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Bicycles of Perception

Motivations and Meanings that Promote Long-term Engagement with
Mountain Biking in Queenstown, Aotearoa New Zealand

by

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Abstract

This research explores the motivations and meanings of mountain bikers living in the Queenstown Lake District, Aotearoa New Zealand. Through a phenomenological paradigm, this research follows a qualitative methodology. Data for this research was gained through an ethnographic process, involving interviews, observations, and a self-practice of mountain biking. Semi-structured interviews were used to gain insight into mountain bikers' personal experiences. Observations were conducted to examine numerous aspects of mountain bikers' lifestyles. Observations were conducted at mountain bike tracks, mountain biking events, and social events; e.g. barbecues and bars. Self-practice by myself, the researcher, was used as an attempt to gain further insight into the subjective experiences of embodied action. The data was analysed via grounded theory to allow themes to emerge. Numerous themes came to light during data analysis. They reveal some of the ways mountain biking affects participants' lives. Some of the prominent themes to emerge were physical and mental health, connection to nature, stress relief, social connection and identity. The state of flow and deep embodied action mountain bikers experience, appears to promote long-term engagement. The above themes are strongly associated with overall wellbeing. They indicate that mountain biking offers a holistic approach to maintaining a well-balanced life. This research will give some insight into why mountain bikers continue to participate in a risky and physically demanding sport over long periods of time.

Keywords: Mountain biking, wellbeing, nature, phenomenology, embodiment, extreme sport; adventure sport.

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Chapter One

“Life is like riding a bicycle. To keep your balance, you must keep moving.”

— Albert Einstein¹

1.1 Thesis Introduction

Many of us live in a world of comfort. We commute to work in airconditioned or heated cars and buses, travelling through seamless and predictable streams of grey streets, arriving at work then to sit in a temperature-controlled office to work on a computer. While on break or in line for coffee, we scroll through our technologically wondrous and addictive smartphones. At the end of the day, we weave back through the concrete jungle, arriving home exhausted, after not actually completing anything physically demanding, only to collapse on the couch. At home, we again sit in front of screens scrolling through numerous streaming services offering us more options of entertainment than has been conceivable throughout our history. We can obtain food from the click of a button. We bathe in warm water from a twist of a knob. Even those of us on the lower rungs of the middle class have instant access to luxuries that the Rothschilds of 100 years ago would not have dreamed of. Why is it then, living in this life of luxury many are so depressed?

Rates of depression in New Zealand and the Western world are continuing to rise into the twenty-first century (WHO, 2019, 2020). Undoubtedly there are many reasons and factors at play contributing to this situation. In the short term, the global pandemic has disrupted many peoples' lives. Long-term there has been increased urbanisation, resulting in a disengagement from the natural world. Another pertinent factor is an increase in technology. Technology has

¹ (Einstein, 2016)

greatly reduced physical labour in both the work environment and home life (Hansda, 2017). The computer revolution has increased seated screen engagement during employment (LeBlanc et al., 2017). While the smartphone, streaming services, and video games have resulted in ever-increasing docile leisure time (Mellecker, McManus, Lanningham-Foster, & Levine, 2009). Alongside this sedentariness, a lack of fluctuating emotions, and poor perceptual processing can lead to a tendency to dwell in the higher reaches of cognitive function, impacting mental health. (Dickson, Ciesla, & Zelic, 2017; Levens, Muhtadie, & Gotlib, 2009; Philippot & Brutoux, 2008) Commentators have argued, these factors contribute to rates of depression occurring in the developed world, this is throughout the most affluent societies ever to exist (Hansda, 2017; LeBlanc et al., 2017; Mellecker et al., 2009; Philippot & Brutoux, 2008).

1.2 Introducing the Researcher

Some years ago, before my entrance into academia, I joined a mountain biking trip with two friends. We spent three days riding the Redwoods in Rotorua. It was a great trip where I made many improvements in my riding. On one particularly steep descent, I found myself in a precarious situation. My rear wheel began to lift off the ground. My body weight was starting to send me over my handlebars, and I was convinced that in an instant I would be lying on the ground absorbed in pain. However, I somehow managed to roll down the steep hill solely on my front wheel. After several metres my rear wheel made contact with the ground. I rode-out safely.

Even years after this trip, what I found perplexing was that despite several days of amazing riding, those few seconds on my front wheel remained vividly in my mind. But why did I have such affection for this experience? As an ill-educated adrenaline junkie, a deeper understanding of this experience could not proceed much further than “Well, that was intense

but awesome.” It was not until some years later, through my academic education that I began to gain incremental insights into the thrill I experienced during those seconds teetering on my front wheel.

Personally, I have had a rather unusual trajectory into academia. I am dyslexia which results in great difficulty with reading and writing. My early education experience was nothing more than traumatic. My teachers had little understanding as to what was going on. I often found myself ridiculed by both fellow students and teachers. Years later, through a bizarre series of events, I found myself at Auckland University’s New Start Programme. This was a bridging course into the world of higher education. To my great amazement, I enjoyed academia and was able to engage with university content. I have always enjoyed history, as well as, how the mind works. After completing the New Start Program, I embarked on a double major arts degree in Psychology and Ancient History. However, in my first year, I encountered the discipline of Anthropology, and I was captivated. I found the discipline could combine the individualistic approach of psychology and the social constructs of sociology, along with the histories of modern, ancient, and prehistoric.

This journey has not been seamless. I have travelled down many avenues of both psychology and anthropology but often find my newfound knowledge return to the question of why those seconds of front-wheel terror were so meaningful to me. This thesis is an exploration of that embodied experience and the role mountain biking can play in peoples’ lives.

An embodied activity such as mountain biking, forces one to leave the higher brain of conception and evaluation, to that of the deeper and more primal brain of pure perceptual reaction (Michalak, Burg, & Heidenreich, 2012; Rogers, Mallinson, & Peppers, 2014).

Mountain biking can also induce a vast range of emotions on a single ride. These range from lows of exhaustion and physical discomfort, to elements of fear, as well as highs of exhilaration and achievement. My research aims to investigate how individuals enhance their wellbeing and improve their ability to navigate and negotiate life's challenges through the practice of mountain biking.

1.3 Thesis Structure

The thesis is structured as follows. First, in Chapter Two, the Literature Review clarifies some terms used in broad ways within academia, as well as explore and discuss the current research in these areas. This is followed by a description of phenomenology, the theoretical framework guiding this study. Concluding Chapter Two, will be an outline of the questions guiding this research.

Chapter Three outlines the methodology, detailing the way research was conducted, and how data was gathered.

Chapter Four examines what the data reveals. This is broken into two parts: firstly, focusing on the concepts of fitness, nature, social connections, identity, injuries, embodiment and flow. The second section discusses several aspects of embodiment in more detail. The emphasis will be on bike relations, skill development, shared embodiment, and fear and commitment.

Chapter Five will detail the conclusions of this study, and some abstractions of these findings. Finally, some suggestions for possible future research will be given.

Chapter Two: Literature Review

2.1 Introduction

In order to investigate wellbeing and its connection to a fast-paced adventure sport, such as mountain biking, many avenues need examining. Firstly, this review introduces and explains ‘mountain biking’, and then outlines the inconsistent use of ‘extreme’ and ‘adventure’ within academic literature discussing sports/activities such as mountain biking. Secondly, the review explores some existing research into mountain biking, focusing on sociological perspectives. Then, the review turns to understanding wellbeing. It briefly describes the effects of physical exercise on wellbeing. Followed by a deeper exploration into the concepts of wellbeing, green space, and social interactions. Then an analysis of flow, thrill, and embodiment.

It is important to note the impact of the historical time this research was conducted during the global pandemic of COVID-19. The pandemic affected cultures all over the globe in unique and varying ways. Due to national lockdowns, social distancing, and vaccine mandates, sports such as mountain biking were deeply affected (pinkbike, 2020), as was wellbeing more widely (Lades, Laffan, Daly, & Delaney, 2020). The impacts of Covid are therefore discussed in this chapter, and in the methodology (Chapter Three) where I outline how Covid restricted access to the broader cycling community and required real-time re-navigation of ethnographic practices. Presented finally will be the theoretical framework. This section gives an overview of phenomenology, which is both a research tool and philosophy. Phenomenology is the broad lens that the acts of mountain biking, fieldwork and data were viewed through.

2.2 Covid 19, The Global Pandemic of the 21st Century

Covid 19 has affected, and continues to affect every, country around the world, from the high reaches of government (Weiss, Schwarzenberg, Nelson, Sutter, & Sutherland, 2020) to the daily lives of citizens (Lüdecke & von dem Knesebeck, 2020; Rice, Mateer, et al., 2020).

There is also the more personal case, of how to conduct academic research in such an environment (Arnout, Abdel Rahman, Elprince, Abada, & Jasim, 2020; Howlett, 2021; Marino et al., 2020). Undoubtedly Covid 19 has changed how many people function in the world (Aarts, Fleuren, Sitskoorn, & Wilthagen, 2021). The pandemic and its associated lockdown orders have affected mental health and wellbeing to a large extent (Jun, Tucker, & Melnyk, 2020; O'Connor et al., 2021; Otu, Charles, & Yaya, 2020; Patrick et al., 2020; Pieh et al., 2021; White & Van Der Boor, 2020). For many, including in Aotearoa New Zealand, stay-at-home orders reduced people's physical exercise and restricted access to the outdoors and natural environments (Humberstone, 2022; Belinda Wheaton, 2021) This resulted in many people re-evaluating their lives and actions (Balanzá–Martínez, Atienza–Carbonell, Kapczinski, & De Boni, 2020; Canello, Soranna, Zambra, Zambon, & Invitti, 2020; Górnicka, Drywień, Zielinska, & Hamułka, 2020; Nishijima, Miyagawa, Tsuboyama-Kasaoka, Chiba, & Miyachi, 2021). A decrease in work hours (for some) and an increase in recreational activities, post-lockdowns, were areas that saw some big changes (Aarts et al., 2021; Rice, Mateer, et al., 2020; Rice, Meyer, et al., 2020; O. Rubin, Nikolaeva, Nello-Deakin, & te Brömmelstroet, 2020). While it is going to take some years, even decades, to unpack the plethora of effects this virus has had on much of the world, early evaluation is indicating that the re-evaluation some people are going through is promoting a more active lifestyle (Doubleday, Choe, Busch Isaksen, Miles, & Errett, 2021; L. James, 2021; Jamieson, 2020; Langer, Dietz, & Butz, 2021; Willick et al., 2021). This is evident in the dramatic

increases in mountain biking popularity over recent years. This has led to bike shortages, predominantly within the Western world (Annis, 2020; Baxter et al., 2006; Beery, Olsson, & Vitestam, 2021; Butler, 2021; Habib & Anik, 2021; Schweizer et al., 2021). Due to lockdowns, social distancing, and vaccine restrictions, outdoor subcultures such as mountain biking saw drastic increased social media and online usage (Patrol, 2020). Online mountain biking communities are not new (K. McCormack, 2018). However, during Covid, it was a way for people to maintain contact with friends and the mountain biking community, both locally and internationally (pinkbike, 2020; Porter, 2020; Yeager, 2020). It is for these reasons, along with those stated in the introduction, that this study holds particular importance in current times and should be viewed as taking place in an unusual period of modern history.

2.3 Mountain Biking: A Brief History

Many may find it odd that a term such as “mountain biking” needs clarification. However, the term mountain biking can cover a vast array of activities on a bike and on different unsealed surfaces. A brief history of the sport’s development, and clarification of terms allows a clearer understanding of who and what is under investigation in this study.

The first socially significant group of off-road bicycle riders stemmed from California during the 1970s (Savre, Saint-Martin, & Terret, 2010). The bikes used were cheap, large tired, upright-riding-position bikes dating back to the 1930’s (GMBN, 2019; Savre et al., 2010). A subset of these university students took these bikes to the hills and dirt, to do skids as they precariously made their way down the mountainside. This gave birth to what is now known as mountain biking (GMBN, 2019).

From these pioneers, the act of off-road biking has evolved into many subcategories, each with unique styles, practices, and purpose-specific bikes. One of these subgroups is

known as BMX, or dirt jumper (DJ), a relatively small bike with little to no suspension. These bikes are used to race or simply jump as high as possible around a smooth dirt track with steep jumps and burns. Cross-country, or XC mountain biking, is typically done on lightweight, small suspension mountain bikes, averaging around 100 to 120 mm of travel². The objective in this style is to go fast over long distances. Downhill biking (DH) is carried out on large, heavy, long travel bikes, often 180 to 200 mm of travel (i.e. this longer travel allows for greater compliance over rough and rocky terrain), designed to make it down a mountain as fast as possible. Generally, these bikes are so inefficient at peddling that practitioners will frequently use a gondola, a vehicle, or simply push their bikes to the top of a hill in order to ride down. Free ride, all-mountain, or ‘enduro’ is one of the most popular styles of mountain biking and is done on bikes, in between XC and DH bikes. The objective with these bikes is to have fun over all types of terrain; both long and short distances, steep to gently undulating terrain, on both small and big jumps.

Some, or all, of these styles may be referred to throughout this thesis, but the main focus will be what is known as enduro. For the purposes of this thesis, the enduro style of riding will be classed as an ‘adventure’ but not an ‘extreme’ sport. The next section elucidates there are two keyways in which these sports have been described within the academic literature.

2.4 Extreme and Adventure Sports

Brymer and Schweitzer (2017, p. 63) argue “We are witnessing an unprecedented interest in and engagement with extreme sport activities.” Academic investigation into sports practices that involve risk and adventure such as, BASE jumping, big wave surfing, or mountain

² ‘Travel’ is a term used in mountain biking to refer to distance in millimeters of suspension on the bike. This suspension is a key feature of modern mountain bikes (JensonUSA) (<https://www.jensonusa.com/articles/mountain-bike-suspension-101>).

activities have proliferated over the past decades. Researchers have explored a range of issues including self-motivation, truth-seeking, risk-taking, connection to the natural world, and general health and well-being (Breton, 2000; Eric Brymer & Gray, 2009). These studies also reveal many unexplored aspects of the immediate and embodied elements of human experience when in risky physical action (Eric Brymer & Oades, 2009; (Eric Brymer & Oades, 2009; Buckley, 2018; M. Donnelly, 2006; Hardiman & Burgin, 2013). Investigations revolve around concepts such as embodiment, enhanced sense of self, and the concept known as flow, (concepts to be discussed later in this review) (Breton, 2000; E Brymer, 2005; Eric Brymer & Mackenzie, 2017; Burgin & Hardiman, 2012; Prisk, 2018)

However, it is important to distinguish the realms in which these concepts have been explored, including within the sociology of sport. The sociology of sport is an umbrella term that incorporates sociocultural understandings of sports, cultures and practices, including aspects of sociology, anthropology, geography, history, politics and social psychology (Thorpe & Wheaton, 2013, p. 342). These different disciplines have their own distinct approaches and have helped contribute to the explorational endeavour of this thesis.

However, inconsistent term usage can complicate the subject matter. Throughout these literatures, the terms extreme and adventure can become confused. Differing definitions are used interchangeably (Eric Brymer, 2009; Lebeau & Sides, 2015; Puchan, 2004). Therefore, a clear definition of both extreme and adventure sports is needed to understand and study aspects of mountain biking experiences.

Within psychology, extreme sport is seen as activities that “involve continuous application of highest-level skills and concentration, with any lapse likely to prove fatal.” (Buckley, 2018, p. 8). This definition is congruent with the approach of Eric Brymer, a frequently cited extreme sport researcher (E Brymer, 2005; Eric Brymer & Gray, 2009; Eric Brymer & Oades, 2009; E. Brymer & R. D. Schweitzer, 2017). In contrast, the complexities

of extreme from a sociocultural perspective can be seen in the Berkshire Encyclopedia of Extreme Sports (2007), in which 16 pages are dedicated to defining 'Extreme Sports' (Booth & Thorpe, 2007, pp. 181-197). Discussions around the definition of 'extreme' are also highly contested between disciplines, researchers, and the participants themselves (Rinehart & Sydnor, 2003, pp. 10-12). Mountain biking has been labelled an extreme sport by some researchers due to the high risk of severe injuries resulting from small mistakes or lack of focus (Becker et al., 2013; Müller, Persic, Pohl, Krastl, & Filippi, 2008). However, the likelihood of death is relatively low. The type of experience I am interested in, is a form of risky embodied practice that requires constant bodily and mental engagement. Therefore, defining the term 'adventure sport' may allow for more nuanced aspects to be incorporated beyond just risk.

An early definition of adventure suggested by Ewert (1989, p. 8) states "the deliberate pursuit of risk and uncertainty of outcome." Adventure sports can be viewed as less deadly than extreme sports, but much riskier than recreational sports, e.g. BASE jumping compared to skydiving compared to a scenic flight (Eric Brymer & Gray, 2009). Moreover, extreme and adventure sports encompass much more than just elements of 'risk'. (Eric Brymer & Oades, 2009; Gieseler, 2019; K. H. King, 2009). Some argue that 'adventure' sports is ill-defined in both the academic literature and the public domain more broadly (Sheehan, 2018; Tanwar, 2009). For example, Buckley (2018) argues that 'adventure sport' at large, is too broad and subjective for an in-depth investigation into the nuanced aspects. To add further complication, in some literature, sports including mountain biking have been referred to as lifestyle sports (Dant & Wheaton, 2007; K. King & Church, 2020).

For the purposes of this thesis ‘Adventure’ will be the key focus. ‘Adventure’ has a long history dating back to the French knights of the 11th century (Beames et al., 2019a). In more recent times it has become a reference to un-bordered acts, that being activities taking place outside of designated areas e.g. rugby match within a bordered field versus hiking in the hills with no specific boundaries, or objective (Simmel, 1919). New Zealand has a long history of un-bordered adventure, including outdoor education, hiking, bushcraft etc. (which are key features of the New Zealand education system) (Kane & Tucker, 2007). There are also long-standing connections between notions of adventure, or outdoor activities, and what it means to be a New Zealander (Kane & Tucker, 2007; Belinda Wheaton, 2021).

For the purposes of this thesis, the definitions of Ewert (1989) and Buckley (2018) are useful to define adventure sport as, the prolonged application of high levels of skill and concentration with lapses likely to result in accidents and injuries. This definition is congruent with understandings of adventure expounded by other sports sociologists (Belinda Wheaton, 2021, p. 26). Therefore, mountain biking has been classed as an adventure sport within this research.

Next, I explore the associated mountain biking research, or lack thereof (Hagen, 2013)

2.5 The Academic Study of Mountain Biking

Adventure sports are receiving increased academic study, although mountain biking specifically, is often cited as “under-researched” (K. King & Church, 2013; Taylor & Carr, 2021). Substantial research on mountain biking is often in the area of recreational or adventure tourism (Beedie, 2008; Beedie & Hudson, 2003; Mason & Leberman, 2000; Zajc & Berzelak, 2016). One researcher who has contributed considerably to the field is Katherine King. Much of her research looks at youth engagement with mountain biking in the

UK (K. King, 2010; K. King & Church, 2013, 2015, 2020; K. H. King, 2009). This is an age bracket my research did not examine. King's (2013) work also looks at embodiment practices. However, she noted that there is a lack of understanding of many elements within biking, particularly around elements such as engagement with nature and understanding how nature may contribute to “wider processes of developing lifestyles and identities” (K. King & Church, 2013). In other studies of note, Brown, Dilley, and Marshall (2008) used head-mounted cameras to observe the social interactions of mountain bikers but not engagement with the trail or environment. While McCormack (2017) looked at how inclusivity and identity can play out in the mountain biking subculture. Other Western researchers have also looked at factors such as how mountain biking is socially constructed and marketed through tribalistic framing (Rosen, 1993).

More recently, King and Church (2013) point out the absence of understanding engagement with nature. There has been considerable coverage around issues of environment access, management and engagement. From a naturalistic approach, researchers have examined how trail building can have impacts on the environment (Cherrington & Black, 2020b; Hardiman & Burgin, 2013). Human activity in nature undoubtedly has impacts (Cherrington & Black, 2020b), but there is disagreement as to the specific impacts of different activities. Some researchers claim hiking and mountain biking have the same environmental impacts (Campbell, Kirkwood, McLean, Torsius, & Florida-James, 2021), while others claim differing activities impacts cannot be distinguished due to them inhabiting the same areas (Hardiman & Burgin, 2013). The notion that as people become more engaged with nature, they become more concerned with nature's wellbeing and conservation (Eric Brymer & Gray, 2009). Complicating this is when mountain bikers create pirate trails (non-sanctioned trails) which in turn can have negative environmental effects with vegetation and habitat damage (Campbell et al., 2021; Davies & Newsome, 2009). Environmental

researchers also delve into broader areas, exploring questions of who possesses the 'rights' to these natural spaces (K. M. Brown, 2014), while others take a more focused approach, examining the intricacies and politics surrounding the soil itself (Cherrington & Black, 2020a).

As we emerge from a global pandemic, new studies of great interest, investigating adventure, health and wellbeing, continue to be published. Wheaton (2021) looked into how the practice of adventure activities were regulated throughout the pandemic, and the effects this had on wellbeing. Similarly, Brown et al. (2022) looked at the effects mountain biking can have as a form of therapy in a post-pandemic world. The area of adventure sports, and mountain biking specifically, is of increased interest, with much still to be explored (Scott, 2020). It is argued that the concept of flow is a considerable factor in the mountain biking experience, but has received little academic attention (Taylor & Carr, 2021), a gap explored in this thesis.

In summary, this research attempts to explore the gap in research, focusing on participants' perceptions and development of world views (Hardiman & Burgin, 2013; K. King & Church, 2013). There has been "...little research into the motivation and perception..." of mountain bikers (Hardiman & Burgin, 2013, p. 976). This comment is still relevant, with mountain biking research being limited (Taylor & Carr, 2021). Furthermore, while being viewed through a phenomenology perspective, this research examines the associations between mountain biking and wellbeing. This is the first of its kind in Aotearoa New Zealand.

2.6 Conceptualising Wellbeing

Wellbeing is another term that has been frequently used within the academic literature in ambiguous and ill-defined ways. (Dodge, Daly, Huyton, & Sanders, 2012; Kim-Prieto,

Diener, Tamir, Scollon, & Diener, 2005; Maggino, 2016; Rohde, Larsen, Jensen, & Larsen, 2020). The World Health Report 2022 also cites the ambiguity and lack of definition when it comes to ‘happiness’ and ‘well-being’ (Rowan, 2022). This lack of clarity has resulted in “wellbeing” being used to refer to various aspects of life, including relationship status, economic status, and general health (Diener & Biswas-Diener, 2002; Lucas, Clark, Georgellis, & Diener, 2003). The broad usage of the term has resulted in conflicting notions of what wellbeing encompasses. This has led some researchers to propose more defined theoretical structures, such as Carol Ryff's psychological wellbeing model (Ryff, 1989; Ryff & Keyes, 1995) or Maslow's Hierarchy of Needs (Maslow, 1943; McLeod, 2007).

Early in the 21st century there was a shift from broad conceptual models to the concept known as subjective wellbeing (SWB) (Mansfield, Daykin, & Kay, 2020). This concept centralises the individual and their own experiences of feeling ‘well’ and ‘good’ (Testoni, Mansfield, & Dolan, 2018). More recently there has been a shift in the social sciences away from solely subjective experience to incorporating a socio-ecological approach. This socio-ecological approach has resulted in researchers moving away from Western dominated conceptions to incorporate cultural perspectives, to reconceptualise ways of being and knowing (Panelli & Tipa, 2007). In the case of Aotearoa and Māori, conceptions of wellbeing differed substantially from those introduced from Britain and Europe (Sinclair, [1957] 1980, pp. 4,5). Incorporating indigenous knowledge allows for greater “diverse, multidimensional, subjective, and often community and place-based experiences of human wellbeing” (Olive & Wheaton, 2021, p. 6).

For this study, the concept of ‘wellbeing’ will be explored through a grounded theory and phenomenological approach. This centralises the subjective experiences and perspectives of study participants. This research predominantly focuses on the self-proclaimed states of

‘wellbeing’ by the study’s subjects. While also taking into account socio-economic factors specific to the Queenstown Lakes area.

Three dominant themes within the literature about sport/leisure and wellbeing are social interactions, connection to nature, and aspects of action such as flow and embodiment. However, basic physical activity also plays a role in mental health, which shall be addressed first.

2.6.1 Physical Activity and Mental Health

Over the last decades numerous studies have provided overwhelming evidence highlighting the benefits of physical activity on mental health (S. J. Biddle & Mutrie, 2007; Bird, Karageorghis, & Hamer, 2021; Ekkekakis et al., 2013; Leyland, Spencer, Beale, Jones, & Van Reekum, 2019; Novic, Seib, & Burton, 2023; Paluska & Schwenk, 2000). A recent University of South Australia study reviewed ninety-seven papers. The conclusion was that physical exercise can possibly have a greater impact on depression than medications (Singh et al., 2023). In her book, *The Joy of Movement* (2019), sports psychologist, Kelly Marie McGonigal discusses physical activity at length. The book highlights increasing evidence, from multiple sources, that simple muscle movement releases neurochemicals that elicit positive moods (McGonigal, 2019). The literature largely suggests that engaging in physical activity has a positive impact on cognitive function (Biele & Biele, 2022; Fox et al., 2022; Hogervorst & Niederstrasser, 2018; Hörder et al., 2018). The focus of this research was understanding how engaging in physical and embodied activity such as mountain biking provides not only physical health but overall wellbeing.

2.6.2 Social Connections

Social connections are often cited as having a positive impact of overall wellbeing (Kim-Prieto et al., 2005; Ryff & Keyes, 1995). An increased focus on social connections within adventure and extreme sports is gaining academic focus (Frühauf, Houge Mackenzie, Boudreau, Hodge, & Kopp, 2022; Belinda Wheaton, 2004). The tight-knit groups seen in action sports are often referred to as subcultures (Hagen, 2013). Subcultures can be seen as an offshoot of mainstream conceptions of social connections. Earlier the term ‘subculture’ had negative and anti-social connotations (Williams, 2011). It is now seen more as a way for non-mainstream members to be identified through subtle identifiers (Thorpe, 2004). Mountain biking is often cited as a subculture, but it has sub-disciplines, each with their own unique identifiers, attitudes and styles (Hagen, 2013).

The term “subculture” has a long history but for the purposes of this thesis, it will refer to the ways people associate with, and have connectedness to a particular sport and leisure community (Thorpe & Wheaton, 2013). Adventure sport’s subculture membership can foster a deep sense of community and connectedness (Frühauf et al., 2022). In her PhD thesis, *The Downhill Mountain Bike Subculture in New Zealand* (2013) Scarlet Hagen noted the role community membership had for her “involvement in this subculture has had a profound impact on almost all areas of my life.” (Hagen, 2013, p. 4). The connectedness that adventure sports group membership can foster also leads to identity formation (Thorpe, 2004; Belinda Wheaton, 2004). Social identity connecting particular groups, allows one to conceptualise themselves in a social world, as well as connect them more intensely to their sport of choice (Kirkup, 2012; Stevens et al., 2017). However, personal issues can arise when this identity becomes lost or challenged (Belinda Wheaton, 2000). Subculture membership brings like-minded people together for social interactions and also the exchange of information. Participants in adventure sports frequently learn and advance their skills via

other members, thus further deepening membership identity (K. M. McCormack, 2017). Marginalised groups have been receiving increased focus. For example, fostering gender relations is an attempt to broaden inclusivity into often male-dominated action sports (Laurendeau & Sharara, 2008; Thorpe & Olive, 2016; Belinda Wheaton & Thorpe, 2018).

2.6.3 Green Space and Wellbeing

A key focus of this research is using the physical culture of mountain biking to investigate the link between the environment, selfhood, and how the perceptual engagement of these two aspects may lead to higher levels of wellbeing. Historically Western discourse revolving around the topic of nature has often depicted it as separate from humanity (Schultz, 2002). This has changed in recent decades with increasing research into both “green” and “blue” spaces (Balundė, Jovarauskaitė, & Poškus, 2019; Britton & Foley, 2020; Britton, Kindermann, Domegan, & Carlin, 2020; Caddick, Smith, & Phoenix, 2015; Lisahunter & Stoodley, 2021; Schultz, 2002).

The research into ‘green’ or ‘blue’ spaces has been broad, and examined through both quantitative (H. R. Rubin, 1998; Ulrich, 1984, 2001, 2002) and qualitative methodologies (Britton et al., 2020; Conradson, 2005; Lisahunter & Stoodley, 2021; Olive & Wheaton, 2021). Green space generally refers to areas where the scenscape is dominated by vegetation, while blue space sees the scenscape dominated by large bodies of water (Britton et al., 2020; Lisahunter & Stoodley, 2021). The propensity for individuals to gravitate towards natural environments can be seen cross-culturally in vastly different societies (Ulrich & Parsons, 1992). Qualitative studies, particularly within sociology and cultural geography, have explored peoples’ enhanced wellbeing when practising activities in ‘blue’ and ‘green’ natural environments (Britton et al., 2020; Couper, 2018; Lisahunter & Stoodley, 2021; Olive & Wheaton, 2021). However, physical environments that have not seen extensive study is

that of the alpine or sub-alpine locations (Ower et al., 2019). The Queenstown Lakes district of Aotearoa New Zealand, is the focus for this research. The region has both green (forests, native and pine) and blue spaces (lakes). However, it is also dominated by alpine environments. Queenstown mountain bikers frequently ride in these high altitudes and exposed environments.

The above section has highlighted the connection between wellbeing and the environment (Capaldi, Dopko, & Zelenski, 2014). The preceding sections demonstrate the link between exercise and social connection to cognitive performance, mental health and wellbeing (Albon, Hamlin, & Ross, 2010; Brooks, Knudtson, & Smith, 2017; J. E. Donnelly et al., 2016; Hallgren, Dunstan, & Owen, 2020; Mauss et al., 2011; Perrey & Besson, 2018; Rogers et al., 2014; Zhai, Zhang, & Zhang, 2015). The following section explores how these elements combine into embodiment.

2.6.4 Embodiment, Thrill, and Flow

A key element in which mountain bikers experience the act of riding is through embodiment. With investigation, embodiment is revealed as a complex concept. Embodiment has been used to study numerous social science topics, from society at large, to feminist research to cognitive neuroscience (Ignatow, 2007; Kimmel, 2008; Mascia-Lees, 2016). In the case of this research, embodiment is understood in accordance with JJ Gibson's notion of "eyes – in – the – head – on – the – body – resting – on – the – ground [or – body – on – a – bike]." (J. Gibson, 1979, p. 205). The work of JJ Gibson will be further elaborated on below, but in summary, this is the notion that we explore and experience the world through and in relation to our bodies (Adolph, 2000; Adolph, Kretch, & LoBue, 2014). As Carlson, Alvarez, Wu, and Verstraten (2010) highlighted, people have the ability to rapidly incorporate foreign

objects into their embodied perception. The incorporation of objects into one's extended body has also been demonstrated in mountain biking (Dodson, 1996).

Although we explore and interpret our worlds through our physical bodies, we also enter a different state of mind when we experience elements of speed, skill, and risk. Flow is often used to describe a state when ones' only concern is the immediate action at hand (Breton, 2000). Numerous activities can induce flow such as, sport, art, music (Chilton, 2013; Wrigley & Emmerson, 2013) and defying death (Breton, 2000). The term was originally coined by psychologist Mihaly Csikszentmihalyi in his 1975 book "Beyond Boredom and Anxiety" (Csikszentmihalyi, 2000). The term flow refers to the state of mind one enters when a number of criteria are met, and a particular state of mind is reached. Flow features constituents such as the loss of time, and the absence of conscious thought (Breton, 2000). Four things are needed to induce a flow state of mind; challenging a skill base, clear goals, immediate feedback, and a sense of control (Boniface, 2000; S. A. Jackson & Marsh, 1996). As this research explores, these four components dominate when engaging with mountain biking (EMBN, 2020; just.mtb, 2023). Steven Kotler is the author of *The Rise of Superman: Decoding the Signs of Ultimate Human Performance* (2014) and a leading advocate of the benefits of flow. He notes that despite some remarkable research over recent decades, flow as an academic discipline, is still a "new science" (Kotler, 2014, p. ix).

Mountain biking occupies a niche where the sport itself has received little research, particularly with the added component of flow (Taylor & Carr, 2021). Substantial research on flow and extreme sports has been conducted but not so much in the realms of adventure sports. Mountain biking is rarely life-threatening but nevertheless, riders have to deal with risk every time they mount their bikes. Research into the states of mind that promote participation in risky behaviour, including high-risk sports, has been extensive, and at times

abstract. The ‘edgework’ concept, coined by Erving Goffman (1967), was an early attempt to understand voluntary risk-taking. Edgework activities have been linked to historical events, sociological makeup, and self-preservation (Goffman, 1967; Lyng, 2014). Although there is likely a link between many of these aspects and the actions one takes, much of the contemporary academic literature cites the act in itself as what motivates participation in “risky” behaviour (Breton, 2000; Eric Brymer, 2009; Eric Brymer & Gray, 2009). Flow is also often cited as an end in itself (Breton, 2000). However, risk adds a palpable element to mountain biking and appears to act as a catalyst inducing flow (Stranger, 1999). Stephen Kotler discusses the element of unknowable subjective experience, that being, how can we truly know what someone is experiencing, as it is ‘their’ internal experience of the world. Kotler proposes when it comes to researching flow, and those who participate in extreme or adventure sports that, “If people are not in flow when they’re performing, they’re ending up in the hospital or dead” (Google, 2014, pp. 14:00-14:20). The same cannot be said for mountain biking. Although, a number of researchers discuss ‘flow’ as a large factor in the experiences of those who participate in adventure sports, it is under-researched (Beames et al., 2019b; Elkington, 2011; Taylor & Carr, 2021). The role that ‘flow’ plays for mountain bikers is one of the questions I will explore.

In the next section, I argue that an effective way to research these complex and often deeply subjective experiences is through the research tool of phenomenology. Firstly, I explain that phenomenology is both a school of philosophical thought and a research method. I then link the work of the American psychologist J. J. Gibson to the act of mountain biking. In Gibson’s (1979), book, *The Ecological Approach to Visual Perception*, he proposes the notion of the inseparability of mind, body, and environment. I explore how Gibson’s concepts of vision, perception, embodiment, and environmental interactions relate to mountain bikers moving

through complex environments at speed. I will also look at how their perceptions of terrain transform over time. I then give examples of how phenomenology has been used in anthropological studies of action. I will again refer to the works of Gibson to demonstrate how this theoretical framework is a valuable tool for the study of adventure sports.

2.7 Theoretical Framework: Phenomenology

In recent decades phenomenology has gained academic recognition as a practical tool for research (Wertz, 2011). Phenomenology is both a school of philosophical thought and a research method used to gain insight into embodied practices and lived experiences (Qutoshi, 2018; Wojnar & Swanson, 2007). As a combined school of thought, phenomenology may help explore processes from immediate trail navigation to broader concepts such as subjective wellbeing. There are similarities and differences between phenomenology and embodiment, with the latter being a practice of experiencing the world as “eyes – in – the – head – on – the – body – resting – on – the – ground [or – a – body – on – a – bike].” (J. Gibson, 1979, p. 205). The former is a philosophy and research approach that centralises the lived experience of the embodied individual as they move through the world (Downey, 2010). The concept of phenomenology touches on many areas including:

- (a) the study of the development of human consciousness and self-awareness as a preface to philosophy or a part of philosophy; (b) a philosophical movement that describes the formal structure of objects of awareness and of awareness itself in abstraction from any claims concerning existence; (c) the typological classification of a class of phenomena; (d) an analysis produced by phenomenological investigation. From Greek phainomenon, appearance (Wojnar & Swanson, 2007, p. 172).

Although the concept of phenomenology is at times, complex, it is useful to explore epistemological and ontological understandings of our world. Phenomenology has been a useful tool in studying sporting practices, from recreational to extreme (Allen-Collinson, 2009; E. Brymer & R. Schweitzer, 2017; E. Brymer & R. D. Schweitzer, 2017; Hockey & Collinson, 2007).

One of the criticisms facing phenomenology is its use of “impenetrable jargon” when everyday people are attempting to understand their experience (Romanowicz, 2018, p. 5). The succeeding section will clarify some of the opaque rhetoric that surrounds this topic.

2.7.1 The Body as a Research Tool

Although phenomenology has a broad and ambiguous description, here I argue that it can be an effective tool for studying and gaining insight into activities such as mountain biking. In its most simple form it can be thought of as the study of human experience (Blum, 2015). Phenomenology allows the research to become a tool of investigation into what mountain biking means to those who mountain bike. This also allows insight into deeper dimensions of metaphysical human existence and why a fast-paced activity such as mountain biking seems to invoke such intoxication by its practitioners.

2.7.2 Metaphysical Roots of Phenomenology

Cartesian dualism and notions such as Plato’s world of ‘forms’ have persisted in the suggestion that bodily actions can be kept separate from an understanding of consciousness or ones’ physiological and psychological makeup (Allen, 2012, pp. 69-74; D. Brown, 2014). The modern rendition of Plato's ‘forms’, and Cartesian Dualism, promoted a fixation on objectivity and gave rise to scientific rationalism during the Age of Enlightenment in the search for truth (Blum, 2015). Focusing on objective fact and discounting subjective

experience allowed for the advancement in many areas of scientific knowledge. This established rationalism as the dominant force of Western culture for over 200 years (Blum, 2015). The philosophy of Husserl's phenomenology was a reaction to the scientific methods' longstanding rejection of subjectivity (Blum, 2015).

Edmund Husserl (1859-1938) is given the title of phenomenological founder (Benoist, 2002; Draucker, 1999; LeVasseur, 2003). Husserl's intention with the concept of phenomenology was to negate the long-standing assertion from Enlightenment thinkers, that removing subjects from 'truth-seeking' endeavours was the most accurate way to gain uncontaminated information about the world (Husserl, 1970). Husserl instead argued that in order to gain knowledge about the world one should embrace subjectivity and suspend preconceptions of what ought to be, in favour of what is lived (M. Jackson, 1996). The act of mountain biking brings the worlds of subjectivity and objectivity into direct interaction.

Although Husserl is the founder of phenomenology, the precise conception continues to change as thinkers such as Heidegger, Hegel, and Merleau-Ponty, refined and expanded the concept within its metaphysical realms (Blum, 2015; Hegel, 2018; Heidegger, 2010; Merleau-Ponty, 1996; Thomas-Fogiel, 2014). Despite Husserl's initial motivation being the rejection of the Western scientific method, the physiological aspects of phenomenology needed more practical applications to gain understandings of its constituents. A key feature of phenomenology is how perception and embodiment can inform one about the world, with vision playing a small but integral role (Allen-Collinson, 2009; W. James, 1904).

2.7.3 Scientific Roots: Perception Through Phenomenology

Vision is not a vital sense needed to survive and thrive in the world, but it is very important in helping individuals to navigate and make sense of their world. Sight can be essential for those who participate in a fast-paced activity such as mountain biking. An accurate awareness of how vision works is important for understanding how mountain bikers navigate trails. When vision is examined, it may initially seem like a straightforward process of gathering external information. Deeper exploration reveals its profound entanglement with the individuals' psyche. This affirms the notion, "We see the world, not as it is, but as we are." (Covey, 2014, p. 28). Mountain bikers interact with the world in a pragmatic way to avoid crashing. Vision plays a critical role for a biker to gain and master skills. During this process, they become more engrossed in their environment. The next section elaborates on the vision, mind, body, and environment connections, or more concisely, the phenomenological way we perceive the world. Understanding these processes are critical in exploring the ways mountain bikers engage with the world.

By the 20th century, it was reasonably well established that vision functions by binary retinal information travelling independently to the occipital cortex for further complex processing. Here it undergoes a construction-like reformation process (Stabell & Stabell, 2009, p. 206). The re-formation process is greatly influenced by other senses and embodied aspects culminating in the notion known as perception (J. Gibson, 1979, p. 72).

It was at this time, entering the 20th century that the worlds of scientific and metaphysical phenomenology began to coincide. In 1904, William James, shook the classical world of empiricism by publishing his essay, *A World of Pure Experience* (W. James, 1904). Here James argued that we do not have separate senses that give us a view of reality through

perception, but that in fact we are embedded in the world through experience. Only through experience, and thereby movement, can we come to understand the world (M. Jackson, 1996; W. James, 1904). In relation to an object, say a cube, Plato would argue for indirect perception. That is, the cube we ‘see’ is just a shadow, and the ‘true’ cube exists in the metaphysical world obtainable only through cognition. While James would argue for direct perception and that we not only need to ‘see’ the cube but experience it. James surmises that perception and experience are inseparable (Blum, 2015; W. James, 1904). The act of mountain biking creates the direct ‘experience’ that James refers to. Riders not only see the trail but interact with it as they ride. The practical visual elements of James’s Radical Empiricism were expanded further in the work of J. J. Gibson.

2.7.4 J.J. Gibson: The Ecological Approach to Adventure Sports

Gibson’s book, *The Ecological Approach to Visual Perception* (1979), proposes the notion of the inseparability of mind, body, and environment. This book, along with other works by Gibson, presented visual perception in greater detail than any previous theories (E. J. Gibson & Walk, 1960; J. Gibson, 1979; James Jerome Gibson, 1947; James J Gibson, 1950; Goldstein, 1981). Within this Gibson (1979), introduced two concepts, affordances and the ambient optical. In the next section, I explore how these concepts are useful to understand how mountain bikers move through complex environments at speed, as well as how their perceptions of trails transform over time.

2.7.5 Affordances and the Ambient Optical Array

One avenue Gibson challenged was the classic view of perception, that being, one views the world, classifies objects and structures, and then infers meaning. Gibson argues that the opposite happens, and that meaning is applied in conjunction with perception (E. J. Gibson &

Walk, 1960). Gibson's two concepts of affordances and the ambient optical array both relate strongly to the ways in which mountain bikers' perceptions change as they build and ride trails. The optical array deals with how objects and surfaces react with light at different distances and perspectives from the observer, (see Figure 1). The concept of the optical array also takes into account how one is able to stay orientated whilst in motion, (see Figure 2) (Mayer, Riddell, & Lappe, 2019). The concept of affordances explains what action possibilities an environment or object affords an organism. For example, to a human subject, a rock (object) is graspable, where it could possibly serve as a missile, a paperweight, or a doorstep. In the case of mountain biking, Gibson's approach might lead to asking what affordances a forest (the environment) affords a rider (the organism). Gibson states that "to perceive an affordance is not to classify an object" (J. Gibson, 1979, p. 134), meaning, when a feature is presented to a rider, they do not classify it but immediately perceive the ways in which it can be utilised or navigated. As the distinguished neuroscientist, Lisa Feldman Barrett noted in a recent podcast, "We don't gain new sensory data, evaluate the situation and then make a decision on how to act. We gain new data and then the action is the decision" (Harris, 2021, p. 1:07:00).

Philosophical phenomenologists have also come to the same conclusions as Gibson. Maurice Merleau-Ponty, a French philosopher, contributed to the evolving concept of phenomenology. In his book, *Phenomenology of Perception*, he states that scene recognition is not stored in memory to be retrieved, but that memory of a scene is "deployed by present consciousness itself" as it is encountered (Merleau-Ponty, 1996, p. 20). These processes are deeply relational to our developing bodies. Karen Adolph (2014) and colleagues, found that infants new to crawling, will crawl off a high edge but as they gain experience, they come to discern height. Then, when infants begin to walk, they will proceed to walk off an edge they

would not crawl off. Again with time, they come to perceive the drop more accurately in relation to their body and what their body affords (Adolph et al., 2014). This may be a demonstration of how skill and embodied knowledge are intertwined with how memory and meaning can be presented in “present consciousness” (Merleau-Ponty, 1996, p. 20).

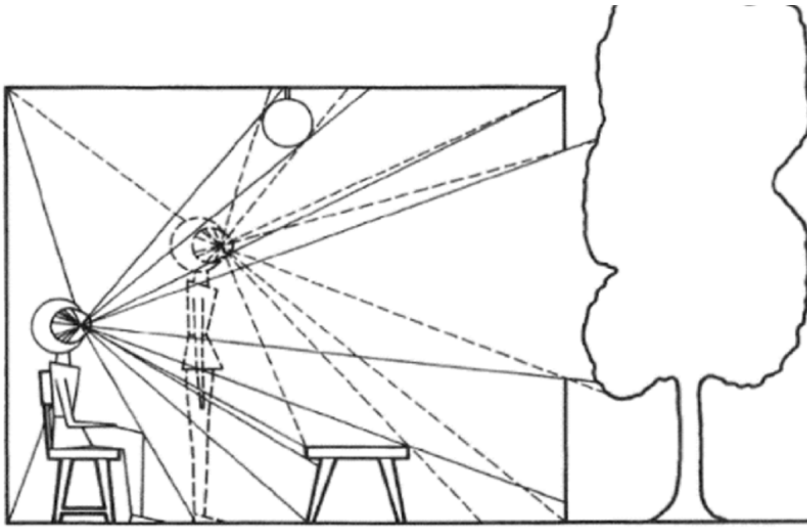


Figure 1. The change in the optical array with perceiver movement (J. Gibson, 1979, p. 72)

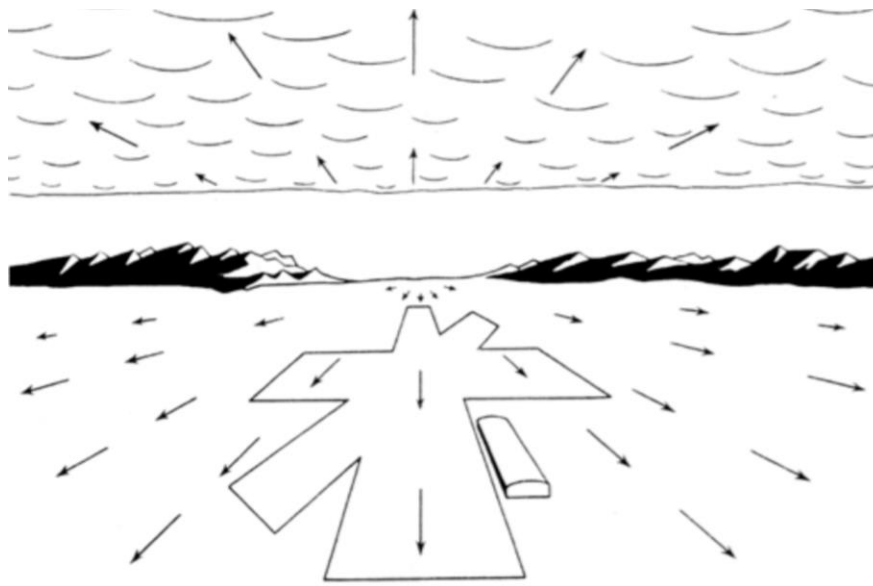


Figure 2 The change in the optical array with perceiver motion (J. Gibson, 1979, p. 124).

2.7.6 Direct Perception

Another concept of Gibson that appears to relate to mountain biking is that of direct perception. Gibson argues that not only do we perceive the world in relation to our body's structure but that the body is not separate from the environment. He speculates that the mind, body, and environment, are continually interacting (J. Gibson, 1979, p. 239). Ultimately, Gibson argues that one gains knowledge about the environment, e.g. objects size, shape, texture, and location, by active embodied movement (J. Gibson, 1979, pp. 16-32, 122-126). Many of Gibson's ideas coincide and resonate with phenomenological philosophers, who also argue that knowledge requires movement and bodily interactions with the world (Blum, 2015; M. Jackson, 1996; W. James, 1904; Merleau-Ponty, 1996, p. 91). These concepts appear to be relevant in mountain biking due to its high speed and continually changing environment; there isn't time to take in visual information, evaluate it and then react. What has to happen is a mere perception of meaning, and reaction. By understanding how vision and perception function it may be possible to refine phenomenology as a tool of fieldwork

and data gathering, particularly in adventure sports settings, such as mountain biking. That is, how do mountain bikers use features and obstacles to navigate their worlds? Do they use the ambient optical array to gain information about the affordances out in the world in order for direct perception and reaction to take place? For the purposes of this research, these questions are refined in section, 2.8 Literature Conclusion and Research Questions.

2.7.7 Phenomenology in Research Practice

The utility of phenomenology as a research tool for ethnographers attempting to understand activities that must be practised to be understood can be seen in recent anthropological and sociological research, including in sports and physical culture. Shawn Lindsay's (1996) essay, *Hand Drumming: An Essay in Practical Knowledge*, highlights the utility of phenomenology as a research tool. Lindsay gives an account of how some knowledge cannot be verbally expressed but is gained through practice and stored in the body. "If you stick with it, practice every day, an activity will become incorporated into the space and everydayness of your body." (Lindsay, 1996, p. 201). This statement by Lindsay demonstrates the importance of practice and skill as well as the experience of the 'everyday'. In her book, *Shabono*, (1982) Florinda Donner describes how one of her informants became frustrated when questioned about practical skills. "You always put words in my mouth. If you knew how to cure you wouldn't bother writing or talking about it, you would just do it" (M. Jackson, 1996, p. 13). Likewise, in his paper, *Practice Without Theory*, (2010), Greg Downey highlights a quote from Bourdieu, "What is 'learned by body' is not something that one has, like knowledge that can be brandished, but something that one is" (Downey, 2010, p. S26). A dramatic example of the preceding points, about how experience can be essential to understanding, is the essay, *Grief and a Head Hunters Rage*, by Renato Rosaldo (2004). In this essay, Rosaldo discusses his time conducting ethnographic research with the Ilongots, a headhunting tribe, living in a

remote area of the Philippines. Rosaldo struggled to understand the emotive and embodied experiences of the Ilongot headhunters. The Ilongots often gave nonchalant one-liner responses to Rosaldo's questions about the rage that drove them to headhunt. Rosaldo constantly felt their answers were inadequate and in need of deeper explanation and elaboration due to his lack of understanding. "Either you understand it or you don't. And, in fact, for the longest time, I simply did not." (Rosaldo, 2004, p. 117). It was not until years later when Rosaldo lost his wife in a tragic accident, that he came to understand the Ilongots' rage. This allowed him to revisit his work and realise that he was insufficiently positioned to understand what he was studying (Rosaldo, 2004, p. 135).

These examples help demonstrate that phenomenology can be a powerful tool to centralise the experiences of those under investigation, along with having a researcher adequately positioned to understand what is being researched. A researcher may use their body as a source of knowledge and a research tool.

By utilising phenomenology's principles and employing my personal expertise in the realm of mountain biking, it may be possible to accurately analyse first-hand accounts of fellow riders. This in turn will enhance the credibility of my ethnographic research.

2.8 Literature Conclusion and Research Questions

This outline of the theoretical framework lays out how some of the gaps in existing research will be navigated. The Literature Review details some of the relevant literature that frames this research, and shows the gaps in understanding. It highlights that there is a lack of research into how many of these components: wellbeing, risk, flow, embodiment, and perception, interact. The questions this research seeks to understand emerges from this interrelationship. Specifically:

- 1) How do mountain bikers' embodied experiences and worldviews change over time as they come to understand what their body affords, through advances in skill and experience? Relatedly, what does the biking environment afford as they more deeply engage with it? Increasing evidence shows how place and landscapes play a major role in our wellbeing and how we perceive our worlds.
- 2) Embodied experiences do not happen in isolation; they are greatly affected by social factors and shared experiences. What are these social factors in mountain biking?
- 3) The Literature Review highlighted that states of flow contribute to wellbeing. However, what role does speed and risk play in this? Why does exerting oneself physically and mentally, whizzing through the bush at great speeds, missing trees and grievous bodily harm by millimetres, result in great states of joy and relaxation?
- 4) How do mountain bikers use embodiment, the optical array, and direct perception, to move through an environment?

Chapter Three: Methodology

3.1 Introduction

This chapter gives an overview of the methodology used in this research. I first discuss the methodological approach and paradigm underpinning this research. Then I outline why it is important to understand the ‘everyday’ and explain why ethnography is an appropriate and useful methodological tool to look at the ‘everyday’. I discuss my approach to ethnography and methods of data collection which include; participant observation, mobile methods, social media and interviews. Finally, I discuss ethical considerations, data analysis and consider some of the challenges and limitations of this approach.

3.1.1 Methodological Approach and Paradigm

The aim of this study was to explore peoples’ everyday engagement with the sport and physical practice of mountain biking. I was particularly interested in understanding the phenomenological and perceptual reaction processes experienced day-to-day by participating in the activity of mountain biking, and how these may reverberate into wider aspects of an individual’s life. In order to explore the phenomenological world of mountain biking practitioners from an emic perspective (Romanowicz, 2018; Wojnar & Swanson, 2007), this study was grounded in an interpretivist, descriptive, and exploratory paradigm (Gratton & Jones, 2010).

The previously used term, phenomenology, may need some further distinction and clarification. As section 2.7 Theoretical Framework: Phenomenology outlined, phenomenology has a long and complex history, but for the purposes of this research it refers to the attempt to bring to the fore the experiences and perceptions of mountain bikers from

their own perspective (Lester, 1999). An emic perspective is when researchers attempt to understand one's experience and perceptions from an immersed and insider position. As Chalip (2010) states the best way to understand a culture is to be "fluent in that culture." (Chalip, 2010, p. 5). An Interpretivist's approach is similar to that of the emic. It often involves immersing oneself in the social context being studied and observing the subject matter from within. This gains a deeper understanding and develops theories about the individuals or community in question (Wilson, 2017). However, Interpretivism takes into account the application of specific tools such as interviews and observation (Bernard, 2017, p. 273). The descriptive and exploratory paradigm refers to how this research attempts to describe and explore how mountain bikers perceive the world around them (Gratton & Jones, 2010, pp. 6-7).

3.1.2 The Everyday

Understanding the everyday is one of the cornerstones of sociological research. It is often not the milestones of achievement but the actions we do and social interactions we have, every day, that make up our lives (Highmore, 2010). Therefore, this study investigated how the practice and experience of everyday sport and leisure acts, specifically mountain biking, have the potential to change the perceptions and conceptions of our lives over time.

My focus was mountain bikers engaging with the sport often enough to experience fast-paced perceptual processes on a regular basis. These processes may affect these individuals' lives significantly over extended periods of time. Gaining insight into moment-by-moment processes, as well as conceptions of one's wellbeing over time, requires an approach that can view the subject matter from multiple angles. As the next section outlines an ethnographic

research practice was used with multiple techniques for gathering data focused on mountain bikers from Queenstown, Aotearoa New Zealand.

3.2 Ethnographic Research

The subjective view can become complicated as there are a number of issues with the concept itself, as well as how to interpret, express, or quantify the experience (Giddens, 1986; Hegelund, 2005; Smet & Verstraete, 2006). Equally complex is how culture, social interactions, and the natural environment may impact peoples' lives (Caddick et al., 2015; Lisahunter & Stoodley, 2021; Belinda Wheaton, 2002; Belinda Wheaton, Watson, Mansfield, & Caudwell, 2018). An ethnographic research practice can produce great insight into the subjective physiological and sociocultural experiences (Downey, 2005; Downey, Dalidowicz, & Mason, 2015; Sparkes, 2015). In its simplest form ethnographic research involves a researcher becoming immersed in a particular group, culture or institution for a substantial amount of time (AcSS, 2013, p. 6). The practice of ethnographic research began in the field of anthropology during the 1800s (Ryan, 2017), with sporting ethnographies gaining momentum in the 1990s. Over the past two decades, ethnography has significantly grown as a research approach for understanding sports cultures and subcultures (Molnár & Purdy, 2016).

Ethnographic research uses a multitude of practices and techniques, gaining a vast array of “extremely ‘rich’ data” (I. Jones, 2014c, p. 219). Common forms of ethnographic data collection include observations and fieldnotes, interviews, and self-reflexivity (I. Jones, 2014c; Reeves, Kuper, & Hodges, 2008; Sparkes, 2015). This project utilised the above-mentioned methods as well as photography, videography, audio recording and social media (Makagon, 2009; Merchant, 2011; Rose, 2016, pp. 308-314).

3.2.1 Participant Observation

Observation is a leading method within ethnographic research, which assumes many forms. Observations can be conducted from a static outside viewing position or from a fully engaged practitioner position (P. Atkinson, 2007, p. 4). My research predominantly took the latter approach. This study used field observations (Gratton & Jones, 2014, p. 110), which allowed for the viewing of participants in a natural and relaxed environment.

Many obstacles can arise in attempting to gain access and conduct observational research. One common obstacle researchers encounter is when they are obvious outsiders that do not belong to the groups being studied, thereby limiting access (P. Atkinson, 2007, pp. 62-101). I was able to mitigate this by already being an established member of the mountain biking community, allowing quicker and deeper access to fruitful data. A prominent technique I used in observational data collection was ‘hanging out’, or more formally, extended field observations (Woodward, 2008). This was an invaluable tool for data collection as it allowed me to observe mountain bikers interacting in many environments such as mountain bike trails, biking events, barbecues, or down at the pub (Fletcher, 2010; I. Jones, 2014b, 2014c; Woodward, 2008).

Within sports ethnographies, participation and practice in the sport and culture under study can aid in richer data and a deeper understandings (Collinson, 2008; Ford & Brown, 2005, pp. 7-19, 119-148; Hockey & Collinson, 2007; I. Jones, 2014c; Stoller, 1989, pp. 123-156). More specifically, doing is knowing. The practice of ‘doing to know’ has become increasingly common in adventure and lifestyle sports research as demonstrated by researchers in sports including windsurfing, surfing, and skateboarding (e.g. (Beal, 1995,

1996; Beal & Weidman, 2003; Olive & Wheaton, 2021; Belinda Wheaton, 2002; Belinda Wheaton & O'Loughlin, 2017). A key approach to gaining insight into the culture, actions, and perceptions of those under investigation was biking with participants.

3.2.2 Cycling Along: Mobile Methods in Ethnographic Research

One avenue of extremely rich data was riding with people. A prominent issue in an academic investigation into the human condition is that “we can never know completely another’s experience,”(Bruner, 1986, p. 5). My research attempted to reduce this ‘unknowable’ gap by practising mountain biking with others. Unlike other observational locations, such as pubs, and bike events, riding with others allowed me to experience and observe peoples’ embodied practice in the moment and up close. For the context of this study, mobile methods refers to the use of ethnographic techniques, while with others and their bikes, moving through the terrain and mountains. Mobile methods allow the researcher to engage with other riders in the intersubjective and phenomenological experience that is under investigation (Jirón, 2011). By getting up close and personal with subjects, the use of mobile methods has become a large contributor to the validity of qualitative data collection in adventure sports and physical activity settings (M. Atkinson, 2016; Collinson, 2008; Sparkes, 2016; Woodward, 2008).

Participating in the acts of those under investigation is becoming increasingly well-documented in sport research (J. Anderson, 2013; Couper, 2018; Fletcher, 2010; Olive & Wheaton, 2021; Belinda Wheaton, 2002; Woodward, 2008). In this research project, a key aim was to understand how the experience of fleeting emotional, sensorial, and kinaesthetic experience, whilst engaged in a risky high-speed pursuit such as mountain biking, may transfer into other aspects of one’s life. Explanations of such sensory experiences can be problematic and difficult to put into words (Bendix, 2021; Downey, 2010; Hirschauer, 2006;

Lindsay, 1996; Rosaldo, 2004; Belinda Wheaton, 2017). Therefore, practising the act itself while with others was a critical part of the data analysis process. Practising with others, allowed for group ‘flow’ experiences (OxfordReference) and the fleeting embodied experiences to be shared or observed. This approach reduces the gap of some unknowable aspects of the subjective experience.

Riding with others occurred approximately one to two times per week, although the frequency and number of riders per ride was greatly affected by the Covid Pandemic (see below, section 3.3.1 Covid 19 and the Global Pandemic).

Participant number:	Gender:	Age:	Approximate number of rides together over study period:	Approximate events attended with participant:
1	Male	39	3	3
2	Male	32	8	10+
3	Female	32	5	8
4	Male	19	2	5
5	Male	39	2	3
6	Male	31	2	10
7	Male	20	1	5
8	Male	26	2	5
9	Male	34	3	8
10	Male	34	3	8
11	Male	23	1	6
12	Male	30	1	8
13	Male	42	2	10+

14	Female	34	6	10+
15	Male	37	7	10+
16	Male	38	10+	10+
17	Female	34	10+	10+

3.2.3 Observational Data Collection

Participant observation took place in the Queenstown Lake district, of Aotearoa New Zealand, during the summer of 2021-2022. Over this period observational field data was gained from observing and documentation of mountain bikers engaging in numerous aspects of the sport.

Field notes included photographs, and recorded voice memos, typed on my phone or as a word document after returning from a ride or event. Of these, voice memos and photographs were the most effective. They allowed for quick and accurate notation whilst in the field. When participants had thought-provoking interactions or made compelling comments it was easy to document without disrupting the activity. Notes were also used at the low number of events (due to Covid restrictions) I attended, in order to capture the tastes, textures and atmosphere (Sparkes & Smith, 2012, p. 182). Photography played a significant role in enhancing these notes by enabling me to capture fleeting moments and intricate visual details that were challenging to express in words (Edwards, 2002) (See below for example of rich data photography can supply). On returning home, writing up notes in detail after an event did allow for a re-emersion into what I had observed and experienced, but the immediate reactions could become lost. If something noteworthy came up during times of personal or collective social media usage, I would save the link in a file for later review.

Journaling was also used. Research journals are a long-established tradition in anthropological ethnographies (AcSS, 2013, p. 17; E. Brymer & R. Schweitzer, 2017, pp. 38,46). The use of journaling enhanced understanding the context of my interviews. Journaling and field notes were also used during observations to assist in capturing the textures of the mountain bike experience (AcSS, 2013, p. 17). Journaling was also utilised on solo rides, where I often pondered my research.

All participants with whom I regularly interacted, were informed of the study. Prior to data collection, they were required to fill out the Informed Consent Sheet (see 3.5 Ethics section and Appendix B and C). However, there were numerous instances where interactions were brief, and merely passing encounters or overheard conversations. During many of these situations, an in-depth explanation of my research and signing of a consent form was inappropriate, (also discussed in 3.5 Ethics).

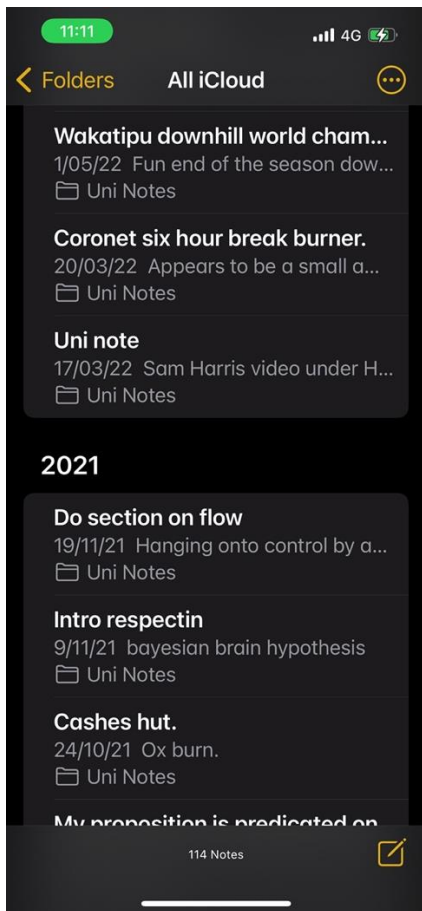


Figure 3. Example of field notes recorded on phone during observations.



Figure 4. Mountain biking helicopter adventure.

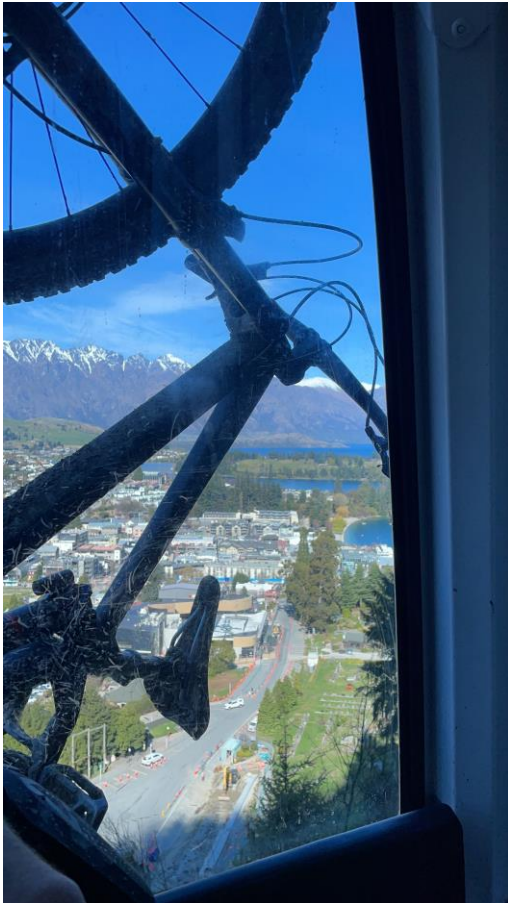


Figure 5. Riding the Queenstown gondola

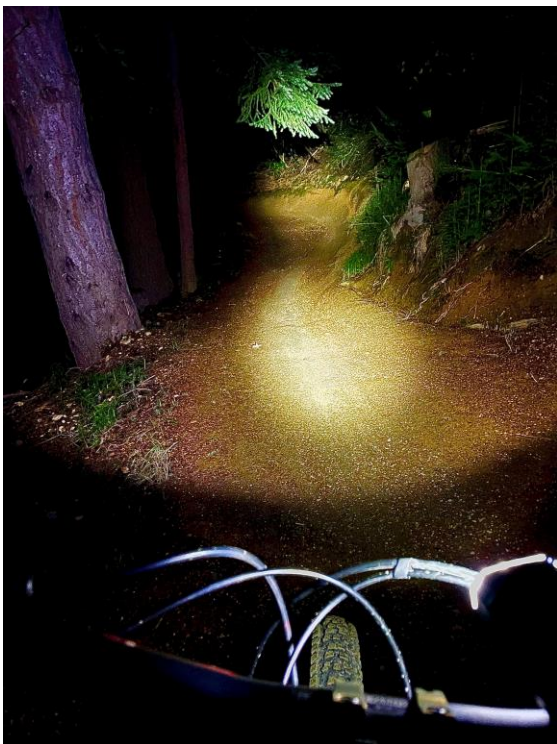


Figure 6. Mountain biking at night, a freakish experience.



Figure 7. Mountain biking in the snow.



Figure 8. Alpine mountain biking adventure.



Figure 9. Volunteering at one biking event that was not cancelled.



Figure 10. Mountain biking specific emergency response 4x4 vehicle.



Figure 11. Unintended consequences of mountain biking.



Figure 12. Additional unintended consequences.

3.3 The Researcher: As an 'Insider'

Although ethnography uses a combination of techniques, it also relies heavily on the filtering apparatus that is, the researcher. The ethnographic researcher (i.e. the person) is the largest component of which data is collected, how that data is interpreted, and the ethical responsibility they have in the field and in research publication (AcSS, 2013). Reflexivity is widely used to mitigate this and is becoming an increasing focus within ethnographic studies (O'Reilly, 2009). Reflexivity is an acknowledgement by the researcher that their own bias will affect data collection and analysis (Wacquant & Bourdieu, 1992). The act of reflectivity involves the researcher moving back and forth between insider and outsider perspectives. This allows them to reflect on their processes and interpretations in an attempt to view biases from a more objective position (Keane, 2014; Olive et al., 2016; Townsend & Cushion, 2021). It is therefore important to position myself in this research, in addition to the description given in the thesis 1.2 Introduction.

I am a Pākehā male in my late 30s, an avid mountain biker with considerable experience in other adventure sports (surfing, snowboarding, skateboarding, skydiving, and mountaineering). My research was conducted in Queenstown, Aotearoa New Zealand, where I was living and had a pre-existing relationship with the mountain biking community. This gave me immediate access to some aspects of the Queenstown mountain biking community such as collective rides, and social gatherings (Woods, 2019). I entered the research with an understanding of mountain biking and its related components such as community members, lingo, local trails, bike variety and mechanics, and community makeup. However, there are also limitations to this pre-existing knowledge, which will be discussed later. As a key aim of this research was the subjective experience of bodily movements during mountain biking,

my prior experience in this area was a great asset as I was totally immersed in the culture, allowing me to collect reliable and legitimate data (P. Atkinson, 2007).

3.3.1 Covid 19 and the Global Pandemic

Although Covid 19 has been a global pandemic it has affected different countries and places in very different ways (Rose-Redwood et al., 2020). As a low-population island nation, New Zealand's effects have been somewhat unusual due to the border closures (Henrickson, 2020). The area of the Queenstown Lakes District is sparsely populated with a reasonably high socioeconomic status compared with other parts of the country (Zealand, 2018). Despite this, individuals in the area were greatly affected by the pandemic, both positively and negatively (Carr, 2020; M. Jenkins et al., 2021), similarly, was my research. Field observations were greatly limited due to the covid 19 restrictions i.e. social distancing orders and vaccine passes. These greatly reduced my ability to engage with mountain bikers or observe them out in the field. Prior to the pandemic, waiting an hour or more to ride the gondola (a cable car that carries individuals and their bikes to the top of the hill) could be common. There is room for three bikes and three individuals in one gondola cart whereas during the summer of 2021–2022 I often found no line and had a gondola cart to myself.

The majority of biking events planned for the Queenstown-lake district were cancelled in the summer of 2021-2022. I was able to attend only two events as a spectator and one as a marshal. Queenstown, normally a very busy tourist town, was exceptionally quiet during this time compared with other years (Yeoman, Schänzel, & Zentveld, 2022).

These circumstances greatly restricted my field observations and interactions. I focused on spending more time with a small core riding cohort to gather data.

3.3.2 Social Media and Niche Media

One not-so-disputed aspect of the Covid 19 pandemic and its associated lockdowns is the spike in online usage (Volkmer, 2021). This was a feature within the Queenstown mountain biking community as well. One club race that did proceed did not have a group prize-giving at the end of race day, but published the results online. Another feature was the increased sharing of mountain biking-associated content on social media. This allowed local communities to stay in touch while social distancing but also allowed for interactions between communities around the globe. Therefore, social media played an important role in how I interacted with the mountain biking community throughout this period.

Furthermore, the role of social media within the study of cultures, also known as digital ethnographies, have had an increasing focus in recent years (Collins et al., 2013; Horst, 2020; Horst & Miller, 2020; Miller, 2016). Social media has become an important feature of many action sports communities (Ellmer, Rynne, & Enright, 2020; MacKay, 2016; Thorpe, 2017; Thorpe & Wheaton, 2013). Mountain biking-associated social media content, therefore, became important data. Providing a way to see global mountain biking trends, and how these resonated with those more locally. Informed consent was not obtained from social media content producers as it was gathered from open and public domain sources (Gratton & Jones, 2014, pp. 241-242).

3.4 Interviews

Interviews are one of the most common forms of data collection in sociological research (I. Jones, 2014a). Interviews, typically, are a pre-organised meet-up where a researcher has a

discussion with one or more individuals. The prevalence of interviewing is due to its simplicity and ability to probe questions of ‘how’ and ‘why’ when investigating a particular phenomenon (I. Jones, 2014a), such as one’s phenomenological experience (Bevan, 2014). There are varying techniques and tactics when it comes to the process of interviewing; for this study, semi-structured interviewing was used.

An advantage of interviews is that it gives participants the ability to express their own experiences in their own words, allowing for insightful and unexpected data (I. Jones, 2014a, p. 178). A disadvantage is interviewer bias due to the researcher filtering what does and does not constitute meaningful data (see 3.3 The Researcher: As an ‘Insider’ section) (I. Jones, 2014a). Another disadvantage can be the fluctuation of human emotion and that the response given on one day in a particular context may be different to that given on a different day by the same participant (Rinaldo & Guhin, 2019). However, despite some of the disadvantages, the interviews used in this research allowed for explaining and exploring phenomena related to mountain biking and wellbeing (Molnar & Purdy, 2015).

3.4.1 Sample and Recruitment

All participants for this research were gained through prior established relationships, and ‘snowball’ sampling. Snowballing is widely used in ethnographies, and qualitative interviewing, where associates of current participants become aware of research and pursue involvement for themselves (Bryman, 2016). Upon arriving in Queenstown during the winter of 2021, I reached out to friends and contacts (both in person and on social media) informing them of my research intentions. I asked them to please pass on my details to anyone they thought may be interested in becoming involved. I received six replies from people who were interested in participating in the interview stage of the study. All six became involved as they

were the demographic I was looking for; being individuals who had considerable experience in mountain biking i.e. participating at least once a week for a number of years. All participants were over the age of 20. Their experiences were from competent, to expert but not professional. It should be noted again that Covid 19 reduced the amount of interest I received.

As noted, Queenstown’s population was much lower than in previous years. I intended to have a greater diversity (in age, sex/gender and ethnicity in my sample) however all the interviewees were from European heritage and all but one were male (see Table 2). Attempts made to mitigate this disparity were unsuccessful.

At the initial meeting with participants, I clarified the study and explained its desired purpose. Once the interviewee was satisfied, they were asked to sign the Informed Consent Sheet (see Appendix D and E)

Name:	Age:	Gender:	Style of riding:	Years of riding:	Ethnicity:	Type of interview:
Philip	28	Male	DH/Enduro	14	Pākehā	No Footage
Mark	38	Male	DH/Enduro	10	Pākehā	Go-Pro
Luke	42	Male	DH/Enduro/ DJ	25	Pākehā	Personal Footage
Mary	34	Female	XC/ Trail	12	Pākehā	Personal Footage
John	37	Male	DH/Enduro	17	Pākehā	No Footage
Paul	23	Male	DH/Enduro	10	Pākehā	Go-Pro

3.4.2 Interview Style and Format

Six participants were interviewed, one-on-one (see Table 2). All interviewees were competent riders who had repeatedly experienced deep embodiment with the act of mountain biking, meaning they were all very competent riders. My objective was to gain insight into individuals' own perceptions of mountain biking and their lives. This was attempting to explore connections between the immediate act of mountain biking and one's life more broadly. I used a loosely-guided semi-structured interview structure (see Appendix A). As Gratton and Jones (2014) outline, an interview exploring phenomenological experience should not be rigid with strict pre-prepared questions. Instead prompts from the researcher allow the participant to freely express how their phenomenological experience of mountain biking is manifested (Gratton & Jones, 2014, p. 185).

All interviews took place in neutral locations; two at a mutual friends' house, two at their own home, one at a park, and one at a café. In accordance with Maykut and Morehouse (2002), my goal was to have a purposeful conversation with participants. Throughout the process, my desire was to build rapport with the interviewee, make the interviewee comfortable, be a good listener, and keep the interviewee interested and engaged. Speaking freely allowed them to explore their phenomenological experience in order to extract the richest data possible (Gratton & Jones, 2014; Henderson, 1991). Overall, I used interviews for an in-depth exploration of how mountain bikers engage with the sport, its constituents, and how this affects one's wellbeing over time.

I also asked interviewees to record a ride of their own choosing using a go pro camera before the interview, and to bring the footage to our meeting. This was conducted in anticipation that it would elicit some of the embodied experiences produced while mountain biking. I gave two of the six interviewee participants an unobtrusive lightweight GoPro video camera (dimensions being 65 x 45 x 35 mm, with a weight of 117g) to record a ride of their choosing. This resulted in two meetings. A brief initial meeting to loan the camera and an interview meeting one to two weeks later for an approximate one-hour meeting. Two other interviewee participants had completed their own recording of a ride in their own time prior to becoming involved in this study. Two participants choose not to engage in this portion of the interview process.

Therefore, four of the interviews began with reviewing video footage of the interviewee engaged in mountain biking. After the video footage was reviewed, we continued to explore the act of mountain biking and wellbeing of one's life more broadly.

3.5 Ethics

Ethics were approved by the University of Waikato Human Ethics Research Committee for this study (HREC(Health)2021#63 : Mountain Biking and Wellbeing: Understanding mind-body, movement, perception and environment). Participants in this project were given an Information Sheet and Informed Consent Sheet form to be signed and returned to me prior to the commencement of data gathering (see Appendix D & E). The following section will outline the key ethical issues in this research, along with their mitigation.

3.5.1 Informed Consent

Gaining consent within ethnographic research can become rather complex, as research often takes place out in the world over extended periods of time. Some of my interactions were formal prearranged meetings, such as regular meet-ups for social and biking activities. However, some were earnest but momentary. The following section analyses these interactions.

I needed to use two different consent forms; Interviewee Consent Sheet, and Observational Consent Sheet, (see Appendix C and E). Interviewee consent forms were given to only six participants that completed an interview. Other participants with whom I spent considerable time, and cycled with, all completed an Observational Consent Sheet. Fleeting interactions which took place in public areas, e.g, bike parks, and resulted in some data. However, these individuals were not asked to sign a consent form. As Wheaton (B. Wheaton, 1997, pp. 163-172). points out, although there is an ethical obligation to inform those around you of your intentions in these fleeting meetings, it is often not possible; people were out-living their lives. Expounding an in-depth explanation of my intentions as an ethnographic researcher would have disrupted their flow and time. Therefore, briefly encountered individuals did not complete a consent form. However, some of this content did make it into field notes as these interactions resulted in insightful comments or actions. This content was not of a particularly sensitive nature and it would not be possible to identify any individual from the details noted. An example are quotes such as “Bro! Did you see how close I got to that tree? It’s such a sick trail a!”

In order to protect the privacy of any individuals discussed in this research all identifying features have been changed. This is important as Queenstown is a small adventure tourism town with a close-knit community.

The use of Social media in ethnographic research can also present some complex ethical issues (Oreg & Babis, 2021; Thompson, Stringfellow, Maclean, & Nazzal, 2021). No personal data was used; all content was gained from public providers on public platforms such as Instagram reels. No private or private group data was used. Therefore it was deemed unnecessary to seek informed consent (Gratton & Jones, 2014, pp. 241-242).

3.5.2 Risk

A key ethical issue for this research was that mountain biking involves physical risk (Becker et al., 2013; Müller et al., 2008). One way this study attempted to mitigate this is by involving participants who had been practicing the sport for some time, thereby ensuring participants had substantial awareness of the risks involved in mountain biking. Furthermore, by using participants who regularly engage in the act of mountain biking the researcher can ensure that a participant is not engaging in the act solely to appease the wishes of the researcher. Within ethnographic research is the concept known as situational ethics of non-interference. Non-interference is an ongoing debate amongst ethnographers about not interfering with the events taking place within the group under study, as the researcher is there to only observe (Clifford, 2000, p. 40; Musante & DeWalt, 2010, pp. 195-196). I took the stance that observations were carried out as a fellow participant. Therefore, it was predetermined that if an incident or accident happened the researcher gave aid as any typical practitioner would. No major incidents happened involving observation participants other than the occasional checking on a person after a fall, dusting them off and getting back on the

trails. However, a number of times I was assisted by observational participants. One laceration to the back of my leg required three stitches and one other trip to the hospital requiring an x-ray of my shoulder.

3.5.3 Process Reflections

Within the adventure sports world there is a phenomenon known as the Go-Pro effect (MTBR, 2016). This effect consists of two differing aspects. Firstly, often when footage from a ride is reviewed, the terrain appears vastly more mellow than in actuality (live_to_mtb, 2021) . The second feature is a cultural factor; when an individual presses Record on their go-pro they can be overcome with a desire to perform at their peak - or even past their peak performance - in order to appear as “cool” as possible in their “edit” to gain social credit (NSMB, 2019). An “edit” is a short cut-together video often put on social media or shown to friends. I made it explicitly clear that aspects such as style, skill, and gnarliest were not of interest. The intention behind the video footage and its review was to assist in encouraging the participants' moment-by-moment recall during the interview. Fortunately, within this research project, the only subject to fall prey to the GoPro effect was myself.

3.5.4 Power Differentials in the Research Process

Within ethnographic research, and sociology more broadly, the power imbalance that exists between researcher and subject is becoming increasingly acknowledged and discussed, particularly within feminist research (Burman, 1992; Faubion & Marcus, 2011, pp. 145-164; Hammett, Twyman, & Graham, 2014, p. 165; K. Jenkins, Narayanaswamy, & Sweetman, 2019). As noted, interviews were conducted in ways to reduce power imbalance by having them in neutral settings. I also communicated in a way that demonstrated my familiarity with the mountain biking subculture.

Undoubtedly when it comes to the publication of this research, I, as the researcher hold an inherent position of power; it is up to my discretion as to what is presented and what is withheld. As discussed above, this was also mitigated by the act of reflexivity (Benkwitz, 2015, pp. 151,152). Furthermore, when conducting field research with local riders who completed steep and technical trails with ease, I often found myself riding to the maximum extent of my ability. At times I need guidance from fellow riders to reach the end of a trail uninjured, giving this research a particular power dynamic.

3.6 Data Analysis

On completion of the interviews they were transcribed, and printed, along with significant field notes. However, the interviews made up the majority of text data. Data analysis was conducted in accordance with Gratton and Jones's (2014), three stage process for grounded theory analysis. 1) Open coding or data fracturing was implemented. This involves disassembling the data into very fine topics with each code defining a topic or category. (see Figure 13). 2) Axial Coding was then conducted. This was bringing the data back together into refined and interconnected topics (see Figure 13&14). 3) Finally, selective coding was completed in which the refined topics were brought together to highlight the interconnecting themes. After breaking down all complex topics and reassembling them into a number of different sub-themes, it was concluded that many sub-themes do connect to mountain bikers' wellbeing. Field notes provided broad trends of mountain biking perspectives. Interview data touched on these broad concepts and also allowed participants to give deeper and more nuanced commentary.

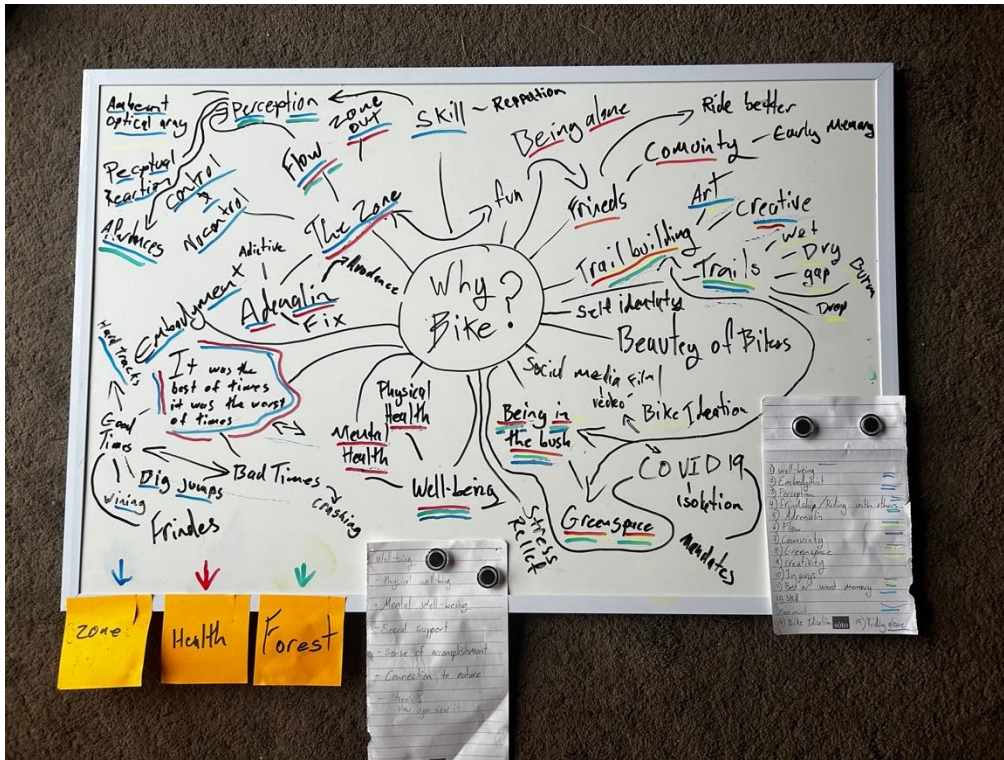


Figure 13. During open coding.

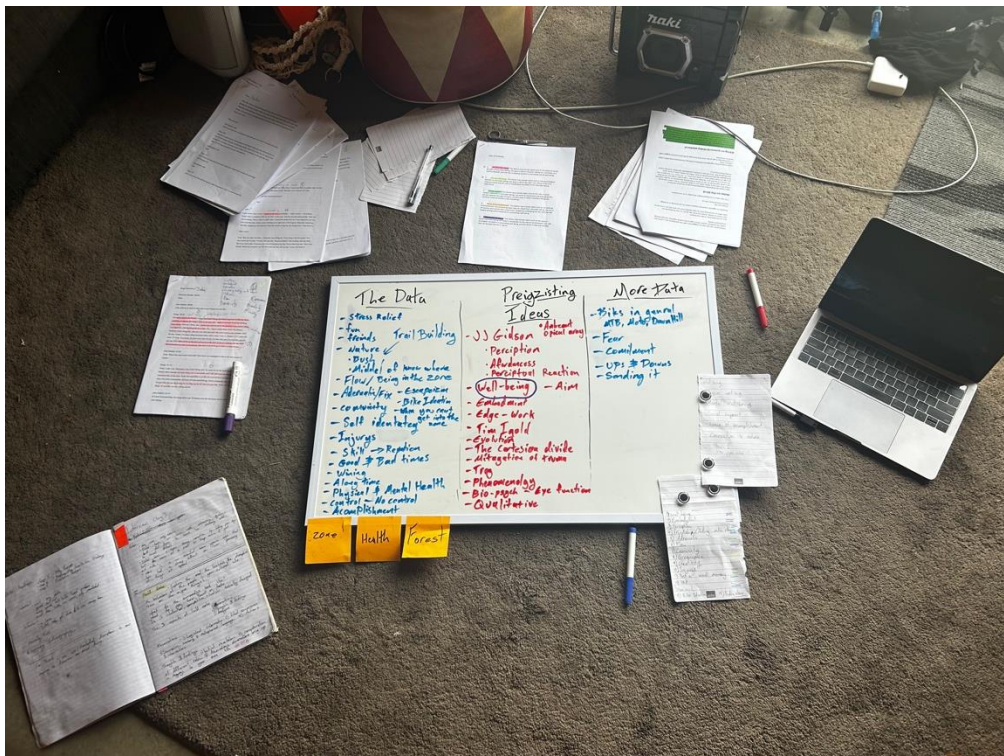


Figure 13. During axial analysis.

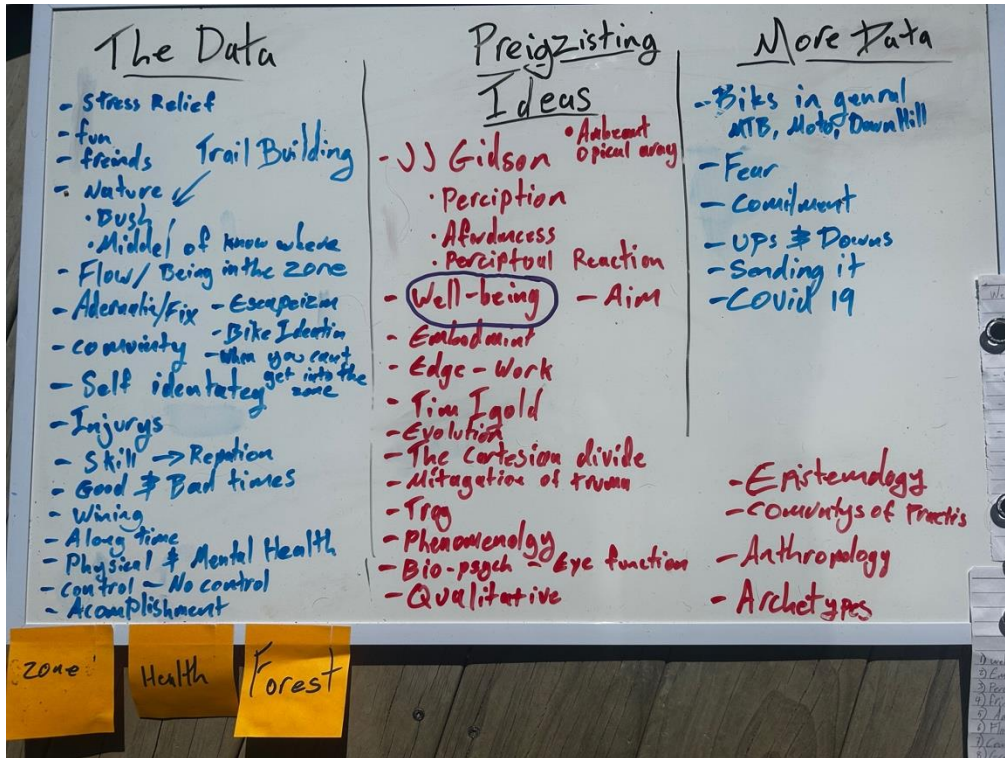


Figure 14. During axial analysis.

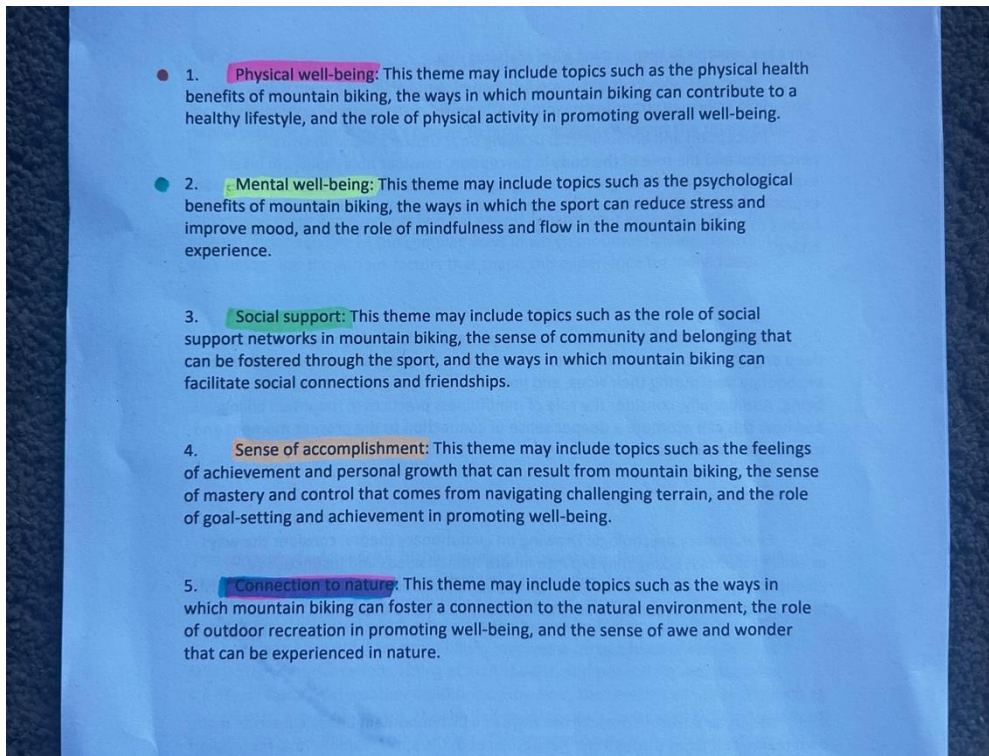


Figure 15. During selective coding.

3.6.1 Interview Journal

As noted above, research journals are a long-established tradition in anthropological ethnographies (AcSS, 2013, p. 17; E. Brymer & R. Schweitzer, 2017, pp. 38,46). The use of journaling helped with understanding the context of my interviews. Whilst analysing the transcripts I noticed one interview was a bit short. I then reviewed my journal notes pertaining to the interview. It detailed how, two weeks prior to the interview, the participant had had a rather bad concussion and still seemed to be suffering a little. The participant was engaged and interested during our interview but after 40 minutes I could see he was becoming fatigued. I ended the interview.

3.6.2 Trustworthiness

Trustworthiness has been used to examine the data and analyse credibility. Diligent analysis of the data and journaling assisted in compiling relevant information from the participants in order to present an accurate depiction to the reader (Sparkes, 2001, 2015). According to Sparkes (2001), insightful data can be considered credible. This is due to in-depth interviewing techniques. The use of grounded theory allowed for the voices of mountain bikers to state what was important to them (Sparkes, 2001). However, it should be noted that the findings in this research are relevant to mountain bikers in the Queenstown Lakes District.

Many of the themes running through this research cover embodied action which is often difficult to express (Downey, 2010; Lindsay, 1996; Rosaldo, 2004). For this reason, mountain biking was practised prior to and throughout the research process. Furthermore, in accordance with Gratton and Jones (2014) trustworthiness was enhanced by triangulation;

that being self-practice, participant observation, and interviews (Gratton & Jones, 2014, pp. 135-136).

3.7 Limitations

A limitation of this research is that it was not racially or sexually diverse. Only one of the interview participants and three observed participants were female. However, this low rate of participation is not uncommon in mountain biking as a sport (Barber, 2016; Betd, 2022; TRAIL, 2020; ZIPPIA, 2022). This reflects the Queenstown mountain biking demographic. However, it should be noted that there are some extremely competent up and coming young female riders from Queenstown beginning to enter the world stage of high-performance mountain biking.

The more southern reaches of Aotearoa New Zealand (including Queenstown) are less ethnically and culturally diverse than other parts of the country. The participants in this study reflect these narrower community demographics.

Another limitation is that interviews were conducted with core participants on a single occasion. Some topics and ideas were discussed at a deep level, but often the depth and texture reached were not realised until deeper data analysis and coding began. Due to the limitations and time of this study, it was not possible to perform follow-up interviews, which may have produced increased context (Woods, 2019). Follow-up interviews would have allowed topics that were deeply explored with one participant to have also been discussed with other participants. Perhaps varying and deeper insights would have been revealed.

Chapter Four: Analysis and Discussion

“One neuron you’re alive. Two neurons you’re moving. And with movement, interesting things begin to happen“

— Morgan Freeman as Professor Norman, in the film ‘Lucy’³

4.1 Introduction

In this chapter I discuss the ways in which mountain biking contributed to wellbeing in diverse and interconnected ways (Dodge et al., 2012; Mansfield et al., 2020; Rowan, 2022). My discussion is framed around the themes that emerged from the data; that is the ways in which the participants spoke about the range of ways mountain biking contributed to their wellbeing. My discussion is broken into two distinct sections. In part one, I emphasize the impact of mountain biking on individuals’ physical fitness and its connection with mental health. I will explore the connection mountain bikers have with the natural world, their community connections, and social identity, and how bikers experience injuries. There will then be a discussion of mountain biking’s stress-relieving effects obtained through embodiment and flow as well as the associated nuances of these experiences.

In part two I will depict functional aspects of embodiment and bike connections. The discussion will explore how skill acquisition can deepen embodied experience which leads to higher levels of wellbeing in mountain bikers.

The act of mountain biking is a diverse practice with great fluctuation in experience. Both in the short-term and long-term. On a single ride one can go from unmotivated to motivated; for example, peddling up a hill hating life and regretting the decision to ever become a mountain

³ (Besson, 2014)

biker (andibinbiken, 2022), to experiencing extreme thrills and enjoyment on the descent (ride.lost, 2022). Or long-term achievements such as overcoming obstacles you never thought you would tackle are experienced (malene_degn, 2022); or as one participant experienced when she began biking, being terrified of a puddle to becoming a high-performance amateur mountain bike racer. Skill development may also change how you ride and also how you see the world (mtnbike_realm, 2023). Mountain biking can induce excitement, play and a young-at-heart mentality despite one's age (bicycelfilmfestival, 2023; teenek_mtb, 2022). There is an ever-present danger of crashing and being forced to spend time off your bike through injury (mountain_biking_daily, 2022). Although, this is often not viewed as an entirely negative (the.nature.of.magic, 2022). Mountain biking also appears to have deep therapeutic aspects (C. L. Brown, 2021; soldiersonsingletrackmtb, 2022). One overwhelming feature of mountain biking is the requirement and development of overall physical fitness. Many of the above-mentioned features of mountain biking link to the broader aspect of individual overall health and wellbeing.

4.2 Part One: General Wellbeing

As noted above and in Chapter Two wellbeing involves many dimensions. The following section explores a number of the features of mountain biking that appear to relate to one's wellbeing.

4.2.1 Mountain Biking, Physical Fitness and Mental Health

There is significant evidence indicating that physical activity is important for our wellbeing. Empirical research shows that regular physical activity has numerous benefits for our physical health (McGonigal, 2019). Physical activity improves cardiovascular health, reduces risk of heart disease and stroke, and lowers high blood pressure (McGonigal, 2019). It also

helps maintain a healthy weight, build and maintain strong bones and muscles, and improve balance and flexibility. Regular exercise has also been linked to a reduced risk of certain cancers, such as colon and breast cancer (Batty & Thune, 2000; Hardman, 2001). Exercise can reduce symptoms of anxiety and depression, improve mood, and boost self-esteem (S. Biddle, 1995) It may also help to improve cognitive function and reduce the risk of developing dementia (Hogervorst & Niederstrasser, 2018), as well as being more effective than medication for some, suffering from depression (Singh et al., 2023).

Mountain biking can be considered a moderate to high-intensity aerobic activity, particularly trail riding in the hills (Impellizzeri & Marcora, 2007). Riders often spend hours out on the trails riding their bikes (Bazańska-Janaszek & Janaszek, 2020). To be able to ride trails in hilly areas such as Queenstown, riders need to have a high level of physical aerobic fitness and muscle strength. These physical benefits of mountain biking were acknowledged and expressed by numerous research participants, as Mary stated when getting fit "... You just got to somehow switch your brain off to the pain." However, few emphasised engaging in mountain biking as a way to maintain their physical fitness. In contrast, many commented on how the physical exertion of mountain biking was a "good feeling." For example, Mary commented on how much she loves getting out and moving; "Just getting out for a sweat and feeling good at the top." Across the participants in this study, it was apparent that a range of physical, mental and spiritual factors contributed to bikers' overall wellbeing, not simply physical exhaustion.

4.2.2 Connection to Places: 'Green Spaces'

An important feature of mountain biking in Queenstown is that it is often carried out in green spaces ie. hills and forests. This notion was also reiterated numerous times by interview participants as well as observed participants. As John explained, part of the joy of biking was

“just being in nature.” As discussed in the literature review there is increasing academic literature confirming the wellbeing effects of being in ‘green spaces’ which typically refers to activities carried out in areas where the scenescape is dominated by vegetation. In the Queenstown Lake District and there is substantial bush close to lake level, however, it does not take too many hours of effort for individuals to reach alpine or sub-alpine areas. Comments around the restorative effects of being in nature resonated with the rhetoric of those in this study. Participants didn’t use words such as beauty or majestic when talking about nature, they often just referred to the enjoyment of “being” in it.

The often ill-defined specificity of nature's appeal may be due it being deeply embedded within our psyche. This can be seen in both quantitative and qualitative data, (as detailed in the Literature Review section, 2.6.3 Green Space and Wellbeing). In a counterintuitive twist it appears whole scenes, landscapes, and cityscapes are processed before that of singular objects (Oliva & Schyns, 1997). This indicates that our broad surroundings have a deep impact on us. An example of the overwhelming effect of these large and open spaces was given by Mary when talking about going over the Ben Lomond Saddle reaching an altitude of 1316m: “Something pretty cool about being in the hills a? just being like, this is epic! in the middle of nowhere.”

Other data indicating the deep psychological effects of our scenescape viewing is evident in research on hospital recovery time. There is well-established evidence that by simply viewing nature, patients experience reduced surgical recovery times (Ulrich, 1984). While the absence of such views sees patients having longer recovery times, increased anxiety, and higher rates of depression (Ulrich, 2001). Studies such as those mentioned above, indicate that our connection to nature may be too deep to completely articulate. Indication for this can be seen from more conceptual sources such as the phenomenological philosophy of Merleau-Ponty,

who recognised the immediacy of scene recognition (Merleau-Ponty, 1996, p. 20). The deep connections to the lands we inhabit can also be seen in indigenous knowledge, where “To the Maoris the land was the symbol, of wellbeing, of success, of life itself.” (Sinclair, [1957] 1980, p. 5)

As the discussion above has shown, there is a deep interaction occurring between participants, as well as humanity more broadly, and the natural world (Conradson, 2005). However, from the data I gathered, when people explicitly discussed the joys of being in nature, they were either having a rest on a ride or trail building.

Trail building is the act of creating mountain bike trails. It is hard, physical, and slow work. One can spend hours, even days constructing a jump or burn that riders will pass through and seconds or even less. During the initial Covid lockdown, Mark put a considerable amount of time and energy into building his own trail in some bush behind his house: “I probably spent about 130 hours building my own little track.”

Despite the time and energy needed, there seems to be something that draws bikers to slow down and pick up a shovel while enjoying their time and these green spaces. As Philip explained:

I just love digging, to dig a track you can kind of visualize. You got your own time. Gives you more time that you think about stuff...I like the building ... you can be creative but it's also like you're out in the bush.

There may also be a deeper interaction happening with nature when modifying it. King (2013) notes the connection people form with natural places and landscapes. Both interacting and cultivating the land deepens this relationship (K. King & Church, 2013). Mountain bikers who trail build form deep connections to landscapes; both the interaction of being in nature as well as interacting and cultivating the land that they ride (K. King & Church, 2013).

John believes trail building could be a maturity thing:

I think it's the thing that a lot of mountain bikers get into with a bit of age. Which is giving back and kind of just being in nature... I think it something that with a bit of age you appreciate more. Because when you're younger you just want to ride.

My data indicates some evidence for this. Paul the youngest interviewee at 23, noted when asked if he had built any trails, said: "I haven't really had the drive to." He added "If I have some time off I'd rather ride... I'd rather just complain about the blown-out tracks."

The work of King in the UK however, does counter this notion. King's (2009) dissertation notes numerous motivations for youth participating in trail construction, from practising other forms of risk-taking by trespassing on private land, wanting isolation from densely populated areas, to the joy of creating your own thing (K. H. King, 2009, pp. 158-159,197,149-150). It should be noted that the demographics of King's subjects and those featured in this study are vastly different. Regardless of the motivation, those who frequently trail build, noted the joy of slowing down, being creative, and spending time in nature. The connection to nature was shared by all participants, when the topic was covered, myself included. At times I needed a break from biking and would find myself heading to the bush to rake some trails clean or build a new feature. This was to recharge in nature. As noted in the literature (section 2.6) is

the role nature can play in self-identity, indicating it is a core component to the sense of oneself and thereby one's overall wellbeing. The following section explores how social connections are deeply meaningful and contribute to mountain bikers' self-identity and wellbeing.

4.2.3 Community Connections: The Role of Social Media in Mountain Biking

Social media use was not something frequently discussed with interviewees but there were some participants who I engaged with online, as well as other mountain biking friends. Social media in general is becoming a more prominent aspect of social life, and I did see a particular increase in use throughout the Covid 19 pandemic. For myself, these interactions mostly consisted of sending each other mountain biking 'reels'. Reels are short videos featured on Instagram. Some reels would be of local riders doing impressive things on trails we know (conor_macfarlane, 2022; reece_potter, 2021), along with international riders doing mind-blowing tricks and stunts or general biking. This content resonated with myself or the persons sharing it e.g. (downhill.sports, 2022; sagly_app, 2022; vitalmtb, 2021). In the time of covid, this was a way to stay engaged with each other by sharing, interesting engineering, impressive embodied action, or humorous mountain biking sentiments e.g. (josemaria_lpz, 2022; mtb.fleet, 2022; nrml_mtber, 2022). For these reasons some social media content was important data.

4.2.4 Self-Identity: Shaped by Social Experience

As stated in the literature review (Section 2.6.2 Social Connections) sporting group membership can play a large role in individuals' self-identity (Kirkup, 2012). The social aspect of the mountain biker sub-culture plays a large role in the lives of bikers (Hagen, 2013). For many participants membership to mountain bikings subculture played a large role

in their personal identity. Often this was not spoken of explicitly but demonstrated by terminologies used and the style of self-presentation. One discussion where identity become explicitly discussed was with Mary and her experience after becoming injured.

After discovering mountain biking in adulthood, Mary found some success as an amateur racer, but this came to an abrupt end after a broken collar bone, which affected much more than just her biking:

I think it kind of defined who I was for a while [mountain biking]... So when I broke my collarbone and stuff and lost all of it. I was like, shit. I had to figure out myself again... From being someone in the community who was only known for biking to not being a biker anymore, it was quite strange.

Mary went on to state that looking back, bikes and the associated identity has defined her life in a major way: "I also kind of see life pre-bikes, during bikes, and post bikes... Not that I'll never not ride but it's quite different chapters."

In several interviews, issues of identity and community connection within the mountain biking subculture did not emerge until discussing their most memorable and least favourable biking experiences.

One question I asked all participants was about their best and worst mountain biking-related memory. One striking feature was the trouble participants had in answering either question. Some participants struggled to answer this question as the division between good and bad is not necessarily explicit.

Luke struggled but stated: “Best memory? Oh my god, how do I even pick? ... The good memories are still happening.” As did John: “Best memory? To be honest there’s too many of them. This is bloody honest. There’s too many of them. I mean it’s weird they all kind of blur into one.”

After some pondering, many participants noted positive memories when they had done well in a particular race, landed one of their biggest jumps or landed a hard trick. After further discussion on this most participants noted that although these features of achievement were great, it was the shared times that were best. I asked Paul, “So, for you the better times are sort of like race results?” Paul replied, “Yeah... oh well with your mates. Like when I moved here, and I got a whole new group of friends. That was pretty sick. It was definitely a highlight.”

After telling me about some race results, big jumps and landing tricks, John deviated and told me that shared times with friends were the best. He went on to state that:

I guess it’s shared times with good friends you know. In the middle of nowhere, and ironically the ones that are hardest are the ones to remember.

John continues to describe one dismal, overnight biking trip with constant rain and snow to a backcountry hut:

I remember we got up there and literally could not stop shaking we were so cold. Lit the fire obviously, stay the night, live to tell the tale but I thought [friend of his] was gonna die... He looked half dead. We got in, I remember him getting really fucked off

because, I was so cold, we got the fire just about going then I put loads of wood and just swamped it out. I thought [friend of his] was going to kill me. He was so cold. And then we rode down in the morning. It was still pissing with rain but it was brilliant. We couldn't feel our hands. It's funny. Those ones you remember. The ones that are the hardest.

The shared times with friends appear to hold a particular fondness for people. Other researchers such as Breton (2000) have noted the deep allure and meaning of struggle, "...reminding us the physical and intense sporting activities often supply a jubilation that is enhanced by fatigue, the proximity of danger and the idea of being able to continue to the end." (Breton, 2000, p. 3). Other research indicates that struggles of all types increases social bonds, whether it is physical, emotional or spiritual (Dunbar et al., 2016; Pargament, Murray-Swank, Magyar, & Ano, 2005; Tarr, Launay, Cohen, & Dunbar, 2015). Also see (Eric Brymer & Gray, 2009).

4.2.5 The Inevitability of Injuries

As stated above, commenting on both good times and bad, proved difficult for participants. John had to think for some time about his worst memory:

That's an interesting one... In general... Worst Ride? ... I guess it's a good problem to have, not being able to think about it. I mean, you've got all your usual like, honestly, hurting yourself and stuff like that.

Paul also shared the sentiment of crashing: "umm, I don't know. I crash all the time a probably... I don't know... all of them. Every time I've crashed."

Crashing and injuries are ever-present dangers. If you are going to participate in mountain biking you have to accept that you will crash. As Philip stated: “It's inevitable. Biking is not *if* you crash. It's kind of *when* you crash.” Each participant had stories of broken bones, torn ligaments and concussions. For example:

I remember being, a ballsy, stupid 16-year-old, being like, I'll show them who's boss and go big on this. And I went way up the hill rolled in, jumped. I just basically went all the way flat to the car park. No kneepads on of course. Straight onto my knee and cracked my kneecap. Had to go full-length leg cast. (John)

...one was Crank Works the second year it was on. 2016 or 17. I knocked myself out for two and a half minutes. (Paul)

I've had some big injuries that are shit. Like breaking your femur is not ideal. I did a bit of nerve damage. So it's a lifetime thing, that one crash and you've got something that affects you for the rest of your life. (Phillip)

An added complication is the location, which John pointed out: “You'd be in the middle of literally nowhere and stuff can happen.” Another sentiment shared amongst the biking community is the randomness of some accidents. With them often happening on simpler sections of trail. As Mary notes the time she broke her clavicle:

I found it easy, that part of the track. I was way too relaxed and I guess being tired as well when you try to hit something.

She went on to mention the time her husband broke three ribs and fractured his back on a small jump relative to those he typically engaged with:

It's like [Mary's husband] stacking it on that one jump. That was nothing right?

Because he took the piss out of it kind of thing.

Phillip puts some of it down to luck:

...it's just luck if you get out of it or you don't land right and you don't get out of it.

You could be doing a pedalling track and you lose balance on a root, fall off the edge and because you put your hand out awkwardly you'll break your wrist. Sometimes you have a really bad crash and you're rolling down the hill, you get up and you're like, wow! I got away with that one.

Whether it is bad luck or miscalculations, crashes often result in time off the bike. One avenue I was interested in exploring was, how do participants experience times when they are unable to ride. Depending on the injuries sustained, time off the bike can vary drastically. To be elaborated on shortly, mountain bikers gain some sort of cathartic effect by engaging in a fast-paced, adrenaline-inducing, and risky sport. When this experience of catharsis and release is lost some mountain bikers can struggle. John notes:

I remember getting a torn ligament in my knee and it was an eighth-month recovery.

It was the worst eight months because I didn't have that stress relief.

Many interviewees and observed participants expressed heightened periods of negative mood during these periods of injury-induced biking cessation (Hagen, 2013, p. 120). I asked Mary if she noticed her mood going deteriorating after breaking her clavicle. Without hesitation, she replied: “Shit yeah. Massive.” Mary noted she would try and get a ‘fix’ from other sources: “We’d go on hikes and things. But certainly not the same.” When he cannot ride Philip notes that even after a week he will be feeling the effects “One week, I’d be, itching to get back on my bike and get grumpy and I just want to go for a ride.”

The participants note the deep effect injuries can have on them. Even putting them off riding for a time, but due to mountain biking being such a large contributor to their overall wellbeing, they are drawn back in. Philip notes that after one big crash it put him:

...off bikes for a while. I was over it. Oh it’s not worth it like blah blah blah but eventually you get back into it. You start doing it again and all of a sudden it’s in the back of your mind, you just forget about it.

Mark noted he feels “a bit lost” when he is injured and cannot ride but went on to elaborate:

I’ve had lots of little injuries, but you always remember, it’s like the carrot at the end of the stick that [you] just want to get back and get fit and healthy just to get back on the bike and just the feeling of freedom again, the wind in your hair and stuff like that. It’s always the best feeling.

Despite these, at times traumatic, injuries there appears to be an overwhelming allure to return to the bike. Despite participants describing very painful injuries, it appears, when

asked about bad memories, individuals struggled because they did not associate negative memories with biking. Mountain biking is so strongly associated with bikers' identity, the relieving of daily stress and their long-term wellbeing, that it is not a question of 'if' but 'when' they get back on the bike (Belinda Wheaton, 2000).

4.2.6 Embodied Action: Using Danger to Relax

As alluded to above mountain biking plays a critical role in participants' lives, particularly for stress relief. When interviewing John, the first question I asked was about the role mountain biking plays in his life. Without hesitation, he responded: "Stress relief to be honest. I mean, mountain biking and bikes, in general, is my stress relief..."

The modern age undoubtedly comes with torrents of information, with local and global concerns, and personal issues. I wanted to explore how the stress relief feature of biking plays out. I was interested in finding out whether bikers contemplate issues they were having while out on the trails, giving them time to ponder over life's tribulations. I went on to ask John whether biking gave him time to work over problems. He responded by stating:

I just don't even think about it and that's what's good about it. Then I guess once I finish the ride, then I'm more clear-headed to deal with the stress or deal with an issue.

Luke also shared a similar view: "When you are having a bad day you go on your bike for an hour and you feel better." There is likely a number of factors contributing to the catharsis of biking. As stated earlier, physical activity has a number of mental health benefits (McGonigal, 2019; Singh et al., 2023). The act of mountain biking also seems to assist in getting some distance and respite from one's issues. This helps greatly with stress relief. But

as I delved deeper into the subject with participants, it became apparent there are limitations. John told me about when a close friend who unexpectedly passed away:

I mean, when you've got something that heavy on your mind it's really difficult to zone out. Normally that's what solves it right? You have work stress or other stresses. You can get on your bike and it goes poof. See you later. But something that heavy it can't really distract ya.

Other than highly impactful, traumatic and life-changing events that will likely require some other form of processing, mountain biking appears to relieve the stress of everyday life by being so demanding that nothing else can exist but the bike and rider (C. L. Brown, 2021).

Furthermore, the data indicated that adrenalin could play a role in the release of stress.

During times of risk and fear, adrenalin floods the body in what is often referred to as fight or flight response (Hoffman, 2013, p. 1). This is an evolutionary adaptation to help one escape danger or death (Hoffman, 2013, p. 1). In order to escape danger and predators, high-functioning perception is needed. This may partly explain why our perception is so in tune with our body and environment. As Gibson's (1979) notion of the optical array and affordances denote. Mountain biking has a large risk element to it (Willick et al., 2021). This dynamic of confronting danger results in adrenalin flooding the body (Hoffman, 2013, pp. 165-166). Through the use of the optical array and affordances, a rider escapes danger. In a counterintuitive twist this engagement with danger seems to have a stress-relieving effect (Vaughn et al., 2021). Mary also noted the cathartic effects mountain biking can induce by stating: "I do love it in like the adrenaline and release you get from it. It's so cool."

The experience and enjoyment of adrenaline and risk is another notion expressed by participants. There appears to be a tension between anticipation and release. Like Mary, Paul also seems to enjoy the adrenalin. He got visibly excited when telling me about the anticipation he experiences before dropping into a dangerous steep and technical trail: “I’m like jumping into it like this is gonna be fucken sick! It’s mean.” In my discussion with Philip, he commented about this complex tension when talking about, having to perform at his peak while filming for a social media video.

Sometimes it almost weighs you down. like fuck at some point, I’m going to have to do two days of really gnarly stuff, and I’m not looking forward to it, but I am looking forward to it, but just nervous... [when] you’re finished filming you can kind of feel warm and fierce.

This comment is an example of the dynamic tension and release that is experienced as positive for these riders’ wellbeing. Some adrenalin excites one to take on challenges but then relieves stress upon success. There is research noting the negatives of stress and adrenalin (Esler et al., 2008; Hart, 1995), with too much overloading the system (Hoffman, 2013, pp. 165-167,177). One’s control over the body’s biological response of adrenaline release is limited. However, what appears to play a role in adrenaline’s cathartic effects is the deep state a rider can enter during times of high adrenaline. When discussing biking’s relieving effects, subjects often used words such as ‘zone out’ or ‘in the zone’. These terms were common from participants when talking about the all-encompassing state they enter while biking. These terms are associated with what has been called ‘flow’.

4.2.7 Flow

People indicated they biked for many reasons; health, fitness, to be immersed in nature, but the state of hyper-focus mountain biking could induce was talked about with a particular sense of admiration and intoxication. The component of risk does not need to be that of a physical risk as one can experience flow in other pursuits such as art or chess (Csikszentmihalyi, Abuhamdeh, & Nakamura, 2005; Surana, 2021). These practices can have immediate feedback, but are not physically harmful (Chilton, 2013). Luke talked about the attraction of this focused state: “You’re literally so a 110% focused on what you're doing. Nothing else is in your head. That's amazing.” Part of the allure of this state appears to be that one cannot think about anything but the act itself, as Philip noted:

When you're on your bike... you're not thinking about anything else but what's in front of you otherwise that's when you'll probably crash.

By combining Gibson’s notion of movement and motion a subject can gain deeply relevant information about themselves and their actions (J. Gibson, 1979, p. 72&124). This comment by Philip highlights that a rider must accurately but subjectively perceive their actions. When these actions become disjointed from the objective world a rider will often crash and butt up against objectivity’s hard edges. The chaotic knife-edge bordering between these two worlds is often what adventure and extreme sports athletes find most alluring. John notes the quest one can develop on obtaining this risk-induced highly focused state through mountain biking: “It is literally the thing I want to do every day. When I'm at work it's all I'm thinking about doing.” This notion of biking, perpetually being on one’s mind was also shared by Paul. I asked Paul how much he thought about biking. He noted it was every day. I asked: “A lot every day?” Paul replied in a laughing voice: “Yeah, like all the time.”

These experiences and descriptions highly resonate with Csikszentmihalyi's concept of the flow state (Csikszentmihalyi, 2000), as well as the more recent development of the concept (Kotler, 2014). A challenging skill base, clear goals, immediate feedback, and a sense of control, are features needed for 'flow' to be induced (Boniface, 2000; S. A. Jackson & Marsh, 1996; Taylor & Carr, 2021). As noted, many participants find the deep focus meaningful. Also noted, is how when in the state nothing else can be present but the act. With some participants referring to this act as an "addiction." The term 'addiction' often has negative associations but surely a practice that gets people into nature and exercising in a way that allows them to engage their bodies in exceptionally demanding ways surely should not be negative. This may not be the case.

4.2.8 Biking Addiction: Using Action to Avoid Life.

A compelling topic that developed was the issue of dealing with one's deeper and long-standing psychological issues. John notes the intoxicating nature of mountain biking:

Honestly, it's literally like an addiction. I pretty much try to get a ride every day or at least four to five times a week. It feels weird to take a day off... It's almost like an addiction to checking out.

I delved deeper into this topic with Luke. He mentioned that individuals can use biking as "escapism" because it takes so much mental focus you cannot think about anything else, other than what's in front of you. I asked if it is escapism or if people feel energised to return to an issue as other participants indicated they do. He agreed, but noted that it can become

dangerous when people do not use the break away from the problem to readdress issues, but instead, use biking to avoid it altogether. Luke went on to say:

They need it [mountain biking] to keep them feeling good. If they don't go get a ride and get a fix they're really unhappy. Because they're not addressing the problem that they are having... They're just like, I'll go biking to forget about it... But you're never going to be satisfied. Because you're not dealing with the problem. So it's like you're just waiting for the next ride to help fix it... people will just constantly look for the next sensory gratification.

It's quite an interesting, complicated subject. I'm really trying to get my head around it at the moment.

Luke's last conundrum captivates me but remains broadly unresolved. Despite some avoidant tendencies, there is some existing and mounting evidence that adventure sports, including mountain biking, can have great positive benefits for those suffering from PTSD (C. L. Brown, 2021; C. L. Brown et al., 2022; Caddick & Smith, 2014; Caddick et al., 2015; Kaiseler, Kay, & McKenna, 2019). One grassroots group in the US encourages mountain biking by returned servicemen (soldiersonsingletrackmtb, 2023). This profession has seen far too many cases of suicide in recent decades (Rozanov & Carli, 2012). Luke notes this is a complicated subject and one that needs more data and topic-specific inquiry in order to explore both the positive and negative dynamics at play.

Although numerous participants made comments reflecting the concept of flow and the positive impact it has on their wellbeing, it can become tricky when attempting to decipher or put these experiences into words. Many of these experiences are stored and experienced

through the body and the relationship with one's bike (Downey, 2010; Lindsay, 1996). The following section is an exploratory attempt to contextualise the experience of mountain bikers.

4.3 Part 2, Deepening Wellbeing Through Embodiment: The Ecological Approach to “Sending It”

Send It –

\`send `it\ (v.) Any action or activity you can do wholeheartedly with confidence and absolute passion.⁴

Embodied action is a major feature of successfully riding a mountain biking at the peak of one's ability. Embodiment can be seen as a seamless interaction between rider, bike, and the trail. When correctly executed John describes it as: “You're looking for the feeling.” This embodied “feeling” is such a focus for him that he tries to capture it.

I've actually got notes on my phone, which whenever I get that feeling, I try to break it down. So then I can get that same feeling the next time on my bike. I take note of the settings for example, which is a simple thing, but if it has more feel like how you're feeling. A prime example, one of my notes on there is being really aware of your hands in the peripheral vision. (John)

Yet, despite his best efforts to capture the “feeling” it is ever elusive: “I kind of tried to write it down and bottle it, but it seems to change all the time.” (John). What John tries to capture

⁴ (Ricketts, 2016)

here is Gibson's notion of direct perception and the experience of the interconnectedness of flow, embodiment, and one's connection to the bike itself. John is moving through the world as “eyes – in – the – head – on – the – body – resting – on – the – ground [or – body – on – a – bike].” (J. Gibson, 1979, p. 205). He has incorporated the bike so deeply into his body schema that it directly enters into John's perception of the world as he moves through it. The notion of assimilating with external objects, such as the bike, is well documented. Carlson et al. (2010) paper, Rapid Assimilation of External Objects Into the Body Schema, suggests that foreign objects can easily be incorporated into one's schema; or that the body does not end at the epidermis. Participants made comments that resonated with this notion. During my discussion with Mark, he made the statement that when you are clicking with a bike: “You kind of feel like it's an extension of your body.”

4.3.1 Human Object Relations

Works from Carlson et al. (2010), Dant and Wheaton (2007) demonstrate that external objects can be assimilated quickly into one's body schema. I talked with Mark about this topic in relation to his bikes. He had changed an old bike to a new and better-fitting bike. After a month on the new bike he hopped back onto his old bike: “I just rode it literally about 100 meters, just on some grass then onto some road and it just, it felt alien to me.”

However, there are still discrepancies; it should not be viewed as a straightforward and seamless process. At times a unique and deep bond can form. During my discussion with Luke he told me a story about one of his bikes being stolen. Despite having the bike replaced with the same model, the connection never returned:

I was really, really, really feeling it. Like really gelling with the bike. And then it got nicked. Basically from then I never ever really got back to where I wanted to be.

Because they scrambled to get a new bike together for me. But it was just never the same. You get so used to how a bike feels. it almost becomes part of ya.

The bond between a person and their bike can develop into a profound and intimate connection. The preceding comments by Mark and Luke highlight that our bodies do not necessarily end at the dermis (Carlson et al., 2010). It requires countless hours spent cycling, enduring various weather conditions and traversing diverse terrains, enabling the body to acquire a profound understanding of the subtle interactions between the rider and the bike. This knowledge becomes ingrained within the mind and body (Downey, 2010; M. Jackson, 1996; Rosaldo, 2004). It allows subconscious reactions to avoid potentially dangerous situations and maintain stability at speed.

As discussed earlier by participants, maintaining control over one's mountain bike can take considerable focus. However, there appears to be an interplay between "110% focus" and no focus at all. Possibly this is why the terms 'in the zone' and 'zone out' are used interchangeably. One tunes out of their conscious mind and into their bodily-mind. Their body-mind is 100% focused, while their consciousness is zoned out. This is one of the prominent features of flow (Taylor & Carr, 2021). Mark went on to note how this human bike embodiment can result in the loss of conscious thought, replaced by the subconscious:

I ended up coming square into that corner and I just tipped it in. I was pretty shit scared coming into that corner. And then my body just reacted, like two wheel slide

around a corner... that wasn't entirely on purpose. It's kind of subconsciously on purpose.

Participants' descriptions resonate here with Gibson's (1979) notion of perceptual reaction and affordances. In the case of a mountain biker, a rock on a trail may be perceived as an obstacle to be avoid or utilised by jumping off it to clear a section of intricate trail. This process happens in rapid succession and greatly affected by skill. Through Mark's skill development he has come to learn what his body affords him. Much like the infants learning what they can crawl and walk off (E. J. Gibson & Walk, 1960). The notion of a corner on a mountain bike trail affording cornering is demonstrated here with Phillip noting: "I don't even think about it. It's just when I get to the corner, I'll corner." Phillip's comment is a demonstration of how skill and embodied knowledge are intertwined with how memory and meaning can be presented in to "present consciousness" (Merleau-Ponty, 1996, p. 20).

I too have experienced these instances and they can be deeply enthralling. I can vividly remember one occasion riding a trail I knew well. I came into a steep technical section of trail faster than I ever had before. I applied the brakes in an attempt to slow down. This caused my wheels to lose traction and slide. Without thinking, I released the brakes allowing the wheels to rotate, thereby gaining traction. This response got me out of a tricky situation. After passing through this section I remember thinking, "Who did that?" The experience felt like "I" was not the one making the decisions. It was "I" making the decision, but not the "I" we commonly think of. That is the ego "I", the "I" which narrates, unrelentingly to some of us, as we wander through the world. An embodied practice such as mountain biking can quieten the incessant nattering of the ego "I", and awaken the body "I." Other adventure and extreme sports, or flow-state-inducing activities, can have similar calming effects (Breton, 2000;

Elkington, 2011). John noted earlier, the body “I”, or embodied flow, can be elusive.

Through practice, experience, and skill acquisition one can store knowledge of what one's body affords within the body itself (Lindsay, 1996; Taylor & Carr, 2021).

How bikers gained this knowledge was another interesting topic.

4.3.2 Skill Acquisition

Gaining new skills is a large factor in mountain biking and is also a prominent aspect of flow and embodiment (Csikszentmihalyi & Csikszentmihalyi, 1990; C. D. Jones, Hollenhorst, Perna, & Selin, 2000; Taylor & Carr, 2021). When mountain biking, cornering a corner, one spontaneously uses prediction as to what is going to happen in that corner based on all the other corners the individual has cornered in the past (Grossberg, 2019). In the words of Lisa Feldman Barrett “We use our perception of the past to predict the future, which will become our present” (Harris, 2021, pp. 1:03:14 - 01:03:27) The acquisition of high-level skills requires a lot of repetition. Repetition is another notion that resonates highly with the mountain biking community. Here Luke comments on the value of repetition:

Repetitions so important for your skill base. You can't get it just doing laps. Well I mean you can, that's a lie, but you have to do a lot. Whereas if you just have one corner and you do it 30 times. It's amazing what it does.

He went on to comment on how as a young rider he would: “Just be out there all the time. Just sessioning, practising corners, just pushing back up over and over again.” This repetition solidifies skill and ability; both Lindsay (1996) and Downey (2005) note this repetition and practising skills becomes knowledge stored in the body. Furthermore, the increase in skill and thereby ability broadens the array of affordances open to a rider out on the trail. There are

numerous areas of skill development in biking practice but for the purposes of this thesis, I shall touch on just one, Line Choice.

4.3.3 Line Choice: Different Ways for Different People

‘Line Choice’ is, the line one’s bike tracks on a trail. Some trails are wide allowing for multiple line choices. Some trails are narrow, but even the narrowest of tracks have great opportunities for varying lines (see Figures 17 & 18).



Figure 16. Line choice of either, easy straight line, on the right; or difficult line on the left



Figure 17. Bit of trail on a steep hill where a rider would come in with a lot of speed. Between the red lines is the inside line. Between the blue lines is the outside line.

Figure 2. Gives a simple demonstration of some of the range of factors needing to be reckoned with when riding different lines. Due to the steepness of the hill and the speed a rider would have coming into this section of trail, it is hard to make the inside line, between the red lines. A rider needs to get up above the big root in the middle of the trail. If a rider does not make it up over this root they are forced into the outside line by the angle of the root and into a soft, tight, and ‘jankie’ corner. In order to ride this section fast and smooth, one must use skill but also set themselves up by riding the above section well. Therefore, in accordance with Gibson’s works (1979; 1950) this raises the question of, does a rider classify objects to be avoided (e.g. trees in the forest) or do they perceive a pathway to success, such as gaps between trees or a smooth path over rough rocks. It should also be noted that scenscape or environment classification is faster than individual object recognition (Oliva & Schyns, 1997). Additionally, conflicting data indicate that the particulars of how object and scene recognition process play out are still largely unknown (Fabre-Thorpe, 2014).

As discussed further, below, viewing others' cycling, especially those at a greater ability can assist one to ride at a higher level. Line choice is part of this, in that viewing others' lines, opens one up to new ways of seeing and thinking. During my discussion with Paul, he told me, how following different people down trails he knows well would open him up to new ways of seeing:

It's crazy how so many people ride it all differently... I've been here for three summers and I just do the same thing and then you ride with someone else and they do their little thing, and then you ride with another bloke and he's just off the course, landing down the side of jumps and shit. And not even doing one corner to get something else. It's just like you didn't picture it. you just thought that was it.

This comment by Paul indicates that seeing the lines others ride, opens one up to new places to go. As discussed above, embodiment is about understanding how one's body works and what it is capable of. Hours of practice, repetition, and observation are necessary to become skilled. Whilst mountain biking is an individual activity, it can be greatly impacted by riding with others.

4.3.4 Shared Embodiment

A strong sentiment shared amongst bikers is that one of the best ways to improve at biking is to ride with those who are better than yourself. One's style of riding is like a personal art form, resulting in varying ways of riding. Paul noted how drastic this change of style can be: "Everyone's got a different version of their own style." Seeing others' "lines" (how people ride the same section of trail differently) helps one find other ways of riding. Riding with

others allows you to see the potential of what is possible. It also allows you to see what position their body is in during certain sections of the trail. Phillip stated that what helped him progress was riding with others at a higher level:

... riding with people faster than you, you progress... You're just trying to keep up the whole time and then all of a sudden your, oh! Actually, I'm one of the fastest ones.

Again this is not a straightforward process and issues can arise. Paul stated that at times following people can complicate things:

He's doing it. So you do but you're doing it early... it's kind of hard to explain. You're doing what he's doing but he's ahead of you.

Furthermore, it appears that collective practice can allow heightened performance. As Luke highlighted:

I can't ride properly unless I'm with people...I can't get into the zone with it at all. I need people to feed off.

Luke's last comment suggests that there could be a heightened individual performance that is lifted by the group. As well as connection to the other individuals in that group of not only shared experiences but shared embodiment. Shared embodiment further enhances the tight bonds the mountain biking subculture holds. These features relate to the topics discussed in

Part One, (Section 4.2.4 Self-Identity: Shaped by Social Experience) as embodiment also affects areas of social life, belonging, and notions of one's identity.

Viewing others' cycling exposes one to new ways of seeing, and allows riders to practice new ways of being (E. Brymer & R. D. Schweitzer, 2017). Whether it is seeing new lines on a trail you know well, or pushing through fear to commit to trails you have been hesitant to complete earlier, you become something else when you make the attempt (C. L. Brown et al., 2022; Eric Brymer & Schweitzer, 2013). (2022) note that these new ways of being can have effects off the track. However, in their research they were dealing with students new to mountain biking in a seven-week programme (C. L. Brown et al., 2022).

Many of the changes mountain bikers may experience from an evolving practice of fast-paced perceptual processing are subconscious. As Mark alluded to earlier, with his comment “It’s kind of subconsciously on purpose.” Actions on the trail may also affect life off the trail. These new ways of being that mountain biking can induce, will likely, with sustained practice, affect individual’s lives more broadly than just their biking. Gaining data on this topic through interviews and observations may not suffice. However, I gained some insight from Mary who at one point was busy fundraising and training for cross-country races. I asked Mary if she thought taking on the act of racing affected how she managed things like motherhood and running a business. Mary commented:

Yeah, I think so. Because it was all things that at the time felt like it was out of reach, and I couldn’t do it and then I did it.

This comment by Mary is an indication that the advances in skill and changing perceptions on the trail influenced other parts of her life. But how much can the practice of mountain biking change one's perceptions. The theory that new ways of practice leads to new ways of being, is not new. What has emerged from this mountain biking data suggests further research pertaining to these themes is needed for increased insight. One area that may improve this insight is exploring notions of mountain bikings' inescapable relationship with fear and commitment.

4.3.5 Fear and Commitment

Mountain bikers are frequently dealing with fear and commitment which can deeply affect how they perceive and deal with risky situations. As stated earlier a driving force behind people's sustained participation in mountain biking is stress relief. Mountain bikers frequently encounter fear. They are either, overwhelmed by it and retreat, or, proceed and overcome the fear. What constitutes fear is deeply subjective. Mary encountered this on her very first ride after arriving in Queenstown: "I screamed, when I went through a puddle, shitting myself." However, overcoming fear is more than just letting go of the brakes and rolling over the edge. One must commit to what's on the other side. Long-term commitment is crucial for skill development. While also embracing short-term commitment to face daunting situations, this can present a mind-bending challenge. As Mark discusses:

I think for me, it's when there's something that you're scared of and you know, you can do and you know if you're not fully committed, if you don't do that thing at 100%. Then you've got probably 80% more chance of crashing or hurting yourself. I think for every 5% you're not committed, [you are] probably adding 20% extra chance of

crashing... for me, commitment is like you made the decision and you fucken stick with it, and you back yourself.

There is limited academic data noting the dangers of hesitancy and fear (Eric Brymer & Oades, 2009, p. 123), but it's a well-known feature of the mountain biking world. There can be a palpable sense of tenseness when watching someone take on a challenge, especially when you observe their hesitating body language (GMBN, 2021, p. 5:00; lu.petrucchi, 2022; mtbfeeling, 2023). Mark continued to explain how commitment is still a challenge even after years of biking: "I have done it plenty of times, which is change my mind at the last minute, but it's a shit idea." When asked about the benefits of staying committed Mark notes that: "It feels good and you kind of feel proud of yourself and it reinforces your mindset." The "mindset" Mark discussed relates to having confidence in one's ability, and then committing to perform to that ability. When one does so, they gain deep self-knowledge that can be profoundly empowering (Eric Brymer & Schweitzer, 2013). Mary summed this up with the comment that it is: "An awesome feeling once you ride something you never thought you'd be able to. That's quite addictive a."

Continual practice, committing, and pushing through fear, undoubtedly enhances riders' skill levels, although it does not appear to reduce the chances of crashing, (as noted in Part One 4.2.4 The Inevitability of Injuries). As discussed, new ways of seeing make new ways of being that can change us. For example, injuries mountain bikes have to endure, affect them deeply and the ways they see themselves and their worlds. Overall, there seems to be a sense of achievement and accomplishment within oneself when one uses embodied knowledge to commit and overcome fear, adding an aspect to overall wellbeing (Eric Brymer, 2009).

This Analysis and Discussion section presents the role mountain biking plays in people's lives. This research demonstrates, through the voices of the participants, that there are many different aspects affecting their wellbeing. Cycling is a key feature of mountain bikers' identity and overall wellbeing. The final chapter will lay out the conclusions from this research and suggest further possible research.

Chapter Five: Conclusions, Abstractions, and Future Research

“Life can only be understood by looking backward; but it must be lived looking forward”

— Soren Kierkegaard ⁵

5.1 Introduction

This chapter will give an overview of the key findings of this research. It will then outline some theoretical and conceptual expansions on the ideas explored throughout this thesis. Finally, I discuss the limitations experienced in this research along with avenues of possible future research.

5.2 Key Findings

I set out to explore how the immediate perceptual processing involved in mountain biking, affects long-term perceptions. However, as I delved into the data, a consistent pattern emerged of overall wellbeing as the driving force behind people's engagement in mountain biking. While participants initially took up biking for a variety of reasons such as fitness, enjoyment, or social connections, it evolved into an integral aspect of their lives and self-identity. Mountain biking provided far more than the initial motivations that led them to them hopping on a bike. The research showed that mountain biking encompasses various elements that significantly contribute to both physical and mental wellbeing. It supports previous research about the positive impact of physical exercise (S. Biddle, 1995; McGonigal, 2019), and how immersing oneself in nature plays a pivotal role in enhancing participants' overall wellbeing (Burgin & Hardiman, 2012; Couper, 2018). Furthermore, social connectedness

⁵ (Bouchier-Hayes, 2005)

emerged as a crucial determinant of individuals' mental health in the context of mountain biking (K. McCormack, 2018; 2017). This research demonstrated how social connections allow individuals to expand their interpersonal relationships and contribute to their sense of social and self-identity. Many participants in this research emphasised the importance of the relationships they cultivated via mountain biking. Surprisingly, many participants also indicated these connections can lead to improvements in riding ability.

Another prominent factor that contributes to the overall well-being experienced in mountain biking is the concept of 'flow'. Flow is a state of complete absorption and immersion in an activity, often described as being "in the zone." It has been recognized as an intrinsically rewarding experience (Elkington, 2011; Taylor & Carr, 2021). This research explores flow and its impact on individuals' engagement with mountain biking. While flow is interconnected with several other aspects of wellbeing, it appears to be one of the most significant factors that promotes prolonged engagement with the activity. It is hard to express the reverence of flow that was expressed by participants through text and quotations alone but there was a heightened level of excitement whenever the topic was discussed.

Furthermore, this characterisation is only relevant for the participants in the study.

As noted in the Literature Review, the concept of flow is attainable in different contexts, such as art, chess, or adventure sport. Therefore, while flow can be achieved in low-risk activities, the element of risk inherent in adventure sports such as mountain biking can introduce a unique dynamic and complexity to the experience of flow. When pushing the boundaries of one's skill level in mountain biking, there is potential for loss of control, which can disrupt focus and flow. The loss of the flow state draws one out of the moment and can increase the risk of crashing. This accentuates the need for a certain level of forced focused attention during the activity. Mountain biking requires a high level of perseverance and determination

to maintain composure, push through challenges, and emerge unscathed on the other side. When successfully completed, it had deep meaning for the mountain bikers in this study, contributing significantly to their mental health and wellbeing.

In summary, mountain biking offers a holistic approach to wellbeing. It provides stress relief, facilitates physical exercise, promotes connection with nature, fosters social connections, and enables the experience of flow. These diverse elements intertwine to create a comprehensive and fulfilling experience for mountain biking enthusiasts, positively impacting their mental and physical health. However, the state of flow and deep embodied action appears to be the overarching feature that prolongs and facilitates these aspects.

5.3 Theoretical Reflections: The Connection Between Flow, Perception, and Reality

Here I reflect why the state of flow is so meaningful to mountain bikers. I suggest it is because it resides on the border between order and chaos, subjectivity and objectivity, becoming, knowing, and truth, along with the transcendence of the self. See (Breton, 2000; E. Brymer & R. D. Schweitzer, 2017; Gieseler, 2019; Hegel, 2018; Husserl, 1970; W. James, 1904; Merleau-Ponty, 1996; Rinehart & Sydnor, 2003).

I have long held a deep interest in the processes of perception, and how immediate perceptual processing can affect overall cognition. It proved more complicated to gain firsthand accounts of mountain bikers' perceptions and experiences of affordances than initially anticipated. Despite this, there appears to be a connection between the bodily action of

humans and the metaphysical spiritualistic way we think about ourselves, our lives, and our community, as well as the world more broadly.

Moving at speed, tuning into the landscape, while deeply embodied with one's bike, forces one to take on commitment and deal with adrenaline and fear while adding to their skills. This allows individuals to come to know their body and the world more profoundly, whilst often pushing themselves beyond what they initially thought was possible. Sustaining injuries is a harsh reality of mountain biking but it is potentially beneficial. People spend much of their lives living in a conceptual world, immersed in subjective experience, but through embodied and risky action we can come to know the world more deeply as it "disrupts the interpretive processes" (Lyng, 2014, p. 449). Mountain biking forces one to butt up against the hard edges of objective reality, helping solidify many of the lessons learned on the trail to everyday life (Lyng, 2014). Furthermore, an activity like mountain biking requires the integration of mind, body, and environment, a deeply interrelated relationship. As the next section elaborates, this is often taken for granted in modern society.

After reviewing the works of JJ Gibson's and others, I have gained an understanding of how light reflects off objects, is received by the optical retina, and is transmitted to the occipital lobe for deeper processing. (Adolph et al., 2014; de Andrade Martins & Silva, 2001; J. Gibson, 1979; James J Gibson, 1950; Oliva & Schyns, 1997; Stabell & Stabell, 2009). There is also the ability of vision to gain information about parts of objects or environments not seen (J. Gibson, 1979, pp. 76-82). One may consider the eyes as working like octopus tentacles. Light rays come to the eye but the information stored in those rays is like the eye having the ability to reach out into the world to feel surfaces, textures and even feel into areas unseen (J. Gibson, 1979, pp. 26-27). (see Figure 1). The way light reflects off objects gives a

great deal of information about what an environment consists of and what it affords. The affordances these environments hold are of great importance to visual organisms. As Gibson states “The medium, substances, surfaces, objects, places, and other animals have affordances for a given animal. They offer benefit or injury, life or death. This is why they need to be perceived.” (J. Gibson, 1979, p. 143). Affordances to a mountain biker may be a patch of grippy dirt amongst slippery roots or a small rock one can use to launch themselves into the air and clear other obstacles. Furthermore, affordances aren’t static they change over time, and they change with the advancement of skill and knowledge. One question I have come to ponder is why we appear to get so much enjoyment from the ‘playing’ of these perceived affordances, particularly with speed and risk involved. Here I suggest that it involves more abstraction than what the explanation of flow can provide.

Within the metaphysical world of phenomenology and the physical world of risky sports the notion of “becoming” is used frequently (Breton, 2000; E Brymer, 2005; Eric Brymer, 2009; E. Brymer & R. D. Schweitzer, 2017; M. Donnelly, 2006; Gieseler, 2019; Rinehart & Sydnor, 2003). This “becoming” is continually taking place through those who engage in mountain biking. Often, they are becoming better mountain bikers; but more so, they are becoming better navigators of the world they are immersed in. This is achieved through the long-term practice of mountain biking. Most mountain bikers engage in a fast-paced descent through ever-changing terrain and environmental conditions on every ride. This dynamic allows and forces a mountain biker to engage with the mind, body and environment.

Furthermore, when a mountain biker adds the element of trail building they become even more invested in the terrain around them. From the perspective of Gibson, Ingold, and others this has a great impact on brain development, cognition and one’s world view (E. J. Gibson & Walk, 1960; J. Gibson, 1979, pp. 258-263; Goldstein, 1981; Grossberg, 2019; Ingold, 2000,

pp. 20,21; 2015). Although the data from my research was not able to ‘test’ these ideas, other anthropologists note that such interactions deviate significantly from common preconceptions in Western thought.

The British anthropologist Tim Ingold has studied hunter-gatherer groups and utilized the works of other anthropologists and psychologists, including Gibson, to understand one’s life history through perception. He argues that in Western societies, there is a tendency to view humanity as separate from nature (Ingold, 2000, p. 42). People conduct themselves in a physically and metaphysically immersed way as they interact with the environment, both using and modifying the environment to create new selves and knowledge by expanding their perceptual processing (Ingold, 2000, pp. 16,25):

In short, through the practical activities of hunting and gathering, the environment – including the landscape with its fauna and flora – enters directly into the constitution of persons, not only as a source of nourishment but also as a source of knowledge. (Ingold, 2000, p. 57)

Ingold notes above, the interactions between flora, fauna, and geography. Furthermore, this is not a one-way interaction, organisms react to the environment, which changes the environment, which in turn changes the organism (Sharma, 2015). Ingold notes that hunter-gatherer groups tend to conceptualise themselves as intertwining with nature and the environment. Whereas, Western cultures tend to view themselves as separate from nature, (see Figure 19). Mountain bikers negate this tendency by interacting with and changing the terrain, both using and modifying the environment to create new selves and knowledge by expanding their perceptual processing. It is a process of simultaneous co-creation.

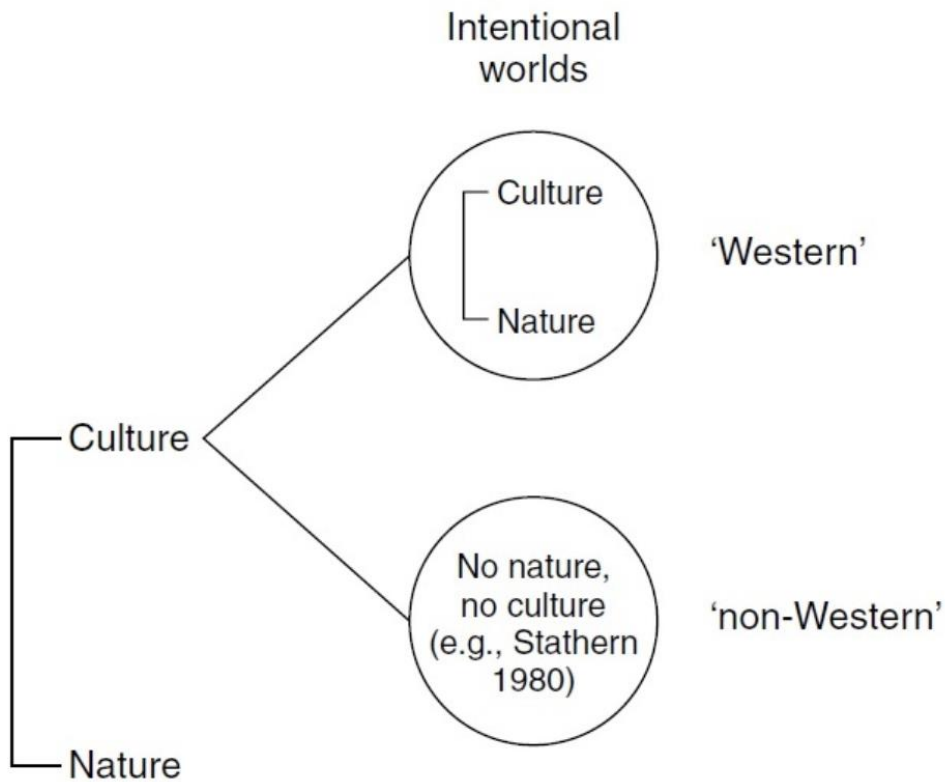


Figure 19 View of internal worlds of Western and non-Western (Ingold, 2000, p. 42).

Another concept that resonates with mountain biking, is Ingold's abstract theory of 'lines' (Ingold, 2007, 2015). Ingold uses the analogy of one's existence as a line that moves through the terrain of life. The trajectory of these life-lines change as one gains skill and interacts with others and their lines. Conceptually, this theory seems to be reflected in the physical practice of mountain biking (see Figure 20 & 21).

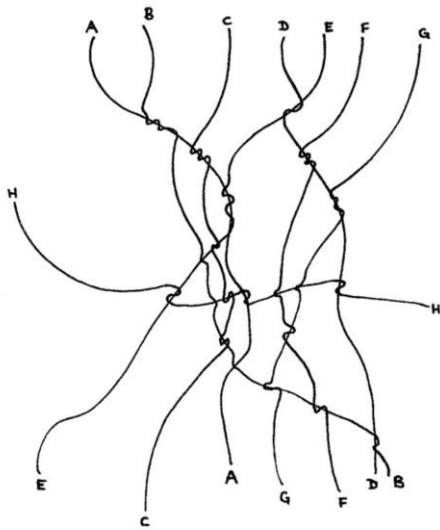


Figure 20 Meshwork of entangled life lines (Ingold, 2007).



Figure 21. Queenstown mountain bike trail map (skyline, 2023).

António Damasio (2006) argues that all cognition originated from functional movement.

What I am suggesting is that the mind arises from activity and neural circuits, to be sure, but many of the circuits were shaped in evolution by functional requests of the

organism, and that a normal mind will happen only if the circuits contain basic representations of the organism, and if they continue monitoring the state of the organism in action. (Damasio, 2006, p. 226).

Whether it is physical movement or abstract thinking, the cortical process is the same (Numenta, 2022, pp. 1:50 - 56:10). The fact that cognitive evolution resides in movement offers an indication as to why abstract concepts such as Ingold's (2015) *Life of Lines* may hold significant importance for understanding our psychodynamics.

From these insights and perspectives, a number of questions arise that are related to adventure sports such as mountain biking.

People pay substantial attention to aspects of life such as shelter, relationships, career, and finances. (Maslow, 1943; McLeod, 2007). What we focus on changes the way we see; however we don't see objects, we see meaning (M. L. Anderson, 2003, p. 99). To avoid dangerous dislocations mountain bikers are constantly searching for success as they descend trails. The immediacy of trail navigation and lifestyle choices are, I believe, deeply connected. But do these practices affect one over longer periods of time, that is months and years. Does it allow one to become a different person altogether? Can the practice of mountain biking affect non-bike-related areas of life?

These questions drove my research. Attempting to explore this proved far more complex and complicated than first anticipated. As noted throughout this research, expressing and understanding embodied experience is complex; attempting to understand how these features are entwined with one's psychodynamics is even more complex. The use of GoPro cameras

in the study was an attempt to gain insight into the more immediate processes of trail navigation. Despite being technologically advanced they were inadequate in capturing many aspects of embodied action. The field of view from a GoPro camera is very restricted. It gives a narrow viewpoint from one angle, often showing only the immediate section of trail. It fails to capture many of the body movements that occur. The use of multiple cameras capturing different angles may mitigate this. A multi-disciplinary approach could also help in gaining wider aspects of data.

5.4 Future Multidisciplinary Research Directions and Questions

A multidisciplinary approach may be more fruitful in exploring sociocultural and biopsychological development within an adventure sport such as mountain biking. For example, the use of modern technologies such as eye-tracking instruments might better understand the immediacy of trail navigation. Personality evaluations might help to determine if mountain biking attracts a particular temperament. Continued ethnography along with multiple interviews with core participants could investigate not only their mountain biking experiences but their personal and psychological development. This would help to explain and understand their life histories and the changes that have occurred within that time.

5.5 Limitations

One of the key limitations in this research is the small sample for the interviews, and the lack of diversity amongst them, particularly in sex/gender and ethnicity. Of the six interview participants, only one was female; and only three out of the seventeen observed participants were female. Furthermore, all the participants, both interviewed and observed were of European ancestry (i.e. Pākehā). These demographics reflect the Queenstown Lakes area, but

greater diversity would have ensured more depth and credibility to the research findings. The participants were from a vast range of backgrounds, however, those who participate in mountain biking tend to be from a higher socio-economic group. Mountain biking is not a cheap sport; an entry to mid-level mountain bike can cost between NZ\$5000 and NZ\$9000. Having participants from a narrow background has likely affected my findings. It is probable that individuals from less privileged backgrounds would not be as concerned with existential issues. However, individuals could still benefit from participation in an action sport such as mountain biking (Belinda Wheaton, Roy, & Olive, 2017).

A larger group of interview participants from greater diversity of backgrounds would have lent more credibility to my research findings. As noted in Chapter Five, Section, 5.2 Key Findings, wellbeing was revealed as a prominent driving force behind these mountain bikers' participation. What came through less clearly in this data was immediate perceptual processing and its effects on long-term cognition. As I have noted, different methodologies are required to examine this question.

5.6 Future Research:

In addition to the suggestion made above, several future research directions have been identified.

One area of beneficial research could be in the realm of neuroscience. Advancements in brain monitoring technologies are yielding great insights into the inner workings of the mind. The cathartic effects of mountain biking the participants in my research expressed, may have something to do with the high level of focus needed to navigate trails, and the deep embodiment one experiences with their bike whilst in this state. fMRI machines give direct mapping of brain activity. They allow a subject to be presented with a stimuli or activity while in the machine determining which neural activity is associated with what behaviours.

fMRI studies on the default mode network (DMN) may help in understanding the meditative benefits of mountain biking. Activation in the DMN is strongly associated with lower scores in overall wellbeing (Bartels et al., 2022, p. 115). DMN activation had been linked to one having little focus on the outside world, mind wandering, and daydreaming (Bartels et al., 2022, p. 116). The act of mountain biking appears to reduce daydreaming and mind wandering as it forces one to focus intently on the outside world. Failure to do so often leads to accidents and injury. This focus or fall trait of mountain biking may explain why individuals use the practice for both spiritual restoration and issue avoidance. More focused study on the neurological processes resulting in successfully practising adventure sports such as mountain biking is needed to understand these impacts. Understanding neurological processes could help further explain the embodied experience. Focusing on extreme or adventure sports, practitioners may yield interesting insights.

Despite substantial research into the effects of ‘blue’ and ‘green’ spaces on one’s health and wellbeing (Balundè et al., 2019; Britton et al., 2020; Capaldi et al., 2014; Couper, 2018; Lisahunter & Stoodley, 2021; Olive & Wheaton, 2021), little research has been conducted on the alpine or sub-alpine environment (Ower et al., 2019). An interesting area of future study would be looking into the effects of ‘white’ or ‘wide’ spaces. ‘Wide’ spaces refers to snowy or natural environments of high altitude, leading to little vegetation but vast scenescapes. Research into the effects these environments have on individual's health and wellbeing could be insightful.

Another area that raised questions was why fear and commitment are potentially so transformative for some people. Fear and commitment is a key part of mountain biking. Some work has been conducted in this area but with a focus on extreme sports and death

acceptance (Breton, 2000; Eric Brymer, 2009; M. Donnelly, 2006; Puchan, 2004; Rinehart & Sydnor, 2003), rather than the risky but rarely death-confronting daily practice such as mountain biking. As stated by participants, overcoming fear of situations can be enthralling, but how does this play into better overall subjective wellbeing for individuals? And why is it such a captivating state of mind for some people to experience?

5.7 Coda

Although this research has not answered the questions I set out to answer it has helped explore why those few seconds on my front wheel, mentioned during the introduction, were so meaningful. Overall, it is hoped this thesis may provide meaningful insight into the motivations and benefits of a daily or regular adventure sports practice.

Yet, I am left with more questions than answers:

When I tell people I study psychology and anthropology, and after I have explained or tried to explain, what anthropology is, they often ask me what the answer to Life is. There are many different answers and avenues one can go down to answer this age-old question, but ultimately, I believe it is movement. Returning to Einstein's quote stated at the beginning of this thesis, to live is to move. Whether it is physical movement or conceptual movement, the neurones fire the same. More movement, more neural firing, equalling greater and broader perception, understanding and love. To mend and heal many of the wounds rupturing our current global climate, we need shifts in perspectives.

We gain the ability to shift perspectives by seeing and learning new ways of being. This is a skill that needs to be practised and exercised. So get out, ride a bike and change the world.

Reference List:

- Aarts, E., Fleuren, H., Sitskoorn, M., & Wilthagen, T. (2021). *The new common: How the Covid-19 pandemic is transforming society*: Springer Nature.
- AcSS, R. I. (2013). Research ethics in ethnography/anthropology. *European Commission*.
- Adolph, K. E. (2000). Specificity of Learning: Why Infants Fall Over a Veritable Cliff. *Psychological science, 11*(4), 290-295. doi:10.1111/1467-9280.00258
- Adolph, K. E., Kretch, K. S., & LoBue, V. (2014). Fear of Heights in Infants? *Current Directions in Psychological Science, 23*(1), 60-66. doi:10.1177/0963721413498895
- Albon, H. M., Hamlin, M. J., & Ross, J. J. (2010). Secular trends and distributional changes in health and fitness performance variables of 10–14-year-old children in New Zealand between 1991 and 2003. *British Journal of Sports Medicine, 44*(4), 263-269.
- Allen, R. E. (2012). *Plato's Euthyphro and the Earlier Theory of Forms: A Re-interpretation of the Republic* (Vol. 1): Routledge.
- Allen-Collinson, J. (2009). Sporting embodiment: Sports studies and the (continuing) promise of phenomenology. *Qualitative research in sport and exercise, 1*(3), 279-296.
- Anderson, J. (2013). Cathedrals of the surf zone: Regulating access to a space of spirituality. *Social & Cultural Geography, 14*(8), 954-972.
- Anderson, M. L. (2003). Embodied cognition: A field guide. *Artificial intelligence, 149*(1), 91-130.
- andibinbiken (2022). going up vs going down. Retrieved from <https://www.instagram.com/reel/Ccx1s4cr71O/?igshid=YmMyMTA2M2Y%3D>
- Annis, R. (2020). Bike Shortages Will Likely Last Until Next Year, and Possibly into 2022. Retrieved from <https://www.bicycling.com/news/a34587945/coronavirus-bike-shortage/>
- Arnout, B. A., Abdel Rahman, D. E., Elprince, M., Abada, A. A., & Jasim, K. J. (2020). Ethnographic research method for psychological and medical studies in light of COVID-19 pandemic outbreak: Theoretical approach. *Journal of Public Affairs, 20*(4), e2404.
- Atkinson, M. (2016). Ethnography. In *Routledge handbook of qualitative research in sport and exercise* (pp. 71-83): Routledge.
- Atkinson, P. (2007). *Ethnography: Principles in practice*: Routledge.

- Balanzá-Martínez, V., Atienza-Carbonell, B., Kapczinski, F., & De Boni, R. B. (2020). Lifestyle behaviours during the COVID-19–time to connect. *Acta Psychiatrica Scandinavica*, *141*(5), 399.
- Balundè, A., Jovarauskaitė, L., & Poškus, M. S. (2019). Exploring the relationship between connectedness with nature, environmental identity, and environmental self-identity: a systematic review and meta-analysis. *Sage Open*, *9*(2), 2158244019841925.
- Barber, E. (2016). Newsflash: The Sport of Mountain Biking Lacks Diversity. Retrieved from <https://www.singletracks.com/uncategorized/newsflash-the-sport-of-mountain-biking-lacks-diversity/>
- Bartels, M., Nes, R. B., Armitage, J. M., van de Wijer, M. P., de Vries, L. P., & Haworth, C. (2022). Exploring the biological basis for happiness.
- Batty, D., & Thune, I. (2000). Does physical activity prevent cancer?: Evidence suggests protection against colon cancer and probably breast cancer. In (Vol. 321, pp. 1424-1425): British Medical Journal Publishing Group.
- Baxter, J., Kani Kingi, T., Tapsell, R., Durie, M., Mcgee, M. A., & Team, N. Z. M. H. S. R. (2006). Prevalence of mental disorders among Māori in Te Rau Hinengaro: The New Zealand mental health survey. *Australian & New Zealand Journal of Psychiatry*, *40*(10), 914-923.
- Bazańska-Janaszek, M., & Janaszek, M. (2020). Changes in Physical Performance of Amateur Mountain Bikers in the Preparatory Period. *Polish Journal of Sport and Tourism*, *27*(1), 3-8.
- Beal, B. (1995). Disqualifying the official: An exploration of social resistance through the subculture of skateboarding. *Sociology of sport journal*, *12*(3), 252-267.
- Beal, B. (1996). Alternative masculinity and its effects on gender relations in the subculture of skateboarding. *Journal of sport behavior*, *19*(3), 204.
- Beal, B., & Weidman, L. (2003). Authenticity in the skateboarding world.
- Beames, S., Mackie, C., Atencio, M., Beames, S., Mackie, C., & Atencio, M. (2019a). Conceptualizing Adventure. *Adventure and Society*, 1-13.
- Beames, S., Mackie, C., Atencio, M., Beames, S., Mackie, C., & Atencio, M. (2019b). Daily Adventure Practices. *Adventure and Society*, 31-43.
- Becker, J., Runer, A., Neunhäuserer, D., Frick, N., Resch, H., & Moroder, P. (2013). A prospective study of downhill mountain biking injuries. *British Journal of Sports Medicine*, *47*(7), 458-462.
- Beedie, P. (2008). Adventure tourism as a ‘new frontier’ in Leisure. *World Leisure Journal*, *50*(3), 173-183.
- Beedie, P., & Hudson, S. (2003). Emergence of mountain-based adventure tourism. *Annals of tourism research*, *30*(3), 625-643.

- Beery, T., Olsson, M. R., & Vitestam, M. (2021). Covid-19 and outdoor recreation management: Increased participation, connection to nature, and a look to climate adaptation. *Journal of outdoor recreation and tourism*, 100457.
- Bendix, R. F. (2021). Verbal art and the expression of the inexpressible: making sense of sensory experience. *Etnográfica. Revista do Centro em Rede de Investigação em Antropologia*, 25(2), 513-538.
- Benkwitz, A. (2015). Reflecting on the ‘perils of ethnography’: A case study of football fan rivalry in Birmingham. In *Ethnographies in Sport and Exercise Research* (pp. 141-154): Routledge.
- Benoist, J. (2002). Husserl and Bolzano. In *Phenomenology World-Wide* (pp. 98-100): Springer.
- Bernard, H. R. (2017). *Research methods in anthropology: Qualitative and quantitative approaches*: Rowman & Littlefield.
- Besson, L. (Writer). (2014). Lucy. In.
- Betd. (2022). Why Aren't There More Female MTB Cyclists? Retrieved from <https://www.mountainbikecomponents.co.uk/women-in-cycling/why-arent-there-more-female-mtb-cyclists/>
- Bevan, M. T. (2014). A method of phenomenological interviewing. *Qualitative health research*, 24(1), 136-144.
- bicycelfilmfestival (2023). 75 year old Joe Warren, who discovered downhill mountain biking at the age of 60, conquers the most challenging trails in Utah's Wasatch Back in his own style. Retrieved from <https://www.instagram.com/reel/Cq9HgVYJzwz/?igshid=MzRIODBiNWFIZA%3D%3D>
- Biddle, S. (1995). Exercise and psychosocial health. *Research quarterly for exercise and sport*, 66(4), 292-297.
- Biddle, S. J., & Mutrie, N. (2007). *Psychology of physical activity: Determinants, well-being and interventions*: Routledge.
- Biele, C., & Biele, C. (2022). Movement, Cognition and Learning. *Human Movements in Human-Computer Interaction (HCI)*, 117-129.
- Bird, J. M., Karageorghis, C. I., & Hamer, M. (2021). Relationships among behavioural regulations, physical activity, and mental health pre-and during COVID-19 UK lockdown. *Psychology of sport and exercise*, 55, 101945.
- Blum, J. N. (2015). William James on how to study experience: Integrating phenomenology of religion and radical empiricism. *Method & Theory in the Study of Religion*, 27(4-5), 423-446.

- Boniface, M. R. (2000). Towards an understanding of flow and other positive experience phenomena within outdoor and adventurous activities. *Journal of Adventure Education & Outdoor Learning*, 1(1), 55-68.
- Booth, D., & Thorpe, H. (2007). *Berkshire Encyclopedia of Extreme Sports* Berkshire Publishing Group LLC.
- Bouchier-Hayes, D. (2005). "Life can only be understood by looking backward; but it must be lived looking forward"—Soren Kierkegaard (1813–1855). *Irish Journal of Medical Science*, 174(1), 4-4.
- Breton, D. L. (2000). Playing symbolically with death in extreme sports. *Body & Society*, 6(1), 1-11.
- Britton, E., & Foley, R. (2020). Sensing Water: Uncovering Health and Well-Being in the Sea and Surf. *Journal of Sport and Social Issues*, 0193723520928597.
- Britton, E., Kindermann, G., Domegan, C., & Carlin, C. (2020). Blue care: a systematic review of blue space interventions for health and wellbeing. *Health Promotion International*, 35(1), 50-69.
- Brooks, S. N., Knudtson, M., & Smith, I. (2017). Some kids are left behind: The failure of a perspective, using critical race theory to expand the coverage in the sociology of youth sports. *Sociology Compass*, 11(2), e12445.
- Brown, C. L. (2021). *An Adventure Therapy Mountain Bike Program for Middle School Students: A Pilot Study*: University of Arkansas.
- Brown, C. L., Smarinsky, E. C., McCarty, D. L., & Christian, D. D. (2022). Student experiences of an adventure therapy mountain bike program during the COVID-19 pandemic. *Journal of Adventure Education and Outdoor Learning*, 22(4), 313-341.
- Brown, D. (2014). The Sixth Meditation: Descartes and the embodied self.
- Brown, K. M. (2014). Spaces of play, spaces of responsibility: Creating dichotomous geographies of outdoor citizenship. *Geoforum*, 55, 22-32.
- Brown, K. M., Dilley, R., & Marshall, K. (2008). Using a head-mounted video camera to understand social worlds and experiences. *Sociological research online*, 13(6), 31-40.
- Bruner, E. M. (1986). Experience and its expressions. *The anthropology of experience*, 3, 32.
- Bryman, A. (2016). *Social research methods*: Oxford university press.
- Brymer, E. (2005). Extreme dude: A phenomenological exploration into the extreme sport experience. *Unpublished Doctoral Dissertation, University of Wollongong, Wollongong*. Retrieved from: <http://eprints.qut.edu.au/41068>.
- Brymer, E. (2009). Extreme sports as a facilitator of ecocentricity and positive life changes. *World Leisure Journal*, 51(1), 47-53.

- Brymer, E., & Gray, T. (2009). Dancing with nature: Rhythm and harmony in extreme sport participation. *Journal of Adventure Education & Outdoor Learning*, 9(2), 135-149.
- Brymer, E., & Mackenzie, S. H. (2017). Psychology and the extreme sport experience. In *Extreme sports medicine* (pp. 3-13): Springer.
- Brymer, E., & Oades, L. G. (2009). Extreme sports: A positive transformation in courage and humility. *Journal of humanistic psychology*, 49(1), 114-126.
- Brymer, E., & Schweitzer, R. (2013). Extreme sports are good for your health: a phenomenological understanding of fear and anxiety in extreme sport. *Journal of health psychology*, 18(4), 477-487.
- Brymer, E., & Schweitzer, R. (2017). *Phenomenology and the extreme sport experience*: Taylor & Francis.
- Brymer, E., & Schweitzer, R. D. (2017). Evoking the ineffable: the phenomenology of extreme sports. *Psychology of Consciousness: Theory, Research, and Practice*, 4(1), 63.
- Buckley, R. C. (2018). To analyze thrill, define extreme sports. *Frontiers in psychology*, 9, 1216.
- Burgin, S., & Hardiman, N. (2012). Is the evolving sport of mountain biking compatible with fauna conservation in national parks? *Australian Zoologist*, 36(2), 201-208.
- Burman, E. (1992). *Identification and power in feminist therapy: A reflexive history of a discourse analysis*. Paper presented at the Women's Studies International Forum.
- Butler, S. (2021). Global bike shortage set to continue, Halfords chief executive warns. Retrieved from <https://www.theguardian.com/business/2021/jun/17/halfords-reports-184-jump-in-profits-amid-global-bike-shortage>
- Caddick, N., & Smith, B. (2014). The impact of sport and physical activity on the well-being of combat veterans: A systematic review. *Psychology of sport and exercise*, 15(1), 9-18.
- Caddick, N., Smith, B., & Phoenix, C. (2015). The effects of surfing and the natural environment on the well-being of combat veterans. *Qualitative health research*, 25(1), 76-86.
- Campbell, T., Kirkwood, L., McLean, G., Torsius, M., & Florida-James, G. (2021). Trail Use, Motivations, and Environmental Attitudes of 3780 European Mountain Bikers: What Is Sustainable? *International journal of environmental research and public health*, 18(24), 12971.
- Cancello, R., Soranna, D., Zambra, G., Zambon, A., & Invitti, C. (2020). Determinants of the lifestyle changes during COVID-19 pandemic in the residents of Northern Italy. *International journal of environmental research and public health*, 17(17), 6287.
- Capaldi, C. A., Dopko, R. L., & Zelenski, J. M. (2014). The relationship between nature connectedness and happiness: A meta-analysis. *Frontiers in psychology*, 976.

- Carlson, T. A., Alvarez, G., Wu, D.-a., & Verstraten, F. A. (2010). Rapid assimilation of external objects into the body schema. *Psychological science*, 21(7), 1000-1005.
- Carr, A. (2020). COVID-19, indigenous peoples and tourism: a view from New Zealand. *Tourism Geographies*, 22(3), 491-502.
- Chalip, L. (2010). The cogency of culture in sport tourism research. *Journal of Sport & Tourism*, 15(1), 3-5.
- Cherrington, J., & Black, J. (2020a). Mountain Bike Trail Building, “Dirty” Work, and a New Terrestrial Politics. *World Futures*, 76(1), 39-61.
- Cherrington, J., & Black, J. (2020b). Spectres of nature in the trail building assemblage. *International Journal of the Sociology of Leisure*, 3(1), 71-93.
- Chilton, G. (2013). Art therapy and flow: A review of the literature and applications. *Art Therapy*, 30(2), 64-70.
- Clifford, G. (2000). Available light: Anthropological reflections on philosophical topics. In: Princeton: Princeton University Press.
- Collins, S., Durlington, M., Daniels, G., Demyan, N., Rico, D., Beckles, J., & Heasley, C. (2013). Tagging culture: Building a public anthropology through social media. *Human Organization*, 72(4), 358-368.
- Collinson, J. A. (2008). Running the routes together: Corunning and knowledge in action. *Journal of contemporary ethnography*, 37(1), 38-61.
- conor_macfarlane (2022). Friyay - almost did exactly the same thing this evening until the boss remembered he had a 100th birthday to go to instead...
- Link in bio if you feel like watching ‘A week in the life’. Retrieved from <https://www.instagram.com/reel/CjHR6BVgGAN/?igshid=YmMyMTA2M2Y%3D>
- Conradson, D. (2005). Landscape, care and the relational self: therapeutic encounters in rural England. *Health & place*, 11(4), 337-348.
- Couper, P. R. (2018). The embodied spatialities of being in nature: encountering the nature/culture binary in green/blue space. *Cultural geographies*, 25(2), 285-299.
- Covey, S. R. (2014). *The seven habits of highly effective people: Powerful lessons in personal change*.
- Csikszentmihalyi, M. (2000). *Beyond boredom and anxiety*: Jossey-bass.
- Csikszentmihalyi, M., Abuhamdeh, S., & Nakamura, J. (2005). Flow. *Handbook of competence and motivation*, 598-608.
- Csikszentmihalyi, M., & Csikszentmihalyi, I. S. (1990). Adventure and the flow experience. *Adventure education*, 149-155.

- Damasio, A. R. (2006). *Descartes' error*: Random House.
- Dant, T., & Wheaton, B. (2007). Windsurfing: An extreme form of material and embodied interaction? *Anthropology today*, 23(6), 8-12.
- Davies, C., & Newsome, D. (2009). *Mountain bike activity in natural areas: impacts, assessment and implications for management: a case study from John Forrest National Park, Western Australia*: CRC for Sustainable Tourism.
- de Andrade Martins, R., & Silva, C. C. (2001). Newton and colour: the complex interplay of theory and experiment. In *Science Education and Culture* (pp. 273-291): Springer.
- Dickson, K. S., Ciesla, J. A., & Zelic, K. (2017). The role of executive functioning in adolescent rumination and depression. *Cognitive therapy and research*, 41(1), 62-72.
- Diener, E., & Biswas-Diener, R. (2002). Will money increase subjective well-being? *Social indicators research*, 57(2), 119-169.
- Dodge, R., Daly, A. P., Huyton, J., & Sanders, L. D. (2012). The challenge of defining wellbeing. *International journal of wellbeing*, 2(3).
- Dodson, K. J. (1996). Peak experiences and mountain biking: Incorporating the bike into the extended self. *ACR North American Advances*.
- Donnelly, J. E., Hillman, C. H., Castelli, D., Etnier, J. L., Lee, S., Tomporowski, P., . . . Szabo-Reed, A. N. (2016). Physical activity, fitness, cognitive function, and academic achievement in children: a systematic review. *Medicine and science in sports and exercise*, 48(6), 1197.
- Donnelly, M. (2006). Studying extreme sports: Beyond the core participants. *Journal of Sport and Social Issues*, 30(2), 219-224.
- Donner, F., & Beumer, M. (1982). *Shabono* (Vol. 1): Bodley Head.
- Doubleday, A., Choe, Y., Busch Isaksen, T., Miles, S., & Errett, N. A. (2021). How did outdoor biking and walking change during COVID-19?: A case study of three US cities. *PLoS one*, 16(1), e0245514.
- Downey, G. (2005). *Learning Capoeira: Lessons in cunning from an Afro-Brazilian art*: Oxford University Press Oxford.
- Downey, G. (2010). 'Practice without theory': a neuroanthropological perspective on embodied learning. *Journal of the Royal Anthropological Institute*, 16, S22-S40.
- Downey, G., Dalidowicz, M., & Mason, P. H. (2015). Apprenticeship as method: embodied learning in ethnographic practice. *Qualitative Research*, 15(2), 183-200.
- downhill.sports (2022). Retrieved from https://www.instagram.com/p/Ce3Y4ZEM_Ec/?igshid=YmMyMTA2M2Y%3D
- Draucker, C. B. (1999). The critique of Heideggerian hermeneutical nursing research. *Journal of advanced nursing*, 30(2), 360-373.

- Dunbar, R. I., Teasdale, B., Thompson, J., Budelmann, F., Duncan, S., van Emde Boas, E., & Maguire, L. (2016). Emotional arousal when watching drama increases pain threshold and social bonding. *Royal Society open science*, 3(9), 160288.
- Edwards, E. (2002). Material beings: objecthood and ethnographic photographs. *Visual studies*, 17(1), 67-75.
- Einstein, A. (2016). Life is like riding a bicycle. To keep your balance, you must keep moving. *Observation attributed to Albert Einstein. Information obtained partly from the following website: <https://smallbusiness.com/monday-morning-motivation/einstein-quotation-bicycle>*.
- Ekkekakis, P. E., Cook, D. B., Craft, L. L., Culos-Reed, S., Etnier, J. L., Hamer, M. E., . . . Ussher, M. E. (2013). *Routledge handbook of physical activity and mental health*: Routledge/Taylor & Francis Group.
- Elkington, S. (2011). What it is to take the flow of leisure seriously. *Leisure/Loisir*, 35(3), 253-282.
- Ellmer, E., Rynne, S., & Enright, E. (2020). Learning in action sports: A scoping review. *European Physical Education Review*, 26(1), 263-283.
- EMBN (2020). Mountain Bike Flow | What Is It and How To Achieve It? Retrieved from <https://www.youtube.com/watch?v=UAe6Mfj4E6g>
- Esler, M., Eikelis, N., Schlaich, M., Lambert, G., Alvarenga, M., Dawood, T., . . . Guo, L. (2008). Chronic mental stress is a cause of essential hypertension: presence of biological markers of stress. *Clinical and Experimental Pharmacology and Physiology*, 35(4), 498-502.
- Ewert, A. W. (1989). *Outdoor adventure pursuits*: Pub. Horizons.
- Fabre-Thorpe, M. (2014). Fast visual processing of “in-context” objects. *Scene Vision: Making Sense of What We See*, 155.
- Faubion, J. D., & Marcus, G. E. (2011). *Fieldwork Is Not What It Used to Be : Learning Anthropology's Method in a Time of Transition*. Ithaca, UNITED STATES: Cornell University Press.
- Fletcher, T. (2010). “Being inside and outside the field”. An exploration of identity, positionality and reflexivity in inter-racial research. *Leisure Identities and Authenticity. LSA Publication*(107).
- Ford, N. J., & Brown, D. (2005). *Surfing and social theory: Experience, embodiment and narrative of the dream glide*: Routledge.
- Fox, F. A., Diers, K., Lee, H., Mayr, A., Reuter, M., Breteler, M. M., & Aziz, N. A. (2022). Association between accelerometer-derived physical activity measurements and brain structure: a population-based cohort study. *Neurology*, 99(11), e1202-e1215.

- Frühauf, A., Houge Mackenzie, S., Boudreau, P., Hodge, K., & Kopp, M. (2022). Multiple Motives for Adventure Sport Revisited: A Multi-Activity Investigation. *Leisure Sciences*, 1-23.
- Gibson, E. J., & Walk, R. D. (1960). The "visual cliff". *Scientific American*, 202(4), 64-71.
- Gibson, J. (1979). The ecological approach to visual perception. Boston, MA, US. In: Houghton, Mifflin and Company.
- Gibson, J. J. (1947). *Motion picture testing and research*: US Government printing office.
- Gibson, J. J. (1950). The perception of the visual world.
- Giddens, A. (1986). Action, subjectivity, and the constitution of meaning. *Social research*, 529-545.
- Gieseler, C. (2019). Learning to fail: adolescent resistance in extreme sports. *Journal of Sport and Social Issues*, 43(4), 276-295.
- GMBN (2019). Global mountain biking network: Mountain Biking as we know it originated in Marin County, California in the late seventies. Doddy and Neil flew out to the US to chat with the founders of MTB; Gary Fisher, Charlie Kelly, and Joe Breeze, and send it down Repack. One of the first mountain bike trails. Retrieved from <https://www.youtube.com/watch?v=8CWMCNzmKNM>
- GMBN. (2021). How To Ride Steep Mountain Bike Trails | MTB Skills. Retrieved from <https://www.youtube.com/watch?v=RXRgDpz-RkU>
- Goffman, E. (1967). Where the action is. In: *Interaction ritual: Essays on face-to-face interaction*.
- Goldstein, E. B. (1981). The ecology of JJ Gibson's perception. *Leonardo*, 191-195.
- Google, T. a. (2014). Decoding the Science of Ultimate Human Performance | Steven Kotler | Talks at Google. Retrieved from <https://www.youtube.com/watch?v=y1MHyyWsMeE>
- Górnicka, M., Drywień, M. E., Zielinska, M. A., & Hamułka, J. (2020). Dietary and lifestyle changes during COVID-19 and the subsequent lockdowns among Polish adults: a cross-sectional online survey PLifeCOVID-19 study. *Nutrients*, 12(8), 2324.
- Gratton, C., & Jones, I. (2010). *Research methods for sports studies*: Routledge.
- Gratton, C., & Jones, I. (2014). *Research methods for sports studies*: Routledge.
- Grossberg, S. (2019). The resonant brain: How attentive conscious seeing regulates action sequences that interact with attentive cognitive learning, recognition, and prediction. *Attention, Perception, & Psychophysics*, 81(7), 2237-2264.
- Habib, M. A., & Anik, M. A. H. (2021). Impacts of COVID-19 on transport modes and mobility behavior: Analysis of public discourse in twitter. *Transportation Research Record*, 03611981211029926.

- Hagen, S. (2013). *The downhill mountain bike subculture in New Zealand*. University of Otago,
- Hallgren, M., Dunstan, D. W., & Owen, N. (2020). Passive versus mentally active sedentary behaviors and depression. *Exercise and sport sciences reviews*, 48(1), 20-27.
- Hammett, D., Twyman, C., & Graham, M. (2014). *Research and fieldwork in development*: Routledge.
- Hansda, R. (2017). Small-scale farming and gender-friendly agricultural technologies: the interplay between gender, labour, caste, policy and practice. *Gender, Technology and Development*, 21(3), 189-205.
- Hardiman, N., & Burgin, S. (2013). Mountain biking: downhill for the environment or chance to up a gear? *International journal of environmental studies*, 70(6), 976-986.
- Hardman, A. E. (2001). Physical activity and cancer risk. *Proceedings of the Nutrition Society*, 60(1), 107-113.
- (2021). *Constructing Minds* [Retrieved from <https://www.youtube.com/watch?v=I0JuMyGclr0>]
- Hart, A. D. (1995). *Adrenaline and stress: the exciting new breakthrough that helps you overcome stress damage*: Thomas Nelson.
- Hegel, G. W. F. (2018). *Hegel: The phenomenology of spirit*: Oxford University Press.
- Hegelund, A. (2005). Objectivity and subjectivity in the ethnographic method. *Qualitative health research*, 15(5), 647-668.
- Heidegger, M. (2010). *Being and time*: Suny Press.
- Henderson, K. A. (1991). *Dimensions of choice: A qualitative approach to recreation, parks, and leisure research*: Venture Publishing, Inc.
- Henrickson, M. (2020). Kiwis and COVID-19: The Aotearoa New Zealand response to the global pandemic. *The International Journal of Community and Social Development*, 2(2), 121-133.
- Highmore, B. (2010). *Ordinary lives: Studies in the everyday*: Routledge.
- Hirschauer, S. (2006). Putting things into words. Ethnographic description and the silence of the social. *Human Studies*, 29(4), 413.
- Hockey, J., & Collinson, J. A. (2007). Grasping the phenomenology of sporting bodies. *International review for the sociology of sport*, 42(2), 115-131.
- Hoffman, B. B. (2013). *Adrenaline*: Harvard University Press.
- Hogervorst, E., & Niederstrasser, N. (2018). Cognitive function, ageing, and dementia: The role of physical activity and exercise in improving cognition and preventing cognitive

- decline. In *The Routledge International Handbook of Psychobiology* (pp. 539-566): Routledge.
- Hörder, H., Johansson, L., Guo, X., Grimby, G., Kern, S., Östling, S., & Skoog, I. (2018). Midlife cardiovascular fitness and dementia: a 44-year longitudinal population study in women. *Neurology*, *90*(15), e1298-e1305.
- Horst, H. A. (2020). New media technologies in everyday life. In *Digital anthropology* (pp. 61-79): Routledge.
- Horst, H. A., & Miller, D. (2020). *Digital anthropology*: Routledge.
- Howlett, M. (2021). Looking at the ‘field’ through a Zoom lens: Methodological reflections on conducting online research during a global pandemic. *Qualitative Research*, 1468794120985691.
- Humberstone, B. (2022). Ageing, agers and outdoor re-creation: being old and active outdoors in the time of COVID: an autoethnographic tale of different wor (l) ds. ‘I’m not vulnerable?’. *Annals of Leisure Research*, *25*(5), 621-636.
- Husserl, E. (1970). *The crisis of European sciences and transcendental phenomenology: An introduction to phenomenological philosophy*: Northwestern University Press.
- Ignatow, G. (2007). Theories of embodied knowledge: New directions for cultural and cognitive sociology? *Journal for the Theory of Social Behaviour*, *37*(2), 115-135.
- Impellizzeri, F. M., & Marcora, S. M. (2007). The physiology of mountain biking. *Sports medicine*, *37*, 59-71.
- Ingold, T. (2000). *The perception of the environment: essays on livelihood, dwelling and skill*: Psychology Press.
- Ingold, T. (2007). *Lines: A brief history. USA and Canada*: Routledge.
- Ingold, T. (2015). *The life of lines*: Routledge.
- Jackson, M. (1996). Introduction: Phenomenology, radical empiricism, and anthropological critique. *Things as they are: New directions in phenomenological anthropology*, 278.
- Jackson, S. A., & Marsh, H. W. (1996). Development and validation of a scale to measure optimal experience: The Flow State Scale. *Journal of sport and exercise psychology*, *18*(1), 17-35.
- James, L. (2021). Bike retailers warning of shortages after Covid-19 lockdown sees interest spike. *1 News*. Retrieved from <https://www.tvnz.co.nz/one-news/new-zealand/bike-retailers-warning-shortages-after-covid-19-lockdown-sees-interest-spike>
- James, W. (1904). A world of pure experience. *The Journal of Philosophy, Psychology and Scientific Methods*, *1*(20), 533-543.
- Jamieson, D. (2020). Covid-19: Global shortage of bikes follows turbo-charged, coronavirus-fuelled demand. *Stuff*. Retrieved from

<https://www.stuff.co.nz/national/123019534/covid19-global-shortage-of-bikes-follows-turbocharged-coronavirusfuelled-demand>

- Jenkins, K., Narayanaswamy, L., & Sweetman, C. (2019). Introduction: Feminist values in research. In (Vol. 27, pp. 415-425): Taylor & Francis.
- Jenkins, M., Hoek, J., Jenkin, G., Gendall, P., Stanley, J., Beaglehole, B., . . . Every-Palmer, S. (2021). Silver linings of the COVID-19 lockdown in New Zealand. *PLoS one*, 16(4), e0249678.
- JensonUSA. Mountain Bike Suspension 101. Retrieved from <https://www.jensonusa.com/articles/mountain-bike-suspension-101>
- Jirón, P. (2011). On becoming 'la sombra/the shadow'. *Mobile methods*, 36-53.
- Jones, C. D., Hollenhorst, S. J., Perna, F., & Selin, S. (2000). Validation of the flow theory in an on-site whitewater kayaking setting. *Journal of Leisure Research*, 32(2), 247-261.
- Jones, I. (2014a). COLLECTING DATA II: INTERVIEWS. In *Research Methods for Sports Studies* (pp. 195-218): Routledge.
- Jones, I. (2014b). COLLECTING DATA III: UNOBTRUSIVE METHODS—OBSERVATION AND CONTENT ANALYSIS. In *Research Methods for Sports Studies* (pp. 219-237): Routledge.
- Jones, I. (2014c). COLLECTING DATA IV: ETHNOGRAPHIC RESEARCH IN SPORT. In *Research Methods for Sports Studies* (pp. 238-254): Routledge.
- josemaria_lpz (2022). Bicicleta (Rara) de montaña. . Retrieved from <https://www.instagram.com/reel/Ci-1eywj5h0/?igshid=MzRIODBiNWFIZA%3D%3D>
- Jun, J., Tucker, S., & Melnyk, B. M. (2020). Clinician mental health and well-being during global healthcare crises: Evidence learned from prior epidemics for COVID-19 pandemic.
- just.mtb (2023). What means put the bike at the limit Retrieved from <https://www.instagram.com/p/CqJmkXoIy-Y/?fbclid=IwAR1tL6lGef5SrBCm2-g4x5ounVIyxmN1JMckUpkEwAvK9LAjV6oXiSncMOc>
- Kaiseler, M., Kay, C., & McKenna, J. (2019). The impact of an outdoor and adventure sports course on the wellbeing of recovering UK military personnel: An exploratory study. *Sports*, 7(5), 112.
- Kane, M. J., & Tucker, H. (2007). Sustaining adventure in New Zealand outdoor education: Perspectives from renowned New Zealand outdoor adventurers on the contested cultural understanding of adventure. *Journal of Outdoor and Environmental Education*, 11, 29-40.
- Keane, W. (2014). Affordances and reflexivity in ethical life: An ethnographic stance. *Anthropological Theory*, 14(1), 3-26.

- Kim-Prieto, C., Diener, E., Tamir, M., Scollon, C., & Diener, M. (2005). Integrating the diverse definitions of happiness: A time-sequential framework of subjective well-being. *Journal of happiness Studies*, 6(3), 261-300.
- Kimmel, M. (2008). Properties of cultural embodiment: Lessons from the anthropology of the body. *Body, language and mind*, 2, 77-108.
- King, K. (2010). *Lifestyles, identity and young people's experiences of mountain biking*: Forest Research.
- King, K., & Church, A. (2013). 'We don't enjoy nature like that': Youth identity and lifestyle in the countryside. *Journal of rural studies*, 31, 67-76.
- King, K., & Church, A. (2015). Questioning policy, youth participation and lifestyle sports. *Leisure studies*, 34(3), 282-302.
- King, K., & Church, A. (2020). Beyond transgression: mountain biking, young people and managing green spaces. *Annals of Leisure Research*, 23(2), 203-222.
- King, K. H. (2009). *Youth, leisure, lifestyles and identities: Mountain biking in the English countryside*. University of Brighton UK,
- Kirkup, N. (2012). Chapter 13-Olympic tourists: Seeking a sense of belonging and the construction of social identities: Chapter taken from International Sports Events ISBN: 978-0-203-13123-7. *Routledge Online Studies on the Olympic and Paralympic Games*, 1(55), 169-180.
- Kotler, S. (2014). *The rise of superman: Decoding the science of ultimate human performance*: Houghton Mifflin Harcourt.
- Lades, L. K., Laffan, K., Daly, M., & Delaney, L. (2020). Daily emotional well-being during the COVID-19 pandemic. *British journal of health psychology*, 25(4), 902-911.
- Langer, S., Dietz, D., & Butz, A. (2021). *Towards Risk Indication In Mountain Biking Using Smart Wearables*. Paper presented at the Extended Abstracts of the 2021 CHI Conference on Human Factors in Computing Systems.
- Laurendeau, J., & Sharara, N. (2008). "Women Could Be Every Bit As Good As Guys" Reproductive and Resistant Agency in Two "Action" Sports. *Journal of Sport and Social Issues*, 32(1), 24-47.
- Lebeau, J.-C., & Sides, R. (2015). Beyond the mainstream versus extreme dichotomy: a cyclical perspective on extreme sports. *Sport in Society*, 18(6), 627-635.
- LeBlanc, A. G., Gunnell, K. E., Prince, S. A., Saunders, T. J., Barnes, J. D., & Chaput, J.-P. (2017). The ubiquity of the screen: an overview of the risks and benefits of screen time in our modern world. *Translational Journal of the American College of Sports Medicine*, 2(17), 104-113.
- Lester, S. (1999). An introduction to phenomenological research. In: Taunton UK: Stan Lester Developments.

- LeVasseur, J. J. (2003). The problem of bracketing in phenomenology. *Qualitative health research, 13*(3), 408-420.
- Levens, S. M., Muhtadie, L., & Gotlib, I. H. (2009). Rumination and impaired resource allocation in depression. *Journal of abnormal psychology, 118*(4), 757.
- Leyland, L.-A., Spencer, B., Beale, N., Jones, T., & Van Reekum, C. M. (2019). The effect of cycling on cognitive function and well-being in older adults. *PLoS one, 14*(2), e0211779.
- Lindsay, S. (1996). Hand drumming: An essay in practical knowledge. *Things as they are: New directions in phenomenological anthropology, 196-212*.
- Lisahunter, & Stoodley, L. (2021). Bluespace, Senses, Wellbeing, and Surfing: Prototype Cyborg Theory-Methods. *Journal of Sport and Social Issues, 45*(1), 88-112.
- live_to_mtb (2021). The gopro effect! . Retrieved from <https://www.instagram.com/reel/CW8Wa0PMNS6/?igshid=YmMyMTA2M2Y%3D>
- lu.petrucci (2022). Sometimes, too much hesitation is not so good Retrieved from <https://www.instagram.com/reel/CIO0FMHIIIVE/?igshid=YmMyMTA2M2Y%3D>
- Lucas, R. E., Clark, A. E., Georgellis, Y., & Diener, E. (2003). Reexamining adaptation and the set point model of happiness: reactions to changes in marital status. *Journal of personality and social psychology, 84*(3), 527.
- Lüdecke, D., & von dem Knesebeck, O. (2020). Protective behavior in course of the COVID-19 outbreak—Survey results from Germany. *Frontiers in public health, 8*, 567.
- Lyng, S. (2014). Action and edgework: Risk taking and reflexivity in late modernity. *European Journal of Social Theory, 17*(4), 443-460.
- MacKay, S. (2016). Carving out space in the action sports media landscape: The skirtboarders' blog as a 'skatefeminist' project. *Women in action sport cultures: identity, politics and experience, 301-318*.
- Maggino, F. (2016). Challenges, needs and risks in defining wellbeing indicators. In *A life devoted to quality of life* (pp. 209-233): Springer.
- Makagon, D., & Neumann, M. . (2009). Writing culture and recording culture. In *Recording Culture: Audio Documentary and the Ethnographic Experience*. SAGE Publications, Inc., .
- malene_degn (2022). What's actually going through my head when I ride down the slippery downhill in Leogang. Retrieved from <https://www.instagram.com/reel/CerLBGIoc0F/?igshid=YmMyMTA2M2Y%3D>
- Mansfield, L., Daykin, N., & Kay, T. (2020). Leisure and wellbeing. In (Vol. 39, pp. 1-10): Taylor & Francis.

- Marino, E., Rivera-Gonzalez, J., Benadusi, M., Dietrich, A., Hamza, M., Jerolleman, A., & Koons, A. (2020). COVID-19 and All the Things That Kill Us: Research Ethics in the Time of Pandemic. *Practicing Anthropology*, 42(4), 36-40.
- Mascia-Lees, F. E. (2016). The body and embodiment in the history of feminist anthropology. *Mapping feminist anthropology in the twenty-first century*, 146-167.
- Maslow, A. H. (1943). A theory of human motivation. *Psychological Review*, 50(4), 370.
- Mason, P., & Leberman, S. (2000). Local planning for recreation and tourism: a case study of mountain biking from New Zealand's Manawatu region. *Journal of Sustainable Tourism*, 8(2), 97-115.
- Mauss, I. B., Shallcross, A. J., Troy, A. S., John, O. P., Ferrer, E., Wilhelm, F. H., & Gross, J. J. (2011). Don't hide your happiness! Positive emotion dissociation, social connectedness, and psychological functioning. *Journal of personality and social psychology*, 100(4), 738.
- Mayer, K. M., Riddell, H., & Lappe, M. (2019). Concurrent processing of optic flow and biological motion. *Journal of Experimental Psychology: General*.
- Maykut, P., & Morehouse, R. (2002). *Beginning qualitative research: A philosophical and practical guide*: Routledge.
- McCormack, K. (2018). Building community online and on the trail: communication, coordination, and trust among mountain bikers. *Information, Communication & Society*, 21(4), 564-577.
- McCormack, K. M. (2017). Inclusion and identity in the mountain biking community: Can subcultural identity and inclusivity coexist? *Sociology of sport journal*, 34(4), 344-353.
- McGonigal, K. (2019). *The Joy of Movement: How exercise helps us find happiness, hope, connection, and courage*: Penguin.
- McLeod, S. (2007). Maslow's hierarchy of needs. *Simply psychology*, 1(1-18).
- Mellecker, R. R., McManus, A. M., Lanningham-Foster, L. M., & Levine, J. A. (2009). The feasibility of ambulatory screen time in children. *International Journal of Pediatric Obesity*, 4(2), 106-111.
- Merchant, S. (2011). The body and the senses: Visual methods, videography and the submarine sensorium. *Body & Society*, 17(1), 53-72.
- Merleau-Ponty, M. (1996). *Phenomenology of perception*: Motilal Banarsidass Publishes.
- Michalak, J., Burg, J., & Heidenreich, T. (2012). Don't forget your body: Mindfulness, embodiment, and the treatment of depression. *Mindfulness*, 3(3), 190-199.
- Miller, D. (2016). *Why we post: the comparative anthropology of social media*. Paper presented at the Proceedings of the 8th ACM Conference on Web Science.

- Molnar, G., & Purdy, L. (2015). *Ethnographies in sport and exercise research*: Routledge.
- Molnár, G., & Purdy, L. G. (2016). *Ethnographies in sport and exercise research*: Routledge Abingdon.
- mountain_biking_daily (2022). I enjoy crashing as long as I don't get injured. Retrieved from https://www.instagram.com/reel/ChYuDo0F_Uf/?igshid=YmMyMTA2M2Y%3D
- mtb.fleet (2022). Sick 100ft frontflip! Retrieved from <https://www.instagram.com/reel/CjrCv0Ho5x9/?igshid=MzRIODBiNWFIZA%3D%3D>
- mtbfeeling (2023). Changed his mind really quick ? Retrieved from <https://www.instagram.com/reel/Cs08WNbNeQ7/?igshid=MzRIODBiNWFIZA==>
- MTBR. (2016). GoPro vs Reality. Retrieved from <https://www.mtbr.com/threads/gopro-vs-reality.1074496/>
- mtnbike_realm (2023). Every mtn biker does this. Retrieved from <https://www.instagram.com/reel/Co8C6TzvOsb/?igshid=MzRIODBiNWFIZA%3D%3D>
- Müller, K. E., Persic, R., Pohl, Y., Krastl, G., & Filippi, A. (2008). Dental injuries in mountain biking—a survey in Switzerland, Austria, Germany and Italy. *Dental traumatology*, 24(5), 522-527.
- Musante, K., & DeWalt, B. R. (2010). *Participant observation: A guide for fieldworkers*: Rowman Altamira.
- Nishijima, C., Miyagawa, N., Tsuboyama-Kasaoka, N., Chiba, T., & Miyachi, M. (2021). Association between Lifestyle Changes and at-Home Hours during and after the State of Emergency Due to the COVID-19 Pandemic in Japan. *Nutrients*, 13(8), 2698.
- Novic, A. J., Seib, C., & Burton, N. W. (2023). Mastery, physical activity and psychological distress in mid-aged adults. *Australian Journal of Psychology*, 75(1), 2153623.
- nrml_mtber (2022). Bikers vs Hikers. Retrieved from <https://www.instagram.com/reel/CguMNqeDpj5/?igshid=MzRIODBiNWFIZA%3D%3D>
- NSMB (2019). How to Make a Sick Edit. Retrieved from <https://www.youtube.com/watch?v=aQ3zn1s7guA&t=211s>
- Numenta (2022). The Thousand Brains Theory of Intelligence | Jeff Hawkins | Numenta. Retrieved from <https://www.youtube.com/watch?v=VqDVUWgJQPI>
- O'Connor, R. C., Wetherall, K., Cleare, S., McClelland, H., Melson, A. J., Niedzwiedz, C. L., . . . Scowcroft, E. (2021). Mental health and well-being during the COVID-19 pandemic: longitudinal analyses of adults in the UK COVID-19 Mental Health & Wellbeing study. *The British Journal of Psychiatry*, 218(6), 326-333.

- O'Reilly, K. (2009). Reflexivity In *Key Concepts in Ethnography*.
doi:10.4135/9781446268308
- Oliva, A., & Schyns, P. G. (1997). Coarse blobs or fine edges? Evidence that information diagnosticity changes the perception of complex visual stimuli. *Cognitive psychology*, 34(1), 72-107.
- Olive, R., Thorpe, H., Roy, G., Nemani, M., Wheaton, B., & Humberstone, B. (2016). Surfing together: Exploring the potential of a collaborative ethnographic moment. *Women in action sport cultures: identity, politics and experience*, 45-68.
- Olive, R., & Wheaton, B. (2021). Understanding blue spaces: Sport, bodies, wellbeing, and the sea. *Journal of Sport and Social Issues*, 45(1), 3-19.
- Oreg, A., & Babis, D. (2021). Digital ethnography in third sector research. *VOLUNTAS: International Journal of Voluntary and Nonprofit Organizations*, 1-8.
- Otu, A., Charles, C. H., & Yaya, S. (2020). Mental health and psychosocial well-being during the COVID-19 pandemic: The invisible elephant in the room. *International Journal of Mental Health Systems*, 14, 1-5.
- Ower, C., Kemmler, G., Vill, T., Martini, C., Schmitt, A., Sperner-Unterweger, B., & Hüfner, K. (2019). The effect of physical activity in an alpine environment on quality of life is mediated by resilience in patients with psychosomatic disorders and healthy controls. *European Archives of Psychiatry and Clinical Neuroscience*, 269, 543-553.
- OxfordReference. (2021). adventure sports, A Dictionary of Sports Studies.
- Paluska, S. A., & Schwenk, T. L. (2000). Physical activity and mental health: current concepts. *Sports medicine*, 29, 167-180.
- Panelli, R., & Tipa, G. (2007). Placing well-being: A Maori case study of cultural and environmental specificity. *EcoHealth*, 4, 445-460.
- Pargament, K. I., Murray-Swank, N. A., Magyar, G. M., & Ano, G. G. (2005). Spiritual struggle: A phenomenon of interest to psychology and religion.
- Patrick, S. W., Henkhaus, L. E., Zickafoose, J. S., Lovell, K., Halvorson, A., Loch, S., . . . Davis, M. M. (2020). Well-being of parents and children during the COVID-19 pandemic: a national survey. *Pediatrics*, 146(4).
- Patrol. (2020). 5 ways to keep fit while in lockdown. Retrieved from <https://www.patrolmountain.com/5-ways-to-keep-fit-while-in-lockdown/>
- Perrey, S., & Besson, P. (2018). Studying brain activity in sports performance: Contributions and issues. *Progress in brain research*, 240, 247-267.
- Philippot, P., & Brutoux, F. (2008). Induced rumination dampens executive processes in dysphoric young adults. *Journal of behavior therapy and experimental psychiatry*, 39(3), 219-227.

- Pieh, C., Budimir, S., Delgadillo, J., Barkham, M., Fontaine, J. R., & Probst, T. (2021). Mental health during COVID-19 lockdown in the United Kingdom. *Psychosomatic medicine*, 83(4), 328-337.
- pinkbike. (2020). How MTB Pros Are Dealing with COVID-19 Around The World. Retrieved from <https://www.youtube.com/watch?v=3X39vVcrAOW>
- Porter, J. (2020). Covid-19 cruels downhill champ's season, but World Cup to NZ? Retrieved from <https://www.rnz.co.nz/news/sport/414472/covid-19-cruels-downhill-champ-s-season-but-world-cup-to-nz>
- Prisk, D. (2018). *Dirty Theory: Sketches of an Anthropological Account of Mountain Biking. SLC Undergraduate Writing Contest, 1.*
- Puchan, H. (2004). Living “extreme”: Adventure sports, media and commercialisation. *Journal of Communication Management*.
- Qutoshi, S. B. (2018). Phenomenology: A philosophy and method of inquiry. *Journal of Education and Educational Development*, 5(1).
- reece_potter (2021). If you haven't watch the fresh edit of @georgebrannigan and myself getting sendy around Queenstown, it's a must! All captured by @tiltshiftfilms
Link in Bio Retrieved from https://www.instagram.com/reel/CW3mTvPBkSJ/?img_index=1
- Reeves, S., Kuper, A., & Hodges, B. D. (2008). Qualitative research methodologies: ethnography. *Bmj*, 337, a1020.
- Rice, W. L., Mateer, T. J., Reigner, N., Newman, P., Lawhon, B., & Taff, B. D. (2020). Changes in recreational behaviors of outdoor enthusiasts during the COVID-19 pandemic: analysis across urban and rural communities. *Journal of Urban Ecology*, 6(1), juaa020.
- Rice, W. L., Meyer, C., Lawhon, B., Taff, B. D., Mateer, T., Reigner, N., & Newman, P. (2020). The COVID-19 pandemic is changing the way people recreate outdoors: preliminary report on a national survey of outdoor enthusiasts amid the COVID-19 pandemic.
- Ricketts. (2016). Send It. Retrieved from <https://localfreshies.com/send-it/#:~:text=The%20Urban%20Dictionary%20says%20this,confidence%20and%20just%20Send%20It!>
- ride.lost (2022). Know anyone like this? (going up Vs going down). Retrieved from <https://www.instagram.com/reel/Cd62AOssQdx/?igshid=YmMyMTA2M2Y%3D>
- Rinaldo, R., & Guhin, J. (2019). How and why interviews work: Ethnographic interviews and meso-level public culture. *Sociological Methods & Research*, 0049124119882471.
- Rinehart, R. E., & Sydnor, S. (2003). *To the extreme: Alternative sports, inside and out*: Suny Press.

- Rogers, C. M., Mallinson, T., & Peppers, D. (2014). High-intensity sports for posttraumatic stress disorder and depression: Feasibility study of ocean therapy with veterans of Operation Enduring Freedom and Operation Iraqi Freedom. *American Journal of Occupational Therapy*, 68(4), 395-404.
- Rohde, L., Larsen, T. S., Jensen, R. L., & Larsen, O. K. (2020). Framing holistic indoor environment: Definitions of comfort, health and well-being. *Indoor and Built Environment*, 29(8), 1118-1136.
- Romanowicz, M. (2018). Phenomenology, empiricism, hermeneutics, and Lacanian psychoanalysis. In *The Real Jouissance of Uncountable Numbers* (pp. 1-29): Routledge.
- Rosaldo, R. (2004). Grief and a Headhunter's Rage. *Death, mourning, and burial: A cross-cultural reader*, 167-178.
- Rose, G. (2016). *Visual methodologies: An introduction to researching with visual materials*: sage.
- Rose-Redwood, R., Kitchin, R., Apostolopoulou, E., Rickards, L., Blackman, T., Crampton, J., . . . Buckley, M. (2020). Geographies of the COVID-19 pandemic. *Dialogues in human geography*, 10(2), 97-106.
- Rosen, P. (1993). The social construction of mountain bikes: Technology and postmodernity in the cycle industry. *Social studies of science*, 479-513.
- Rowan, A. N. (2022). World Happiness Report 2022. *WellBeing News*, 4(3), 2.
- Rozanov, V., & Carli, V. (2012). Suicide among war veterans. *International journal of environmental research and public health*, 9(7), 2504-2519.
- Rubin, H. R. (1998). *Status report--an investigation to determine whether the built environment affects patients' medical outcomes*. Paper presented at the Journal of healthcare design: proceedings from the... Symposium on Healthcare Design. Symposium on Healthcare Design.
- Rubin, O., Nikolaeva, A., Nello-Deakin, S., & te Brömmelstroet, M. (2020). What can we learn from the COVID-19 pandemic about how people experience working from home and commuting. *Centre for Urban Studies, University of Amsterdam*, 1-9.
- Ryan, G. S. (2017). An introduction to the origins, history and principles of ethnography. *Nurse Researcher*, 24(4), 15-21.
- Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of personality and social psychology*, 57(6), 1069.
- Ryff, C. D., & Keyes, C. L. M. (1995). The structure of psychological well-being revisited. *Journal of personality and social psychology*, 69(4), 719.
- sagly_app (2022). What is mountain biking to you? Retrieved from https://www.instagram.com/reel/ChAt8Ar17Z2/?img_index=1

- Savre, F., Saint-Martin, J., & Terret, T. (2010). From Marin County's seventies clunker to the Durango world championship 1990: a history of mountain biking in the USA. *The International Journal of the History of Sport*, 27(11), 1942-1967.
- Schultz, P. W. (2002). Inclusion with nature: The psychology of human-nature relations. In *Psychology of sustainable development* (pp. 61-78): Springer.
- Schweizer, A.-M., Leiderer, A., Mitterwallner, V., Walentowitz, A., Mathes, G. H., & Steinbauer, M. J. (2021). Outdoor cycling activity affected by COVID-19 related epidemic-control-decisions. *PLoS one*, 16(5), e0249268.
- Scott, N. A. (2020). Where can cycling lift the common good? Regional political culture and fossil capitalism play a role. *Journal of Transport Geography*, 86, 102745.
- Sharma, K. (2015). *Interdependence: Biology and beyond*: Fordham Univ Press.
- Sheehan, K. (2018). Definition of Adventure Sports.
- Simmel, G. (1919). The adventurer (trans: Kettler, D.). *Philosophische Kultur*, 7-24.
- Sinclair, K. ([1957] 1980). *The Origins of the Maori Wars*. University of Auckland Bindery Auckland University Press, Oxford University Press.
- Singh, B., Olds, T., Curtis, R., Dumuid, D., Virgara, R., Watson, A., . . . Eglitis, E. (2023). Effectiveness of physical activity interventions for improving depression, anxiety and distress: an overview of systematic reviews. *British Journal of Sports Medicine*.
- skyline. (2023). Skyline Queenstown Map. Retrieved from <https://www.skyline.co.nz/en/queenstown/skyline-queenstown-map/>
- Smet, H. D., & Verstraete, J.-C. (2006). Coming to terms with subjectivity. *17*(3), 365-392. doi:doi:10.1515/COG.2006.011
- soldiersonsingletrackmtb (2022). PTSD. Retrieved from <https://www.instagram.com/reel/ChiFy-dFyTg/?igshid=YmMyMTA2M2Y%3D>
- soldiersonsingletrackmtb (2023). Why bikes? Because every veteran deserves to find something that keeps them living, challenged, excelling, and alive.
- For us, it's bikes. Retrieved from https://www.instagram.com/p/CqBs0ByrkKi/?fbclid=IwAR0xX9vvZQz7xMj0QLyWUeI8RLgM2xqqQgY9_RIJ1cZSSYS3YkN6EiazJLk
- Sparkes, A. C. (2001). Myth 94: Qualitative health researchers will agree about validity. *Qualitative health research*, 11(4), 538-552.
- Sparkes, A. C. (2015). Ethnography as a sensual way of being: Methodological and representational challenges. In *Ethnographies in sport and exercise research* (pp. 59-72): Routledge.
- Sparkes, A. C. (2016). Researching the senses in sport and exercise. In *Routledge handbook of qualitative research in sport and exercise* (pp. 365-376): Routledge.

- Sparkes, A. C., & Smith, B. (2012). Embodied research methodologies and seeking the senses in sport and physical culture: A fleshing out of problems and possibilities. In *Qualitative research on sport and physical culture*: Emerald Group Publishing Limited.
- Stabell, B., & Stabell, U. (2009). *Duplicity theory of vision: from Newton to the present*: Cambridge University Press.
- Stevens, M., Rees, T., Coffee, P., Steffens, N. K., Haslam, S. A., & Polman, R. (2017). A social identity approach to understanding and promoting physical activity. *Sports medicine*, 47, 1911-1918.
- Stoller, P. (1989). *The taste of ethnographic things: The senses in anthropology*: University of Pennsylvania Press.
- Stranger, M. (1999). The aesthetics of risk: A study of surfing. *International review for the sociology of sport*, 34(3), 265-276.
- Surana, T. (2021). The Ebbs and " Flow" of Chess amid Pandemic: A Psychological Take. *Liberal Stud.*, 6, 25.
- Tanwar, S. (2009). Mountain biking in India: a new definition to adventure sport. *Journal of Tourism Challenges and Trends*, 2(1), 137-141.
- Tarr, B., Launay, J., Cohen, E., & Dunbar, R. (2015). Synchrony and exertion during dance independently raise pain threshold and encourage social bonding. *Biology letters*, 11(10), 20150767.
- Taylor, S., & Carr, A. (2021). 'Living in the moment': mountain bikers' search for flow. *Annals of Leisure Research*, 1-15.
- teenek_mtb (2022). Bikers = Children Retrieved from https://www.instagram.com/reel/Cf_dhKljY7l/?igshid=YmMyMTA2M2Y%3D
- Testoni, S., Mansfield, L., & Dolan, P. (2018). Defining and measuring subjective well-being for sport policy. *International journal of sport policy and politics*, 10(4), 815-827.
- the.nature.of.magic (2022). Well, got that first out of the way. Retrieved from <https://www.instagram.com/reel/ChaMSuAFXTw/?igshid=YmMyMTA2M2Y%3D>
- Thomas-Fogiel, I. (2014). The radical empiricism of contemporary French phenomenology. *Journal of the British Society for Phenomenology*, 45(2), 118-132.
- Thompson, A., Stringfellow, L., Maclean, M., & Nazzal, A. (2021). Ethical considerations and challenges for using digital ethnography to research vulnerable populations. *Journal of Business Research*, 124, 676-683.
- Thorpe, H. (2004). Embodied boarders: Snowboarding, status and style. *Waikato Journal of Education*, 10.
- Thorpe, H. (2017). Action sports, social media, and new technologies: Towards a research agenda. *Communication & sport*, 5(5), 554-578.

- Thorpe, H., & Olive, R. (2016). *Women in action sport cultures: Identity, politics and experience*: Springer.
- Thorpe, H., & Wheaton, B. (2013). Dissecting action sports studies. *A companion to sport*, 341-358.
- Townsend, R. C., & Cushion, C. J. (2021). 'Put that in your fucking research': reflexivity, ethnography and disability sport coaching. *Qualitative Research*, 21(2), 251-267.
- TRAIL, S. (2020). Mountain Biking Statistics [2020]. Retrieved from <https://shredtrail.com/mountain-biking-statistics/#:~:text=In%20fact%2C%20in%20another%20recent,put%20themselves%20in%20that%20category.>
- Ulrich, R. S. (1984). View through a window may influence recovery from surgery. *Science*, 224(4647), 420-421.
- Ulrich, R. S. (2001). *Effects of healthcare environmental design on medical outcomes*. Paper presented at the Design and Health: Proceedings of the Second International Conference on Health and Design. Stockholm, Sweden: Svensk Byggtjanst.
- Ulrich, R. S. (2002). *Health benefits of gardens in hospitals*. Paper presented at the Paper for conference, Plants for People International Exhibition Floriade.
- Ulrich, R. S., & Parsons, R. (1992). Influences of passive experiences with plants on individual well-being and health. *The role of horticulture in human well-being and social development*, 93, 105.
- Vaughn, D. A., Maggiora, M. B., Vaughn, K. J., Maggiora, C. J., Tavakoli, A.-V., Liang, W., . . . Lenartowicz, A. (2021). Modulation of attention and stress with arousal: The mental and physical effects of riding a motorcycle. *Brain research*, 1752, 147203.
- vitalmtb (2021). True or Not ?
- Comment below ?
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- Volkmer, I. (2021). Social media and COVID-19: A global study of digital crisis interaction among Gen Z and millennials.
- Wacquant, L. J., & Bourdieu, P. (1992). *An invitation to reflexive sociology*: Polity Cambridge.
- Weiss, M., Schwarzenberg, A., Nelson, R., Sutter, K. M., & Sutherland, M. D. (2020). Global economic effects of COVID-19. *Congressional Research Service*.
- Wertz, F. J. (2011). *Five ways of doing qualitative analysis: Phenomenological psychology, grounded theory, discourse analysis, narrative research, and intuitive inquiry*: Guilford Press.

- Wheaton, B. (1997). Covert Ethnography and the Ethics of Research: Studying Sport Subcultures. In A. Tomlinson & S. Fleming (Eds.), *Ethics, Sport and Leisure: Crises and Critiques* Meyer & Meyer Verlag.
- Wheaton, B. (2000). "Just do it": Consumption, commitment, and identity in the windsurfing subculture. *Sociology of sport journal*, 17(3), 254-274.
- Wheaton, B. (2002). Babes on the beach, women in the surf: researching gender, power and difference in the windsurfing culture. *Power games: A critical sociology of sport*, 240-266.
- Wheaton, B. (2004). Introduction: Mapping the lifestyle sport-scape. In *Understanding lifestyle sport* (pp. 13-40): Routledge.
- Wheaton, B. (2017). Surfing through the life-course: silver surfers' negotiation of ageing. *Annals of Leisure Research*, 20(1), 96-116.
- Wheaton, B. (2021). Adventure sports, risk, and human-more than human wellbeing: local responses to the challenges of the COVID-19 pandemic.
- Wheaton, B., & O'Loughlin, A. (2017). Informal sport, institutionalisation, and sport policy: challenging the sportization of parkour in England. *International journal of sport policy and politics*, 9(1), 71-88.
- Wheaton, B., Roy, G., & Olive, R. (2017). Exploring critical alternatives for youth development through lifestyle sport: Surfing and community development in Aotearoa/New Zealand. *Sustainability*, 9(12), 2298.
- Wheaton, B., & Thorpe, H. (2018). Action sports, the Olympic Games, and the opportunities and challenges for gender equity: The cases of surfing and skateboarding. *Journal of Sport and Social Issues*, 42(5), 315-342.
- Wheaton, B., Watson, B., Mansfield, L., & Caudwell, J. (2018). Feminist epistemologies, methodologies and method. In *The Palgrave Handbook of Feminism and Sport, Leisure and Physical Education* (pp. 203-208): Springer.
- White, R. G., & Van Der Boor, C. (2020). Impact of the COVID-19 pandemic and initial period of lockdown on the mental health and well-being of adults in the UK. *BJPsych open*, 6(5).
- WHO. (2019). Suicide. Retrieved from <https://www.who.int/news-room/fact-sheets/detail/suicide>
- WHO. (2020). Depression. Retrieved from <https://www.who.int/news-room/fact-sheets/detail/depression>
- Williams, J. P. (2011). *Subcultural theory: Traditions and concepts*: Polity.
- Willick, S. E., Ehn, M., Teramoto, M., Klatt, J. W., Finnoff, J. T., Saad, K., & Cushman, D. M. (2021). The National Interscholastic Cycling Association Mountain Biking Injury Surveillance System: 40,000 Student-Athlete-Years of Data. *Current sports medicine reports*, 20(6), 291-297.

- Wilson, T. P. (2017). Normative and interpretive paradigms in sociology. In *Everyday life* (pp. 57-79): Routledge.
- Wojnar, D. M., & Swanson, K. M. (2007). Phenomenology: an exploration. *Journal of holistic nursing*, 25(3), 172-180.
- Woods, H. (2019). Examining the implications of insider-outsider positioning. *Heather A. Woods*.
- Woodward, K. (2008). Hanging out and hanging about: Insider/outsider research in the sport of boxing. *Ethnography*, 9(4), 536-560.
- Wrigley, W. J., & Emmerson, S. B. (2013). The experience of the flow state in live music performance. *Psychology of Music*, 41(3), 292-305.
- Yeager, S. (2020). Cyclists Share How They've Redefined Their Relationship With Riding. Retrieved from <https://www.bicycling.com/culture/a32111530/what-cycling-means-during-coronavirus/>
- Yeoman, I. S., Schänzel, H. A., & Zentveld, E. (2022). Tourist behaviour in a COVID-19 world: a New Zealand perspective. *Journal of Tourism Futures*(ahead-of-print).
- Zajc, P., & Berzelak, N. (2016). Riding styles and characteristics of rides among Slovenian mountain bikers and management challenges. *Journal of outdoor recreation and tourism*, 15, 10-19.
- Zealand, S. N. (2018). Queenstown-Lakes District 2018 Census data. Retrieved from <https://www.stats.govt.nz/tools/2018-census-place-summaries/queenstown-lakes-district#work-income-and-unpaid-activities>
- Zhai, L., Zhang, Y., & Zhang, D. (2015). Sedentary behaviour and the risk of depression: a meta-analysis. *Br J Sports Med*, 49(11), 705-709.
- ZIPPIA. (2022). MOUNTAIN BIKE GUIDE DEMOGRAPHICS. Retrieved from <https://www.zippia.com/mountain-bike-guide-jobs/demographics/>

Appendices:

Appendix A: Interview Schedule



Schedule for Semi-structured Interviews.

Questions likely to be asked before reviewing of video.

- How did your ride go?
- What runs did you do?
- What have you been riding lately?
- What bike are you running at the moment?
- How long have you been biking?

Questions likely to be asked during reviewing of video footage will be largely dictated by the participants direct experience and moments the participant highlights as particularly punctual on their ride.

Questions asked nearing the end of video footage review will likely expand into how the participant views mountain biking more broadly.

- Can you tell me about the first time you rode a bike?
- When did you know the sport was for you?
- What is your best mountain biking related memory?
- What is your worst mountain biking related memory?
- Can you tell me about any times you have felt connected with your bike?

Due to interviews being semi structured the precise trajectory of interviews will likely be dictated on the temperament of the participant and how well they can express their experiences in words. One technique I will likely use will be to tell my story and experiences. This will be done as a way of inviting them to tell their story.

Also depending on people's responses to the above questions I may ask participants to elaborate with follow-up questions such as:

- Can you explain _____ to me?
- Can you help me understand what you meant by _____?
- Can you explain more of the context when you experienced _____

Appendix B: Information Sheet for Observed Participants



The Dirty Deets

Participation Information Sheet:
For observations.

Introduction:

You are being invited to take part in a Mountain biking research project as part of a Master of Health, Sport and Human Performance degree through the University of Waikato. Before you decide to be involved, it is important for you to understand why the research is being done and what participation will involve. Please take time to read the following information carefully and discuss it with others if you wish. Feel free to ask me any questions about your role or your data's role in the study, as well as general questions about the study. This is a topic I am passionate about so I am more than happy to go into further detail if there is anything that is not clear or is of interest to you. Thank you for your time.

Study Information:

The style of research I am conducting is known as an ethnography. This typically involves becoming immersed in a practice and its culture. My study should last about a year with the data collection lasting about 6 months. Data is gained by both practicing the activity and talking to those already involved in the culture. This is where you come in! My aim in this study is to gain a deeper understanding of how MTB may have affected your perceptions of not only MTB but life more broadly. This will be done through discussing and observing your experiences and perceptions of MTB and how they may have changed over time. The study has gained ethics consent via Waikato Human Research Ethics Committee number HREC(Health)2021#63).

Eligibility:

You are eligible to take part in this study if you are over the age of 18 and have been biking for at least 6 months or more.

What your participation will involve:

1. Very simple! Just ride your bike and enjoy the trails like you would any other day.
2. Signing a consent form giving me permission to observe your participation with the sport of mountain biking. e.g., the ways in which you interact with others, your bike, the terrain, and the sport itself more broadly.

All data collected (ie. I mention one of our rides in my notes, or a conversation we have had) will be kept anonymous; an alias will be used for any participants who are directly quoted or referenced. Furthermore, as a researcher I must adhere to a strict code of conduct and anything that is discussed will remain strictly between us, with any potential identifiers (e.g. your name, and if relevant age, etc) being removed upon publication. All information will be considered as strictly confidential and secure on a password protected data base only accessible by myself and at times my supervisor. At the time of thesis publication, any direct quotations or descriptions of participants actions will have all identifying features removed. Although at times I may discuss things with my supervisor in order to gain deeper understanding, your identity will remain between my supervisor and myself.

A key thing to remember is that you are in control throughout participation in this study. You can withdraw at any time, for any reason, even without giving a reason, by simply contacting myself or my supervisor, Belinda Wheaton, via the emails provided below. However, if you decide to withdraw, it would be greatly appreciated if you could do so within three weeks after signing the consent form. After this time fieldnotes will become data of this study.

Benefits:

Whilst there are no immediate benefits for those people participating in the project, it is hoped that this work will be of interest to MTBers and may allow for reflection on the role MTBing has played in one's life.

Risks:

Participation in this study is very low risk. The greatest risk factor, likely, is fatigue from biking too much.

Thank you for your time as well as your consideration to be involved in my research project.

Sincerely,

John Franklin.

Contacting the Researchers: If you have any questions, or if you have concerns about ethical matters or other issues related to the research, please contact either myself or my supervisor:

John Franklin: jf173@students.waikato.ac.nz

Supervisor, Professor Belinda Wheaton bwheaton@waikato.ac.nz

Appendix C: Consent Form for Observation Participants



Informed Consent Sheet for Observed Participants.

Please check each box that applies.

1	I have read the participation information sheet for observed participants.	
2	I have had the study explain to me and understand that I can ask any further questions at any time.	
3	I understand the researcher (John Franklin) may make field notes based on my interactions with the activity of mountain biking.	
4	I understand I can withdraw from the study at any time, and my data can be withdrawn up to 3 weeks after being observed in the field/the signing of this document.	
5	I understand I can refuse to answer any questions in this study.	
6	I understand I can refuse discussion on any subject.	
7	I understand researchers will keep any data strictly confidential.	
8	I understand all data involved in the study will be archived for at least five years in accordance with The University of Waikato's Human Research Ethics Regulations.	
9	I consent to my data being used for the purposes of academic publication.	
10	I understand that my name will not appear in any published or unpublished works, and that the researcher will keep my identity anonymous to the best of their ability.	
11	I understand that if I have any concerns I can contact the research team. Field researcher, John Franklin (jf173@students.waikato.ac.nz), researcher supervisor, Professor Belinda Wheaton (bwheaton@waikato.ac.nz).	

Please sign and complete any relevant details below.

Name:

Age:

Years biking:

Style of biking interests:

Date:

Signed:

Appendix D: Information Form for Interview Participants



The Dirty Deets

Participation Information Sheet: For Interviewees.

You are being invited to take part in a Mountain Biking research project as part of a Master of Health, Sport and Human Performance degree. Before you decide to be involved, it is important that you understand why the research is being conducted and what participation will involve. Please take time to read the following information, if you wish, discuss it with others. Feel free to ask me any questions about your role or how the information is used, or any other questions about the study. This is a topic I am passionate about, so I am more than happy to go into further detail if there is anything that is not clear, or is of interest to you. Thank you for your time.

Study Information:

My aim in this study is to gain a deeper understanding of how MTB may have affected your perceptions of not only MTB but life more broadly. This will be done through discussing your experiences and perceptions of MTB and how they may have changed over time. The style of research I am conducting is known as an ethnography. This typically involves becoming immersed in a practice and its culture. My study should last about a year, with the data collection lasting about 6 months. Data is gained by both practicing the activity and talking to those already involved in the culture. This is where you come in!

Eligibility:

You are eligible to take part in this study if you are over the age of 18 and have been biking for at least 6 months or more.

What your participation will involve.

Most simply, participation will involve:

1. Me giving you a Go Pro camera (on loan) so you can film a short ride of your choice. Please note that rides should take place on a trail you are familiar with and ride regularly.
2. Then we will meet at an agreed time and place of your choosing where you can return the Go Pro and we can have an informal discussion about mountain biking and life in general. We will also go over your footage discussing some moment-by-moment experiences you had on your ride. Most interviews last about an hour to one and half hours, but it can be as long or short as you wish. The location is also largely up to you. If you do not have a preferred location, I can select somewhere local such as a quiet

café. With your permission, interviews will be recorded

3. After our discussion meeting, I will take approximately two weeks to type out a transcript of our conversation. I will then email you the transcript upon which you will have three weeks to amend or retract any part of the transcript if you wish, or withdraw from the study in full.

You will not be named or identified in the study; I may use your gender, broad age category and cycling experience, unless you do not wish me to. All data collected (notes, recordings etc) will be anonymous, strictly confidential, and secure on a password protected data base, accessible by only myself and at times my supervisor. At the time of thesis publication, direct quotations will be used however, an alias will be ascribed to participants who are directly quoted. Furthermore, as a researcher I must adhere to a set code of conduct and anything that is discussed will remain strictly between us. Although at times I may discuss things with my supervisor to gain deeper understanding, your identity will remain between my supervisor and me.

A key thing to remember is that you are in control throughout the interview and participation in this study more broadly. You can withdraw at any time, for any reason, even without giving a reason by simply contacting myself or my supervisor, Professor Belinda Wheaton, via the emails provided below. However, if you decide to withdraw, it would be greatly appreciated if you could do so within three weeks after receiving your transcript. After this time anonymised transcripts will become data of this study.

Benefits:

Whilst there are no immediate benefits for those people participating in the project, it is hoped that this work will be of interest to MTBers and may allow for reflection on the role MTBing has played in one's life.

Risks:

Participation in this study is very low risk. The greatest risk factor, likely, is fatigue from talking too much. However, it should be made explicitly clear that filming for this project is for research purposes only. Footage will only be viewed by you the participant and myself the researcher for the purposes of moment-by-moment recall. Footage will not be featuring on Red Bull TV so please ride within your limits.

This study has been given ethics approval through the University of Waikato (Waikato Human Research Ethics Committee number HREC(Health) 2021#63).

Thank you for your time as well as your consideration to be involved in my research project.

Sincerely,

John Franklin.

Contacting the Researchers: If you have any questions, or if you have concerns about ethical matters or other issues related to the research, please contact either myself or my supervisor:

John Franklin: jf173@students.waikato.ac.nz

Supervisor, Professor Belinda Wheaton bwheaton@waikato.ac.nz

Appendix E: Consent Form for Interview Participants



Informed Consent Sheet for Interview Participants.

Please tick each box that applies.

		a
1	I have read the participation information sheet for interviewees.	
2	I have had the study explained to me and understand that I can ask any further questions at any time.	
3	I understand I can withdraw from the study at any time, and my data can be withdrawn up to three weeks after receiving my transcript.	
4	I understand I can refuse to answer any questions.	
5	I understand I can refuse discussion on any issue.	
6	I understand I can refuse the recording of any part, or the whole, interview.	
7	After receiving my transcript, I understand I have three weeks to request the erasing or amendment of anything I am unhappy with.	
8	I understand researchers will keep interview data strictly confidential.	
9	I understand all data involved in the study will be archived for at least five years in accordance with The University of Waikato's Human Research Ethics Regulations.	
10	I consent to interview data being used for the purposes of academic publication.	
11	I understand that my name will not appear in any published or unpublished works, and that the researcher will keep my identity anonymous to the best of their ability.	
12	I understand that if I have any concerns I can contact the research team. Field researcher, John Franklin (jf173@students.waikato.ac.nz), researcher supervisor, Professor Belinda Wheaton (bwheaton@waikato.ac.nz).	

Please sign and complete any relevant details below.

Name:

Age:

Years biking:

Style of biking interests:

Date:

Signed:

Email for transcript:

Appendix F: Ethics Approval

The University of Waikato
Private Bag 3105
Gate 1, Knighton Road
Hamilton, New Zealand

Human Research Ethics Committee
Roger Moltzen
Telephone: +64021658119
Email: humanethics@waikato.ac.nz



THE UNIVERSITY OF
WAIKATO
Te Whare Wānanga o Waikato

3 September 2021

John Franklin
Te Huataki Waiora School of Health
DHECS
By email: jf173@students.waikato.ac.nz

Dear John

HREC(Health)2021#63 : Mountain Biking and wellbeing: Understanding mind-body, movement, perception and environment

Thank you for your responses to the Committee feedback.

We are now pleased to provide formal approval for your project.

Please contact the Committee by email (humanethics@waikato.ac.nz) if you wish to make changes to your project as it unfolds, quoting your application number with your future correspondence. Any minor changes or additions to the approved research activities can be handled outside the monthly application cycle.

We wish you all the best with your research.

Regards,

A handwritten signature in black ink, appearing to be 'RM'.

Emeritus Professor Roger Moltzen MNZM
Chairperson
University of Waikato Human Research Ethics Committee