .....

..... Date: .....

*Approved by the Auckland University of Technology Ethics Committee (AUTEC) on 14 October 2014, Reference number 14/298. **Note:** The Participant should retain a copy of this form.*

## Appendix C. Participant questionnaires

## i. Student athlete

**PARTICIPANT QUESTIONNAIRE****Student-athlete**

**Date produced:** 14 October 2014

**Title:** Sport attainment and education sustainment of talented female secondary school athletes in New Zealand.

**Researcher:** Kath Godber

This questionnaire is designed to establish an understanding of you as a potential participant in the research project on **talented female secondary school athletes in New Zealand**. Please answer all sections in detail. You can add additional comments overleaf if you wish to.

**A. Contact Details: (with Parental Consent for students under 16 years)**

Parent/Guardian signature .....

<b>NAME:</b>	<b>SCHOOL:</b>
<b>POSITION OF RESPONSIBILITY (at work)</b>	<b>ETHNICITY:</b>
<b>EMAIL:</b>	<b>MOBILE:</b>
<b>PHONE:</b> (Home) (Work)	<b>PREFERRED CONTACT METHOD: (circle)</b> email mobile phone

**BEST DAY/TIME for Interview:**

.....

**B. Personal History**

1. Please can you describe your **past** sporting achievements in the past five years? Include competitive and non competitive, for example, achieving a personal goal for an active but non competitive activity.

2. What are your **current** physical accomplishments and level of participation in the past year? (for example, representative squads, training, sports trips, personal bests, sponsorship, media coverage, accolades, selections, etc.)

3. What are your **future** aspirations and goals in the next 12 months, the next 5 years and throughout your sporting life? If none, please state none.

#### C. Education

4. How would you rate your academic achievements since attending secondary school – *excellent, above average, average, below average, poor* (please circle ONE). What are your strengths and weaknesses in academic learning?

5. What positive and negative effects have your sporting commitments had on your academic achievement?

6. What positive and negative effects have your academic commitments had on your sporting achievement?

Thank you in anticipation for your time and help in making this study possible. Please note that individual interviews will take place at a time and venue convenient to you. If you would like further information about the proposed research project, please phone me on (09) 638 3541 or email me at [kath.godber@xtra.co.nz](mailto:kath.godber@xtra.co.nz)



## ii. Significant others



## PARTICIPANT QUESTIONNAIRE

### Significant others

**Date produced:** 14 October 2014

**Title:** Sport attainment and education sustainment of talented female secondary school athletes in New Zealand.

**Researcher:** Kath Godber

This questionnaire is designed to establish an understanding of you as a potential participant in the research project on **talented female secondary school athletes in New Zealand**. Please answer all sections in detail. You can add additional comments overleaf if you wish to.

#### A. Contact Details

<b>NAME:</b>	<b>SCHOOL:</b>
<b>POSITION OF RESPONSIBILITY (at work)</b>	<b>ETHNICITY:</b>
<b>EMAIL:</b>	<b>MOBILE:</b>
<b>PHONE:</b> (Home) (Work)	<b>PREFERRED CONTACT METHOD: (circle)</b> email mobile phone

BEST DAY/TIME for Interview:

.....

#### B. Personal History

1. As a parent/guardian/significant other of a talented athlete your experience in the sports world is influential. What are your **past** sporting achievements?

2. What influence has your previous experience in sport had on your involvement with your athlete? *A lot, somewhat, not at all* (please circle ONE). Please explain.

3. What is your **current** involvement with talented students – as a parent, coach, teacher, sports coordinator, sports administrator, other? What sport/s have you been involved in? At what level or role in the activity/programmes? What have been the athlete or team's achievements? What difficulties or problems have you encountered? Have you been a mentor?

4. How do you see your role developing in the next 12 months? Will it become more involved/less involved? Include the activity, your role, expected achievements, barriers to success, number of athletes, etc.

#### C. Education

5. In your opinion, is the academic achievement of your talented athlete(s) affected by their focus and commitment to sport? *A lot, somewhat, not at all* (please circle ONE).

6. In your opinion, is the sporting achievement of your talented athlete(s) affected by their focus and commitment to academic work? *A lot, somewhat, not at all* (please circle ONE).

Thank you in anticipation for your time and help in making this study possible. Please note that individual interviews will take place at a time and venue convenient to you. If you would like further information about the proposed research project, please phone me on (09) 638 3541 or email me at [kath.godber@xtra.co.nz](mailto:kath.godber@xtra.co.nz)

## Appendix D. Indicative questions

### i. Student athlete phase two



## INDICATIVE INTERVIEW QUESTIONS

### Student-athlete – Phase two

**Date produced:** 14 October 2014

**Title:** Sport attainment and education sustainment of talented female secondary school athletes in New Zealand.

**Researcher:** Kath Godber

#### Getting to know the participant

Semi-structured interview based on exploring who they are, where they spend their time, who they spend time with, what they enjoy doing. Furthering questions to establish what being ‘talented’ means to them, what the pluses and minuses are, what they are proud of and what they would change if they could change something about their life.

**How do they view talent?** (*memorabilia & social media*) An opportunity to bring in significant photos, certificates, medals, newspaper clippings, etc. What made this event/item so significant/special? What does it mean to them? What happened after this event? How did that affect them? What does being talented in sport mean to them now (*cue cards*)? Has their success had an impact on their schoolwork? In what way/s? How has this affected their mental/physical/social health and well-being?

**What has brought them to this place?** (*chronology of key events/achievements/critical incidents*).

When did they know that they were exceptional in sport? Who was involved? In what way/s did these people affect them? How did their life change? What other events can they remember that are important? What benefits are there for a student athlete? What obstacles or problems have they faced, had to cope with? What would they like to happen next?

*Approved by the Auckland University of Technology Ethics Committee (AUTEC) on 14 October 2014, Reference number 14/298.*

ii. Student athlete phase three



## INDICATIVE INTERVIEW QUESTIONS

### Student-athlete – Phase three

**Date produced:** 14 October 2014

**Title:** Sport attainment and education sustainment of talented female secondary school athletes in New Zealand.

**Researcher:** Kath Godber

**What do they understand about their identity/image as a student athlete? Has this changed since last year?** (*photography & social media*) How do they view themselves now? How do others view them, react to, and communicate with them? Have they received recognition, rewards, media coverage? What changes, if any, have occurred in the past 12 months? How do their family and friends regard them, react and communicate with them? How do their teachers and coaches view, react and communicate with them? What do they perceive as their main strengths and areas to improve – in sport, in their academic work? How do they know this? Has this changed since last year?

**What do they understand about their place in the sporting and academic worlds, as a talented female athlete?** (*Field notes – sporting & schooling*) How does their ethnic group affect their performances in sport and at school? What cultural beliefs, values or rules are they aware of that have affected how they participate in their sport and in their academic studies? How does being female impact on their sense of culture? What are the expectations they are aware of from their sporting association, sports coach, school, teachers, family, friends, themselves? What do they do to cope with /manage their life as a talented student athlete?

**Who are they supported by? Has this changed from last year?** (*social media*) What groups or organisations do they belong to? (school, sport, social, community, online or through family). What help can they access at school, in their sports club, from home, from their friends? Are there any rules or regulations that cause difficulties? What specific support has their school/sports club given them? What would they like to change? How might this happen? What does being talented mean to them this year?

*Approved by the Auckland University of Technology Ethics Committee (AUTEC) on 14 October 2014, Reference number 14/298.*

iii. Significant others phase three



## INDICATIVE INTERVIEW QUESTIONS

### Significant others – Phase three

**Date produced:** 14 October 2014

**Title:** Sport attainment and education sustainment of talented female secondary school athletes in New Zealand. **Researcher:** Kath Godber

**Tell me about your child's background. How did it help to get her to where she is now?** What was your role in this journey? What impact/rewards has this had for yourself, your family and friends, your social life, your working life, your personal goals and aspirations? What do you understand talent to be? What sporting involvement if any, have you had? Has this had an impact/influence on your daughter/this athlete? How?

**How do you feel that you can you enhance your daughter's/this athlete's progress and development further?** What actions would you like to take to progress your daughter/this athlete further in sport, in her academic studies? What will you need to be able to do this? What obstacles or barriers are you aware of? What would you like to happen next?

**Tell me about the support that she has received from school, from her sporting organisation. How has it helped/impeded her development in sport/her education?** How are talented female athletes identified? How are they provided for? What specific policies, procedures and practices are implemented to cope with the demands of their sport and the impact it has on their academic work? What are the major difficulties with high-achieving female athletes in your school? What are the main rewards/benefits of these students in your school community?

**When you hear people describe your athlete as talented, what do you understand talent to be?** How would you describe the talented female student athletes in your school? What is your perception of their ability to cope with the demands of their sporting and academic commitments and expectations? What are their main barriers and obstacles in sport, in academic work? What do you think the best outcome/solution could be? How are talented performances, achievements, or efforts recognised or celebrated in your school/club? Does your school/club have a policy for recruiting talented athletes? What does this entail? When does this occur, who does the recruiting and why?

## iv. Student athlete final



## INDICATIVE INTERVIEW QUESTIONS

### Student-athlete - Final

**Date produced:** 14 October 2014

**Title:** Sport attainment and education sustainment of talented female secondary school athletes in New Zealand.

**Researcher:** Kath Godber

**As talented female student-athletes, what do the participants understand about their place in the sporting and academic worlds?**

Does your ethnic group affect your performances in sport and at school? Have your cultural beliefs, values or rules affected how you participate in your sport and in your academic studies?

Does being female impact on your sense of culture? What are the expectations that you are aware of from your sporting association, your sports coach, school, teachers, family, friends, and yourself?

What do you do to cope/manage your life as a talented student athlete?

**Who are the participants supported by? Has this changed from last year?**

What groups or organisations do you belong to? (school, sport, social, community, online or through family).

What help can you access at school, in your sports club, from home, from your friends? Are there any rules or regulations that cause difficulties?

What specific support has your school/sports club given you?

What would you like to change? How might this happen? What does being talented mean to you this year?

*Approved by the Auckland University of Technology Ethics Committee (AUTEC) on 14 October 2014, Reference number 14/298. **Note:** The Participant should retain a copy of this form.*

## Appendix E. Initial questionnaire spreadsheet – student athlete phase one

**SPREADSHEET OF BASELINE DATA FOR PHASE ONE (INITIAL QUESTIONNAIRE) RESPONDENTS****Date produced:** 14 October 2014**Title:** Sport attainment and education sustainment of talented female secondary school athletes in New Zealand.**Researcher:** Kath Godber

DEMOGRAPHIC				SPORT				ACADEMIC RATING	SPORT VERSUS EDUCATION	EDUCATION VERSUS SPORT
CASE	ETHNICITY	SCHOOL	YEAR	MAIN SPORT/S	ACHIEVEMENTS	ACCOLADES	FUTURE ASPIRATIONS			
1	NZE	A	9	TRIATHLON CYCLING/MBIKE	NATIONAL	MB Nat 2nd	NZ Rep in Cycling	EXCELLENT	No time for HWK	Good time management
2	CHINESE	A	9	FIGURE SKATING	NATIONAL	Nat 2nd U12	Win at National Championships	AVE/AB AVERAGE	No time for HWK	Stop training to study
3	NZE	A	9	RUNNING, XCOUNTRY	NATIONAL	Nat Road 5th	Running Scholarship in USA	ABOVE AVERAGE	Weekend events	Must finish schoolwork
4	NZE	A	10	LACROSSE, SOCCER	NATIONAL	NZ LAX SQD	NZU19 & AK Senior Women	ABOVE AVERAGE	No time, stressed	Good organisation
5	NZE	A	10	SWIMMING, WATER POLO	NATIONAL	NAGS 8th	NZ Rep in swimming /water polo	ABOVE AVERAGE	No time for HWK	Miss training for School
6	NZE/COOK	A	11	NETBALL, TOUCH	COOK IS U15	AK Rep Captain	NZ Silver Fern	AVERAGE	No time to study	Poor prep for exams
7	NZE	A	11	CYCLING	SCHOOL Senior A	NISS 3rd Track	Junior Worlds - Track	AVERAGE	Miss learning, tired	Train less when exams are on
8	NZE	B	9	CRICKET/ATH	NORTHSHORE CRICKET/SOC	MVP CRK U14	NZ Rep in Cricket	ABOVE AVERAGE	Less time for HWK	None
9	NZE	B	9	GYMNASTICS, ATHLETICS, NB	INTERNATIONAL	NAT U18U20	2020 Olympics Pole vault	ABOVE AVERAGE	No spare time HWK	High expectations
10	NZE	B	9	NETBALL, SOC, CRICKET	MVP PROVINCE	AK MVP CRK	1st teams, NHB U13 Soccer	ABOVE AVERAGE	None	Keep up with HWK
11	NZE	B	11	WATERPOLO	NATIONAL	NSSSC 1st	NZ Rep in Water polo	ABOVE AVERAGE	Time for HWK	Clash with training
12	MĀ/SAM/NZ	C	9	NETBALL, TOUCH, ATH.	NZ TOUCH SQUAD	NISS 400m	ANZ NETBALL	ABOVE AVERAGE	Too tired for HWK	Balance with sport
13	MĀORI	C	10	NETBALL, TOUCH, ATH.	AK TOUCH 1st	NISS 2nd TJ	NZ Rep in Netball, Touch, Athletics	AVERAGE	Days off school	Well rounded
14	NZE	C	10	SWIMMING	NATIONAL	Youth CW Squad	2020 Olympics Swimming	ABOVE AVERAGE	Fatigue, exhaustion	Miss training for school

## Appendix F. Disposable camera instructions – student athlete interview phase three



### INSTRUCTIONS FOR PHOTOGRAPHY MONTAGE

#### Student-athlete – Phase three

**Date produced:** 14 October 2014

**Title:** Sport attainment and education sustainment of talented female secondary school athletes in New Zealand.

**Researcher:** Kath Godber

#### Disposable camera instructions:

- Unpack camera from box and read instructions carefully
- Take some time to think about what, who, where, how you will photograph the
  - 1) Important parts of your sporting life
  - 2) Important parts of your schooling life
- Make a plan and then take some photographs
- You may need to write down some notes as you go for example about why you decided to take that shot, the situation, or the people. Try to photograph equal amounts for school and sport
- When you have finished taking your photographs, use the enclosed \$20 to have the film processed (local malls usually have a Kodak shop)
- Ask for 4x6 or 5x7 prints (gloss or matt) and then select 10-12 for sport and 10-12 for school
- Bring these to your next interview.

Thank you. I hope you enjoy making a photographic record of your current sporting and schooling experiences.

If you have any questions or concerns, contact me via text on 0272 399135 or email [kath.godber@xtra.co.nz](mailto:kath.godber@xtra.co.nz)



## Appendix G. Confidentiality agreement – transcriber

**CONFIDENTIALITY AGREEMENT****Audio transcriber****Date produced:** 14 October 2014**Title:** Sport attainment and education sustainment of talented female secondary school athletes in New Zealand.**Researcher:** Kath Godber

- ☐ I understand that all the material I will be asked to transcribe is confidential.
- ☐ I understand that the contents of the tapes or recordings can only be discussed with the researchers.
- ☐ I will not keep any copies of the transcripts nor allow third parties access to them.

Transcriber's signature: .....

Transcriber's name: .....

Transcriber's Contact Details (if appropriate):

.....

.....

.....

.....

Date: .....

Project Supervisor's Contact Details (if appropriate):

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*Approved by the Auckland University of Technology Ethics Committee (AUTEC) on 14 October 2014, Reference number 14/298. **Note:** The Transcriber should retain a copy of this form.*

## Appendix H. Auckland University of Technology Ethics Committee (AUTC) approval



## LETTER OF APPROVAL

## AUTC - ethics

AUTC  
SECRETARIAT

14 October 2014

Lynn Kidman  
Faculty of Health and Environmental Sciences

Dear Lynn

Re Ethics Application: **14/298 The sporting attainment and education sustainment of talented female secondary school athletes in New Zealand.**

Thank you for providing evidence as requested, which satisfies the points raised by the Auckland University of Technology Ethics Committee (AUTC).

Your ethics application has been approved for three years until 13 October 2017.

As part of the ethics approval process, you are required to submit the following to AUTC:

- A brief annual progress report using form EA2, which is available online through <http://www.aut.ac.nz/researchethics>. When necessary this form may also be used to request an extension of the approval at least one month prior to its expiry on 13 October 2017;
- A brief report on the status of the project using form EA3, which is available online through <http://www.aut.ac.nz/researchethics>. This report is to be submitted either when the approval expires on 13 October 2017 or on completion of the project.

It is a condition of approval that AUTC is notified of any adverse events or if the research does not commence. AUTC approval needs to be sought for any alteration to the research, including any alteration of or addition to any documents that are provided to participants. You are responsible for ensuring that research undertaken under this approval occurs within the parameters outlined in the approved application.

AUTC grants ethical approval only. If you require management approval from an institution or organisation for your research, then you will need to obtain this.

To enable us to provide you with efficient service, please use the application number and study title in all correspondence with us. If you have any enquiries about this application, or anything else, please do contact us at [ethics@aut.ac.nz](mailto:ethics@aut.ac.nz).

All the very best with your research,

A handwritten signature in black ink, appearing to read 'K O'Connor'.

Kate O'Connor  
Executive Secretary  
Auckland University of Technology Ethics CommitteeCc: Kath Godber [kgodber@aut.ac.nz](mailto:kgodber@aut.ac.nz)

Auckland University of Technology Ethics Committee  
 WA505F Level 5 WA Building City Campus  
 Private Bag 92006 Auckland 1142 Ph: +64-9-921-9999 ext 8316 email [ethics@aut.ac.nz](mailto:ethics@aut.ac.nz)

Appendix I. Assemblage map of Aroha's interpreted data to demonstrate theme based connections



**FIGURE 3. AROHA'S ASSEMBLAGE MAP**

**to demonstrate theme-based connections.**

