2021-04-21

Skill Development Among Women in Mountain Biking for Recreation

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Skill Development Among Women in Mountain Biking for Recreation

by

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A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES

IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE

DEGREE OF DOCTOR OF EDUCATION

GRADUATE PROGRAM IN EDUCATIONAL RESEARCH

CALGARY, ALBERTA

APRIL, 2021

Abstract

The purpose of this study was to understand how women think and learn as they develop skills to pursue their goals in mountain biking for recreation. By using an SDL framework, I was able to determine the self-directed motives and practices over which the women had agency and ownership. The women demonstrated agency in self-monitoring and metacognitive practices, including the recognition of effective thinking processes concerning learning and motivation. Personal gratification was a strong incentive for continuous practice and included personal enjoyment, as well as the satisfaction of forming long-term relationships and reaching personal potential in the sport. Skill development inevitably involved taking on risks; however, challenges were arranged in a way that enhanced learning while limiting exposures to danger and injuries. The findings from this study support adults engaging in recreational pursuits, recreational leaders designing or leading workshops, any person who holds an interest in establishing and maintaining motivation in recreation or overall health and wellness, and scholars and students pursuing similar research.

Acknowledgements

The long road to finishing this doctoral research involved the support of many significant family members, friends, and scholars from my personal and academic spheres. During the process of writing this doctoral thesis, many sacrifices were made by my family, friends, and loved ones as I devoted time to this work, rather than spending it with them. My love, David Custer, constantly reminded me of the importance of my work and filled my writing hours with perfect music mixes. My mother, Denise Fillier, and friends Elizabeth MacGillvary and Chris Ding, read and reread my analysis, providing feedback and comical relief in the margins. They were my cheerleaders. My father, Bruce Fillier, provided inspiration and reminded me I could go the distance. My sister, Allison, provided a shoulder to cry on and had the unwavering confidence that eventually I would finish; her four beautiful children (Cole, Hannah, Callie, and Madden) reminded me how quickly life can change and about the importance to take a break and to play.

Of great importance for this journey was the supportive guidance of my supervisor, Dr. Olive Chapman, and my supervisory committee, Dr. Colleen Kawalilak and Dr. Janet Groen. I am honored and forever grateful for the strength, wisdom, and kindness of these women. Adding to these supports were the hours spent writing with and talking to Dr. Nazia Vinceer and Dr. Merlene George. I also felt the encouragement by the many other voices of my EdD cohort and Graduate faculty of the University of Calgary. Of course, in acknowledging contributions, I wanted to also thank the willing participants for their excitement when volunteering to contribute their time and perspectives to this study.

In completing this research study, I contracted the services of professional editor, Dr. Deborah Bradley. Deb, thank you for your care and attention to detail.

Dedication

To the baby I grew during the last leg of this journey. May this work inspire you to listen to your inner voice and respond to your wild calling.

Table of Contents

Definitions of Terms

To ensure a shared understanding of terminology used throughout this dissertation, I provide the following definitions.

Alternative sports	Sports that are "alternative" to mainstream sports. The characteristics of non-team-based sports include being less institutionalized and competitive than mainstream sports, and more focused on personal fulfillment, achievements and enjoyment (Huybers-Withers, 2015).
bail out	A term used in mountain biking to describe quitting the situation, either purposefully or accidentally.
Bermed corners	Corners on descending mountain bike trails that are banked.
Flow	A highly focused mental state during which a person feels confident and in control of their performance. Flow is difficult to attain, very intrinsically rewarding, and people are motivated to experience it over and over (Csikszentmihalyi, 1990).
Gnarly	A tern used in mountain biking to describe difficult and rugged terrain.
High-risk activity	Activities wherein traumatic injuries are common and severe.
Male-dominated sports, "male" sports, or masculine sports	Sports associated with competition, danger, speed and masculinity; sports that are governed by men and have mostly male participation (Clement-Guillotin & Fontayne, 2011; Hall, 2002; Klomsten et al., 2005; Koivul, 2001).
Metacognitive function	Having a critical awareness to think about and evaluate internal learning processes (Garrison, 1997).

Mountain bike	A bike designed to be used off road, propelled with pedals, with flat handlebars, wide tires (at least 2 inches wide), brakes, and rare derailleur gearing (Berto, 2008).
Mountain biking for recreation	Mountain biking that occurs during leisure time, for the purpose of having fun, and without the pressures of performance.
Recreational activity	Activities that are performed during leisure and for the purpose of enjoyment.
Women mountain bikers	Self-identifying women over the age of 20 that have been mountain biking for at least two years.
Self-efficacy	Self-efficacy is not focused on athletic skill; instead, it is focused on what athletes believe they can accomplish with the skills that they have (Bandura, 1977; 1997; 2010).
Sessioning	A term used in mountain biking for riding the same terrain over and over with the purpose of practicing a skill.
Skinnies	A term used in mountain biking for long narrow bridges that mountain bike riders use to cross soft ground or rivers. Skinnies may also be set up on a trail for practice and for fun. Riding skinnies require balance and technical ability.
Strava	A GPS enabled smartphone application that tracks the geographical location, distance, and speed of bicycle rides, and uploads the data to an online community of other users.

Epigraph

At the end of the day, at the end of the week, at the end of my life, I want to say I contributed more than I criticized.

—Brené Brown, *Dare to Lead*

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CHAPTER ONE: INTRODUCTION

Overview

My goal for this qualitative study was to understand the thinking and learning processes of women pursuing their learning goals in mountain biking for the purpose of recreation. This research is situated in the field of adult learning, and I used Garrison's theoretical Self-Directed Learning (SDL) framework to guide the study. I employed semi-structured interviews and collected data from 10 women. I then constructed themes that emerged from the findings and provided an in-depth discussion.

In this chapter, I locate myself as a researcher and outline current and historical contexts of women's engagement in recreational activities, specifically mountain biking. I then provide the purpose of the research, the research questions, and the theoretical framework used to guide the study. Finally, I discuss the significance of this research and provide a description of how my thesis is organized.

Locating Self as Researcher

As a child, I was often called a tomboy. This nickname was attributed to persistent and competent participation in sports. At that time, I valued my athletic abilities, and I believed being called a tomboy was a compliment. Although research indicates girls are less supported in their athletic endeavors (Heinze et al., 2017), this was not my experience. My parents encouraged my competitive and athletic spirit, readily drove me to track meets, and paid for me to participate in afterschool sports programs. I truly believed I was as fast, as tough, and as strong as any boy in my class. My family still likes to remind me of the time I challenged the fastest boy in my school to a race. A brick wall marked the finish line, we were evenly matched, and I wanted to win. I knew if slowed down for the wall, I would lose. I won the race, but broke both my wrists as I

slammed full speed into the wall. At the time, my parents were pretty upset with my dedication to winning. I understand that my childhood experience pursuing sports was not common among girls my age at that time (Hall, 1999, 2002; Heinze et al., 2017; Johnstone & Millar, 2012). Reflecting back, I remember that there were very few other girls participating in these sports, and I often played on boys' teams because there were no other girls who wanted to play. Sometimes, I participated in activities that were not gender-specific, but even those were dominated by males.

In my early years, I focused most of my athletic development on developing skills in track and field and road running. As a high performing athlete, I believed that my advanced athletic development arose because I was courageous, disciplined, and dedicated to the highly structured workout plans developed by my coach. This belief was reinforced as I improved as an athlete, and I took courses in kinesiology on athletic development, which complimented my beliefs. For two and a half decades, I developed as an athlete in the same structured manner. During this era, I completed grade school, an undergraduate degree, and a master's program. I also grew my career as an adult educator. During the last decade, I developed a more in-depth, and somewhat conflicting, understanding of how adults learn and develop their skills. I wondered if my new understanding could be applied to how adults pursued sports.

When I first became an adult educator, I taught math at a community college. Most of my students were mature adults who were returning to school after being in the work force. The courses I taught were difficult, mandatory, and had a high failure rate. I wanted to ensure the students' success and integrated a highly structured learning plan with lots of opportunities to practice and weekly quizzes to assess knowledge. I basically told my students what to learn and which learning processes they needed to follow. They did not hide their dislike for my approach,

and many of them complained the course materials were not relevant and there was not enough time to complete the many practice exercises that I assigned.

The learner's distaste for my approach pushed me to seek their feedback. Once a week, I distributed surveys with two columns. At the top of the first column, I placed a picture of a star and asked for feedback about what I was doing that assisted them with their learning. In the other column, I placed a picture of a tree, and I asked them to provide feedback about what I could do to improve their learning. That semester, I made adjustments so that the students might get more out of the class. The following semester, I started redesigning my classes and implementing the feedback I had received. My new approaches were accepted more readily and supported by the concepts in adult learning to which I was introduced at the University of Calgary as I pursued the Master in Education degree in Adult Education.

In the new design, the learners had more control over what and how they learned. Learning activities were project-based, and the learners chose their project topics based on the content covered in the course. They presented their projects to the class and learned from one another. I conducted research on this approach and found that when empowered, the learners took responsibility for their learning and were more engaged in the overall process (Fillier, 2014; Fillier & Kirychuk, 2015). This experience shifted my beliefs about adult learning, and my evolved philosophies were contrary to how I had been pursuing my own skill development as an athlete. I wanted to understand more about how adults engaged in learning. I applied for graduate studies and was accepted into a doctoral program in Adult Learning at the University of Calgary.

Something terrible happened during my first week of graduate school. I was rear-ended by a car while riding my bike to the university. The injuries attained during this accident ended my serious pursuit of running. Even though I could not run, I still wanted to pursue recreation

and be active and outdoors. As I had always enjoyed mountain biking, I decided to pursue this activity during my free time. I moved away from competition, athletic clubs, coaching, and training schedules, and my new beliefs about adult learning transcended into how I engaged in recreational activities and pursued skill development in mountain biking. I took responsibility for how I learned, focused on my personal learning objectives, and found that this approach positively impacted my motivation. I soon became enthralled with the notion that learning skills can be fun; becoming more competent enabled me to have more fun, and having fun had a positive impact on my motivation and made me want to learn more. Although the majority of other riders seemed to be male, I noticed that other women within the mountain biking community also loved learning new skills and had a love affair with this sport similar to mine. I felt compelled to explore more and started looking at literature on how women pursued their goals in mountain biking and in other similar sports.

After reviewing literature related to this topic, I found that high-risk recreational activities such as mountain biking were considered masculine, and the norms within the subcultures were largely influenced by men (Carr, 2017; Comley, 2016; Huybers-Withers, 2015; Huybers-Withers & Livingston, 2010; Olive, McCuaig, & Phillips, 2013). This trend in sports can be traced back to the early 17th century, when European settlers colonized Canada and brought with them the misguided belief that women were too physically and mentally frail to participate in most sports (Hall, 1999, 2002; Kidd, 1996). In the past three centuries, there have been many gains for women in sport (Hall, 2002), and contrary to these traditional beliefs, many women pursued mountain biking and other high-risk sports. Despite this, the scholarly literature points out that sports requiring risk-taking, endurance, and strength are considered by many to be masculine sports, are male-dominated, and hold traditional cultural norms (Huybers-Withers,

2015; Huybers-Withers & Livingston, 2010). My goal for this research study was to understand how women think and learn while developing skills in environments considered male-dominated environment. I believed that this research was unique and could be used to support women's learning as they pursue mountain biking and other high-risk sports for the purpose of recreation. I felt I could achieve this if I studied how women autonomously approached learning.

As an adult educator, I have the privilege of witnessing others pursue learning in an educational system. Seeing many different approaches and perspectives has impacted my philosophical beliefs about how knowledge is formed. I have come to believe there is no one correct pathway for realizing learning goals, and a person's unique goals, perspectives, and sociocultural experiences result in personalized learning strategies. With these experiences and beliefs, I took up research, believing that ontologically multiple realities (or interpretations) exist for every event that occurs, and each is influenced by a unique set of perspectives and experiences. As a result, we (as humans) are continuously learning and evolving together.

My curiosity about this research emerged from my experiences as an adult educator and a recreational mountain biker. As an adult educator and a women learning skill in mountain biking, I felt compelled to understand women's learning process. My experiences and beliefs as an educator influenced my philosophy on research and my methodology. I employed qualitative inquiry (Creswell, 2015; Merriam & Tisdell, 2016) and used semi-structured interview questions because I believed there are many perspectives on learning, and I wanted the flexibility to ask probing questions that would assist with gaining access to the participant's perspectives on learning mountain biking skills.

Biases and Assumptions

Coming into this research, I acknowledge that I had biases and assumptions about mountain bikers, women, women's perspectives on mountain biking, their engagement in the activity, and how they learn. My biases and assumptions included:

- Developing skills in mountain biking takes time, persistence, and practice.
- The amount of time women will devote to mountain biking for recreation will be limited due to their career and family obligations.
- Due to having limited time, women prefer to have the flexibility to learn independently or with friends, rather than attending a scheduled skills class.
- There are very few women mountain bikers, and most women ride with men.
- Friendships and romantic interests are significant motivators for women to begin mountain biking.
- The primary reason women continue to engage in mountain biking is for enjoyment, to socialize with others, and for health and fitness.
- In general, women are a minority in mountain biking, they have spent less time learning skills, and ride terrain that is less technical.

Research Context

Scholarly research in adult learning and gender literature amply supports the notion that gender behaviors are influenced by environmental, social, political, and economic factors (Belenky et al., 1997; Gilligan, 1982; Hall, 1999; Aldegether, 2017; Bosley, 2018; Liu, 2011; Peck, 2010; Romero-Ivanova, 2018). The Canadian Association for the Advancement of Women and Sport (CAAWS) asserted that many girls are socially and politically discouraged from learning athletic skills, and their participation is often not economically supported (Johnstone &

Millar, 2012). Adding to this, many parents still believe that skill developed in sports is more beneficial for boys than for girls and, therefore, are more willing to financially support their sons' participation, rather than their daughters' (Heinze et al., 2017). These limiting perspectives are historically rooted and consistent with mainstream practices of parents throughout Canada (Hall, 1999, 2002).

Most colonial settlers in Canada held strong Victorian values, and their sons' participation in sports was considered part of a masculinizing project, a way for boys to move to manhood (Hall, 1999). Girls were encouraged to participate in less athletic activities that were consistent with femininity and prepared them for wifehood and motherhood. In many families, these traditional beliefs still exist, and girls are discouraged from participating in many sports (Hall, 1999; Heinze et al., 2017; Johnstone & Millar, 2012). The influence from these mainstream opinions cause girls to have fewer opportunities for developing skills that would make them competent in sports as adults (Johnstone & Millar, 2012). When women do participate in sports, they are often considered weaker, less skilled, and less athletic than men (Hall, 1999). Their sports are taken less seriously and not considered "real sports" (Hall, 1999, p. 7), and the women are not considered to be "real women" (Hall, 1999, p. 7). As a result, many women participants in sport feel isolated and bullied (Carr, 2017; Comley, 2016; Hall, 1999; Heinze et al., 2017; Huybers-Withers, 2015). Adding insult to injury, women's sports receive fewer resources and receive less media attention (Hall, 1999). Attention that is received often focuses on body images rather than on skill, which results in negative social consequences. Very little research has explored women's experiences in learning as they overcome these boundaries. Mountain biking is one context in which women's learning related to skill development in male-dominated sports can be explored.

Mountain biking is a high-risk and dangerous sport (Kronisch & Pfeiffer, 2012). It has been called an alternative, extreme, and insane form of recreation (Huybers-Withers, 2015; Huybers-Withers & Livingston, 2010). Specific equipment, terrain, strength and skills are all required to participate (Berto, 2009). Similar to other high-risk activities, men represent the majority of the mountain biking population (Corporate Research Association, 2010; Huybers-Withers, 2015; Huybers-Withers & Livingston, 2010); and this activity meets the definition of a "male" sport because it is competitive, high-risk, and requires strength and power (Hall, 1999; Heinze et al., 2017). In addition, the culture has maintained a traditional masculine hierarchy (Huybers-Withers, 2015; Winter, 2005) wherein women riders have felt pressured to conform to masculine ideals and expectations (Hagen & Boyes, 2016; Huybers-Withers, 2015) and felt pitted against one another in order to gain attention as a top female rider (Huybers-Withers, 2015).

Although women are still underrepresented in most sports, the number of women pursuing mountain biking in Canada is growing (Corporate Research Association, 2010). As a result, opportunities have emerged to exploit this new market. Popular women-only mountain bike clinics and clubs—TREK Dirt Series, the Rocky Mountain Shred Sisters, and Spin Sisters—continuously fill to capacity, and registration sells out. Online Mountain Bike Magazine (2015) attributed the popularity of these courses and clubs to the notion that women learn differently than men, and women's camps acknowledge that. Although cognitive development theories support this assertion (Belenky et al., 1997; Gilligan, 1982), few scholars have addressed women's experiences engaging in high-risk sports such as mountain biking, and no literature has attended to the way women learn in high-risk activities for the purpose of recreation.

The rise in interest in mountain biking and the number of enterprises aiming to assist women in developing skills support the need for research studies devoted to understanding women's interests, thinking, and learning related to mountain biking. My research responds to this need. In this study, I focused on understanding women's learning as they pursue their goals in mountain biking for the purpose of recreation.

Purpose of Study

As mountain biking is a sport that has been historically dominated by men, few researchers have considered women's perspective on developing the skills required to participate in it. The insignificant and insufficient research on how women view mountain biking and learn skills causes few scholarly arguments against traditional perspectives—in high-risk sports such as mountain biking, women are less interested and less capable. Theories on cognitive development have demonstrated that women have different perspectives, and as a result they are often judged unfairly (Gilligan, 1982; Belenky et al., 1997). The purpose of this study is to move away from misleading comparisons and instead focus on women's perspectives to gain an understanding of how they think and learn. In this study, I considered women's perceptions of mountain biking, their self-derived goals, and how they developed the required skills for achieving them.

Research Questions

The main research question that guided this research was: What are the interests, thinking, and learning of women pursuing their goals in mountain biking for recreation? To provide additional direction to the research design, I provided the following three supporting research questions.

1. How do women make sense of mountain biking and their participation in it as a recreational activity?
2. What is the role of SDL in women's development of technical skills and their achievement of goals as they engage in recreational mountain biking activities?
3. What are the relationships between women's beliefs about learning, the learning activities in which they engage, and the characteristics of SDL?

Theoretical Framework

This research is situated in the field and scholarship of adult learning. I used Garrison's (1997) comprehensive framework for SDL to inform the study, a framework frequently used and cited by researchers in the field of adult learning (Abd-El-Fattah, 2010; Artman, Danner, & Crow, 2020; Morris, 2019; Murray, 2015; Porter, Rathert, & Lawong, 2020; Shahrouri, 2016; Zhu & Bonk, 2019). According to Garrison's (1997) framework, SDL constitutes "an approach where learners are motivated to assume personal responsibility and collaborative control for the cognitive (self-monitoring) and contextual (self-management) processes in constructing and confirming meaningful and worthwhile learning outcomes" (p. 18). Garrison's model comprises three components of SDL: the external processes (self-management), the internal cognitive process (self-monitoring), and the motivational aspects. All three components are interconnected and equally important for achieving SDL. In Chapter Two, I provide a full description of Garrison's framework.

Significance of Research

During my review of the literature, I found no studies that used SDL as a framework to understand learning in high-risk sports. I also did not find any studies that used an adult learning lens to view how women learn when they pursue high-risk activities for recreation. My study

addresses this gap and adds to the scholarly literature in the fields of adult learning, SDL, mountain biking, leisure, and recreational activities. In the future, other researchers may use this study to further explore related concepts or those outlined in Chapter Four and Chapter Five. The results from this study may also be used to support learning skills in mountain biking or any other recreational activity. The themes support adults who seek ways to employ their autonomous learning processes, as well as coaches or workshop designers who wish to facilitate and design learning programs that focus on learners' self-directed approaches.

Organization of Thesis

In this chapter, I provided an introduction to the study. In Chapter Two, I provide a comprehensive literature review that outlines the scholarly literature and academic foundation of this study. The literature review includes a discussion of women and recreational sports, adult learning, and the theoretical SDL framework used in this study. In Chapter Three, I explain the research methodology used to guide the research design, the data collection methods, and analysis process. In Chapter Four, I present the research results and the emerging themes. Finally, in Chapter Five, I provide a detailed discussion of key discussion points that emerged from the research and make recommendations on how the results may be used by interested populations.

CHAPTER TWO: LITERATURE REVIEW

Overview

The purpose of this study was to gain an understanding of how women think and learn as they developed skills in mountain biking for recreation. I begin the literature review by providing an overview of women and recreational sports, including the history of women and sports in Canada, research on women and recreational sports, the unique relationship between women and bikes, and women's participation in high-risk sports. I then discuss the theoretical framework I used during this study and include an overview of the field of adult learning, women's thinking and learning, SDL, Garrison's Comprehensive Model, and studies on SDL in recreational sports. During my review of the literature, I did not find any research that explored the relationship between adult learning and women engaging in mountain biking, or any other form of alternative sports and high-risk activities. There were also very few studies that focused on SDL and athletic activities. This literature review comprised a variety of sources including books, theoretical articles, research studies, theses, and other academic reports.

Women and Recreational Sports

Women's relationship with recreational sports is complex and highly political. In this section, I provide historical context and supporting research to inform the reader of the relationship and enhance overall understanding of women, mountain biking, and recreation.

History of Women and Sports in Canada

Understanding the historical relationship between women and recreational sports adds context to women's current experiences in male-dominated sporting activities. Much of the complexity is due to the long-standing historical pattern of gender stereotyping, attaching emotional and physical characteristics to genders (Hall, 2002; 2016; Krane, 2007; Lenskyj,

1999). In the early 17th century, aboriginal Canadian women worked and played in the various hunting, gathering, fishing, and farming cultures (Hall, 2002). At that time, we know that women indigenous to Canada engaged in leisure activities and games that involved a ball similar to shinny, lacrosse, and football. As European settlers colonized Canada in the 17th century, their beliefs about women's capabilities influenced women's behavior in sports. The popular European belief was that women were too physically and mentally frail to participate, and the majority of women abided by these beliefs (Hall, 2002; 2008; 2016).

During the 18th century, the number of British settlers increased, as did the influence of Victorian views and influences about manliness and womanliness. Manliness represented physical superiority and Christian morality; womanliness was characterized by impeccable reputation, grace, and beauty (Hall, 2002; 2016). Men who were part of society's upper class participated in sports such as cricket, horse racing, fox hunting, and snowshoeing, and they formed male-only sporting clubs. At this point in time, women were permitted to engage in the sports considered graceful and feminine; however, they seldom did.

When women's participation in sports increased, it was met with cultural resistance. During the 20th century, women fought to gain and maintain control over their sporting practices (Hall, 1999; 2002; 2016; Kidd, 1996). They wanted to control their resources, the rules by which they played, and how they were represented. This struggle existed because most organizations and resources were controlled by men, many of them held traditional beliefs about how women should behave and viewed their participation in physically demanding sports as evidence of leaky hegemony. Women were banned from the Amateur Athletic Union (AAU), which represented membership in athletic clubs, and their registration in recreational activities was disallowed.

Some women challenged the notion of being the weaker sex, formed sporting clubs, and hosted their own competitions (Hall, 1999; Kidd, 1996). In 1926, the Women's Amateur Athletic Federation of Canada (WAAF) was established. WAAF provided a collective voice for women in sports, advocating for and regulating their participation. By 1935, WAAF had spread throughout Canada and had over 3,500 members (Kidd, 1996). In 1953, funding for sporting activities were scarce: WAAF and AAU merged, and women lost their singular voice in sport. By this point, women had fiercely fought for their right to play sports; however, they still faced many challenges with their participation. Today, more women participate in sports; however, sports remain gendered, there is still evidence of discrimination, and fewer financial resources and media attention are allocated to women's sporting clubs (Hall, 1999; 2016; Heinze et al., 2014; Johnstone & Millar, 2012; Kidd, 1996).

Research on Women and Recreational Sports

The benefits of participating in sports for the purpose of recreation include temporary feelings of freedom, reduced stress, and benefits to mental and physical well-being (Currie, 2004; Franco, 2018). For example, 30 mothers involved in a qualitative study showed that stepping away from their roles of "mother, care-giver, and wife" (Currie, 2004, p. 238) and engaging in physical activity caused them to experience overall improvement to their physical and mental well-being, temporary reduction in stress and frustration, and increased feelings of optimism. In addition, engaging in recreation with other women in a supportive environment assisted women with gaining confidence and establishing motivation to pursue activities over time (Bosteder & Appleby, 2015). Also noted in related research, women were more likely than men to focused on the social aspects of sport and relationship development (Etnier, 2011) and to

have a positive experience when they perceived their team and peers as caring and supportive, (Bosteder & Appleby, 2015; Fontana, Fry, & Cramer, 2017).

Common obstacles that women who want to participate in recreational sports face included financial pressures, not receiving enough family and community support, and an inadequate amount of time (Tilfu, 2016); feeling shame about their body image, experiencing physique anxiety, and not having an encouraging support network (Bosteder & Appleby, 2015, 2015), constraints due to family responsibilities (Goodsell & Harris, 2011), and concerns for personal safety (Roper, 2016). Concerns for personal safety were reduced by finding activity partners, bringing a cell phone, and running with a dog.

Unique Relationships Between Women and Bicycling

Women have had a unique and powerful relationship with bicycles, and many historians agree that the bike was influential for the beginning of the New Woman Era. Bikes enabled woman to move around independently so they could congregate together and form clubs (Hall, 2002). During the 1880s, women embraced North America's first bicycle, the penny-farthing. This bike was heavy, uncomfortable, and it had a large front wheel that made it difficult for women to mount while wearing Victorian-style skirts. Soon after the safety bicycle was designed: a smaller and lighter version with equally sized wheels. Bicycles were inexpensive, which made them accessible to women with little or no income; in the 1880s, more than 10,000 people rode bicycles in Canada, and many of them were women. Even those struggling financially in society could be seen riding bicycles to the town market.

Like other recreational sports, the topic of women riding bicycles was highly controversial. The main debates that fueled this controversary were focused on clothing, promiscuity, and woman's health (Cohn, 2016; Hall, 2002, 2008). Women altered their clothing,

and “bloomers,” a style of trouser, were born; women could ride a bike without a chaperone, an activity that was assumed would lead to promiscuity, and physicians warned that cycling could cause damage to the uterus or cause something they felt was far more dangerous and serious, an orgasm.

In the 1890s, bicycle races became popular, and women athletes participated and proved to be fierce competition for the men. Hall (2002) pointed out that women were evolving into physically stronger beings, and they were often negatively referred to as “Modern Manish Maiden[s]” (p. 20). In 1892, Miln and Robinson published in *Cycling Magazine* the provocative question, “Is the cycling woman more robust than her sisters, and is her physical development higher?” (p. 20). Women on bicycles were becoming stronger and faster, threatening men’s position at the top of the traditional male hegemony, and *Cycling Magazine* reported that bicycles should be considered an “arch-enemy of womankind” (Miln & Robinson, 1891, p.18). Soon after, women were banned from participating in sectioned cycling events.

Despite the conflict and adversity, many women embraced the freedom of riding bicycles, congregated together in the street, and organized cycling clubs and unofficial races. During the World Wars, more women picked up cycling as they moved to the city to work, and women riding bikes became a popular social phenomenon (Hall, 2002). After World War II, women were warned not to infringe on activities considered to be traditionally part of the male domain. Many women complied; however, some had become accustomed to the freedoms associated with owning and riding a bike and rejected these ideas. These women wanted to have the same opportunities as their brothers, boyfriends, and husbands.

Over the past several decades, the number of women who participate in bicycling has grown; however, women still face discrimination and barriers associated with gender (Hall,

1999, 2002; Huybers-Withers, 2015). Women's historical struggle to participate in sports informs why they are underrepresented and why their approach to learning falls outside what is promoted and considered normal in sports in a traditionally male-dominated culture.

Research on Women's Participation in Mountain Biking and Similar Sports

Mountain biking is an alternative form of recreation, which means there is less focus on competition and more focus on personal performance (Huybers-Withers, 2015). Due to the commonality of traumatic injuries, mountain biking is considered to be a high-risk activity, and many researchers describe it as an extreme form of recreation (Huybers-Withers, 2015; Huybers-Withers & Livingston, 2010; Kronisch & Pfeiffer, 2012; Roberts, Jones, & Brooks, 2018).

Culture. Mountain biking communities maintain a traditional male hegemony that is established and upheld by White and middleclass men (Huybers-Withers, 2015; McCormack, 2017). This is also true for other male-dominated and alternative forms of recreation such as skateboarding (Carr, 2017), surfing (Comley, 2016; Olive et al., 2013), and power lifting (Ming, Simpson, & Rosenberg, 2016). Media surrounding the sport reinforces this hegemonic structure (Hall, 1999; Huybers-Withers & Livingston, 2010). An analysis of images and discourses in technical mountain bike magazines portrayed the sport as masculine, aggressive, and reckless; part of the male domain, with products that support male participants (Huybers-Withers & Livingston, 2010). Little space in the magazines focused on female riders. The literature on mountain biking communities suggested that women mountain bikers feel like a minority and seek out other women mountain bikers to ride with (Huybers-Withers, 2015; McCormack, 2017). When riding with groups of men, women felt marginalized, left out and left behind, discouraged, pitted against one another, and pressured to participate in risky activities, as confirmed by (Huybers-Withers, 2015).

In mountain biking, women-only groups were recorded as more welcoming and supportive than mixed gendered groups (McCormack, 2017). However, even in these subcultures, hegemonic and gendered practices existed. From her qualitative study on mountain biking communities, McCormack (2017) concluded that the communities were designed to recruit and fully incorporate new members, so they followed a hegemonic structure.

Literature on activities akin to mountain biking revealed similar findings. Women skateboarders struggled with the male-dominated culture and norms, including a communication code that involved very little acknowledgment of a person's existence (Carr, 2017). The silence made the women feel watched, objectified, and unwelcomed. As a result, women skateboarders preferred to skate in other (often illegal) locations with other women. When surfing, another activity male-dominated activity, women said they felt marginalized, objectified, patronized, evaluated, and judged based on male-defined ideals (Comley, 2016; Olive et al., 2015). Comley (2016) reported that to mitigate feelings of marginalization, women surfed at friendlier beaches, joined all women's surfing clubs, and when surfing with men, showed up en masse. Finally, in weightlifting, women said they did not feel accepted or recognized by the men who participated in the sport (Ming et al, 2016). Women were viewed as unskilled, and they felt an unrealistic pressure to have exceptional endurance, including physical and mental strength.

Women mountain bikers. Women make up a smaller portion of the mountain biking population and have fewer years of riding experience (Roberts et al., 2018). Being outdoors, feeling connected to nature, being social, and health and fitness have been noted as the reasons that women participated in this sport (Levy, 2002; Roberts et al., 2018; Skår, Odden, & Vistad, 2008). Mountain biking has also assisted women in increasing self-esteem and self-confidence. In one quantitative study, almost 100% of women participants agreed that mountain biking made

them feel good about who they were (Roberts et al., 2018). In another qualitative study, the women interviewed reported that mountain biking increased their self-esteem, personal growth, and their ability to take on greater personal challenges and excel in aspects of their life unrelated to sport (Levy, 2002). Mountain biking also helped women destress, and they were more likely than men to report participating in mountain biking as a strategy to deal with stressful life events and negative thoughts and feelings (Roberts et al., 2018). Most women agreed they would feel depressed if they were injured and no longer able to ride their bikes.

Feeling challenged. The excitement of speeding through the forest and managing difficult challenges motivated mountain bikers (Skår, Odden, & Vistad, 2008; Taylor, 2011). The intensity of the sport, coupled with the desire to overcome challenges, provided a physical and mental escape from everyday life (Taylor, 2011). The riders in Taylor's (2011) study were attracted to fast, challenging, and flowy trails because it forced them to have full concentration and enabled them to experience *flow,* a positive state where one is fully immersed in an activity, feeling energized, focus, and enjoyment (Csikszentmihalyi, 1990). Challenges of mountain biking do not come without risks and injuries. A quantitative study that compared injuries between men and women riding the same challenging terrain found that women were injured more often than men (Kronisch & Pfeiffer, 2012). These results were attributed to women mountain biker having fewer years of riding experience and less upper body strength.

The idea of risk-taking in mountain biking relates to the challenging technical terrain. A characteristic associated with masculinity and mountain biking was the glorification of risk-tasking (Huybers-Withers & Livingston, 2010; McCormack, 2017). In some situations, women felt fearful when riding technical terrain; however, they denied their fears to adhere to the expectations of the subculture (Hagen & Boyes, 2016).

Community. Having a social support network of women and team camaraderie was important to all nine women who participated in Levy's (2002) qualitative research study. Researchers have suggested that mountain biking communities stretch beyond physical spaces and into online environments (McCormack, 2017; Smith, 2014). *Strava*, a GPS enabled smartphone application that tracks bicycle rides and uploads the data to an online community of users, positively impacted participant's motivation (Smith, 2014). The participants used it to find training partners, create shared experiences, and discover new riding routes. Similarly, McCormack (2017) found that participants used online biking communities to learn about new trails, share biking videos, share tips on riding skills, to maintain equipment, buy and sell items, meet new riding friends, and coordinate bike rides.

Theoretical Framework

This study is situated in the field of adult learning. I applied an SDL framework to comprehend women's thinking and learning when engaging in mountain biking and skills development. In this section, I discuss the principles, theories, definitions, and models within the field of adult learning that created my researcher lens. The areas I focused on were adult learning, women's thinking and learning, sense-making, beliefs, and SDL.

Adult Learning

In 1970, Knowles introduced to North America the term *andragogy*, which means "the art and science of helping adults learn" (Knowles, 1980, p. 43), and used this to describe learning patterns unique to adults. This was a pivotal point, as the concept of andragogy recognized that adults learn differently than children. The literature on adult learning assumes that adults learn throughout their lifetimes, their accumulated experiences impact their future learning, they prefer to learn in a self-directed manner, and they want their learning to be tied to real-time problem

solving in their lives (Knowles, 1975; 1980; Mackeracher, 2007). Adults also have an established sense of self they wish to protect, and their relationship with others impacts what and how they learn (Mackeracher, 2007).

Learning in adulthood captures the entire range of learning experiences, including formal learning, informal learning, and incidental learning (Groen & Kawalilak, 2014; Mackeracher, 2007). Formal learning occurs in a structured setting and has defined outcomes and pre-determined learning processes. A university course is an example of a formal learning process. Informal learning is not confined to an institutional structure, nor does it have a timeline. Informal learning includes tactical learning and embodied learning. It is "something that all human beings acquire through the day-to-day unfolding of life experiences that include observing others, associating with others, engaging in activities, trying new things, making meaning of our emotions, and paying attention to our intuition" (Groen & Kawalilak, 2014, p. 18). Learning to ride a bike is an example of informal learning. Incidental learning is the knowledge acquired accidently as an adult engages in either formal or informal learning experiences. An example of incidental learning is learning the social norms specific to the mountain biking environment, while learning to ride a mountain bike.

Learning can be further grouped into four categories: cognitive, affective, physiological, and interpersonal (Mackeracher, 2007). Cognitive learning refers to the way adults perceive information, identify details, and remember and recall information in memory. Cognitively, adults may engage as analytical learners, holistic learners, or both. Analytical learners perceive their experiences in detail and store and recall distinguishable components. Holistic learners are less likely to recognize details that occur within the experience and more likely see connections between experiences.

Affective learning is the attention that adults direct towards learning. It includes how they value, or are emotionally tied, to the learning (Mackeracher, 2007). As previously stated, adults have a preference for what and how they learn, and as a result, prefer to self-direct their learning process. Most adults are motivated to engage in learning skills and materials to which they relate, are interested in, are connected to, and relate to their learning goals (Candy, 1991; Garrison 1997). Physiology is also tied to learning (Mackeracher, 2007). Age, gender, health, and fitness all impact adults' abilities to engage in learning, and adults have physiological preferences for time of day, mobility, light, sound, and temperature. Interpersonal relationships with others also impact how adults learn with others and independently. Even when individuals learn independently, the social context influences learning (Garrison, 1997; Groen & Kawalilak, 2014). Understanding that adults learn in diverse ways supports the wide spectrum of learning that occurs among the women who participated in this study.

Sense-making. In adult learning, sense-making (Merriam & Heuer, 1996; Mezirow, 1992; 1997) involves drawing on past experiences (meaning-making structures) to understand or interpret new life events. Sense-making enables adults to understand the experiences that occur in their lives and includes a person's ability to understand, interpret, define, and explain objects or experiences in their everyday life. In this study, I use this definition to explain how adult women define mountain biking and their participation in it. When the participants in this study defined and explained mountain biking, the definitions were grounded in their personal experiences, i.e., their meaning-making systems.

Beliefs. Beliefs are assumptions used to interpret experiences and influence actions and behaviours (Mezirow, 1997; Yero, 2002): the "judgments and evaluations that we have about ourselves, about others, and about the world around us" (Yero, 2002, p. 21). They affect how a

person behaves and what they pay attention to in their environment. People draw on their established beliefs so they can make decisions quickly and move from one action to the next (Mezirow, 1997). Despite having obvious benefits for decision making, beliefs also have a downside, as they may sabotage our success. Yero (2002) warned that personal beliefs may limit what we believe we can and cannot accomplish. He called these "sabotaging beliefs" and noted they are often responsible for undermining personal success. Comprehending the concept of beliefs assists with understanding the participants' beliefs and the relationship between beliefs and learning activities. For example, a participant who believes that skills are best acquired by having a coach explain the skill to them will most likely think they are less capable of learning independently.

Women's Thinking and Learning

Scholarly literature in cognitive development supports the concept that men and women develop differently and consequently have a different way of thinking and learning (Belenky et al., 1997; Gilligan, 1982). Research that focuses on understanding how women think and learn in male-dominated areas creates a space for them and assists them with leveraging their unique ways of learning (Aldegether, 2017; Belenky et al., 1986, 1997; Bosley, 2018; Gilligan, 1982; Peck, 2010; Romero-Ivanova, 2018).

In her influential research, Gilligan (1982) argued that men and women think and learn differently based on the social influences to which they are subjected. She characterized women's lives as reflecting interdependence as opposed to independence and noted that women were more likely to focus on building connections, rather than on separation. She also found that women defined their identity in the context of relationships (such as mother, daughter, friend), which remain important throughout women's lives.

Building on Gilligan's (1982) work, Belenky et al. (1986, 1997) focused their research on establishing an understanding of how women learn. These researchers interviewed 135 women from many different contexts, including rural and urban populations, varied socioeconomic classes, ethnicities, and educational histories. They asked questions about self-perception, decision-making, interpersonal relationships, and views of knowledge and truth. The results showed that women valued certain types of information more than others, which impacted in what they were interested, how they thought, and on what they focused while learning. These perspectives acknowledged women as having a different perspective and independent voices, and the findings were published in the book, *Women's Ways of Knowing: The Development of Self, Voice, and Mind*.

From their research findings, Belenky et al. (1986, 1997) defined five ways of knowing that women cultivated and moved between. Each represented a different way of knowing and valuing knowledge. The first three stages were Silence, Received Knowledge, and Subjective Knowledge. These revealed how women perceived knowledge. In Stage 1, Silence, women did not believe in their ability to understand or remember the words of others. They viewed themselves as mindless, voiceless, and subject to the decisions of external authority. In Stage 2, Received Knowledge, the women believed that they could receive knowledge from others, reproduce and remember it; however, they could not create it. These women placed their trust in authorities for providing the correct information. In Stage 3, Subjective Knowledge, the women moved from relying on others for information to relying on their own inner voice, instincts, or gut feelings. In this stage, women used their voice to make claims about truth and knowledge and to guide their actions. According to Belenky et al. (1986, 1997), most women they interviewed were in Stage 3.

Stage 4 and Stage 5 (Procedural Knowledge and Constructed Knowledge) revealed processes the women used for forming knowledge. In Stage 4, Procedural Knowledge, the women believed there were multiple sources of knowledge, and each could be evaluated for accuracy and trustworthiness. Procedural knowers believed they could separate themselves from the topic under consideration and create objective observations and analysis. Procedural Knowledge existed in two forms: separate knowing and connected knowing. Separate knowers focused on critical analysis, using frameworks that excluded personal feelings and beliefs. Academic environments favour and foster this type of knowledge development. Connected knowers sought to understand others' perspectives and emphasized the relevance of context in the development of knowledge. It is important to acknowledge that these ways of developing knowledge are not polar opposites and can co-exist in the same person.

From their research, Belenky et al. (1986, 1997) found that women consistently showed a preference for connected knowing over separate knowledge. In Stage 5, Constructed Knowledge, women viewed knowledge as something constructed over time, that constantly changed, and could be influenced by experiences and contexts. Women in this stage displayed the ability to connect and understand others while maintaining a sense of self. Stage 5 normally occurred after time periods of reflection on personal histories and position. The authors noted that all women do not go through all five epistemological stages, and seldom do they start at Stage 1 and progress sequentially.

The work of Belenky et al. (1986, 1997) is used in this study to recognize that women have a distinct way of viewing knowledge, which affects how they think and learn and how they understand, value, and create knowledge. These assertions have since been reproduced in further research studies (Aldegether, 2017; Bosley, 2018; Liu, 2011; Peck, 2010; Romero-Ivanova,

2018). The social obligations of family and their focus on relationships greatly influences how women learn. In male-dominated environments, which are seldom congruent with the way women think and learn, women face obstacles when trying to learn (Aldegether, 2017; Belenky et al., 1986,1997; Bosley, 2018), and the resiliency required for women to overcome these unrelenting obstacles is rarely acknowledged (Belenky et al., 1986, 1997).

After *Women's Ways of Knowing* (WWoK) emerged, a quantitative tool was formed to measure separate (detached) and connected (empathic) ways of knowing called the Attitudes Toward Thinking and Learning Survey (ATTLS) (Galotti, Chinchy, Ainsworth, Lavin, & Mansfield, 1999). The tool was tested in four different colleges and showed acceptable internal reliability. The scores from the tool showed that women consistently rated higher as connected knowers, while males showed a slightly higher rating as separate learners. Since then, researchers have used this tool to measure correlations between their participants and separate and connected knowledge (Aldegether, 2017; Rodman, 2015; Schommer-Aikins, 2015), and women have continued to show higher scores than men in connected knowing.

Belenky et al. (1986, 1997) have received criticism based on their qualitative approach and the similarity of the framework to developmental frameworks. As qualitative research, Belenky et al.'s (1986, 1997) work is not replicable, and their results are not meant to be generalized to all women (Aldegether, 2017; Schweickart, 1996) The authors of WWoK recognized the limitation of their qualitative approach and noted that "these ways of knowing are not necessarily fixed, exhaustive, or universal categories" (Belenky et al., 1997, p. 15). The authors acknowledged that their results provided a snapshot of the voices of many women at one point in time and "cannot adequately capture the complexities and uniqueness of an individual woman's thought and life" (p. 15). In addition, the authors of WWoK noted that their book was

not intended to be a framework for developmental progression (Belenky et al., 1986, 1997). Despite these overt statements, Ruddick (1996) critiqued the book as being laid out as a developmental framework with a hierarchical progression from simple to complex. Throughout the book, it appears as if the women progress from one stage to the next based on personal insights and life changes. Ruddick points out that this journey mirrors the educational developmental process utilised in the United States.

Even though there are criticism of WWoK, the work is still widely used in the field of adult learning (Aldegether, 2017; Bosley, 2018; Liu, 2011; Peck, 2010; Romero-Ivanova, 2018). For instance, a study on women Saudi teachers used WWoK to understand women's approaches to learning as adult educators (Aldegether, 2017). This quantitative study used ATTLS to find out if the women were more likely to be connected or separate knowers. Predominately, the women used connected ways of knowing. In another study, 41 women majoring in computer science were sorted into the five WWoK epistemological stages (Liu, 2011). The results showed that women existed in all five stages; however, the most prominent were Procedural Knowing and Constructed Knowing. From these findings, an additional way of knowing was acknowledged, which the author coined *Logistical Knowing*. Logical Knowing was defined as learning for the logical purpose of fulling a goal, and it was also considered a prominent stage.

In another study, Bosley (2018) used Belenky et al.'s (1986, 1997) framework to guide her understanding of the experiences of six women senior executive in federal government. She concluded that the women had to overcome barriers as a result of being in male-dominated environments. These women mostly exhibited Stage 5 (Constructed Knowing) and remained there until retirement. Some required mentoring to remain a constructed knower. The findings

from this study provided insight into the role of voice and learning in career advancement of women in the federal sector.

WWoK has been used to understand how women overcome barriers in male-dominated environments such as computer science (Liu, 2011), science, technology, engineering, and math (Rodman, 2015) and as senior executive in Federal Government (Bosley, 2018). From the literature, one can surmise that the highly competitive and high-risk culture—similar to that of mountain biking—is not consistent with the social and relational way that many women think and learn (Belenky et al., 1986, 1997; Gilligan, 1982). The literature discussed in this section is useful for understanding the descriptions provided by the women participations about how they understand knowledge development and learning.

Self-Directed Learning

SDL emerged in North America as an extension of Allen Tough's (1971) research and the theoretical perspectives of Malcolm Knowles (1973, 1975, 1978). In academic literature, many terms have been used interchangeably to define SDL, including *autonomous learning* (Houle, 1962), *self-teaching* (Tough, 1967), *self-planned learning* (Tough, 1979), *self-directed inquiry* (Long & Ashford, 1976), *self-initiated learning* (Penland, 1979), and *self-directed continuing learning* (Oddi, 1984). In addition, the self-directed learner has been called the proactive learners (Knowles, 1975), autodidact (Tough, 1971), autonomous learner (Candy, 1991), continuing self-learner (Penland, 1979), and self-directed inquirer (Knowles, 1980; Long & Ashford, 1976). There are many different perspectives on SDL; however, most scholars agree that it involves learners choosing their learning goals and assuming primary responsibility for planning, carrying out, and evaluating their learning experiences (Candy, 1991; Garrison, 1997; Grow, 1991; Knowles, 1975, 1978; Tough, 1971), and that the outcome of SDL is self-

determined, self-managed, and self-regulated learners (Candy, 1991; Garrison, 1997, 2003; Knowles, 1975, 1978).

During the early development of SDL models, Stephen Brookfield (1985) contributed criticisms about SDL as a growing field. Brookfield claimed that "self-directed" was a misnomer because it lacked autonomy, and most models required learners to seek assistance from others. Despite this, Brookfield claimed SDL benefited adult learners because it showed that learning should be focused on the learner, and learning occurs outside of formal education (Brookfield, 1985).

Early models and instruments of SDL. Early SDL models and instruments have viewed SDL as a goal, toward which learners aim to enhance their ability to be self-directed (Merriam et al., 2007); as a personality attribute that is either innate (Guglielmino, 1977, 2013; Guglielmino & Guglielmino, 1991) or fostered over time (Oddi, 1984); and as a process that is either linear (Knowles 1975; Tough, 1979) or non-linear (Candy, 1991; Cavaliere, 1992; Grow, 1991; Merriam et al., 2007). SDL is generally viewed as a trait of adults (Brockett & Hiemstra, 1991; Grow, 1991; Knowles, 1975, 1978). As learners mature from childhood to adulthood, they typically move along a spectrum from needing direction to wanting to be self-directed (Brockett & Hiemstra, 1991; Candy, 1991; Grow, 1991; Knowles, 1970; Tough, 1971). Adults' preference for self-direction makes this transition very natural (Candy, 1991; Grow, 1991). Complications to the process of becoming self-directed occur as adults engage in directive learning environments, such as exist in many high schools, colleges, and universities (Douglas, 2010; Hiemstra, 2013; Seifert, Newbold, & Chapman, 2016). A directive learning experience may undermine learners' confidence and cause them to doubt their ability to learn autonomously

(Seifert et al., 2016). Time restrictions also impede adults' abilities to become engrossed in a topic and learn independently (Hiemstra, 2013).

Linear models. Early SDL models were linear (Knowles, 1975, 1978; Tough, 1979). Tough (1971, 1979) and Knowles (1975, 1978) developed two of the earliest models used in North America. Tough's (1971, 1979) concept of SDL emerged from his quantitative research on adults engaged in learning projects. Tough's SDL used the term *self-planned learning* to describe highly deliberate effort aimed towards gaining and retaining knowledge and skill (Tough, 1979). Tough studied learning projects that were learner-initiated and occurred outside of an educational institution. He asserted that most of the self-planned projects in his study followed 13 steps that included decision making, locating and using resources, and detecting and overcoming barriers. Tough's definition and model supported the initial research and theoretical discourse related to SDL. Today, Tough's contribution to the field is still referenced; however, his model has not been extensively used. Criticism of his work included that the research was quantitative and therefore lacked deep and rich information about how people think and the influence that social context has on learning. Also, his participants comprised only a narrow portion of the population and, therefore, could not be applied to a broader demographic. (Brookfield, 1985; Candy, 1991). During the same time period, Knowles (1975, 1978) developed his theoretical concept of SDL, and with it aimed to better understand learning that occurs in adults, rather than children. From Knowles's perspective, adults succeed in situations where they are highly motivated, can participate in the learning process, and where learning content has practical applications. He defined SDL as "a process in which individuals take the initiative, with or without the help of others, in diagnosing learning needs, formulating learning goals, identifying resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning

outcomes" (Knowles, 1975, p. 18). This definition evolved into a linear model which was used by educators in the 1980s and 1990s. Criticisms of this model were directed at Knowles' linear approach. Critics noted that unpredictability of learning opportunities that occur in an adult's life makes linear models such as this one unrealistic (Candy,1991; Cavaliere, 1992; Garrison, 1997). Many researchers still use the components of Knowles' definition as a framework for identifying SDL (Bartholomew, 2017; Bordonaro, 2018; Grover, Miller, & Porter, 2017; Seifert, et al., 2016).

Instruments. Instruments were developed so that SDL could be used in quantitative research. These instruments were used to measure SDL as an innate personality attribute (Guglielmino, 1977; Guglielmino & Guglielmino, 1991) and as an acquired characteristic (Oddi, 1984). The Self-Directed Learning Readiness Scale (SDLRS) was developed as a 58-item Likert scale that produced a final score for innate personality attributes consistent with self-directed learners (Guglielmino, 1977). In 1991, a newer version of this scale emerged and was renamed the Learning Preference Assessment (LPA) (Guglielmino & Guglielmino, 1991). Oddi (1984) developed another form of measurement called the Oddi Continuing Learning Instrument (OCLI), a 24 item Likert-type instrument that measures acquired characteristics associated with continuous SDL. Oddi, a nurse educator, was interested in understanding how nurses engaged in continuance professional education (CPE). Due to its origins, many researchers have used the OCLI to further their understanding about similar topics—SDL among health care providers (Merriam et al. 2007). Both the SDLRS and OCLI received much criticism, such as: the technique used to create the SDLRS were inappropriate and measured learning in general, not SDL (Field, 1989); SDLRS measured perceptions of SDL, rather than observed acts of SDL (Baveye, 2003); the OCLI lacked an explanation of why learners participate in SDL activities

(Landers, 1989); and finally, both the SDLRS and OCLI were not domain specific (Fisher, King, & Tague 2001). Despite these many criticisms, the SDLRS, LPA, and OCLI have been praised for making important contributions to the present understanding of SDL (Brockett & Hiemstra, 1991). These instruments have been used extensively for collecting quantitative data for correlational studies and are still used by many today (Hutto, 2009; Kranzow & Hyland, 2016; Mahmud, Haroon, Munir, & Hyder, 2014; Svedberg, 2010; Van Duyne, 2017; Wagner, 2018).

Non-linear models. Many non-linear SDL models were developed in the late 20th century as researchers considered the impacts that social contexts have on learning. Grow (1991) developed the Stages of Self-directed Learning (SSDL), a four-step model that assisted teachers with promoting SDL within the classroom. He asserted, "Good teaching does two things: it matches the student's stage of self-direction and it empowers the student to grow toward greater self-direction" (Grow, 1991, p. 140). Grow's model was criticized because it involved the teacher making a diagnosis of a learner's capabilities, and there was skepticism about the accuracy of that diagnosis (Tennant, 1992). Despite this, the SSDL has been used extensively and continues be used to understand the progression of SDL in educational environments (Brott & Watson, 2016; Eales-Reynolds, 2003; Hawkins, 2018; Jons-Cox, 2015). Candy's (1991) SDL model has been described as a bridge between early and current SDL models (Song & Hill, 2007). Candy's model had four dimensions: self-direction "as a personal attribute (personal autonomy)," self-direction "as the willingness and capacity to conduct one's own education (self-management)," self-direction "as a mode of organizing instruction in formal settings (learner-control)," and self-direction "as the individual, non-institutional pursuit of learning opportunities in the natural societal setting (autodidaxy)" (Candy, 1991, p.23). Candy's work was revolutionary because it was the first to show that the way a learner self-directs their

learning depends on the specific context in which they work, live, and play (Song & Hill, 2007). However, there were many important contexts that Candy (1991) failed to address, including the difference between SDL in classrooms and in online learning environments (Song & Hill, 2007). Candy's work is often cited, and it has influenced the design of newer models that are still extensively used, such as the PRO model (Brockett & Hiemstra, 1991), the PPC model (Hiemstra & Brockett, 2012), Garrison's (1997) Comprehensive Model, and Song and Hill's (2007) conceptual model.

In 1991, Brockett and Hiemstra created the Personal Responsibility Orientation (PRO) Model. They wanted to expand on current models while integrating SDL characteristics from the SDLRS. The PRO focused on learning within academic environments and included two main components: the internal characteristics of the learner and external characteristics of the instructional process. The PRO offered a new perspective by integrating dispositions and processes; however, the focus was on the external learning environment, which meant the model was focused on understanding formal learning environments. The PRO model was criticized because it emphasized the importance of internal learning and reflection, yet it did not adequately address the cognitive and metacognitive dimension (Garrison, 1997). The PRO model continues to be used to understand SDL among adult learners (Cooper, 2018; Hall, 2011; Holt & Brockett, 2012) and it has also been used as a foundation for newer models, such as Garrison's (1997) Comprehensive Model, Hiemstra and Brockett's (2012) Person, Process and Context (PPC) model, and Stockdale and Brockett's (2011) Personal Responsibility Orientation to Self-Direction in Learning Scale (PRO-SDLS).

Garrison (1997) developed the Comprehensive Model as an alternative to the PRO model. Garrison's model was unique because it shifted the focus away from context and on to

the learner. According to this model, to be engaged in SDL, the learner had to have an innate desire to learn and personality attributes for being in control of and directing their learning experiences. The model focuses on the learner's ability to control their motivation, as well as their internal and external learning processes. Criticisms of Garrison's perspective include his failure to explicitly recognize context, which make it seem as if context was superficial (Song & Hill, 2007). However, Garrison choose to focus on the learner and the learning process, and as a result, the context implicitly becomes a part of the SDL process. Researchers continue to apply Garrison's (1997) model to gain a better understanding of how adults self-direct their learning within academic environments (Abd-El-Fattah, 2010; Shahrouri, 2016) and outside academic learning (Cooper, 2018; Fyall, 2016; Murray, 2015).

Garrison's model has also been expanded to create a model for adults engaging in professional development and in health care (Asadoorian & Batty, 2006). In 2003, Garrison published the complementary article, "Self-directed and Distance Learning: Facilitating Self-directed Learning Beyond the Institutional Setting," to further discuss the role SDL played outside of a physical classroom. I used Garrison's (1997) Comprehensive Model for this study, and the components of the model will be discussed later in this chapter and in Chapter 3.

Current SDL models and instruments. Researchers have moved the theoretical discourse forward by expanding on earlier models. The International Society on Self-Directed Learning (ISSDL) tracks the research conducted in this area, hosts a yearly conference, and publishes a biannual journal. In this section, I discuss newer models that have emerged and how they have been applied. Both Song and Hill (2007) and Bouchard (2011) created a conceptual model for understanding SDL in online learning environments. At the time, many researchers had explored SDL in online environments, but there was no framework specific for this purpose.

Both researchers expanded on Candy's (1991) perspective, context influences learning. Song and Hill (2007) integrated the two components from Brockett and Hiemstra's (1991) PRO model, SDL attributes and SDL learning processes, and added environmental factors as a third dimension. Song and Hills's model has been used to gain an understanding of learning within online learning environments (Idros, Mohamed, Esa, Samsudin, & Daud; 2010; Plews, 2017; Xu, 2019). Bouchard's (2011) model has been rarely used, however, and Fournier and Kop (2011) noted that it lacked critical supporting literature. One possible reason neither of these models has been adopted more widely is because they are limited to an online learning context.

In 2012, Hiemstra and Brockett developed the Person, Process, Context (PPC) model as a "reconfigured and updated version of the PRO model" (Hiemstra & Brockett, 2012, p. 157). The PPC model still focused on the institutions, their processes, and the learner's attributes; however, it added a component of context that included environmental and sociopolitical climates. Similar to the PRO model, the PPC model lacked crucial discussion about cognitive and metacognitive development. The PPC has been adopted by many researchers to explore various areas, including continuing professional education (Curran et al., 2019; Oh, Park, & Jo, 2016), personal interests (Kang, 2016), and as foundations for developing new context-specific models (Nasri, 2017; Sawatsky, Ratelle, Bonnes, Egginton, & Beckman, 2017)

Teal, Vess, and Ambrose (2015) combined current frameworks of SDL with those of positive psychology to create the Self-Directed Wellness Model (SDLWM). The researchers initially developed this model so they might better understand SDL and positive psychology. Once developed, they felt it had applications in both fields. The SDLWM is new, and its largest limitation is a lack of testing. As a result, this model has not been readily adopted by researchers.

New quantitative instruments have also emerged. Expanding on Garrison's (1997) work, Adb-El-Fattah (2010) designed an SDL instrument that quantitively measures data associated with the three constructs in Garrison's Comprehensive Model, and then used it to understand the relationship between self-management, self-monitoring, and motivation. Outside of Adb-El-Fattah's study, this instrument has rarely been used. Stockdale and Brockett (2011) expanded the PRO model and created a quantitative instrument called the PRO-SDLS to measure self-directedness in learning among college students. They produced a 25-item Personal Responsibility Orientation to Self-Direction in Learning Scale (PRO-SDLS) and found it highly reliable in a selected sample of graduate and undergraduate education students.

Like the SDLRS, the PRO-SDLRS has been critiqued for being too general as a measurement and not measuring SDL as it relates to a specific topic (Gaspar, Langevin, Boyer, & Armitage, 2009). This instrument has been used extensively to explore SDL and environmental contexts (Carlisle, 2016), employability (Chong, 2018), curricular activities (Duarte, Leite, & Mouraz, 2015), asynchronous programming (Gaspar et al., 2009), and summer bridging programs for first-year university students (Hall, 2011). Addressing the notion that SDL instruments were not context specific, Piper et al. (2018) modified the current instruments and designed the Self-Directed Learning for Exercise Scale (SDLES). The purpose of this scale was to measure SDL specific to exercise. Piper et al. (2018) tested the scale on 368 autonomous exercisers and 217 novice exercisers; scores from the instrument showed high levels of validity and predictive ability for categorizing exercisers. Piper et al.'s scale is new and has not yet been used by other researchers.

Even though new models for SDL are being developed, few are being used. Many researchers rely on the early models and definitions developed more than 20 years ago,

indicating that these models remain relevant for understanding SDL in many contexts today. At this time, no singular model or definition has been developed for SDL; however, the multiple perspectives are starting to amalgamate towards one. SDL originally was viewed as either a goal, process, or attribute. Newer models combine many of these perspectives (Song & Hill, 2007; Hiemstra & Brockett, 2012).

SDL has been studied in various contexts including "personal, professional, organizational, educational, and online environments" (Merriam & Bierema, 2014, p. 71). SDL, however, is rarely applied to athletic environments and has not been used to understand women's perspectives on engaging in high-risk sports such as mountain biking for the purpose of recreation.

Garrison's Comprehensive Model

Based on my exploration of the literature, I have concluded that Garrison's (1997) Comprehensive Model aligns with this study and can be used to understand how women self-direct their learning in mountain biking. Garrison's model focuses on learners and how they engage in internal and external learning processes in any context and, therefore, can be applied to understand learning that occurs among women engaging in reactional mountain biking.

Garrison (1997) developed the Comprehensive Model of SDL to include external processes (self-management), internal cognitive processes (self-monitoring), and motivational aspects of SDL. The Comprehensive Model assumes personal attributes of SDL and focuses on the learner controlling their internal and external learning processes, represented in three components (see Figure 1).

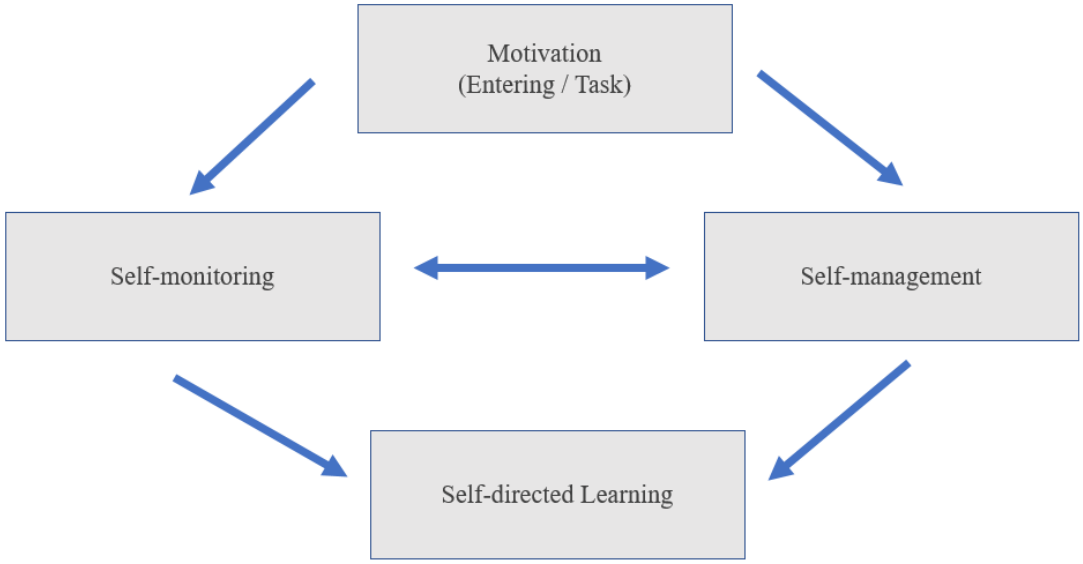

Figure 1. Dimensions of Self-directed Learning (Garrison, 1997, p. 22).

Garrison's comprehensive framework demonstrated how learners integrated their contextual environment (self-management), their cognitive processes (self-monitoring), and their ability to create (entering motivation) and maintain (task motivation) their learning efforts. These three areas overlapped, and self-directed learners continuously and reiteratively interacted with all three of these dimensions.

Self-management. The word self-management indicates the external processes, including engaging with learning resources that assist with knowledge and/or skill development (Garrison, 1997). Another name for self-management is *task-control*. Garrison emphasized that learning does not occur in isolation, and the process of engaging in learning in any community

makes self-management a collaborative process. Thus, the concept of self-management is broad enough to include any self-directed activities that align with the learner's learning goals, including consulting with experts, watching documentaries, reading books and magazines, engaging in deliberate practice, watching professionals, visualizing, and participating in online forums. When developing task-control activities, learners may be limited by their environment, the resources and proficiency of their communities, and the expertise available and accessible (Garrison, 1997). The establishment of online information and communication through the Internet has broadened learners' access to information, giving them more options for shaping their influential contexts. For example, recreational mountain bikers who work towards improving their cornering skills may choose to join a local community ride and observe the techniques of others, hire a coach for a private lesson, become part of an international community of online bloggers who discuss best cycling practices, or watch YouTube videos that demonstrate the activity. The information received from task-management activities (self-management) is valued with respect to the established structures of knowledge (self-monitoring) and overall learning goals (motivation), making the information received an influential form, and not a determinant, of knowledge.

Self-monitoring. Self-monitoring involves assessing (reflecting on) the cognitive and metacognitive processes responsible for constructing new knowledge (Garrison, 1997). This includes creating critical awareness of the learning strategies and mental processes that assist with or distract from enhancing knowledge. Self-monitoring activities include critically reflecting on new knowledge in a meaningful way, integrating new concepts into established knowledge structures, making meaning of new concepts by collaborating with others, and ensuring that the new knowledge and skills being developed align with the learner's learning

goals. Self-monitoring is synonymous with taking responsibility for the learning process, because learners choose which new information to integrate into their existing knowledge structures. When they lack pre-existing knowledge, they must acknowledge the gaps and then adapt related knowledge structures or create entirely new ones. Garrison noted that this process involved "assimilating and accommodating new concepts with previous knowledge" (p. 24). Within self-monitoring, learners do not succeed unless they have cognitive and metacognitive abilities (Garrison, 1997). These abilities enable learners to establish the end goal and the intermediate learning tasks required for success. It also involves constantly adjusting the tasks and goals according to the learner's internal compass. Garrison (1997) noted that self-monitoring these cognitive activities included self-observation, self-judgment, self-reaction, and self-monitoring of the metacognitive processes. Concurrent to this process is reflection on, and critically thinking about, the effectiveness of the cognitive activities toward achieving the intermediate learning tasks and the overall goals.

Although cognitive and metacognitive functions may be viewed as internal functions that are highly dependent on learning strategies, they are influenced by other dimensions in the model, as well as by a learner's proficiencies in creating and following strategies, the pre-existing beliefs that form their epistemologies, and contextual surroundings. Garrison (1997) wrote, "The challenge is for the learner to integrate this external feedback with his or her own internal meaning assessment" (p. 25). He noted that self-monitoring uses external learning tasks to verify the learning process as effective.

Motivation. In Garrison's (1997) model, motivation is integrated into self-management, and self-monitoring is an integral part of establishing and maintaining SDL. There are two distinct types of motivation: entering-motivation and task-motivation. Entering-motivation is the

initial commitment to a particular goal and the initial intention that is established to work towards achieving it. It is the result of rational reasoning by learners to enter an activity and is responsible for initially engaging in the learning goal. Entering-motivation is an important stage of motivation because it represents the reasons for establishing a learning commitment and sets the foundation for why a learner may continue to work toward completing it. Garrison wrote that entering-motivation is largely determined by the learner's valence (attraction to) and expectancy (ability to achieve) from the activity. Valance and expectancy are tied to personal values and self-beliefs. Valance is composed of personal needs (values) and affective states (preferences). Expectancy is tied to self-efficacy and the belief that a desired outcome can be achieved. The more closely the activities chosen match learners' personal values and align with their self-efficacy, the more likely it is that learners will enter the activity with a high level of motivation and commitment. Task-motivation is the ability to stay on task over a period of time. Learners do not maintain their motivation and persist with their learning unless they become active learners who are cognitively able to develop effective strategies for learning (Garrison, 1997). Drawing on Corno's (1993) work, Garrison (1997) linked task-motivation to *volition*, a term which literally means "strength of will" (p. 14) and is associated with the characteristics of individuals who "apply themselves diligently to almost everything that they do" (p. 14). Some meta-motivational strategies for task-motivation include avoiding distractions and directing and controlling intellectual, emotional, and behavioral energy towards achieving goals.

The motivation dimension from Garrison's (1997) model is influenced by many different factors, including external conditions and internal states. Garrison wrote that internal motivation is essential for meaningful and worthwhile learning; it leads to learning that is both self-directed and continuous. The connections between self-direction and internal motivation are evident;

learners who are in control of their learning are able to choose learning goals that align with their learning objectives.

Studies on Self-Directed Learning in Recreational Sports

Historically, research applying SDL frameworks has been focused on understanding learning within academic learning environments. More recently, researchers have applied SDL frameworks to learning that occurs outside of academic environments, such as exercise and physical activity, achieving personal goals in writing (Brockett, 2019; Murray, 2015) and women's health and wellness regarding menopause (Cooper, 2018), and mental illnesses (Herod & Kop, 2017). Studies that include physical activity are considered first.

Two studies emerged that combined SDL with learning associated with physical activity (Piper et al., 2018; Piper, Gentry, Van Ginder, McMillan, & Decker, 2013). According to these researchers, it is intuitive to apply SDL frameworks when aiming to understand individuals' initiatives to improve their own health and when trying to achieve physical activity goals. In the initial study, researchers analyzed an annual ultra-endurance event that included many athletic tasks such as backpack hikes, military style physical training events, swimming, lifting, carrying, and running (Piper et al., 2013). Using OCLI, the researchers found that competitors within this race were highly self-directed. Critiquing these studies, Piper et al. (2018) claimed that it was difficult to tell if the participants in the previous study rated high in SDL in general or in the domain of physical activity and exercise. These researchers noted that the OCLI scale was not domain-specific for exercise.

In 2018, Piper et al. used components of the OCLI, SDLRS, and other similar scales and created the Self-Directed Learning Exercise Scale (SDLES) to measure SDL attributes of those who regularly engaged in exercise. Their scales showed that participants who regularly engaged

in exercise showed SDL characteristics specific to that domain. I found no other studies that applied the SDLES or any other SDL framework to understand adult learning and exercise or physical activity.

Most studies that applied an SDL framework explored learning that occurred in academic environments; however, these studies did not deal with recreation or other sports. For example, Fyall (2016) applied Garrison's SDL framework to gain a deep understanding of the learning journeys of three African American women with war related disabilities who were successful in attaining their goals in a self-directed (on-line) vocational rehabilitation program aimed at gaining employment. In McCartney et al.'s (2016) study, the researchers interviewed 17 computer students because they wanted to understand why computer science students had higher levels of SDL and were motivated to learn computer topics on their own. Using mixed methods research, Post (2015) explored why there was a 60% dropout rate among highly self-directed entrepreneurs registered in a small business educational program. Finally, in a cross-sectional study, Boyer and Usinger (2015) looked at the relationship between over 3,178 adult students attending college, the instructional methods of 128 courses in six different subject areas, and their ability to be self-directed. While these studies demonstrate the various ways in which SDL has been used to research adult learning, it also shows there has been little attention to SDL in recreational sports.

The studies discussed in this section of the literature review all used SDL models. Among these studies, only two studies focused on SDL and physical activity and exercise (Piper et al., 2013; Piper et al., 2018). Both of these were quantitative studies and focused on the participants' SDL attributes. No studies focused on SDL and gaining skills in recreational activities. This

highlights the originality of my study and its possible contribution to the field of adult learning and recreational sports.

Synthesis of Literature

The literature outlined in this chapter suggests that women face barriers that limit their participation in recreational activities, and many of these barriers were prevalent in male-dominated environments. Like many sports, mountain biking maintains hegemonic ideals reinforced by the way the community recruits and integrates new members and the way media portrays sports. As a result, women face barriers when they participate in male-dominated sports such as mountain biking. The barriers include feelings of fear, vulnerability, and objectification. When riding with men, women often suppress their fears and emotions, adhere to cultural norms and expectations, and engage in behaviour that is similar to the men with whom they ride. Women alleviated these pressures by finding other women activity partners, congregating together in women-only activity groups, and joining all-women clubs.

For women, mountain biking is still a relatively new form of recreation, and very little scholarly literature addresses women's interests related to mountain biking and how they learn skills in this sport. However, the scholarly literature within the field recognizes that women think and learn differently than men. Recognizing there are differences between how men and women learn provides the foundations for digging deeper into how women learn mountain biking skills. Gaining this understanding establishes a foundation for this study.

To gain an understanding of how women learn, I applied Garrison's Comprehensive Model (1997) of SDL. This model allowed me to focus on women's individual and self-directed processes and unpack their motivating factors and their self-management and self-monitoring practices. Although SDL is a widely adopted framework, it is seldomly used to understand how

adults learn in recreational and athletic pursuits. The two recent studies that combined SDL and athletic pursuits take a quantitative approach and lack the deep and detailed information provided by qualitative studies. This study addresses a gap in scholarly literature by addressing how women experience mountain biking and how they learn skill in mountain biking.

Summary

In this chapter, I reviewed the literature on women participating in recreational sports, including the history of women and sports in Canada, research on women and recreational sports, unique relationships between women and bicycling, and the research on women's participation in mountain biking and similar sports. Next, I discussed the scholarly literature within the field of adult learning that formed my researcher lens. This scholarly research included theoretical perspectives on adult learning, women's thinking, and self-directed learning. Following this discussion, I outlined Garrison's Comprehensive Framework, the theoretical framework I used to guide this study. Finally, I provided examples of research studies that used SDL frameworks to support this study.

In Chapter Three, I discuss my philosophical foundations and perspectives as a researcher, and further define how the components of Garrison's model are integrated into data collection and analysis. I also discuss my commitment to ethical practices and the limitations and delimitations of this study.

CHAPTER THREE: RESEARCH DESIGN

Overview

This chapter is organized into four sections. First, I provide a description of my philosophical foundations, the research questions, and research methodology. Next, I discuss the participants, data collection, and data analysis. Then, I describe my commitment to ethical research practices and the study's limitations and delimitations.

Philosophical Foundations

An alignment exists between my philosophical foundations as a researcher (my ontology, epistemology), my chosen research methodology, and the processes I used to collect and analyze data. Ontologically, my researcher perspective acknowledges multiple realities (or interpretations) for every single event (Merriam, 2009). I viewed each participant as having their own unique reality, influenced by their social and cultural experiences. Using this perspective, I engaged in interpretive research and collected rich and meaningful descriptions of participant perspectives and experiences. I applied a theoretical framework (SDL) to interpret the findings.

Epistemologically, I believe that the researcher develops an interpretation of the participant's perspectives as they gain a deep understanding of the participants' perspectives (Merriam, 2009). New research is verified by existing research and added to the accumulating and evolving body of scholarly research. New research, such as the results produced in this study, moves scholarly conversations forward. Applying these philosophical pillars, I designed this study to gain a deep understanding of women's perspectives on mountain biking and learning.

Research Questions

The main research question for this study was: What are the interests, thinking, and learning of women pursuing their goals in mountain biking for recreation? The three sub-questions that supported the main inquiry were:

1. How do women make sense of mountain biking and their participation in it as a recreational activity?
2. What is the role of SDL in women's development of technical skills and their achievement of goals as they engage in recreational mountain biking activities?
3. What are the relationships between women's beliefs about learning, the learning activities in which they engage, and the characteristics of SDL?

In the next section I discuss the research methodology used to address these questions.

Research Methodology

To gain access to detailed information and a deep understanding of the participants' perspectives, I used qualitative methodology. Within social sciences, both qualitative and quantitative research capture participants' perspectives; however, qualitative inquiries gain access to more detailed sets of data (Creswell, 2014 Denzin & Lincoln, 2011; Merriam and Tisdell, 2016). "Quantitative researchers are seldom able to capture the subject's perspective because they have to rely on rigid, remote, inferential, and empirical methods and materials" (Denzin & Lincoln, 2011, p. 9). My personal philosophical perspective is consistent with qualitative research as it provides a framework for gathering deep and rich information about how participant think, understand, and learn.

My research inquiry addressed complex questions about how women think and learn. The literature review (Chapter Two) showed little supporting literature directly related to the research

questions. Therefore, I chose to use basic qualitative research methodology (Merriam & Tisdell, 2016) so that I could have a significant amount of flexibility when designing the research study. Basic qualitative research follows a generic framework and does not require the researcher to follow a specific type of study (such as grounded theory, narrative analysis, or ethnography). It focuses "on process, understanding, and meaning" (p. 15), and "the researcher is the primary instrument of data collection and analysis" (p. 15). "[T]he process is inductive; and the product is richly descriptive" (p.15). Due to the complexity of understanding how people think and learn, using basic qualitative research aligns with my research study. In the next section, I discuss the participants of this study.

Participants of Study

To successfully conduct this study, I needed to recruit participants who were knowledgeable about the phenomenon and able to provide significant insight about the research questions (Creswell, 2015; Merriam & Tisdell, 2016). I created specific criteria that participants had to meet in order to participate. These included: identified as women, were over the age of 18, participated in mountain biking for the purpose of recreation, had at least a two-year recent history of mountain biking, rode their bikes a minimum of 15 times per year, and could identify at least one mountain biking skill that they had learned. Based on these criteria, I recruited 10 women mountain bikers. This number was comparable to other similar qualitative studies. For example, Huybers-Withers (2015) had eight participants in her qualitative study on mountain biking, and both Olive et al. (2013) and Smith (2014) had 11 participants in their qualitative studies on SDL. I first recruited four participants from my personal network. I checked that they met all the criteria, understood the study and risks, and were willing to participate. I asked these four women to distribute a recruitment letter (see Appendix A) by email to other women they

knew in mountain biking who might be appropriate for the study. The email outlined the criteria selection. Those who met the selection criteria and wanted to participate were invited to contact me by phone or email. Within two weeks, six additional women contacted me. Before the interview, I reconfirmed that each person met the selection criteria.

Data Collection Methods

Interviews were used to collect data; this method enabled me to collect information I could not observe or predict, such as thoughts, feelings, and the interpretation of experiences or situations (Merriam & Tisdell, 2016; Creswell, 2015). Interviews can be structured, semi-structured, or unstructured (Creswell, 2015; Denzin & Lincoln, 2011; Merriam, 2009; Merriam & Tisdell, 2016). I used semi-structured interviews because they provided a structure for adhering to my researcher agenda while having flexibility to pursue relevant information as it emerged (Merriam & Tisdell, 2016). This flexibility makes semi-structured interviews a common choice for qualitative researchers.

Interview Development

I designed the interviews to collect detailed information that addressed my research questions (Merriam & Tisdell, 2014) while remaining within the theoretical framework outlined in Chapter One and discussed in Chapter Two, Appendix B contains the complete interview guide.

I developed three sets of interview questions. The first set of questions aimed to discover how participants made sense of mountain biking and their participation in it (research question 1). These questions focused on how participants defined, explained, and described mountain biking and their experiences. Examples of these questions included: What does mountain biking

mean to you? How would you describe mountain biking to someone who didn't know anything about it? How would you describe someone who participates in mountain biking for recreation?

The second set of questions were developed to gain an understanding of how the participants engaged in SDL (research question 2). I created questions related to the three constructs of Garrison's (1997) SDL model: self-monitoring, self-management, and motivation. Since Garrison's framework provided the theoretical framework for this study, this section held the most questions. For self-management, the questions focused on the external activities and tasks the participants used for skill development. This included questions about their training routines and training activities. For self-monitoring, the questions addressed the participants' thought processes responsible for creating goals, aligning learning tasks, and constructing new knowledge and skills. Questions related to self-monitoring asked participants about their skill development goals, why they chose those goals, and asked them to rank their learning processes in order of importance. For motivation, questions addressed entering-motivation and task-motivation. Entering-motivation focused on the participants' reasoning for creating a learning goal (Garrison, 1997). For example, I asked them to explain why they were motivated to learn a specific skill. Questions on task-motivation focused on the participants' ability to stay on task over a period of time, such as avoiding distractions and directing their energy towards achieving their goals. These questions included asking why participants continued to devote their time and personal resources to pursue mountain biking activities.

The third set of questions were designed to gain an understanding of the participants' beliefs about learning, to identify if there were any relationships between these beliefs and learning practices. As previously defined, beliefs (Mezirow, 1997) include the participants' assumptions, judgements, and evaluations of learning. Questions associated with beliefs

included: What do you think is the best way for you to learn in general as an adult? What do you think is the best way for anyone to be engaged in learning as an adult?

Maintaining the academic lens of adult learning and taking into consideration research devoted to women's learning, I included questions that asked participants to describe their experiences learning as an adult and as a woman; for example: What is the best way for adults to learn in general? Do you see a difference between how men and women learn mountain biking?

Once I was satisfied with the questions, I conducted two pilot interviews. During the first pilot, I discovered that some questions were not clear. I restructured these questions and retested them with a different test interviewer. After the second pilot interview, I added additional questions about learners' beliefs. I kept the data collected from the second interview because I made very few subsequent changes, and the interviewee's responses contributed valuable data to the study. Next, I conducted interviews.

Conducting the Interviews

I set up interviews using the emails provided by the participants. I asked the participants to choose the locations and times for the interview. This allowed them to pick locations and times that were convenient, fit their schedule, and where they felt comfortable. The locations included professional offices, picnic tables and benches at local parks, and personal homes. The interviews took place during the afternoons and in the evenings. Each location was quiet, and there were few distractions.

Upon meeting each participant, I immediately started a pleasant and engaging conversation. I asked them about their day and upcoming summer plans. The purpose of this discussion was to create a friendly and conversational environment wherein they would feel relaxed and forthcoming when answering questions. I believe this strategy worked. The

participants appeared to be relaxed as we started their interview and, mostly, they easily answered the questions. Before starting the interview, I reviewed the informed consent, asked the participant to review the informed consent (see Appendix C), and we both signed two copies: one was for the participant to keep, and I kept the other for my records. I then asked for permission from the participants to audio-record the interviews. All participants consented to this request. I reminded the participants that they could withdraw from the interview at any time, and they could refuse to answer any question. Next, I provided an opportunity for the participants to ask questions. They had very few. Finally, I told each participant that during the interview, there were no right or wrong answers; I was interested in learning about their perspectives. I turned the recorder on and started the interview.

I set up individual interviews and interviewed each participant separately. The interviews were between 35 and 90 minutes. I asked one question at a time and listened attentively as the participants responded. If I was not satisfied with the amount of information provided or felt I may have misunderstood the information, I asked follow-up questions and probed for additional details. Examples of follow up questions included: Can you tell me more about . . .? Can you provide more details? Do you have another experience you can share? Can you explain how you feel about . . .? I probed the participant until I was satisfied with the amount of detail they provided. Sometimes the participant revisited questions that had already been discussed. They also jumped ahead to questions I had not yet asked. To ensure I asked all questions to all participants, I continuously returned to my question guide and put a tick mark next to the questions I had asked. After all the data was collected and transcribed, I began to engage in the data analysis.

Data Analysis

My job as the researcher in data analysis was to "make sense out of the data" (Merriam & Tisdell, 2016, p. 202) by "consolidating, reducing, and interpreting what people have to say and what the researchers had seen and read" (p. 202). My transcribed interviews became my data, and I used my researcher lens to make sense of it. For each participant, I summarized the transcripts into paragraphs, grouping similar topics. These paragraphs became the Findings, which I summarize in Chapter Four.

I developed codes based on the research questions, the theoretical framework, and theoretical perspectives outlined in Chapter One and Chapter Two. I went back into the transcripts and manually coded the data by flagging the fragments with short-hand designations including colours, words, underlines, circles, or any combination of these. The data analysis related to the first research question (How do women make sense of mountain biking and their participation in it for recreation) involved coding based on the theoretical perspective of sense-making (Mezirow, 1997; Yero, 2002). I looked for ways the participants explained, interpreted, and described mountain biking, their participation in it, their experiences, their feelings associated with it, and the comparisons they made. To ensure I addressed the research questions, I also looked for descriptions and explanations of recreation, recreational athletes, participation in recreation, women mountain bikers, and experiences with other women mountain bikers.

The data analysis related to the second question (What role does SDL play?) involved coding based on Garrison's (1997) SDL framework, which included the three dimensions of SDL: motivation, self-management, and self-monitoring. Motivation was split into two types: entering-motivation and task-motivation. Coding for entering-motivation consisted of identifying the initial reason (purpose) the participants started mountain biking, their attraction to the sport,

and their rational for wanting to learn specific skills. Coding for task-motivation comprised of identifying explanations of why the participants continued to mountain bike and why they continued to develop their skills. Coding for self-management constituted identifying any external learning activities (learning tasks) that were driven by the learner (individually or in collaboration with others). Coding for self-monitoring consisted of finding explanations of internal thinking processes that oversaw the repertoire of learning strategies, ensured there was an alignment between the learning tasks and the learners' goals, and ensured overall success. Self-monitoring also included examples of when participants integrated new information into existing learning structures, for example, receiving and integrating feedback from others. Once I reviewed the findings related to each category, I found it necessary to step back and view the findings from a holistic perspective, as the findings did not always fit easily into a category due to the dependent and overlapping nature of the three dimensions of SDL (Garrison, 1997).

Data analysis related to research question 3 (participants' beliefs about learning) involved coding beliefs based on the theoretical perspective outlined in Chapter One. To code for beliefs, I looked for judgements, assumptions, and evaluations the participants made about how they learned, how others learned, and how they created learning opportunities for themselves and others. It also included their perspectives about SDL.

When coding, I transferred the fragmented data onto Word documents and organized them by participant and then coded phrases. I next reread each transcript and searched for segments of data that I may have missed. I returned to the Word documents and regrouped the lists of fragmented data into categories based on similarities. I created titles to identify each category, merged categories that were similar, and created subcategories when necessary. I designed charts so I could see how many participants discussed each category of information.

At this point in the analysis, I switched from reviewing lists of segmented data and charts to looking at themes within the categories (Merriam & Tisdell, 2016). I considered all of the information I had collected and categorized and looked across all of the different categories to see what themes emerged. Once a theme emerged, I wrote about it, drawing on the data that I collected from the participants. The list of themes and their descriptions appear in Chapter Four.

Commitment to Ethical Practices

While designing this research study, I was committed to establishing an ethical research practice. Having a commitment to ethical practice means protecting participants against the potential harm that my actions as a qualitative researcher may have on their lives (Bloomberg & Volpe, 2016; Merriam, 2009). It also involves implementing strategies to create information that is dependable. In this section, I explain my ethical considerations related to the participants in this study and the strategies that I implemented to produce credible research. I then discuss the limitations and delimitations of this research study.

Ethical Practices and Participants

Before contacting any participants, approval was granted through the University of Calgary Conjoint Health Research Ethics Board. This process ensured that I met the Research Ethics Board's (REB) core principles: respect for persons and concern for welfare and justice (Government of Canada's Panel of Research and Ethics.). To receive approval, The REB required that this research was designed in a way that was sensitive to those it involved and that I had created a plan to provide the participants with respect and due consideration.

During the recruitment process, I found participants from within my network and from the greater mountain biking community. To ensure that potential participants were not influenced by our pre-established relationship or future relationships, I told every person that their

participation was at their discretion, and their decision would not impact our current relationships or our future interactions.

The risks to human participants that I identified were social risks and psychological risks. The social risk of this study involved a risk to confidentiality. Through grapevine communication, identities could become known. To reduce the risks to anonymity, I created a pseudonym for each participant and removed identifying information such as names of friends, events, unique locations, and any information that may reveal a single identity during the transcription process. I kept the audio-recorded interviews in a locked cabinet until the transcriptions had been completed. The audio files were moved to a locked secure drive. During the informed consent process, I discussed this risk with the participants.

The potential psychological risk included emotional turmoil that could result from reflection. Participants were asked to answer questions involving reflection, which might elicit an emotional reaction. To decrease the possibility of having an adverse reaction and causing harm, I created a positive and safe environment for the interviewees by allowing them to choose a location where they were comfortable and by engaging in a friendly conversation at the start and end of the interview. During the informed consent process, I explained the risk to each participant before starting the study and revisited the topic again after the study. I also ensured that the participants had a strategy, such as visiting a general practitioner, for dealing with harmful emotions. I directed participants' attention to the portion of the informed consent form that contained the phone number for the distress centre, a free of charge confidential help line.

After explaining the risks involved in this study and the controls put in place to mitigate those risks, I went through the rest of the informed consent process to ensure the participants understood what would be required from them during the interview. I identified the purpose of

the study, the information required of the participant, the estimated time commitment, my contact information, and a clause that informed participants that they could refuse to answer any questions, or they could remove themselves from the study at any time during the interview. As part of the informed consent process, I requested permission to use direct quotes from the interviews for presentations and in the final dissertation report. I then asked for permission to record each interview. If the participants wished to proceed, we both signed the consent forms, and a copy was provided to the participant. I kept the other copy for my records.

Creating Credible Information

The purpose of this study was to inform future research and recreational practices related to learning and skill development. Therefore, it was essential that this study produced reliable and valid information. Traditionally, having validity in research has meant being able to compare the data produced with reality, and reliability was measured as the ability for the researcher to reproduce the results of the study (Merriam & Tisdell, 2016). This original perspective is challenging for qualitative research such as this because it is contrary to the theoretical foundations: the results of this study should not be used to make generalizations about another group of participants' realities, or even the same group's perspective at a different point in time.

> [Qualitative researchers] seek to describe and explain the world as those in the world experience it. Since there are many interpretations of what is happening, there is no benchmark by which to take repeated measures and establish reliability in the traditional sense. (Merriam & Tisdell, 2016, p. 250)

In this study, validity and reliability relied on accurately capturing the participant's perspective of reality at a moment in time, achieved by adopting strategies that validated the credibility of the data collection process (Merriam & Tisdell, 2016). Strategies that I used to increase validity

included adequate engagement in the data, researcher reflexivity, and peer examination. The strategies that I used to increase reliability encompassed peer examination, researcher reflexivity, and maintaining an audit trail.

Substantial engagement in the data supports validity (Merriam & Tisdell, 2016). For this research study, I was the interviewer and transcriber, as well as the person who conducted the analysis and formulated the results, including reading, coding, and re-reading the interviews to find supporting information for all the developed themes. While coding and seeing themes emerged, I was able to cross-check information among many different perspectives. This process enabled me to ensure the results were supported. When many participants support a single theme, credibility is increased because it is less likely that the theme developed was influenced by researcher bias.

Understanding the researcher's philosophical and sociocultural position allows the reader to view the research process through the lens of the researcher. Understanding the researcher's biases and assumptions does not eliminate the biases and assumptions; rather, they show how those values and expectations influenced the conclusions of the study (Merriam & Tisdell, 2016). In this chapter, I identified that I am an interpretive researcher, and I explained how that impacts data collection and analysis. In Chapter One, I noted my preconditioned biases and assumptions, and I shared my personal athletic journey so that the reader may understand my background. I also shared my experience as an adult educator and how my beliefs about adult education have evolved.

Throughout this research study, I kept a journal and wrote in it often. I was intrigued as I discovered methods of thinking and learning applied by the women that differed from mine, and I often applied what I was learning to my own life. I learned a lot about myself as a woman, a

learner, a mountain biker, and a human by listening to the participants, reading and analyzing their transcripts, and then engaging in reflection. Keeping a journal also assisted with having a critical lens about my personal perspectives and how they influenced the research process. When I felt that the data aligned with how I believed learning should occur, I wrote about it, and this practice assisted with identifying my bias lens.

The peer-review process adds credibility to research, increasing its validity and reliability (Merriman & Tisdell, 2014). By the time this study is published, it will have gone through an extensive peer-review process. My supervisor and each member on my academic committee will have reviewed the study and offered their scholarly and valuable feedback. As a graduate student completing a dissertation, I have been grateful for their guidance and their feedback in the final report.

Maintaining an audit trail increases the reliability of the study by showing readers how the results are related to and supported by the data collected (Merriam & Tisdell, 2016). The methods that I used to collect data and generate results were extensively discussed in this chapter. Chapter four includes numerous direct quotations from the interviews in the results of the study. The appendix also provides additional supporting documentation for the audit trail.

Limitations and Delimitations

It is important to acknowledge the limitations and delimitations of this study and their impact on the results. Limitations included aspects of the design that impacted the results of the study; delimitations involved the conceptual boundaries created to narrow the scope of the research study (Bloomberg & Volpe, 2016; Merriam, 2009).

Limitations

In this study, limitations extended from the qualitative research design. Qualitative inquiries are not meant to stand alone in isolation, create absolute answers, or be used to make general assumptions about larger populations (Merriam, 2009). This study has this limitation; it was designed to provide information about a specific population at a point in time, and it should not be used to make a generalization about another population.

I used semi-structured interviews to collect qualitative data from the participants. Although semi-structured interviews offered flexibility (Merriam & Tisdell, 2016), I found I was limited to the topics I had pre-selected. Unstructured questions may have resulted in broader discussions and further insights. I also found that the open-ended questions that I developed sometimes resulted in ambiguous responses. When I misunderstood the answer, I would ask the participant further open-ended questions such as: Can you provide more details, or can you provide another example? However, ambiguity in some areas of the study remained.

I invited the women to choose the interview location, advising them to pick a place where they would feel comfortable and not distracted. I felt that there were few distractions at the interview locations; however, the women in the study may have perceived the environment differently than I did, which may have influenced the data that they provided.

I collected all the data at once and then analyzed it. Merriam and Tisdell (2016) noted that another way to apply basic qualitative research is to use an emergent approach, where the data is collected and analyzed one participant at a time. An emergent approach may have produced different or more in-depth information about the specific topics. In addition, a second set of interviews with the same participants may have provided confirmation of the results,

adding to the research credibility. Instead, I chose to have a large sample and depended on the controls previously discussed to insure validity and reliability.

Throughout this thesis, I have disclosed my researcher position so that readers might understand how I have influenced the direction of the study. I have also declared the strategies I used to ensure that the participants' perspectives supported the results of the study. I used specific frameworks to guide the data collection and analysis.

Delimitations

In this study, delimitations related to the participants. To narrow the scope of the research to only adult women, I excluded the perspectives of those who did not identify as women and the perspectives of children. I wanted to learn from women who had recent experiences with relatively advanced technical skills, and therefore excluded participants with less than a two-year history of riding and those who practiced less than 15 times per year. I was interested in recreational pursuits, and therefore excluded professional and amateur athletes, as well as anyone receiving compensation for their athletic performances. All of the data was collected from participants who lived in Calgary, Alberta, and excluded the perspectives of women living outside of this geographical location. In the future, researchers can explore additional perspectives on recreational mountain biking and compare their results with those produced from this study.

I designed this study to explore and understand the interest, thinking, and learning of women who participated in mountain biking for recreation.

Summary

In this chapter, I discussed all elements of the research design that informed this study, including my researcher philosophy, the participants, the data collection and analysis processes,

my commitment to ethical research practices and processes, and the study's limitations and delimitations. In Chapter Four, I outline the results of the study, supported by rich and descriptive details from the participants' interviews. I then discuss the themes that emerged during the research analysis.

CHAPTER FOUR: FINDINGS AND ANALYSIS

Overview

This research study focused on women's perspectives on mountain biking and their beliefs and experiences learning mountain bike skills. In this chapter, I summarize the findings shared with me during interviews and share quotes that reflect the women's perspectives. Next, I provide an analysis wherein I describe the themes that emerged as I reviewed the data using my researcher lens, which included the SDL Framework (Garrison, 1997) and accumulated experiences from my academic, professional, and personal life. The analysis was guided by the purpose of the research study, which is disclosed in the research questions. To recap, the main research question was: What are the interests, thinking, and learning of women pursuing their goals in mountain biking for recreation? The three supporting questions were:

1. How do women make sense of mountain biking and their participation in it as a recreational activity?
2. What is the role of SDL in women's development of technical skills and their achievement of goals as they engage in recreational mountain biking activities?
3. What are the relationships between women's beliefs about learning, the learning activities in which they engage, and the characteristics of SDL?

Findings

In this section, I offer a general overview of the participants and personalized portraits for each. Both the overview and the portraits constitute summaries of data collected during the interviews.

Participants

The women in this study were experienced mountain bikers in Calgary, Alberta; they pursued mountain biking during their free time, and they participated in mountain biking for the purpose of recreation. The participates started mountain biking in a variety of ways, which included fulfilling a curiosity about the sport, partaking in family bike trips, being encouraged by siblings or friends, and joining bike clubs. All of the women in this study had committed eight or more years to the sport and represented a range of abilities, as indicated by the types of skills they were developing. Some of the women were working on basic skills such as climbing hills or riding with clips. Others were developing more advanced skills such as climbing steep switchbacks with steps or riding long and steep descents with drops. Every rider discussed participating in on-going and continuous learning; their approaches to learning included practicing on their own, practicing with others, attending skills classes, taking Professional Mountain Biking Instructor (PMBI) Level 1 courses, and teaching others.

Portraits

In this section, I introduce each participant by sharing demographic information and the skills they discussed learning. Being able to identify and discuss at least one developing skill was a criterion for participating in this study, since many of the interview questions referred to the learning associated with that skill. The rest of the findings are categorized into four main topics: sense-making and participation, motivations, beliefs about learning, and how the participant learns. The topic of sense-making and participation included how the women experienced mountain biking for the purpose of recreation, their perspectives on recreation, and how they believe women are viewed in this sport. Motivation included the descriptions of why the participants started mountain biking, why they continued to engage in it, and their motives for

developing skills. Motivation was used for this topic instead of interest, as stated in the research question, because the participants interpreted their interests in mountain biking as personal motivations for their initial engagement, for their continuous participation, and for their learning goals. So motivation better represents their thinking in reporting the findings. Beliefs about learning included general descriptions of learning and learning related to mountain biking. How the participant learns included the individual's physical learning activities and thought processes associated with skill development.

Participants in the portraits that follow are grouped together based on similarities in the methods they used for developing their skills. To elaborate, the first three participants (Rose, Elyse, and Eva) learned on their own and with others. They had not attended skills classes. The next four participants (Sue, Margaret, Jody, and Sage) learned on their own, with others, and by attending skills classes. The final three participants (Lynn, Kate, and Alice) learned in the same ways as the previous four; however, they also took the Professional Mountain Biking Instructor (PMBI) Level 1 designation to become mountain bike instructors and volunteered as coaches for skills clinics.

Portrait of Rose. At the time of the interviews, Rose was in her mid-30s, rode her mountain bike periodically throughout the summer, and had never attended skills classes. She described her developing skills as riding over logs, descents, and using a "skinny . . . [when] crossing little streams."

Sense-making and participation. For Rose, mountain biking meant she was on a trail in nature, where there were "woods . . . bumps and roots." It meant she belonged to a larger community of mountain bikers. The experience of mountain biking involved feeling flow, which Rose described as the "epitome of fun." Mountain biking provoked more fear than the other

activities she did, such as hiking and trail running, which made her "feel more excited and supper happy." Frustration was another feeling that emerged for Rose when she discussed mountain biking: she felt frustrated when she "chickened out" of riding terrain that was challenging yet within her capabilities. Rose believed that recreational athletes participated in sports "purely for fun . . . [and to] challenge themselves." When describing women mountain bikers, she compared them to males, and noted that women riders are more cautious and generally less aggressive.

Motivation. When Rose was a child, she was introduced to mountain biking by her older brother. She said she continues to ride mountain bikes because the activity provides her with the opportunity to face fears, overcome challenges, and achieve goals. "Guaranteed, every time you go out, you get the chance to challenge something that you are working [on]." An element of pride was also associated with overcoming challenges when Rose noted, "I feel super proud. Like yea! I just conquered my fear!" Rose was motivated to work on developing skills that enabled her to ride without falling, stopping, or having to get off her bike and walk. These skills allowed her to do more things and what she called "just having more fun."

Beliefs about learning. Even though Rose had never attended a skills class, she believed it could be an excellent way to learn. She declared that skills class provides a space where individuals can "get your foundational skills and meet people." In additional to skills classes, Rose felt that learning involved more than reading books and watching videos. She noted that it involved "doing it and having fun." Fun was very important because, "if you aren't having fun, then what is the point? You aren't going to keep doing it." Having fun while learning involved "riding with people that you enjoy hanging out with" and doing things that are challenging. She added that it is even more beneficial when those with whom she rides are more advanced and able to provide tips. For Rose, being self-directed meant "just going and doing something." It

included “finding all the resources that will help you out . . . making a plan for yourself about something you plan to achieve . . . setting goals . . . and trying to reach those [goals].” Adding to this definition, Rose pointed out that SDL included modifying goals when they seemed unachievable and creating benchmarks so she could see her successes over time.

When developing mountain bike skills, Rose believed it was important to set an intention, such as a goal. She shared, “I make goals for everything, mountain biking included.” It was also important for Rose to commit time to learning, and she admitted, “there have been seasons where I just haven’t done much . . . I haven’t thought enough about when I am going to fit this in.”

How Rose learns. Rose learned with her brother, friends, and on her own. When Rose decided on skills to pursue and how to learn them, she considered it “entirely my responsibility.” When practicing by herself, Rose sessioned a section of trail by “[going] back up and [doing] it again.” After a successful attempt, she would re-ride that section multiple times before moving on. Rose discussed being slow and steady with her skill development and described this process as “slow progression . . . going easy . . . [and] upping the bar and upping it.” When Rose mountain bikes with others, she remains in control of her actions by choosing what she will, and will not, ride. She declared, “When I am out riding with other people, the route might be chosen for me. But there is always the opportunity for me to walk . . . I always have choice.” When riding with others who are more experienced, Rose said she attempts more difficult terrain because they “talk you though different things” and as a result, she is able to confidently ride terrain that is “way over [her] skill level.”

Rose often had an inner dialog with herself and debated her abilities. She shared, “I will come up to [a downhill section] and then I will stop. I will have this moment of ‘I can do it, no I

can't.'" She noted that she aimed to reframe the inner dialog that questions her competency and to replace it with the statement, "yes, I can make it."

When learning new skills, Rose viewed herself as successful when she was able to "do harder trails . . . with people who are better." She viewed being unsuccessful as the times when she failed to complete a section of trail on which she had worked.

Portrait of Elyse. Elyse was in her mid-30s and described herself as a "weekend warrior," which meant she rode on weekends during the summer. Similar to Rose, Elyse had never attended skills classes and had developed her skills by riding on her own and with others. Elyse worked on developing skills for riding up hills and riding rocky sections.

Sense-making and participation. For Elyse, mountain biking involved "fresh air . . . being outside . . . [and having] intuition . . . [when] going over obstacles." Relying on intuition was important to Elyse; it allowed her to "feel the different terrain and try and feel [her] way through different . . . obstacles." Elyse, however, did not rely solely on intuition, as she believed fitness and balance were also required to propel her forward, up, over, and down the different rocks and roots. She also relied on adrenaline to accomplish difficult mountain biking activities, which usually involves risks and fears. When riding, Elyse remains mindful and focused. She added that when she is not focused, "that's normally when something bad happens. Like . . . falling over." The difficulty of the activity causes Elyse to feel humble, as she knows there are always improvements to be made and terrain that she will not be able to ride. Elyse described recreational athletes as people who do "fun pursuits . . . [on] their own time." When discussing women mountain bikers, she explained, "female mountain bikers are pretty gnarly

people [and] usually . . . have an edge to them—but also have a lot of connection and mindfulness and community"

Motivation. Elyse started mountain biking because it was an activity she could do with her husband. During one of her first few rides she recalled, "I fell off my bike and said that I would never f-ing doing it again." Two years later, Elyes rediscovered mountain biking when she went riding with her girlfriends. When riding with them, she noted, it felt, "super-fun . . . [and] I just want to get into this." Elyse continued to ride mountain bikes because she felt it was a "good bang for your buck," meaning, "it is going to be a good adventure . . . [and] you are going to get cardiovascular." Elyse was motivated to learn skills that improved her riding overall, and she wanted to work on the skills that she viewed as foundational. She said the camaraderie she experienced when riding with her friends also "plays a huge factor" in her motivation.

Beliefs about learning. In the interview, Elyse recognized that there were a variety of ways to learn but emphasized it was best to take a "learner-centered approach" and to focus on continuous successes. Like Rose, she believed, "if you are always frustrated with yourself, then you are not going to want to do it again." Elyse highlighted that having a learner-centered approach reduced these types of frustrations because the focus is on the learner, their capabilities, and their successes. Related to these beliefs, Elyse shared that for her, self-direction in learning means "the person envisions or chooses what their needs, wants and desires are . . . [and are] empowered to create and adapt or modify and or accommodate their vision." She considered SDL in mountain biking as an ongoing process with no beginning or end. When learning new mountain biking skills, Elyse believed the person learning should manage their expectations, have equipment and space that promotes learning, and they should feel they are in a safe space. Managing expectations meant matching learning objective with one's capabilities. Having the

correct equipment involved a bike that fit the rider and was suited to the terrain. For example, Elyse believed her hardtail mountain bike was not suitable for the terrain in which she rode in Alberta, and she had more success when she switched to a full suspension mountain bike. In a safe space, she noted, the learner feels empowered to "ask questions . . . [and to say] I don't want to try this again . . . [and/or] I want to try something else."

Elyse noted that men and women learn differently. She said, men "are more aggressive in their nature of physical pursuits . . . [and] tend to be independent." Women have "connection to other women . . . [and] tend to chitter chat and take breaks." She added that there are also physiological differences, as bikes fit men differently than they fit women.

How Elyse learns. Elyse was very independent in her approach to learning and believed this independence assisted her with feeling engaged in the learning process. To learn, Elyse needed to have the right bike set up in addition to "equipment that actually fit" and being fundamentally fit herself. Additionally, Elyse spoke of the importance of having the "technical know-all," which included understanding "body position [and] where to look." Elyse practiced on her own and with other women with whom she felt she could be vulnerable. She did not practice with her husband because she felt pressured to do things she did not want to do. She added, learning involved "being ok to fail . . . [and] ok with getting off your bike." Elyse took a conservative approach to learning and claimed mountain biking and learning mountain biking "[is] meant to be fun, [and] I don't want to injure myself."

When riding alone, Elyse revisited terrain and re-rode it. This process gave her time to reflect on her skills and retry them. She noted, "it's nice to have routes that you can retry." Elyse saw herself as successful when she had the skills to ride with others, could ride faster, and attempted new trails without feeling like "oh shit" the whole time.

Portrait of Eva. At the time of the interview, Eva was in her mid-20s, rode in the summer during her free time. Like Rose and Elyse, Eva had never attended skills classes. However, she taught road biking skills to adults and mountain biking skills to children. Eva discussed developing skills for "climbing hills, descending hills comfortably—like faster and faster at speed, cornering, jumps, wheel lifts, riding over obstacles, riding through mud, riding through streams, [and] lifting your wheels . . . [riding] clipped in."

Sense-making and participation. To Eva, mountain biking meant "being outside, not on a road, but on a trail system." Eva rode trails "made of dirt or rock . . . [with] roots or obstacles . . . hills . . . turns . . . jumps or drops . . . [and] technical features." In her descriptions, Eva described mountain biking as social and involving friends. Referring to recreational athletes, Eva said these types of athletes engaged in mountain biking "purely for fun . . . [and] never to win money." She described her women mountain biking friends as "really cool and adventurous and outdoorsy." Eva added that some women mountain bikers were mean, but she did not hang out with them.

Motivation. For as long as Eva could recall, she has mountain biked. "My dad has always worked in the industry, so I have always had mountain bikes." Eva continued to pursue this activity because it makes her happy, and she believes it is fun. Mountain biking also created a space where Eva could be in nature and spend time with her friends and family members. To Eva, riding faster resulted from having better skills. Eva claimed that riding fast was important to her because "I don't want to get dropped when I ride with my dad and brother . . . [and] I really like going fast." Eva also pursued skill development because she believed having skills made her

a safer rider. For instance, Eva wanted to learn to ride clip pedals because "I always [slipped] off of my flat pedals . . . [would] lose all my momentum, and then just fall over."

Beliefs about learning. Similar to Elyse, Eva believed that everyone has a different way of learning, and the best way for someone to learn is through an approach that caters to that person's uniqueness. Elyse shared, "someone may respond better if you are like, engage this muscle, and you actually touch them." She added that another person might respond better with a story, an analogy, or a demonstration.

To Eva, SDL involved "figuring out a skill that you need to practice on your own." She believed that practicing SDL involved first "figuring out I am not very good at getting over roots because I fall over a lot when I encounter them." Subsequently, she watched others demonstrate a skill she was interested in learning, and then she practiced it. Unlike the previous two participants, Eva said that when she engaged in SDL, she did not ask for help; she wanted to observe and then figure out the changes she needed to make on her own.

Drawing on her experiences as a coach, Eva shared that unlike kids who are "fearless . . . [and] don't care if they fall over," adults have more fear and say things like "oh my god, I might fall over. I am going to get hurt." She added, adults are also "really self-conscious . . . [and get] embarrassed." Due to fear and trepidations, Eva felt adults should focus less on skills and more on having fun. She also noted that the initial learning stages should occur in environments with low consequences, such as a grassy field and with people who are patient. Eva added, "I wouldn't want to go on a new trail with someone who wanted to go as fast as they could and [would] just ditch me."

Eva believed women and men learn mountain biking skills differently. Men "are really super competitive with each other," and they are also more willing to get injured. On the other

hand, women are less interested in getting hurt and spend more time analyzing and evaluating something before they ride it.

How Eva learns. Before Eva focused on learning new skills, she had "to realize that I need to learn the skill." Once she identified the skills she wanted to learn, she watched others perform the skill and then practiced it. She explained, "If I watch someone who is really good at descending, I will make notes about their body position and then try and mimic it." Eva was more successful in trying out new skills when she was with other women riders. When she saw another woman succeed on challenging terrain, she thought, "she can do it, I can do it too." Subsequently, Eva was then more likely to push herself to do the things that made her feel scared. She added, if I want "learn something faster . . . I will write out a diagram [similar to a] physics problem."

When receiving advice, Eva wanted the information to be clear, with lots of details. The feedback she received from men was often not detailed enough. Recalling previous experiences where she rode with men, Eva said that when approaching a jump, the men with whom she rode sometimes said things such as "*just go for it*!!" She responded to their instructions with the thought, "I don't know how to, or I don't want to hurt myself."

When practicing her skills on new terrain, Eva took a conservative approach by first slowly riding the terrain. She explained, "If it is the first time, I have ridden a trail, or the first time I have ridden a descent that is more technical, I will go slow—like as slow as I can." As Eva became familiar with the terrain, she challenged herself by going faster. Eva said she feels she has been successful when "I don't fall over . . . hit anything or crash." She felt that learning has been unsuccessful when she falls, crashes, and feels out of control.

Portrait of Sue. Sue was in her mid-30s and biked on the weekend and during the week in the summer months. She learned new mountain biking skills by riding on her own, with friends, and by attending skills classes. During her interview, Sue described her developing skill as "climbing really steep switch backs." Sue was my first participant and my pilot interview. After interviewing Sue, I added questions to the interview tool to gain additional perspectives about recreation, women mountain bikers, and SDL. Despite not exploring these topics with Sue, I kept her interview because the descriptions she provided aided the purpose of this study.

Sense-making and participation. Sue defined mountain biking as "a super fun and challenging activity where you ride your bike off, well, not on, pavement." The physical exertion of mountain biking, an essential component of the activity, which Sue described as "just being in the moment and enjoying the pain." Sue compared mountain biking to a "human powered roller coaster . . . it is totally human powered. Not with an engine—E-bikes don't count." One reason Sue continued to invest time into mountain biking because many of its benefits appealed to her: "my free time, and my mental break, and my fun, and my social thing."

Motivation. Before Sue became a mountain biker, she primarily participated in running. She shared, "my body just started to react . . . I would get shin splints." Biking offered an alternative to running that provided similar benefits but had less impact on her joints. Sue's sister and brother-in-law introduced her to mountain biking. After that, she explained, "it was, like, my kinda activity." Sue continued to pursue the activity because she loved the way it constantly challenged her, forced her to face her fears, and enabled her to experience accomplishment. She explained, "Doing downhill parts are really scary . . . but when you do it, it is a sense of

accomplishment." Sue also continued to ride to spend time with friends and meet new friends . She explained, "The social aspect is huge . . . you get to be with good friends."

Beliefs about learning. For Sue, learning had to have purpose, reason, or some sort of future application. She claimed that she was not motivated to learn skills she could not see herself using in the future. Learning also had "to be fun, [and] it has to be something that you want to do." She explained that one way adults learned was by "learning from other people, [and] being open to feedback and not taking it as a criticism." Adding to that belief, Sue noted the importance of putting aside time to focus on learning, stating, "don't worry so much about the workout. Just focus on the skills." She stressed the importance of the right mind frame, which could be set by "[arriving] prepared . . . having everything that you need, and don't be late."

Sue said it was difficult to find other women with whom to ride who had similar skills. Her boyfriend, on the other hand, had many male friends who were always available. She stated, "I am like, where are my girls? Where are they?"

How Sue learns. When Sue described how she learned, she said "a lot of it just came naturally to me . . . through trial and error." Trial and error included making small modifications to body positioning and pedaling techniques as she practiced. When Sue practiced, she rode many different types of terrain and re-rode the same terrain. "When I wouldn't make it . . . I would go back and try it again." Sue used self-talk as a way to remind herself of body positioning on technical trails.

When mountain biking, Sue tended to stick to trails where she could ride most of the features. About a typical mountain bike ride, she remarked, "I wouldn't say there are walking sections. Most of that stuff is all rideable." Sue furthered her skills on familiar terrain first and then challenged herself by moving to more difficult terrain.

Sue wanted to exchange tips with other riders and asked them to provide feedback about how she could improve. She valued the tips most when they came from riders she believed had more skill than she had. Watching other women riders engage with difficult and challenging terrain made Sue feel inspired and courageous. On the other hand, "good natured teasing . . . [such as] common sissy girl . . . [and] don't be a wuss" was detrimental and made her feel unmotivated and discouraged.

Over the winter, Sue enhanced her fitness and mental toughness using *TrainerRoad*, an online training program. Sue saw herself as successful when she could complete the skill on which she had worked, her friends noticed her progress, she was physically faster (as marked on *Strava*), her confidence increased, and riding felt "smooth and easy."

Portrait of Margaret. Margaret, a woman in her late-20s, rode her mountain bike periodically during the summer. Like Sue, Margaret had attended skills classes. Margaret discussed developing skill related to cornering during descents.

Sense-making and participation. Mountain biking was a passion for Margaret, and she described it as "liberating . . . [because] you feel like you are flying downhill [with] no forces holding you back." For Margaret, mountain biking involved being on a bike in nature, experiencing many different types of trails and terrain.

Margaret understood a recreational athlete as a person who participates in sports "for fun and for fitness, with the intension to maybe getting better at certain skills in general, but not necessarily to be the best." She described women mountain bikers as "bad ass, hard core, extreme, super awesome, and willing to put up with some pain."

Motivation. *Margaret explained,* "When I was a little kid, I lived near a lot of trails and . . . seeing the mountain bikers on them made them a lot more exciting." During that time,

Margaret joined a cycling club, learned some mountain biking skills, and started to use her mountain bike to explore the trails around her home. Margaret claimed she continued to invest time and money into mountain biking because "I will always get something out of it, every ride, [and] it is really enjoyable and [a] relaxing thing to do after work." Just being in nature was important to Margaret. "Just being in the forest, even if you are in the city on a trail somewhere, it's nice to escape a little bit." Margaret continued to develop her skills so she could enhance her experience. She explained, "You can descend quickly and safely if you have better technique."

Beliefs about learning. Margaret believed the best way to learn in general was to "get instruction on something that you want to learn more on." Margaret described SDL as "being motivated on your own to find the resources that you need to learn . . . [and] pursuing it from start to finish." When it came to developing mountain bike skills, Margaret believed it was best to get instructions from a coach and to practice with a coach. She viewed coaches as knowledgeable and able to "tell you everything you need to know." Margaret described the teaching process by breaking it into steps: first, "talk . . . about the trail and what type of experiences [the rider] would have . . . teach them the basics . . . [and] make sure they are comfortable." Next, ride the trail and explore "teaching moments [about] body position and technique." Finally, allot time for practice and feedback with a coach.

Subsequent to classes, Margaret said there needs to be ongoing practice and feedback from others. In addition, Margaret explained the role of her friends when she is learning was to provide good feedback and "to help you and motivate you and support your success, and not be a bad influence in any way."

Margaret felt that women and men approached learning differently. Men are "more driven by the end goal . . . [and] want to conquer it immediately." Women are "more cautious.

They think things through a little more from start to finish, and they maybe realize they need a bit more of a build. And they know their limits a bit more." Margaret added that women have less power and endurance than men and "tend to see the consequences more."

How Margaret learns. "When I am working on something, I want it to be all me." Margaret directed her learning by choosing which skills to pursue and felt inspired to learn the skills that aligned with her riding aspirations. For instance, Margaret wanted to be a "super good downhill rider"; therefore, she practiced skills related to descents. Apart from practicing and attending skills classes, Margaret also found it helpful to read about the skills and watch YouTube videos.

Referring to a skills class that she had taken in the past, Margaret noted, "it was the process that helped me learn that skill." The process included explaining, demonstrating, and practicing. She explained, "the instructor would . . . [ride] behind me . . . tell me exactly when to move my foot and when to brake and when not to brake." Having others in the class with whom to learn was another benefit. Margaret declared, "everyone was going through the same process and conquering the skills . . . You [could] bounce ideas off of one another and talk about what worked and what didn't." As a result, "the entire group becomes more comfortable doing more challenging rides."

Outside of class, Margaret practiced by incorporating the skills into her rides. She said, "I would break it down and take just one corner at a time . . . just putting all of your effort into nailing the techniques for that one." Margaret explained, "when . . . I am in a really good spot, I am like, I nailed it there. I am going to own this and do it again." At that point, she would go back and re-ride the section. Margaret took the time to "build up to each skill [rather] than just jumping into things." She added, "It is definitely safer, and it is better, to learn the basics more

than just jumping into it." This conservative approach assisted Margaret with building her confidence, and she was successful in taking on greater challenges over time.

Margaret discussed that being successful in skill development meant "being able to keep up with a group of riders that I have always seen as being better than me, or more skilled, or more experienced."

Portrait of Jody. Jody, a woman in her mid-40s, rode her mountain bike multiple times a week. Similar to Sue and Margaret, Jody had attended skills classes. Jody identified developing skills related to learning to ride skinnies, riding long steep descents, and more efficient methods for climbing.

Sense-making and participation. For Jody, mountain biking provided "a time to both relax and to work on my health and get fit." She described it as "my social network." Jody viewed mountain biking as "physically challenging, yet so fun and addictive." She sheepishly admitted that mountain biking was also about "fashion . . . culture . . . and marketing." Expanding on this concept, she noted a sense of "bizarre entitlement" to obtain the latest products as a reward for the hard work in which she engaged.

To Jody, recreational athletes "participate for fun . . . for reasons beyond competition." Jody viewed other women as a supportive network who learned together. She stated that women mountain bikers were new to the sport, thereby challenging gender norms, disregarding stereotypes, and "discovering other parts of our knowledge or inclinations that we didn't even think we were capable of . . . [such as] technical riding . . . mechanical knowledge . . . [and] being in a group in an athletic setting."

Motivation. Jody claimed that she was borne with an innate curiosity for bikes and a love for nature. "One day I discovered mountain biking . . . That combination of nature and riding a

bike. Those two things that I really liked. It just made so much sense. And now there was this invention that could take you there." Over time, her curiosity extended to trails, technologies, and gear. Learning new ways to ride, staying connected with the lifestyle, and maintaining her social network helped Jody fulfill her curiosity about bikes. Jody extended the conversation by noting that new mountain bike trails are constructed with heavy duty machinery, and the resulting terrains challenge her skill set. Jody felt she needs to update her skills so she can have the full experience of flow when riding these new trails. Jody described the challenges of learning new skills and the satisfaction of using those skills as both fun and addicting.

Beliefs about learning. Jody believed that to learn, one needs "an inclination or any curiosity or interest," as well as a safe way to practice and an openness to receiving proper instruction. "Just keep an open mind and don't think that you know." For Jody, SDL started with self-awareness of skill deficiencies. Gaining self-awareness involved "listening to what other people have to say." Once awareness was established, learning required time, practice, and being with the right group of people.

Jody insisted that the best way to learn new skills or relearn a skill was to take a skills class. She said, "Get some coaching and have a good experience right off the bat." Classes make it possible to "get some help, break it down, and do it" because the skills are introduced in "bite-size" steps, and in the class forum, they appear achievable.

Jody viewed skills classes as an efficient and less risky way to learn skills. When adults learn mountain biking skills, they have a limited amount of time and are "weary of injury" because they have "mortgages to pay and kids to take care of." Jody added that negative past experiences damage an adult's willingness to try and may create disabling fear, which she referred to as a "mental block."

Outside of classes to learn skills, Jody also believed learning required owning the right equipment, practicing, and making time to learn. She said it was easier to practice with others who have similar learning agendas and "are willing to break it down and share opinions." She viewed practicing as more beneficial than reading magazines and watching videos.

Jody believed that women want to have structure in the way they learn and, therefore, were likely to attend a class. Women also "have no problem admitting their fear and no problem saying 'no' when they don't want to do something." Unlike women, "[Men] have something to prove on every ride . . . get gratification from putting the hurt on each other and seeing each other fail . . . [and] they just can't turn off that competitive side."

How Jody learns. Attending classes allowed Jody to learn foundational skills on easy terrain before progressing to more difficult terrain. When learning to ride skinnies in class, Jody first learned to "bail out very easily and safely . . . [by] riding onto ledges and deliberately riding off of them." Learning this foundational skill gave Jody confidence when practicing. She claimed, "if you feel you are totally out of control, you just turn and ride off." Next, she learned the steps for the skills and practiced them. She shared, "We kept practicing it and really exaggerating it . . . so, I learned what that felt like." The more she practiced, the more she understood the advantages of having the right body positioning. Overtime, the class progressed to more difficult terrain. The instructor continued to provide demonstrations and feedback.

Outside of class, Jody practiced on her own or with others. When setting up to practice, she brought safety gear (padding and first aid kits), logistical information (maps and apps), layered clothing, and proper nutrition. When practicing with others, she set "ground rules" before they started riding to ensure everyone was "on the same page," and everyone expected that there would be times during the ride for sessioning sections of trail. This process ensured she was with

the right group of people to learn with. Jody noted, “If you aren’t in the right group, you aren’t learning. There is no learning. It is just a fitness ride.” For Jody, success in developing a new skill was evident when she looked forward to using her skill and when she could keep up with other riders.

Portrait of Sage. Sage, a woman in her late 30s, rode her bike multiple times a week during the summer. Similar to the three previous participants (Sue, Margaret, and Jody), Sage learned by attending skills classes, on her own, and with others. Sage worked on developing the skills needed for climbing steep pitches with steps and gnarly descents and bermed corners.

Sense-making and participation. Sage claimed, “Every time I am out on my bike, it’s learning. And for the most part having fun.” In addition to learning and having fun, Sage said that mountain biking involved “hanging out with friends” and being outside on a trail in the mountains where there were “dirt, rocks, roots, uneven terrain . . . [and] rocky, rooty, uneven surfaces.” She added, “I find mountain biking super challenging . . . the trails are never the same. They change from year to year.”

Sage viewed a recreational athlete as “someone who isn’t paid or sponsored. Somebody who may or may not go into local races . . . [They are] always building on skills and challenging themselves to be better in the sports that they are in.” When it came to describing women mountain bikers, Sage said they are “tough cookies . . . [with] a lot of . . . grit,” and they “really persevere over obstacles and things within them.” She added that mountain biking may not be appropriate for women who are “too anxious or too nervous” because they could seriously hurt themselves.

Motivation. Sage first started mountain biking “with a group of friends.” She noted, “none of us knew how to ride . . . it was tough.” Sage continued to engage in the sport because

she “loved the challenge.” She shared, “It is definitely one of the most humbling sports I have ever been involved in, and I always feel like I just want to do it better.” Sage also continued to ride because she had many friends with whom she rode. Watching others ride motivated Sage to learn new skills, and she asserted that when she watches others, “I want to challenge myself more.” Sage also wanted to learn new skills because it enabled her to ride more sections of the trail. She declared, “I don’t like getting off my bike . . . [and] I don’t like falling.”

Beliefs about learning. Sage insisted that to learn, a person has to have interest in the topic and an openness to new ideas. For Sage, SDL meant, “Go on your own, at your own pace.” When learning new skills, Sage believed it is best for a person to take a slow and gradual approach by starting on “gravel stuff and working their way up from there.” When tasked with showing others how to mountain bike, Sage first did “some parking lot skills just to prepare them a little bit. Just breaking. Simple balancing things.” Then, she took “them on the trails and see if they have any questions.”

Sage believed that men and women have different ways of learning. She noted, “Women do like the more instructional approach . . . They kind of like being taught in a step-by-step manner.” She added that women also like to “ride in groups.” With men, it is “guys following guys, and they will just learn as they go by trying to beat each other . . . so, what ever gets them up the hill, down the hill, over the hill as fast as possibly without killing themselves.” Sage shared that she was more likely to see a man riding by himself than a woman riding alone.

How Sage learns. To learn new skills in mountain biking, Sage needed to be interested in the skill, have a desire and openness to learn, and a bike that was maintained and ready to go. For Sage, being open meant asking for feedback such as “how do I do this better?” Learning also

required having the persistence to "keep on doing it, keep on trying." Maintaining persistence was not always easy. She added, "failure will really discourage and unmotivate."

Sage learned by attending skills classes, practicing, and watching YouTube videos. Unlike the previous three participants who highly valued skills classes, Sage did not learn a lot from them because they did not provide a good visual, such as a video that she could watch prior to riding. Rather, Sage learned what not to do by watching others fail. Sage practiced with others, on her own, and with her boyfriend. When riding with more skilled riders, she followed closely behind their wheel. She explained, "If the person in front of you is able to articulate what you need to do, that helps, too." When Sage was on a group ride, she often skipped the difficult spots, and returned to repeat it later. She shared, "I don't want to stop the group."

When developing her skills, Sage employed a few different strategies. She built her confidence by riding terrain she considered low risk for falling. Once confidence was established, she attempted more difficult terrain. Sage also noted that when learning new skills or riding new terrain, she tried not to over think her movements. Rather, she relied on her intuition. Sage shared, "I don't even understand why I am doing it." Another strategy involved "[watching] something on YouTube and then [going] out and [practicing] it."

Sage marked her successes by using *Strava*. She knows she has improved when she records faster times on the same trails. She also noted, "I have scars of the unsuccessful attempts." She viewed falls and crashes as indicators that she had not yet learned the skills.

Portrait of Kate. Kate was in her late 30s and rode her bike as often as she could during the summer. Kate worked on cornering and trail scanning as developing skills. Similar to many of the other women, Kate had attended skills classes. In addition, Kate had a leadership role in

Spin Sisters, a women's only cycling club in Calgary, had achieved PMBI Level 1, and volunteered as a coach for women's only skills clinics.

Sense-making and participation. For Kate, mountain biking represented freedom. She declared, "It feels like I am not weighed down to anything. I can explore whatever I want, wherever I want, whatever pace I want, with the people I want." Kate viewed mountain biking as "exhilarating, freeing, psychologically helpful . . . [it] keeps you fit and . . . [you can be] outside connecting with nature."

Kate described a recreational athlete as "someone who loves exploring sport in whatever means that they can." She described women mountain bikers as "a growing population of women who really want to get out there and push themselves beyond things that they are scared of." Kate felt her leadership role in Spin Sisters helped to "make a safe space where [women] could network."

Motivation. Kate started mountain biking as a young adult, and the most meaningful part for her was being outside in the wilderness. She shared:

> I was in Kananaskis, and I was like gosh, there are so many cool trails. I really want to explore these trails on bike . . . I just went biking. Because I just wanted to explore . . . the rugged, what Kananaskis country had to offer. And hiking wasn't exhilarating enough for me . . . I needed to go faster and farther.

Kate continued to mountain bike because it made her happy. She shared, "I have seen the benefit that it has had on my life so much . . . physically, emotionally, I think spiritually . . . It just feels like those things are way worth it." She continued to develop skills so she could be more efficient when riding, "make it flow more . . . [and] make it more fun."

Beliefs about learning. Kate believed the best way to learn was to "just have fun." She acknowledged, "In this sport . . . you have to have fun because then you are not feeling emotions like frustration or fear or self-doubt or self-criticizing." Kate believed learning required having "the right headspace so that I can learn. Like I am here, I am in the right head space, I am open." For Kate, the right headspace also meant "not filling myself full of self-doubt and fear."

Kate described SDL as "taking ownership for their own learning. And deciding when and how and at what pace they want to learn something." Like other participants, Kate believed that each person learns differently. As a mountain bike instructor, she shared, "based on the feedback that I am getting verbally, [and] . . . non-verbally, I will try and tailor [the approach]."

Kate acknowledged, "there is just so much more that goes on with women in women's biking than there is for men." She continued, "I feel men are like ego . . . who is up there the quickest and who can drop the biggest drop." For women, "it is more supporting each other, and more about that relationship with each other, but also with themselves and on the bikes and being mindful of trails." Kate believed that with time, space, and support, "we can ride anything [men] can ride."

How Kate learns. When Kate learned, she believed she needed to take ownership of the process. She shared, "It's all me . . . It is up to me to try it and apply it and do it." Adding to this, Kate offered, "I take it upon myself to learn something. And so, I don't place any expectations on other people." Kate discussed learning in many different ways, including through taking skills clinics, the PMBI level 1 certification, coaching others, and practicing with her friends. When learning in class, Kate referred to herself as "a doer"; she said she needed to "see what it feels

like in my body." Kate claimed, "The second way I learn is . . . visual." Kate described visual learning as watching what someone does in front of her, and then following that person.

Kate took a PMBI Level I course "was over three days." She acknowledged, "I liked that it was more than one day. I felt like my brain had time to absorb what I was learning." She noted that PMBI Level 1 learning utilized "a very broken-down sequence that you learn things in. And a way to teach others." Kate pointed out that learning these broken-down instructions "really helped me learn the skill." She described the sequence: "Introduce an idea. Say why it was relevant. And then show people right away. Then talk about it. And then show them again. And then they would try." After they tried, "give feedback . . . [and] review why it is important." During PMBI Level 1, Kate relearned many of the skills she had previously learned and felt "it was helpful to break them down . . . to make sure that you aren't in bad habits." She shared that this process "forced me to look back and think back on my own riding and think about what I was doing." Kate also reinforced her skills when she coached others by reviewing manuals and breaking the skills down into steps. She said the process of teaching others, "helps me reflect on my own riding."

Kate practiced her skills with her friends. She shared, "We would stop and session and practice and talk about what worked and what didn't." Kate noted that she intuitively felt whenever "I wasn't doing the skill properly," which was an indicator that she had not learned the skill. "Either it wouldn't flow, or I would feel wobbly." Success was when "everything would just flow and come together and feel a little more natural."

Portrait of Lynn. Lynn, who was in her late 30s, rode her mountain bike multiple times a week during the summer. Lynn discussed learning cornering, jumping, and descending as her

developing skills. Similar to Kate, Lynn had attended skills classes, had a leadership role in Spin Sisters, had achieved PMBI Level 1, and volunteered as a coach for women's skills clinics.

Sense-making and participation. Similar to Kate, Lynn described mountain biking as "freedom," meaning that she could go biking and "get away from life's obligations." Adding to this, Lynn noted "I can have the most challenging day, and I go mountain biking and the world goes away, and I am just happy to be outside." Referring to mountain biking, Lynn said, "It's fun, it's challenging, it's a break from real life," For Lynn, mountain biking also involved riding on a narrow pathway with many different obstacles, rocks, roots, and trees. "There are lots of elevation gains, so it is really good cardio." The rewards for mountain biking included "natural highs and feelings of accomplishment."

Lynn viewed a recreational athlete as "someone who is very committed to the sport that they do." She explained, "It's not something that they get paid to do, and it isn't something that they do all the time." Drawing on her experience as a coach, Lynn explained that most women are new to the sport. The women who are skilled are "people with a little bit of bite, [and] people who want to grab life by the horns."

Motivation. Lynn declared, "Biking has always called me." She got a bike when she was 5 years old—"that is when the freedom started." She said, "I could go anywhere and be independent." Later, she started mountain biking as an activity to do with her boyfriend. When I asked Lynn why she continued to mountain bike, she declared, "I love it. I love being in the outdoors. I love being in the forest. I love feeling the wind through my hair." Adding to this statement, Lynn declared, "After doing it for so long, all my good friends are mountain bikers.

We go on mountain biking trips together." She then claimed, "I find it is such a healthy, outdoorsy, social—it's a good all-around thing to be involved in."

Lynn shared that the most meaningful thing about mountain biking is "the continuous learning and growing with it." Lynn was driven to overcome the challenges presented in the sport. Her motivation was enhanced when she saw herself and the other women mountain bikers in her community progress. Lynn worked on developing skills when she felt her acquired skills were limiting her. She continued to develop skills so she can have more fun, feel more flow, feel safe when riding, and be able to keep up with her group of friends.

Beliefs about learning. Lynn described SDL as "learning without formal instruction." From Lynn's perspective, learning mountain biking skills was hard work that took "persistent overtime." She shared, "You definitely have to try, and you have to put in effort . . . You have to take risks, [and] you have to push boundaries."

Like Kate, Lynn had taken the PMBI Level 1. When teaching others, she followed the process outlined by PMBI, and she believed this process worked. She explained the process as **"**describe it, show it, and then get the person to practice it." When providing instructions, Lynn believed, "you also need to be very positive . . . keep it fun, lighthearted, keep the group involved and encouraging each other . . . that really helps everyone want to learn and get better."

Lynn believed men and women have "different dynamics" when learning. For instance, she acknowledged "women are way more supportive of each other." She also noted other differences: "I see women as being more supportive of each other and not as ego driven. I see that women are more likely to admit fear . . . we will say to each other literally, I am scared, this scares me." Lynn said men push each other and are more driven by ego and competition. Based on these differences, Lynn asserted, "women shouldn't learn mountain biking from their

husbands or spouses. It doesn't work." For Lynn, it was important for women to learn with other women with similar skill levels. She shared, "If you see it broken down with other people of your ability, then it makes it more manageable."

How Lynn learns. When Lynn first started riding, she attended a Trek Dirt Series Skill Camp and declared, "They basically told you everything you had to do. Then, the instructors would let you practice and then provide feedback." She noted, "[it] is really good having someone knowledgeable critique you" and found it even more helpful when the critique was accompanied with a video. She claimed, "videotaping I find doesn't lie. So, you know for sure what the issue is."

After a few years of advancing her skills, Lynn took PMBI Level 1 and discovered that there were "three different forms of learning: A watcher, a doer, and a thinker." She claimed, "I am definitely a thinker type of learner. So for me, I need to analyze it. I need to understand why I am doing something and why it works."

Lynn and her friends practiced by riding trails, sessioning sections that were difficult, and providing feedback to one another. She said practicing in this way required her to "step out of what is kind of comfortable" and take on the very real "physical element of risk." To lower her risks, Lynn first learned the fundamentals of the skill, which included "what my body is doing and why." Next, she practiced and received feedback. She said she wanted feedback from someone "experienced that you trust." She noted that her husband was not a good option; she preferred her women friends or an instructor. Lynn's friends were experienced, supportive, and encouraging.

Lynn noted that learning skill in mountain biking included "letting go of ego . . . seeing your friend succeed in an area where maybe you didn't succeed and being happy for someone

else and their successes. Even if you didn't have that success personally." Lynn knew she had been successful learning a new skill when it felt right. She stated, "you feel smoother and faster. Unlike success, failure was experienced "immediately," and there was often consequences. She continued, "you know you failed when you crash."

Portrait of Alice. Alice was in her late 30s; she rode her mountain bike multiple times a week during the summer. Alice discussed developing skill in descents that were both steep and technical. Similar to Kate and Lynn, Alice had attended skills classes, had a leadership role in Spin Sisters, and had achieved PMBI Level 1. Alice also volunteered as a coach for co-ed skills clinics, and she served as a brand ambassador, which meant she promoted women's biking on behalf of specific bike brand.

Sense-making and participation. Alice described mountain biking as a "great form of exercise." She pointed out that she rides a full suspension bike on many different types of trails that range in difficulty from easy to difficult. Her riding experiences included "the coaching piece, the racing piece . . . and riding with my friends" She described recreational athletes as those who "participate for enjoyment and exercise" but acknowledged that some recreational athletes do compete in races; however, they are not sponsored, nor do they compete on a national level. Alice noted "the female mountain bikers that I know do not have as much confidence in their skills and they are not as competitive as men are." From her experience coaching, she found that men frequently overestimate their abilities, whereas women often underrate theirs.

Motivation. Alice started mountain biking after moving to Calgary. She explained, "it wasn't until I came out here and met up with some people . . . [and] had people to ride with." Mountain biking makes Alice feel happy, which is why she continues to do it. Some of the aspects she appreciated included: having an expanded community, riding with others, racing, and

coaching. She declared, “I really value the contribution I am able to make to get more women involved. Alice also claimed to enjoy the combination of “comradery . . . and pushing myself.” From mountain biking, Alice learned to go after goals and achieve them, which “improved my confidence in other areas of my life.”

Beliefs about learning. When it comes to learning in general, Alice believed “it is optimal to find material that you are interested in. If this is not possible, try and find some usefulness in the material you are studying.” She described SDL as “identifying what skills you need to work on and then practicing them.” Alice believed that mountain bike coaches “have to be cognizant of the way people learn.” As a coach, she felt it is best to “ask her participants if they are learning and then make adjustments accordingly.”

When discussing the differences between men and women mountain bike riders, Alice drew on her experience as a coach for both genders. She shared that men are more confident in a group setting and more willing to test out a new skill. “Women need more coaching and need to feel more comfortable.” Adding to this, she noted that women also need to have a space on the trails where they aren’t being compared to men. She noted that during Crank Worx, a mountain biking festival in Whistler, BC, LIV promoted women learning downhill skills by opening technical runs to only women and providing coaching. She said that when she attends this event with her girlfriends, they are given extra coaching and attention, which allowed them to learn without feeling they were being compared to male riders.

How Alice learns. Alice said her role in learning was to “identify what I need to work on. And I need to try and come up with a plan as to what to work on.” Alice often relied on “riding a lot and doing cross training.” On group rides, she “ride[s] with people who are stronger . . . [and] follow their lines.” Sessioning provided another way that Alice practiced. She explained, “If you

are not able to complete a technical part of the trail . . . you just keep practicing it over and over." She added, "if you can't [finish it], then you go back." This year, Alice also attended bike classes over the winter to improve her cardio, so that when she started riding in the summer, she had the endurance that she needed to practice skills.

Alice also furthered her skills by taking "Trek Dirt Series" and by riding with friends. Eventually, she started racing. "We didn't really have a coach for [racing]. It was just experience and learning from other people who I was riding with." After that, Alice took PMBI Level 1 and relearned many of the basic skills. The course helped her realize, "I was getting lazy on cornering and body position." As a coach, Alice also learned by sharing tips with other coaches.

At the time of this interview, Alice's learning plan involved private coaching, practicing by herself, and practicing with her friends. She was also working on visualization techniques, mental toughness training, and writing reflectively in a journal. Alice saw her skill development as successful when she could "get up and over and down technical features" and when "she advanced to a new category in race series." She felt unsuccessful when she obtained injuries.

Summary of Findings

The participants started mountain biking for many different reasons; however, most of their reasons included personal enjoyment of the activity. Participants experienced enjoyment as they spent time outdoors, in nature, and with friends. A sense of accomplishment and pride associated with overcoming challenges accompanied feelings of enjoyment. Many of the women discussed mountain biking as a way to escape life because it allowed them to get away from the daily obligations of work, family, and household commitment.

There were many overlapping beliefs about learning in general and about developing and learning mountain skills. Many of the women believed that to learn, it had to be fun, and there

needed to be a catalyst such as interest, relevance, a want, or desire. Most of the women felt that the catalyst should be reinforced by attending a skills class where they received instructions and had a safe space to practice. The participants viewed skills classes as providing a positive learning environment with others who had similar skill levels. When learning, the women preferred to first develop their foundation skills either by practicing alone, with others, or by attending a skills class. When riding with others or attending class, they wanted to receive feedback about what they were doing wrong and tips about how to improve. A few participants also relied on reading magazines, manuals, and watching YouTube.

Analysis

In the analysis sections, I describe the themes that emerged in the study as I viewed the data though my researcher perspective, which included the SDL framework (Garrison, 1997) and the accumulated experiences from my personal and professional practices. The analysis was guided by the overall purpose of the research study and the research questions, outlined in Chapter One and Chapter Three.

During the analysis, themes emerged as I applied an SDL framework to the descriptions and experiences in the data. The three structures from Garrison's (1997) SDL model—motivation, self-monitoring, and self-management—were pivotal components from this theoretical lens that guided my analysis. The women in this study engaged in SDL and intentionally pursued experiences that assisted them in developing skills. Three key themes emerged from the data: 1. Agency through ownership, 2. Personal gratification, 3. Dimensions of risk-taking.

As Garrison (1997) noted, the three structures of SDL (motivation, self-monitoring, and self-management) are tangled together and difficult to separate. This entanglement is evident in the three themes discussed below.

Agency through ownership emerged as the women displayed autonomy in their self-directed approaches to learning, including deciding what, when, and how they would learn. Personal gratifications became apparent as the participants described their motivation for starting mountain biking and why they continued to engage in the activity. Finally, the dimensions of risk-taking appeared as the participants discussed taking on challenges involving risks while remaining wary of the implications of those risks.

Agency Through Ownership

A range of statements offered by the participants portrayed a sense of ownership, including "my activity" (Sue), "my learning experience" (Jody), "my skill level" (Rose), and "my approach [to] learning" (Kate). With this intuitive understanding of self and an intimate knowledge of their past experiences, the women in this study believed they were best positioned to determine the skills they wanted to develop and the learning strategies that would be most effective for them. As Margaret noted, "I don't want someone else telling me what I am and am not ready for." This quote summarizes the overall ownership over goals and learning strategies of the women in this study.

Ownership and agency are closely related. Having ownership over skill goals and learning strategies prompted the women to have a sense of personal agency over their decision making about how, where, and when learning occurred. The term *personal agency* suggests personal control and autonomy over individuals' actions, rather than leaning on others to make critical decisions. In the following quote, Kate adequately summarized the women's personal

agency in skill development: “I think it is all about me. Sorry, that sounds so egocentric. But I take it upon myself to learn something. And so, I don’t place any expectations on other people.”

The relationship between ownership and agency became apparent as the women discussed having control over their skill goals and learning strategies and over how learning strategies were implemented. These findings led me to form the theme, agency through ownership. The participants discussed demonstrating agency through ownership in the areas of goal setting, strategies, benchmarks, mindsets, and motivation.

Goal setting. Developing worthwhile and meaningful goals is a critical step in SDL: these types of goals assist the learner with creating their learning plan and establishing and maintaining motivation (Garrison, 1997). In this study, the women took ownership for their learning goals and chose to develop the skills that were relevant to the type of mountain bike riding that the women enjoyed. Margaret, for example, practiced skills for descending because her goal was to be a “super good downhill rider.” In contrast, skills that were deemed as unimportant were not practiced. When discussing bunny hops, Sue explained, “those sorts of things, they aren’t that important to me. So, I wouldn’t be as motivated to learn that.”

Mountain bike terrain can vary in difficulty; some of the varying factors include steepness, exposure to falls, obstacles, and whether the ground is loose, packed, or slippery. Due to the variety in terrain, the women discussed two different types of goals. The first were general skill goals, for example, to ride steep descents at an increased pace. The second were specific terrain goals that were tied to exact locations, such as the downhill section of terrain at the Canmore Nordic Center known as Organ Donor. The general skill goals and specific terrain goals remained consistent and seldom changed. The way the women practiced and the terrain that they used to practice varied, and the influencing factors included weather conditions, the

women's attitudes, and the experience levels of the other people with whom they rode. Jody pointed out that sometimes she really wanted to ride a certain trail, but the weather did not always cooperate with her. She said, "for different weather I choose different trails, so I am not destroying the trails or getting supper messy or putting myself in dangerous situations." Sage demonstrated flexibility based on her mindset and overall motivation. She noted,

> I couldn't do that one little rocky section. That little climb. I like bailed there a couple times before. And I like still can't do that section, so it's like frustrating. But sometimes I ignore that skill until I feel more confident to do it—more successful—more motivated.

Similar to Sage and Jody, Rose also changed the terrain she rode. Rose altered her terrain goals based on the company she kept while riding. When Rose rode by herself, she set the goal of riding small downhill sections at Nose Hill park. When Rose rode with riders who were more advanced, she was more courageous and had higher expectations of her ability. She changed her goals from riding small downhills without hesitation to riding steep rock outcrops in the mountains.

Having consistent skill goals yet being fluid in the overall terrain that the women practiced represented the theme, agency through ownership and was common among all of the women in the study. The women had consistent goals that they owned, and they had agency to choose when, where, and how they honed their skills to achieve those goals. Elyse called this process an empowered "learner-centered approach," which is consistent with SDL (Garrison, 1997), because the learner had agency to make changes or modifications to their learning plan based on their intuitive knowledge of self.

Strategies. The women had agency over their learning strategies and used tactics that aligned with their beliefs about learning. The sets of beliefs associated with each participant were intuitively understood and influenced by the women's historical experiences, including their successes and failures. They used phrases such as, "I know" (Jody, Rose, Eva, Kate, Sage, Lynn) "I just know" (Sue), and "for me" (Sue, Jody, Margaret, Eva, Kate, Alice, Elyse, Sage, Lynn) when referring to the learning strategies they believed suited them the best. The women owned these innate beliefs, which fueled their agency and their self-directed approach. For instance, most of the women who found skill classes helpful, also believed that attending a skills class was one of the best ways to learn new skills. The women who believed they were visual learners also wanted to see a visual example such as another person riding or a YouTube video. Sage, who believed YouTube was her best source for learning, claimed "YouTube is like my go to. I like it because I can go and stop and start a video or even do it in slow motion if I have to." Sage used YouTube extensively.

Controlling learning environments. Having agency over the contextual environment to insure it supports learning is part of a self-directed approach (Garrison, 1997). In this study, participants believed that some environments supported learning better than others. An ideal environment included appropriately challenging terrain and supportive riding friends.

Appropriate terrain for learning was described as challenging enough to enhance skill development and build confidence, but not so difficult that it became a high-risk for falls and injuries. As Sue indicated, "You need to start easy . . . You kinda alter the terrain by starting on an easier switchback where it is more flowy and easier to clear. And then you gradually make your way up to something that is more challenging." All the women in this study indicated agreement with Sue's statement in their interviews. Using this strategy, the women continuously

learned, experienced success, and further enhanced their motivation. By having agency over the environment, the women took on challenges they believed were appropriate for their skill levels while also enhancing their overall motivation for continued learning.

Riding friends constituted another factor in the contextual environment, and the women managed their skill development endeavors around those with whom they interacted. As Jody pointed out, “Sometimes if you aren’t in the right group, you aren’t learning. There is no learning. It is just a fitness ride.” When the women were with supportive friends, they could engage in skill development. Supportive friends encouraged, inspired, and engaged in discussions about skill development. They did not name call or apply peer pressure. When the women were not with supportive riding friends, they often skipped learning opportunities in an effort to keep up, avoid getting hurt, or maintain their overall motivation. Sue shared, “When someone is really negative, that is something that is detrimental.” In this statement, Sue referred to “good-natured teasing . . . [such as] common sissy girl . . . [and] don’t be a wuss.” She found that these types of comments were uninspiring and demotivating. Many of the women discussed wanting to enroll in classes because the environment was controlled, and the instructors encouraged all those attending to be supportive.

Unlike most of the women who practiced when the contextual environment supported it, Jody proactively set up her environment to support her learning. She planned her rides around the terrain she wanted to practice and pre-emptively told her friends that there would be times during the ride when she would want to stop and re-ride sections. Jody explained that setting “ground rules” let other riders know what to expect during the ride, and riders who did not want to practice could decide not to come. While most of the women in this study discussed having a small group of friends with whom to ride, Jody was part of several clubs and had an extensive

network of riding partners. Having a larger number of riding friends enabled Jody to take more control over her environment and the ability to create scenarios that were good for her, even if she risked losing a few ride members.

Whether the women waited until they were in the right contextual environment or created a controlled environment that supported learning, they exercised personal agency. The women's learning beliefs—that some environments were more supportive of learning than others—drove their decisions about which contextual environment they would, and would not, practice. This was another way that the participants practiced agency through ownership.

Controlling learning processes. Within a supportive learning environment**,** the majority of the participants wanted to follow a step-by-step sequence when developing and refining their skills, whereby they progressed in small, achievable steps. The majority of the women wanted to gain an understanding of the relationships between body positioning, body movement, bike type, and trail segment. They then wanted to see a demonstration of the correct way to execute the skill, practice, and receive feedback. Two participants (Kate and Rose), did not want to wait for an explanation or demonstration. Rather, they wanted to get on their bikes as quickly as possible and learn through the experience, receiving instructions while they rode.

As noted, the participants considered practice as critical aspect of learning that involved practicing on their own or mirroring another rider. The practice enabled the women to learn what it felt like to execute the skill correctly. A few participants pointed out the benefits of riding close behind a more skilled individual. For example, Sage stated:

> If somebody is in front of me and doing a climb that I normally can't do, but I'm able to watch their wheel climb in front of me, my body position just mimics theirs, and I am able to do a climb just as well as they are.

Feedback from others was also believed to be a key aspect to improving skills. As Jody pointed out, "I can watch all the videos and get all the coaching, but if I can't see myself, then I don't know where I am falling apart . . . I need other people's eyes to see if I am putting it together." The women wanted their feedback to be detailed so they could come to understand more about themselves as riders and about the changes they could make to refine their skills. For Lynn, this involved viewing a video of her practicing skills.

The step-by-step manner that the women described was similar to those they experienced when attending skill classes and when they practiced on their own. Kate and Lynn, who had taken PMBI Level 1, added insight to this phenomenon, explaining that mountain bike instructors who have taken PMBI Level 1 are taught to explain skills in the "very broken-down sequence" (Kate) described earlier. From the descriptions provided by the majority of the participants in this study, it was clear they believed in and followed this same process. Therefore, it is possible that the PMBI process has influenced many of the women's beliefs about how they learn, as well as their practice routines. Even though these practices are externally influenced, they still fall within Garrison's (1997) framework, which claims that SDL exist within a social context, and other people and structures influence learning. However, as long as the participants remained in control of their skill goals and learning strategies, they continued to be self-directed. These learning routines were likely shared with the participants during skills classes, where the participants viewed them as successful and subsequently adopted them.

Some of the women discussed an additional step when learning new skills—critical thinking—a part of self-monitoring in SDL (Garrison, 1997). Critical thinking occurred while riding when the women used self-talk to provide reminders of unhelpful habits and mindsets. At other times it occurred after a practice session, as the women reflected on their experiences and

noted what they did that felt right and what they did wrong. Elyse noted, “It is like seeing it, and then you trying it, and then you reflecting upon it later; it’s like how can I do this? And then going back there and retrying.”

Whether the women developed their own learning strategies or adopted strategies already developed, they controlled those strategies so that they aligned with their learning beliefs. Agency was maintained as the women took ownership over their learning goals and learning beliefs. Agency through ownership continued to be demonstrated as the women adhered to the processes they believed assisted them with successfully developing their skill goals.

Benchmarks. The women discussed indicators that marked their successes and failures when developing and refining their skills. Having ownership over these benchmarks enabled them to have agency over successes and failures. Indicators of success included feeling in control and confidently taking on and overcoming challenges. Many of the women described this feeling as *flow* and noted that feeling flow meant they were riding the trails the way they were meant to be ridden. The women said falling and getting injured marked failures; Sage noted that she had scars to remind her of her failed attempts. Feeling out-of-control while riding often pre-empted injury, and some participants pointed out that this was also an indication that they had not fully developed their skills.

Mindset. Many of the women acknowledged that learning new skills required having a mindset of willingness to step outside of a habitual practice and being open to learning new methods and routines. Recognizing and reinforcing these processes is considered a metacognitive function and involves changing patterns of thinking to support new ways of learning (Garrison, 1997). Acknowledging these practices in herself, Lynn stated, “If you keep repeating what you have always done, you are just going to keep doing what you have always done.” For the

women, being open to the feedback from instructors or more experienced riders assisted them with changing the way they behaved when riding. Illustrating this, Sue shared that when she was having difficulty climbing steep switchbacks, a friend told her to pull her chest close to her handlebars. She was open to trying it out, and she found that it worked.

Many of the participants admitted that being open to learning was difficult; however, it was also a behavior that was within their control and one they had ownership and agency over. Having ownership over their thinking patterns meant the women could set their intentions. For example, once the women recognized they were fearful, they could then choose processes that would assist them with facing and overcoming their fears, which resulted in feeling a sense of accomplishment. Motivation to overcome challenges arose as the women changed their perspective from, *I am scared* to *I can face my fears.* Having ownership over their thinking processes and choosing to be open to new strategies drove agency, as the women sought out new body positions and movements by attending classes and seeking feedback from other riders.

Motivation. To continue to self-direct learning overtime, it is necessary to maintain motivation (Garrison, 1997). The women in this study had a long-term commitment to developing and refining their skills, as noted by Lynn when she said, "I think that not giving up is a big thing . . . there is no, 'I am too old,' and there is no, 'I've had too many injuries.' Because everyone is just learning, and it is a process." Maintaining a commitment to skill development over time involved taking ownership for creating and maintaining motivation. Mountain biking provides ample opportunities to practice because the terrain is plentiful, meaning there are appropriate challenges for every skill level. Overcoming challenges is exciting, enhances motivation, and even described by some participants as addicting.

Some of the women pointed out that falling can be very unmotivating and discouraging. As Sage noted, “I am not always going to get it right. And I know that.” The women maintained their motivation, despite their failures and injuries, by recognizing that skill development was an on-going process and that they did not need to achieve their goals in the short term. As Lynn pointed out, “You can’t learn everything in a day. Your body isn’t going to remember everything in a day.” This thought process allowed the women to give themselves grace when they could not overcome their challenges, rather than pushing through when they were tired and overwhelmed, possibly increasing the risk for injuries. Following these thoughts, the women took agency over their learning activities and engaged in the ways that inspired them to continue to work on developing skills over time.

Personal Gratification

The phrase, biking has always called me” (Lynn) likely resonated with many of the women, as each participant recounted the many reasons why mountain biking was meaningful to them and caused them to feel personally gratified. The women chose to participate in mountain biking rather than another leisure activity because of an alignment between the women’s personal values and mountain biking. The women revealed this alignment in discussion of their motives for mountain biking. For example, Sage explained:

> Why do I continue to do it? I think it is because [of] the challenge of the sport. It is definitely one of the most humbling sports I have ever been involved in, and I always feel like I just want to do it better.

In this passage, Sage discussed her belief that challenges assisted her with reaching her fullest potential. She participated in mountain biking because taking on challenges as a way toward continuous improvements in sports aligned with her personal values. Participating in activities

with this type of alignment results in powerful personal gratification, a meaningful motive for self-directed learning (Garrisons, 1997). For the women in this study, personal gratification was experienced when the women found alignment between mountain biking and values such a: having fun, being challenged, and feeling connected.

Having fun. The women valued having fun and participated in mountain biking because they believed it was a fun activity, which caused them to experience personal gratification. Having fun is a broad term, and the way each person describes it may differ. For the majority of women in this study, having fun was linked to feelings of playfulness, excitement, and experiencing flow when riding. For instance, Eva described mountain biking as "the type of thing that makes you feel like a kid again."

Achieving flow, represented a prominent reason why the women were committed to developing and refining their skills, which were self-directed (Garrison, 1997) and commenced when the women acknowledged that skills, or refinement of skills, created an elevated riding experience. As previously discussed, flow occurred when the women confidently took on and overcame challenges on the trail, including "[riding] the trail the way it is meant to be ridden" (Jody). Achieving flow caused the women to feel success and happiness.

A few of the participants pointed out that having fun was accompanied by adrenaline. Margaret believed the "really happy thoughts and feelings" that she experienced were actually releases of adrenaline, and Jody pointed out that these "highs" were addictive. Since mountain biking is an adrenaline provoking sport, the impact of adrenaline was likely experienced by many of the participants. This was apparent when the women discussed the excitement and rush that they felt when they took on and overcame challenges. The adrenaline release added to the experience of having fun, and the "highs" contributed to feeling personally gratified.

Sage pointed out that sometimes mountain biking was not fun and did not feel gratifying. Sage referred to the frustration she felt when she fell off, had to walk, had failed attempts, and got injured. When this occurred, riding was not personally gratifying. To experience more personal gratification, the women self-selected the skills they needed to develop and practiced them. This process increased the women's confidence and abilities resulting in having more fun when they rode.

Being challenged. Mountain biking is inherently a difficult activity. Most of the women in this study were attracted to the sport because it allowed them to take on and overcome challenges, which led to feeling personally gratified. Sue explained, "Even doing downhill parts [that] are really scary, and you kinda, like, are scared, but when you do it, it is a sense of accomplishment. You overcome your fears a little bit." Mountain biking terrain is vast and variable, which means there are countless challenges and opportunities to improve. Therefore, gratification for taking on challenges was on-going, and the participants viewed personal gratification through skill development as an on-going part of the mountain bike experience that would continue to exist as long as the participants engaged in the activity.

To enhance personal gratification associated with taking on and overcoming challenges, the women were motivated to ride terrain that was difficult enough for them to feel challenged, yet not so difficult that they risked injury. Using this strategy, the women reduced the amount of time they felt the frustration resulting from falls and injuries. These types of learning strategies are associated with self-management and promote long-term motivation (Garrison, 1997).

Some of the women discussed wanting to take on and overcome challenges over a long period of time, so they could experience personal gratification. This aspect emerged as Sage and Alice, two of the more advanced riders, set long-term skill development goals and engaged in

seriously demanding work to achieve them—both physical and emotional. Sage, for instance, was drawn to mountain biking because she wanted to overcome challenges she viewed as impossible. Sage believed that with on-going practice and dedication, she could make the impossible become possible. Similarly, Alice pursued the A-lines (most difficult options) on technical world class cross-country courses and worked with a coach to acquire the physical and mental skills for difficult trail segments. For these two women, the delayed satisfaction associated with achieving in the long term was a personally gratifying component tied to long-term challenges.

Feeling connected. All the participants in this study had busy lives that included careers, post-secondary education, family, and community responsibilities. Feeling constant pressure to keep up with personal, family, and career responsibilities meant they had little time for establishing deep personal connections. Mountain biking was viewed as a way for the women to "get away from life's obligations" (Lynn) and feel a sense of connection with themselves, others, or nature. The women valued these feelings of connection, which added to the personal gratification that they experienced when participating in the sport.

Connected with self. The "intense focus" (Rose) required to mountain bike assisted the women with feeling removed from their everyday lives because they immersed themselves in the activity, tuned in to their surroundings, and tuned out their day-today responsibilities. As Elyse pointed out, "When you are biking, you can't focus on anything else." With the everyday distractions tuned out, the women were able to be in the moment and feel a sense of connection with themselves. Some of the women referred to mountain biking as an "escape" (Margaret) because they could separate themselves (both physically and mentally) from their daily responsibilities and create a space that was theirs. In this space, the women devoted time to self-

directing their development and achieving goals that brought them joy. The personal benefits received by the women were layered and varied. For instance, Rose, Jody, and Margaret all noted that mountain biking represented a time to relax; Kate said it was about having the freedom to explore; Sage mentioned that it was time she could devote to learning new skills (something important to her). All the women noted it was a time to enjoy being social, which included being with their friends and meeting new like-minded friends.

Since mountain biking was viewed as a healthy activity; the women appreciated that health and fitness as two personal benefits acquired through the sport, which increased the personal gratification they experienced when participating. Health and fitness were seldom discussed as the primary objectives; rather, they were viewed as side effects of participating in an activity that was "human powered" (Sue), involved "a lot of climbing" (Jody), "lots of elevation gains" (Lynn), and was considered "really good cardio" (Lynn).

Connected with others. Beyond connecting with self, the women connected with the riders with whom they shared their mountain biking experiences. Many of the participants pointed out that most of their long-term friends comprised the people with whom they rode. As Alice noted, "I just really enjoy the comradery of getting out with awesome people and pushing myself as well." When describing her most memorable experiences, Sue said, "One of my favourite things about riding is afterwards, when you are there with your friends, and it's the good type of tired." Comradery was established and maintained as the women shared their riding experiences with others. The alignment between the women's values (wanting to have and maintain personal connections) and their activities (mountain biking with others) enhanced their motivation, and the women felt personal gratification.

Significantly, personal gratification was enhanced when women rode and learned new skills with other women who were supportive. Sue called this "girl-time," and similar to many of the other women in this study, noted it was really important to her. The women felt "a pressure" (Elyse) to keep up and/or to blindly take on difficult terrain when they rode with their husbands, brothers, fathers, and male friends. The underlying belief when the women rode with men was that it was their prerogative to keep up. Lynn shared,

> I would ride with my husband, and he is faster than I. He grew up downhill racing, so he was very skilled as well. So sometimes when I would ride with him, I would do so just to keep up. And there could be sometime technical, and I would just get off and quickly go over it and keep riding.

When the women in this study congregated with other women, they created a subculture that supported how they wanted to ride and learn. When riding with other women, they felt they had "space to be able to try and connect and ask questions" (Elyse). They could evaluate the terrain and decide whether they would ride it, session it, or skip it. When developing skills, they encouraged one another, stopped to re-ride sections of trail, practiced, and worked together to figure it out. When engaging in conversation related to developing skills, the women were vulnerable and acknowledged their fears, limitations, and desires to improve. These practices enriched the women's personal gratification, as they spent time enhancing their relationships with other women while also having fun and learning new skills.

For Jody and Rose, being connected to other riders extended beyond their immediate friendships. Being a mountain bike rider meant being a part of the larger "social network" (Rose) and identifying with a bigger community. Jody explained, "A lot of us have cycling shoes and jerseys that are way more expensive than our work clothes . . . It's like a common thread. So,

instantly, you can identify who your people are." For these two women, feeling connected to the larger community of like-minded people felt personally gratifying.

Connected with nature. When mountain biking, the women also felt a connection with nature. Lynn explained, "I can have the most challenging day, and I go mountain biking and the world goes away, and I am just happy to be outside." The act of going to the trailhead and riding on a trail in nature added to feelings of disconnecting from everyday life and reconnecting with nature, an experience that many of the women viewed as personally gratifying. Most of the women said they felt connected to the land as it moved under their bike tires. Woven into the majority of the participants' stories were descriptions of the trails, mountains, forest, fresh air, and wild animals. Two participants pointed out that they loved the feeling of the wind in their hair. Although every participant talked about the relationship between mountain biking and being in nature, Kate claimed that connecting with nature was the most meaningful part of the mountain biking experience. Kate went into great detail explaining her surroundings and explained that the wilderness challenged her, energized her, and rewarded her. For her, being in nature significantly contributed to the personal gratification that she experienced when mountain biking.

Dimensions of Risk-taking

Mountain biking is a high-risk sport, and therefore learning new skills in mountain biking involved risk-taking. Lynn explained, "You have to kind of step out what is kind of comfortable for you, which is really hard . . . like with mountain biking . . . there is this physical element of risk. I can fall; I can hurt myself." For the women in this study, risk taking had many dimensions, including cultural expectations of risk-taking, the appeal of risk taking, injuries, and ways to control exposures to risks.

Cultural expectations of risk-taking. The women in this study viewed mountain biking as a male-dominated sport and saw themselves as part of the growing number of women interested in the sport. They also recognized that they had a different approach when it came to taking on and overcoming challenges. The women believed that when men engaged in risk taking, they were less conservative in their approach. Kate pointed out that men were more concerned about "who goes the fastest." Adding to this, Jody noted they constantly tried to "one-up" each other. The women felt that men's competitiveness with one another caused them to glorify risk-taking behaviors and engage in higher-risk activities.

> Guys, they don't care if they crash as much as girls do. And they are willing to crash a bunch of times in a row—or doing the same thing over and over again. Where if I crash once, I will be like, I am not going to do it again until I figure out why I crashed. And I figure out a way that I am not going to crash next time. (Eva)

Since mountain biking is a male-dominated sport, the competitive behaviour of men seeped into the culture of the sport. Several of the women pointed out that their male friends and husbands provided bad advice, such as "just go for it" (Lynn, Elyse) and "just commit to it" (Eva). These suggestions indicate a misunderstanding of women riders, as they erroneously propose that (a) the women were motivated to take risks in a similar way as their male counterparts; (b) the women possessed the same skill level and embodied knowledge as men; and (c) when women do not ride difficult terrain, it is because they have not mustered the courage to do so.

The appeal of risk taking. Similar to the perceptions about men in sports, the women participating in this study were also drawn to risk-taking behaviors and found that the element of danger enhanced the excitement associated with facing and overcoming fears. Having fear

increased the rush of adrenaline experienced, which resulted in enhanced feelings of happiness. Unlike their perceptions about men, the women were less competitive with each other and took on challenges for different reasons, such as achieving personal goals, improving skills, and the elevated feelings associated with accomplishment. However, when the women described their learning patterns, they discussed being selective about which risks they were willing to take, so that they could reap the benefits of risk-taking while also avoiding the negative consequences associated with injury. Having strategies such as controlling risks promoted on-going learning and demonstrated the women's commitment to on-going SDL practices.

Injuries. Falling and crashing were considered a part of learning; however, it was not a part the participants enjoyed. Falls and crashes meant increased likelihood of injury, and as Alice noted, injuries had negative consequences. "I fractured a few of my ribs . . . and after that my confidence was not the same for the season. So that was something that really pushed me back." The consequences of injuries also seeped into the women's lives outside of mountain biking, as injuries such as sprains, bruises, and broken bones affected how they engaged with their careers, volunteer work, personal lives, and family.

Controlling exposure to risks. Taking into consideration the many dimensions of risks in mountain biking, the women took on risks in a systematic way so they could learn new skills while limiting their exposure to injuries. Methods for controlling exposure to risks were integrated into the way the women learned skills, including developing strong foundational skills, increasing over time the difficulty of the terrain they rode, learning from an expert, and taking skills classes.

The participants first learned foundational skills in an environment that was safe, with low exposure to risks and low consequences. They believed that strong foundational skills

increased their confidence, increased skill levels, and decreased the likelihood of injury. The type of foundational skills the women needed to develop depended on the type of riding they were doing. For Eva, who wanted to learn to lift her front wheel over a log, foundational skills included first simply "lifting your front wheel on grass where there are no consequences." For Jody, learning foundations skills for descending meant understanding the body positioning that allowed her to descend safely and, if necessary, bail out. For all of the women, practicing these skills in safe environments, such as grassy field or slopes, assisted with building confidence before moving on to more challenging terrain. Since these skills were new, there were risks involved with learning them, and fear still existed. Once foundational skills were established, the participants moved to terrain with a higher risk exposure. At this point, they had acquired foundational skills and the confidence to ride more technical terrain without falling. Riding more difficult terrain required the women to step outside their comfort zones even more, facing even more fears and enhancing the excitement of risk-taking. However, when the women took that step, they had the confidence that they were competent.

The women did not like walking their bikes over challenging terrain; however, this was another way they controlled their exposure to risks. The women choose to walk their bikes when they deemed the risk of injury was too great.

Learning (and sometimes even re-learning) the basics from another experienced mountain biker, expert rider, or instructor offered a third way the women controlled their exposures to risks. Taking a class and learning from an instructor was viewed as a safe way to learn new skills. Jodi explained, "Women are not afraid to put structure to our learning and avoid injury." The participants chose to take courses that aligned with the skills they were developing, a way of collecting resources that support long-term learning goals (Garrison, 1997). Skills instructors

were able to provide a safe learning environment, step-by-step instructions for learning the skill, and immediate feedback on techniques. The women believed that if they used proper techniques, they could ride riskier terrain in a way that reduced the likelihood of getting injured. By first learning how to ride properly from an instructor, the participants gained the experience and confidence in their abilities to take on greater risks and challenges.

Synthesis

The women in this study owned their skill developing process, and they had agency over when, where, and how they learned. The women choose to learn and refine skills that were related to the type of terrain they enjoyed riding and selected learning strategies that aligned with their beliefs about learning. Their motivation to engage in mountain biking included personal gratification derived from having fun, being challenged, and feeling connected with self, others, and nature. Personal gratification provided incentives for the women to take on risks, even though there was the looming likelihood of falls and injury. Given the women's busy career and family schedules, there were limited amounts of time to devote to learning mountain biking skills. As a result, women employed strategies they believed were efficient for skill development, such as attending skills classes and practicing with other women. The end result was increased skills, which enabled them to experience greater amounts of personal gratification while mountain bike riding.

Personal gratification and motivation were negatively impacted when the women became injured or felt frustration due to the looming risks of injury. The women felt that there was an appeal to risk-taking, such as the excitement of overcoming fears and enhanced positive feelings of adrenaline. However, they were selective about what risks they were willing to take and pursued those that promoted learning while decreased the likelihood of getting injured. The

women exercised agency and controlled their risks by increasing the difficulty of terrain in a gradual manner, walking their bikes when they encountered terrain that appeared too difficult, and attending skills classes in which instructors provided safe and gradual learning experiences.

Summary

In this chapter, I provided the findings, a summarized version of the raw data collected during the interviews, and the thematic analysis. The three themes that emerged were: 1. Agency through ownership, 2. Personal gratification, and 3. Dimensions of risk-taking.

In Chapter Five, I discuss the key discussion points that emerged from this study, provide recommendations on how the findings from this study may be used by interested populations, and make suggestions about future research in similar areas.

CHAPTER FIVE: DISCUSSION AND RECOMMENDATIONS

Overview

My goal for this research study was to understand the mountain biking experiences of the 10 women who volunteered for this study; this included unpacking how they think and learn when developing skills. My curiosity about this research emerged from my combined experiences as an adult educator implementing SDL practices (Fillier, 2014; Fillier & Kirychuk 2015) and my recreational pursuits as a mountain biker. As I engaged with related scholarly literature, I found that mountain biking is considered by many to be a male-dominated sport and little research existed that explored how women navigate this space. I employed semi-structured interviews (Merriam & Tisdell, 2016) to gain a deep understanding of the women's perspectives on their experiences of mountain biking and self-directing their related skill development. I applied Garrison's (1997) SDL framework to recognize the women's SDL practices. The findings from this study moves the conversation of SDL forward, as they showed how SDL frameworks may be used to understand learning that occurs among those pursuing recreation as well as those involved in high-risk sports. SDL conversations also emerged that included individuals with beliefs and practices that do not align with the dominant culture.

In this final chapter, I outline the limitations of the research, address key discussion points, provide recommendations on how the findings from this study apply to interested populations, make suggestions for further research, and provide a summary.

Discussion

While this study focused on women's participation in mountain biking, a sport that many identify as male dominated, the results of the study and the following discussion may be applied to any population pursuing skill development for the purpose of recreation. Participants described the male-dominated culture as valuing independence, risk-taking, and maintaining a continuous and ongoing sense of competition. These characteristics also have been discussed as prominent values in North America. These perspectives can be traced back to many outdated and founding philosophies that viewed humans as "mostly developed (i.e., heathy and good) when they demonstrated independence, invulnerability, and agency" (Jordan, 2017, p. 229). Like the influence of so many founding theories and philosophies, many populations still cling to a misguided truth that the ultimate goal is to be a lone hero, and the ultimate goals include demonstrating intelligence, skill, bravery, and courage on your own, never leaning on others for support (Brown, 2012; 2017; Jordan, 2008. 2017).

The research I viewed showed that recreational environments maintain cultures that value independence, risk-taking, and competition (Carr, 2017; Comley, 2016; Huybers-Withers & Livingston, 2010; Huybers-Withers, 2015; McCormack, 2017; Ming et al., 2016; Olive et al, 2013). From my study, I found that learning rarely occurred in this way, and often when they tried, they ended up frustrated or injured. Rather, learning emerged as the participants found like-minded subgroups with whom to ride, and within those subgroups developed a subculture where they felt connected to one another and advanced their skill by providing feedback and encouragement.

Given the overlap of many of the values promoted in male-dominated cultures and North American cultures discussed, the findings are relevant for many different populations in diverse

communities working to acquire skills in a culture that values and fosters independence and separation when learning. The findings are especially relevant for adults pursuing skill development that requires having courage and being brave. The findings from this study may push many different types of learners from diverse communities to question the nature of the environment in which they are learning by asking, how do the dominant practices of this activity foster connection with others, and is there a platform for encouraging one another to pursue personal goals and self-directed practices?

When developing this discussion, I took into consideration my academic reflections, the findings from this study, and literature from relevant scholars in the fields of adult learning, recreation, and leisure. I expand upon four key discussion points: 1. SDL and developing skills for recreational pursuits; 2. SDL and structured learning environments; 3. Connecting with others to enhance self-directed practices; and 4. Skill building in high-risk environments. These discussion points address adults who engage in recreational pursuits, recreational leaders who design or lead workshops, and any person who holds an interest in maintaining motivation in skill development, recreation, and overall health and wellness.

Developing Skills for Recreational Pursuits

Recreational activities often have domain specific challenges (Stebbins, 2017). As demonstrated in this study, SDL is often used to attain the skills necessary to participate. To recap, SDL has three interconnected components: motivation, self-monitoring, and self-management (Garrison, 1997). Motivation in recreation includes the initial reasons why someone may commit to learning a particular recreational skill and the reasons why they sustain their efforts. Self-management involves engaging with resources, including people who assist with skill development. These resources may also include equipment, environments, books, and/or

YouTube videos. Self-monitoring are the cognitive and metacognitive processes responsible for constructing new knowledge and includes establishing awareness, reflecting on, and assessing the effectiveness of learning goals, learning strategies, and thought processes. Although each of the components are discussed separately, it is important to recognize that they are interconnected; developing skills in a self-directed manner for the purpose of recreation involves engaging in all three.

Motivation. To self-direct learning and skill development, it is crucial to attain and sustain motivation (Garrison, 1997). For recreational pursuits, motivation is enhanced through personal gratification, which is experienced through participation in the activity. The findings from this study as well as others (Levy, 2002; Roberts et al., 2018; Skår, Odden, & Vistad, 2008) support the assertion that motivation is enhanced through powerful feelings of gratification, including enjoyment, connecting with self and others, being in nature, and taking on and overcoming challenges.

Stebbins (2015; 2018), a scholar in the area of recreation and leisure, noted that when there is a demonstrated commitment to sustaining SDL in recreation, the type of activity is considered a serious pursuit, and personal gratification includes the immediate feelings of enjoyment, feeling connected with self and others, and the long-term deep fulfillment achieved by overcoming challenges and sticking with an activity through thick and thin. In the moment, enjoyment dominates and assists with the initial motivation; however, over time, the feeling of deep fulfillment that occurs as a person invests their time into an activity in order to reach their full potential is considered a more powerful form of gratification (Stebbins, 2018). In my study, I found that the participants often overcame their challenges when riding with others, which further enhanced motivation.

Drawing on this data, choosing recreational activities that are appealing, enjoyable, and include the opportunity to mingle with others who can provide feedback and support assists with motivation among self-directed learners. In addition, sustaining motivation over time is enhanced by taking on appropriate and compelling challenges that lead to overall self-fulfillment by reaching personal potential in the sport.

Task-management. As previously mentioned, task-management for acquiring skills involve external functions such as engaging with resources and devoting time to practice, either on your own or with others (Garrison, 1997). From this study, I discovered that learning was more successful when the participants coordinated with other like-minded learners. For recreational activities, skill development often includes experiential activities that go beyond "discursive reasoning, observation, or reflection" (Stebbins, 2018, p. 378) often associated with learning. Notable in this study was the amount of time devoted to practicing skills with others, particularly those considered relevant, useful, and employable for overcoming challenges during future recreational pursuits. These finding are consistent with assumptions about adult learners that suggest adults want to engage in learning that is useful for solving problems (Knowles, 1980).

As with any SDL endeavor, a certain amount of personal agency is required to ensure an align between learning practices and personal learning goals (Candy, 1991; Cox, 2015; Fyall, 2016; McCartney et al., 2016; Garrison, 1997; Post, 2015, Seifert et al. 2016). When learning skills in recreation, having agency involves selecting and engaging with the resources and practices that enhance skill development and sustain motivation. As indicated in this study, agency may be compromised when learners feel pressured to take on common practices used by others in the community. These practices may not be consistent with personalized learning goals.

Pressures to conform may increase when the advice comes from others who are more experienced and have an extensive history in the field (McCormack, 2017), especially since learning from others is a common way to learn among adults (Knowles, 1980). However, this study noted the difference between seeking feedback and feeling pressured, and SDL continues to exist when the learner has autonomy and agency with what and how they are learning (Garrison, 1997). When advice is offered, agency may be maintained by conscientiously taking on practices that align with personal skills development goals. Self-directed learners can be open to the advice of others and may follow the suggestions that align with their personal goals and practices practice. They can also modify the directions or abandon them completely. Supportive learning groups were described in this study as others who support self-directed goals and practices.

Self-monitoring. Reflecting on and critically thinking about learning goals and the effectiveness of learning practices is a part of self-monitoring (Garrison, 1997). As indicated in this study, self-monitoring includes metacognitive functions, or having a critical awareness and ability to think about and evaluate internal learning processes. Scholars have noted that a person's individual beliefs form their frame of reference— the structures that guide their decisions regarding their learning pathways (Mezirow, 1997; Yero, 2002). These beliefs are influenced by past experiences of personal successes and failures; when pursuing recreational skills, these beliefs assist the learner with making decisions about the goals and practices they take on.

Adults prefer to create goals and engage in activities that are achievable and in which they experience success, as the findings of this study and Seifert, et al. (2016) suggested. One positive reason for continuously engaging in successful experiences is the establishment of

confidence in personal abilities, or self-efficacy— the innate believe that the participant will be successful when they engage in similar future endeavors (Bandura, 2010). In SDL, self-monitoring is the function of selecting the goals and activities that align with future goals and are consistent with a belief that the pursuit will result in success rather than failure. Since each adult's belief system is influenced by their past experiences, adults are uniquely positioned to exercise agency and decide which learning goals and practices are likely to result in successful experiences.

Although effective for decision making that results in successful outcomes, belief systems can also be limiting (Mezirow, 1997; Yero, 2002). When self-directing skills in recreation, personal beliefs about successes and failures may constrain what adults are willing to try. Therefore, self-monitoring includes recognizing limiting beliefs so they may be transformed.

Belief transformation occurs when learners are open to engaging in new experiences and then reflecting on the effectiveness of that experience (Mezirow, 1997). As demonstrated in this study, when learners are opened to receiving feedback about learning practices and goals, they are also open to transforming their personal beliefs about what they can achieve. Being open to learning and reflection includes thinking about how the individual receives and interprets goals and experiences and questions the outcomes. This may occur as learners choose to try out a new form of learning such as attending a class or joining a club, and then critically reflecting on the overall effectiveness in learning new skills. It may also occur by watching a likeminded individual achieve a goal that was previously viewed as impossible. As pointed out in this study, being open to new goals and processes is easier when someone with similar interests can demonstrate the success of that experience.

Structured Learning Environments

This study further acknowledged the claims of scholars that SDL is a collaborative process that may occur in a class with an instructor (Candy, 1991; Knowles, 1980; Garrison 1997). In adulthood, time devoted to leisure activities is often limited (Stebbins, 2017), creating a need to optimize the time spent learning the skills necessary for participation. In most cases, a structured class is perceived as an optimal way to learn, as it has professional instructors, supportive environments, and step-by-step guidance (Fyall, 2016; Post, 2015; McCartney et al., 2016; Stebbins, 2017). The guidance from a coach or instructor may provide fresh perspectives for overcoming obstacles (Seifert et al. 2016; Garrison, 1997). Adding to these ideas, this study promotes the idea that the information provided by instructors is considered trustworthy, which increases the confidence of the learner in new processes and methods that are uncovered.

Although attending a skills class provides an effective way to learn, achieving SDL within a structured learning environment is more complicated than simply showing up, and it is often difficult to achieve. The complications emerge because "self-directed learning requires more than a submissive and compliant approach to learning" (Seifert et al., 2016, p. 2), and a structured environment rarely promotes self-governed approaches to learning. Often, instructors administer processes that are governed and influenced by institutional policies and regulations. Adding a second challenge, educators tend to rely on teaching and learning methods that adhere to their own best strategies rather than the learners' unique goals and learning processes (Hiemstra, 2013). Hiemstra, a scholar in adult learning and a promoter of self-directed learning, pointed out that a teacher-centered approach, rather than a learner-centered approach, is most likely caused by the instructor's lack of training and understanding in the general area of adult

learning. He added that as a result of the many competing agendas (institutions, instructors, learners), structured learning environments often fail to promote SDL.

Although there are many challenges to achieving SDL in a structured learning environment, the participants in this study demonstrated that it is possible. For SDL to occur, agency for decision making must remain with the learner, which requires the learner to take an active role in deciding on their goals, learning processes, and benchmarks of success (Garrison, 1997; Hiemstra, 2013; Seifert et al., 2016). One way to accomplish this is for the learner to select skills classes that align with their learning goals and that implement practices aligned with their preferred learning processes. A second option is to seek out skills classes that have a learner-centered governance structure. This type of information may be revealed in the company's mission and vision statements available on the company's website. A learner-centered class promotes agency among learners, and the instructors are empowered with flexibility to instruct in ways that focus on the learner's goals and preferred practices. Instructors also need training in the area of adult learning to understand how to enact a learner-centered approach. Without considerations such as these, SDL within a structured environment is difficult to achieve, and it is unlikely that the learner's agenda would be taken into consideration.

Connecting with Others to Enhance Self-directed Practices

Self-directed learning occurs within a social context (Garrison, 1997), and this study revealed the positive impacts that connecting with others has on SDL in recreational environments. Recreational spaces offer the opportunity for adults to congregate over a shared interest, where genuine conversations occur that promote friendships and connections. The impacts of collaborative learning are layered and include positively influencing motivation and enhancing skill development overall.

The gratification experienced when people connect with one another during recreation increases the overall motivation for participation, as revealed in this study. One way to explain this finding is to consider that people are neurologically hardwired to desire the feeling of connecting with others (Brown, 2017). Feeling connected assists with establishing a powerful sense of purpose and a vibrant sensation of being alive. The innate desire to connect with others enhances motivation to congregate for the purpose of recreation, both scholarly work and Statistics Canada support this information, which suggests one of the main reasons why adults engage in recreation is to spend time with one another (Bosteder & Appleby, 2015; Fontana, Fry, & Cramer, 2017; Statistics Canada, 2017; Stebbins, 2018). Once familiarities and friendships are established, learners are more vulnerable and likely to share personal information such as their struggles associated with learning skills, which provides a platform for collaborative learning including feedback and encouragement (Brown, 2012; Jordan, 2008, 2017; Stebbins, 2018).

This study noted that women's connections with other women were deemed the most important relationships for enhancing enjoyment, motivation, and skill development. In environments that may be considered male-dominated, women have felt pressured to learn and perform in a way that is similar to men (Comley, 2016; Hall, 1999; Huybers-Withers, 2015; Olive et al,m 2013; McCormack, 2017; Ming, Simpson, & Rosenberg, 2016). The practices that were encouraged are similar to the dominant values in North America, where strength, independence, and competition are celebrated, but vulnerability, encouragement, and support are devalued (Jordan, 2008; 2017). In many cases, when women learn with other women, the pressure to learn independently and compete with one another is replaced by a supportive environment that focuses on encouragement (Bosteder & Appleby, 2015, 2015; Carr, 2017; Comley, 2016; Fontana, et al., 2017; Levy, 2002; Olive et al., 2015). This type of environment is

more effective for promoting learning in general, and it fosters the necessary confidence and courage for engaging in self-directed learning practices. As Jordan (2017), a researcher on the subjects of courage and vulnerability noted, "isolation erodes courage . . . interrupts growth . . . disempowers and immobilizes" (p. 231); however, "courage, confidence, and a sense of strength grows [with] connection" (Jordan, 2017, p.231).

SDL in recreation was especially relevant at the time this paper was written. Today, Covid-19, the 2020 worldwide pandemic, has impacted every person in Canada. In Alberta, social restrictions are mandated, meaning households are not permitted to host guests, outside gatherings are severely restricted, and recreational clubs and classes are suspended. In addition, many employers require their employees to work from home. The shutdown of places for social gatherings and requirements to work from home provide more time for engaging in recreational activities; however, connecting with others in order to learn is very challenging. Recreational groups are adapting their practices so they can adhere to government mandated restrictions and while still providing a platform for people to connect with others. Engaging in recreational activities with others is permitted in small groups of people (10 or less), as long as the members adhere to proper safety measures such as hand sanitizing and physical distancing. As a result, recreational groups have decreased the number of people congregating and have asked each member to adhere to safety protocols. Recreational clubs are also utilizing virtual platforms as a way to connect with others.

Even during a worldwide pandemic, the desire to connect with others continues to motivate adult learners, as indicated by the full parking lots at recreational areas and the difficulty finding key recreational equipment to purchase. Since the start of the pandemic, people have not only continued to pursue recreation, but there has also been a significant increase in the

number of people participating in recreational activities as a way to spend their leisure time and connect with others, indicating the strong relationship between recreation and connection.

Skill Building in High-risk Environments

Many recreational activities are considered to be high-risk, including skiing, snowboarding, kayaking, mountain biking, mountaineering, rock climbing, archery, horse jumping, sky diving, trail running, and backpacking. Although many recreational pursuits require technical skills and abilities, those considered high-risk also involve a certain amount of danger when practicing (Baretta, Greco, & Steca, 2017). Due to the associated danger, learning skills and attaining competence requires having courage and facing fears. In many environments, having courage is synonymous with fearlessness. However, this study showed that fearlessness was not a part of practice when working towards attaining skills in high-risk recreational environments. Rather, practicing courage more closely reflected the following: "Courage, unlike macho defiance of fear, is the capacity to act meaningfully and with integrity in the face of acknowledged vulnerability" (Jordan, 2008, p. 22). Having courage includes having the agency to stand alone in our beliefs and implement processes we innately believed to be right (Brown, 2017). Having courage is not an isolated pursuit; it emerges when a person feels encouraged or supported by others to pursue their personal goals and practices (Brown, 2017; Jordan, 2008, 2017)

Applying Jordan's (2008) and Brown's (2017) definitions suggests that having the courage to take on challenges in high-risk recreation may include the practices demonstrated in this study: self-directed practices that are deliberate, systemic, conservative, and focused on successes rather than failures. Being deliberate and systematic when developing skills in high-risk environments involves taking on challenges that align with overall learning goals, breaking

them down into bite-sized achievable steps, and then taking on the tasks that are intuitively attainable while modifying or avoiding those that will likely end in injury. Overtime, this approach progresses a recreational user towards goal achievement while recognizing their limitations and reducing their exposure to injuries. Supporting this discussion, previous research acknowledged that other experienced participants in high-risk sports are also conscientious in their approach and deliberately take on risks that are calculated in an attempt to avoid injury (Baretta, Greco, & Steca, 2017). Similar to the participants in this study, these calculations are likely intuitive and based on belief systems generated over time from the data individuals have gathered from their experiences self-directing related skill development in the past. As noted in this study, supportive subcultures do not encourage others to attempt to utilize their skills in a way that is outside of their current skill levels.

In addition to promoting skills, self-directed processes that break skill development into achievable steps by which recreational users experience successes over time, fosters confidence and high levels of self-efficacy (Bandura, 2010). Self-efficacy has been deemed a determinant of performance success among athletes, and it is a common characteristic among those pursuing high-risk sports (Baretta, Greco, & Steca, 2017; Moritz, Feltz, Fahrbach, & Mack, 2000). This information supports the claim that having high levels of self-efficacy, rather than doubting personal abilities, is inherently good for self-directed learners who pursue high-risk recreation. Deliberately customizing practices so they take into consideration the dangers associated with the sport likely leads to fewer setbacks due to injuries, and over time enhances self-efficacy in skills and abilities (Bandura, 2010).

Recommendations for Recreational Users and Coaches

The findings, results, and discussions from this research study may be used to further conversations about SDL and inform the practices of many interested populations including: 1. Women engaging in mountain biking and other high-risk sports; 2. Adults engaging in recreation; 3. Coaches and workshop designers, and 4. Adults interested in health and fitness. In this section, I provide ways that each of these groups of interested readers may use the findings to support their practices.

Women Engaging in Mountain Biking and Other High-Risk Sports

These recommendations refer to factors women could consider to support their learning and development of skills to participate in high-risk sports, in particular mountain biking for recreational purposes.

- Recognize that mainstream practices in mountain biking environments may not align with how women learn and may not be a best practice for women.
- Rely on intuition practices that comply with personal learning goals and ways of learning.
- Join communities of women, such as clubs and skills classes, that encourage and support self-directed goals and practices.
- Foster long-term relationships with other women who engaging in similar sports in similar ways.

Adults Learning Skills in Recreation

These recommendations refer to factors that any adult, but in particular women, participating in any recreational high-risk sport should consider as a basis of engaging in aspects of adulting learning that are important for their skill development.

- Align skill development processes with skills that are relevant and meaningful.

- Incorporate challenges that are attainable and aligned with skill development goals.
- Focus on successes and view learning as an ongoing process that unfolds over time, rather than having a start and end point.
- Engage with others who are encouraging and also willing to provide feedback and tips.

Coaches and Workshop Designers

These recommendations refer to factors that coaches and workshop designers could consider to support women learning and development of skills to participate in high-risk sports, in particular mountain biking for recreational purposes.

- Customize the learning program to meet the learner's goals and risk tolerance.
- Be prepared to change or modify the program based on the participant's needs.
- Create scenarios where participants experience successes rather than failures.
- Provide a space wherein participants can practice and receive feedback.
- Foster a culture that is encouraging and provide a space where women can practice with other women and form friendships.

Adults Interested in Health and Fitness

These recommendations refer to factors that any adult, but in particular women, should consider as a basis of making decisions and setting goals regarding health and fitness that are important for pursuing their interest or motivation to participate in any recreational high-risk sport.

- Choose activities that are gratifying and provide health and fitness benefits.
- Develop goals and practices that are relevant and personally important.
- Create scenarios for achievements and avoid injuries.

- Create friendships or join a community that support and encourage one's ongoing pursuits and practices.

Limitations of Research

As the study unfolded, I came to believe that including different criteria in the design of this study may have led to a more robust and diverse set of data and richer findings overall. Now that I am at the final stage of my research study, I am curious about how this study may have evolved if there had been fewer or different delimitations in the design. If I were to redesign this study, I would make the following three changes:

1. Including participants from different types of recreational activities would provide findings from a more diverse population and create a more robust set of findings.
2. Looking back at my semi-structured questions, I would have liked to have unpacked the topic of connection further with the participants by adding more questions related to SDL and learning with others.
3. When I initially started my data collection, I did not realize I would have participants who were qualified coaches who volunteered to coach others. Retrospectively, I would have liked to probe those participants further, as a separate group of participants, about their perspectives on coaching groups of women. The aim of these questions would have been to more deeply understand the construction of communities and relationships that are productive for skill building.

Further Research

In this final section, I discuss areas that piqued my interest and where I believe additional scholarly research would contribute to the field of adult learning and recreational sports.

1. In this study, clear conversations emerged about how working with others assisted participants with being courageous, facing fears, and overcoming challenges. I believe this study promotes further research to explore how connecting with others assists with overcoming barriers when learning skills or with learning in general. This topic might be explored by taking into consideration the perspectives of learners and/or the perspectives of coaches or instructors on skill development that occurs among groups of learners.
2. From this study, it was evident that much learning occurred when participants practiced with others. A community of practice framework could be used to gain a deeper understanding of the learning that occurs within an entire group when pursuing serious leisure activities and how learning in these scenarios differs among cultures and genders. I recommend taking a case study approach and applying it to a recreational community of practice that focuses on promoting skill development and overcoming personally imposed limitations.
3. Given the high-risk aspect of mountain biking, many of the women in this study experienced injuries due to mountain bike falls, including broken bones. The same women then faced barriers when reengaging with the sport, due to decreased levels of confidence and self-efficacy. Injuries are common in many recreational sports, and unfortunately become a deterrent for continued participation. Expanding on this concept, research may be conducted on recreational users who return to serious pursuits after injuries, including recovery from injury and regaining confidence in sport. Further inquiries could address: How do injuries impact on-going processes when learning skills in recreational sports? What do injuries teach adult athletes about

resiliency and commitment to sport? What self-directed processes aid the recovery of injuries and promotes resiliency?

4. In many areas promoting health and fitness, health professionals such as doctors, nurses, physiotherapists, massage therapists, and chiropractors remind their patients of the benefits of engaging in exercise. This study confirmed that continuous commitment to exercise involves more than going to the gym. This study suggested that adults will engage in activities that are personally gratifying, leading to the question: What are the long-term health and fitness impacts of fitness programs focused on attaining personal goals and enjoyments, rather than on completing specific exercises?
5. In many sports, such as endurance swimming, endurance running, endurance road riding, and rock climbing, women outperform men and/or are catching up to men's performances despite their underrepresentation in these sports. Women's sports remain undervalued and underfunded, and their competitions are often less rigorous and receive less media coverage. All of these factors contribute to women's inability overcome the stereotype of being the weaker or less worthy gender in sport. Exploration is needed to understand the policies that undermine women in sports. To assist women's development, research is needed to explore the following questions: What support structures need to be implemented for women to receive the type of recognition in sports, that would be comparable to men? What governing bodies and policies impact the structure of sports in Canada, and why is gender inequity still so prevalent? What historical and recent events contribute to the dominant perspective of

women as the weaker gender in athletic endeavours? What are the barriers for women in athletic development and how do women overcome them?

Summary

During this research study, I aimed to understand the mountain biking experiences of 10 women in Calgary, specifically how they think and learn while developing skills. In Chapter One, I introduced the purpose of the study and my background as a researcher. In Chapter Two, I provided a comprehensive literature review on the topics of women and recreational sports, adult learning, and the theoretical framework used in this study. In Chapter Three, I explained the research methodology used to guide the research design, the data collection methods, and the analysis process. In Chapter Four, I presented the research results and the themes that emerged from the thematic analysis. In this final chapter, I reflected on key discussion points for this study, provided recommendations on how the findings may be used by different populations of readers, and provided four areas for further research in the field of adult learning and recreation.

Reflections on my Learning Journey as Researcher

When I started this study, I wanted to capture and understand the wild calling that pushes adults like me to pursue their recreational passions and learn skills that enhance their experiences. Along the journey, I learned there were many complexities that create boundaries for learners, even when pursuing recreation and learning in a self-directed way. One obvious barrier that emerged early in the literature review and interviews were caused by the norms and expectations that existed among the community members. The cultural pressures to adhere to certain practices and goals can actually have a negative impact on a person's ability to identify personal learning objectives and pursue learning in a self-directed manner. Furthermore,

conforming to cultural norms and expectations can hurt personal motivation, stunt learning, and lead to personal injuries.

The part of this study that I found most compelling was how peer pressure to conform to cultural norms within the recreational community was unhelpful, and sometimes even detrimental, to learning; however, building alliances and connections among a subgroup of peers was one of the key factors for supporting skill development in a self-directed manner. It was through connecting with others that the participants in this study found the courage to face their fears and overcome their challenges. Sue, one of the participants in this study, bluntly stated, "it's all about the accomplishment." After listening to the women's interviews and then coding and analyzing their messages, I discovered that SDL was actually about more than achieving personal goals. SDL included developing the critical connections with others that allowed the participants to be vulnerable, share their struggles, and assist one another towards overcoming their fears and challenges, so they could experience accomplishment.

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Appendix A: Sample Recruitment Email

Dear Mountain Biker,

Would you be interested in participating in a research study that explores women's experiences mountain biking? I am recruiting volunteers for a qualitative research study on women's interests, thinking, and learning in recreational mountain biking. This is for my doctorate in adult learning dissertation, which I am completing at the University of Calgary. As far as I can see, I am the only person doing research on this topic, and I find it so interesting. I hope you do, too, and you want to be a part of my exploration!

To qualify to be a participant, you need to self-identify as a woman and a recreational mountain bike rider (i.e., you are not at an amateur or professional level), have at least two years of experience riding, ride approximately 15 times per year, and can identify one skill you have tried to develop. The interview will be recorded and will last between 30 and 90 minutes.

If you aren't interested or are too busy, no worries. I understand. We are all busy people. If you are interested, please contact me and I can give you more details on the types of questions that will be asked, and the benefits and risks involved with participating.

Sincerely

Sarah Fillier EdD(Candidate)

Appendix B: Interview Guide

The following interview guide contains the semi-structures questions asked by me to the participants during the date collection phase for this research study. There are three parts: About biking and recreation; development of technical skills and learning; and beliefs about learning.

Part 1: About Mountain Biking and Recreation

- What does mountain biking mean to you?
- How would you describe mountain biking to someone who doesn't know anything about it?
- Complete the following: Mountain biking is like _____ because _____
- How would you describe a recreational athlete? (ii) Do you see yourself as one? Explain.
- How do you view women mountain bikers? (ii) Other than gender, are there differences compared to male mountain bikers?
- Tell me about how you first became interested in mountain biking.
- Why do you continue to invest your time and resources into participating in this sport?
- What are the most meaningful parts of the mountain biking experience for you?
- Complete this sentence, "Riding makes me feel . . . "
- Tell me a story of a memorable mountain biking experience. Describe the situation with as much detail as possible.
- Would you encourage other women to become recreational mountain bikers? Explain why.

Part 2: Development of technical skills, goals, and learning

- What are the different types of skills a recreational mountain biking athlete can work on developing?
- What mountain biking skill(s) have you worked on developing? (ii) How did you decide on this/these skills?
- Explain why you were motivated to learn this/these specific skills (name skills).
- Explain the process that you followed to develop these skills (name skills).
- Walk me through your key training routine or activities for these skills.
- Did you choose these activities or were they specified for you?
- Describe any instruction you received regarding these activities.
- Tell me a story of a memorable experience with this instructional approach. (ii) Describe the situation with as much detail as possible.
- Describe what you did or learned on your own that was not part of formal instruction. (ii) How did you decide on this?

- Describe what you did to learn with/from others that was not part of formal instruction.
- What would you rank as the most important parts of the process that you explained?
- Explain how you knew the importance of that part of the process.
- What were the additional steps/processes that you removed, changed, or added as you learned? How did you know to make these modifications?
- What were some of the indicators that marked your success/unsuccess? Why did you choose these indicators? (ii) What actions have you taken to deal with unsuccessful situations?
- How did others impact your skills development?

Part 3: Beliefs about learning

- What do you think is the best way for **anyone** to be engaged in learning [in general] as an adult?
- What do you think is the best way for **you** to learn [in general] as an adult?
- If you were teaching mountain biking to an adult, what would your approach look like?
- What do you think self-directed learning means? Based on your thinking about it, do you think you engaged in self-directed learning to develop mountain biking skills? Explain why/how or why not.
- Do you see a difference between how women and men learn mountain biking?
- Explain how you perceive your role in learning new skills.
- Explain how you see your role in setting up a successful environment for your learning.
- Explain how you perceive the roles of others as you learn new skills.
- Are there any other modes of learning that would have been as impactful or more impactful for your skill development?
- Is there anything else that you would like to add before we end this interview?

Appendix C: Informed Consent Sample Letter

I would like to invite you to be part of a study where I explore how women learn in relation to achieving their goals in recreational mountain biking. You can participate in this study because you are an adult over the age of 18, you self-identify as a woman, your ride your bike a minimum of 15 times per year and you can recall an experience learning a specific mountain biking skill. This form is for you to give your consent regarding collecting information about you and your learning experiences.

Name of Researcher, Faculty, Department, Telephone & Email:

Sarah Fillier, MEd
Werklund School of Education
University of Calgary

Supervisor:

Olive Chapman

Title of Project:

Skill Development Among Women in Mountain Biking for Recreation

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This consent form, a copy of which will be given to you, is only part of the process of informed consent. If you want more details about something mentioned here, or information not included here, you should feel free to ask the researcher. Her contact information is provided. Please take the time to read this carefully. The University of Calgary Conjoint Faculties Research Ethics Board has approved this research study.

Purpose of the Study

This research explores how women learn skills in recreational mountain biking. It will add to the scholarly research on women's participation in recreational sports, high risk sports, and recreational mountain biking. It will also inform women's development of mountain biking skills and inform the approach taken by clubs, coaches, and riding clinics that wish to adhere to women specific ways of learning.

What Will I Be Asked to Do?

By signing this form, you consent to sharing your experiences and/or perspectives as an athlete in one or more interviews. Interviews will take between 30 and 90 minutes.

What Type of Personal Information Will Be Collected?

Should you agree to participate in the interviews, you will be asked to provide your name, phone number, and email address so that the researcher can communicate with you. The information will be used to set up a time and location for interviews. You will also be asked to provide your age, gender, the number of years of experience you have accumulated as a recreational mountain biker, a skill you have worked on developing, and the number of times you mountain bike ride in a year. This information provides assurance that you meet the criteria for this study.

Two risks are identified for this study

1. The social risk: Through grapevine communication identities could become known. To reduce this risk, a pseudonym (fake name) will be created and used for each participant during the transcription of the interviews, and all identifying information will be removed. Any original audio files with identifying information will be stored in a password protected and encrypted folder.

2. The psychological risk: The participant will be required to answer questions involving reflection, which may lead to new discoveries about oneself. This type of learning can elicit positive or negative reactions. Negative reactions may result in psychological turmoil. To decrease this risk, the participant will discuss a strategy that can be used for dealing with harmful emotions prior to participating in the study. An example includes contacting the participant's family doctor. However, in any situation of distress, the participant may contact the researcher or Calgary Distress Center, who will assist you with immediate emotional concerns. The Distress Center can also provide resources and strategies that relate to distressful emotions and situations. This is an anonymous and free service. The researcher's contact information is provided. The Calgary Distress Center phone number is 1(403) 266-1601.

Benefits Associated with this study

Participating in interviews provides the opportunity for reflection. It is possible that personal reflections may lead to self-discoveries that will assist you in achieving your personal and/or athletic goals.

What Happens to the Information I Provided

The primary researcher and her supervisor are the only people who will have access to the original audio recording, or notes in the absence of audio recording, that contains personal information. The audio recorded interviews or notes taken during the interview will be moved to an encrypted folder that is password protected and deleted from the original recorder. The audio recording will be transcribed and kept in a locked data file. The transcription process will remove the names and all identifying information so that the participants cannot be identified. All identifying information will be removed from any notes taken during the interview. A backup of the transcribed files will be kept on a password protected external drive and in a locked cabinet. The transcribed data will be kept indefinitely and possibly used in future research.

Withdrawal from the study

This study is completely voluntary. At any point the participant is free to refuse to answer any question during the interview, or withdraw from the study completely. If the participant wishes to end participation, she notifies the researcher. Once this action is taken, the researcher will end the data collection process and remove the participant from the study. Any information collected, but not analyzed, will be removed and destroyed. Any information contributed to the study that has been analyzed will be part of an audit trail for collecting subsequent data. Therefore, it will not be removed or destroyed.

Participation in Data Collection

I wish to contribute to this study in the following ways:

I want to participate in interview(s):	Yes: __ No: __
I am willing to be recorded in interview(s):	Yes: __ No: __

Signatures

Your signature on this form indicates that 1) you understand to your satisfaction the information provided to you about your participation in this research project, and 2) you agree to participate in the research project.

In no way does this waive your legal rights nor release the investigators or involved institutions from their legal and professional responsibilities. You are free to withdraw from this research project at any time. You should feel free to ask for clarification or new information throughout your participation.

Participant's Name: (please print) _____

Participant's Signature: _____ Date: _____

Researcher's Name: (please print) _____

Researcher's Signature: _____Date: _____

Questions/Concerns

If you have any further questions or want clarification regarding this research and/or your participation, please contact:

Sarah Fillier
Werklund School of Education

If you have any concerns about the way you've been treated as a participant, please contact the Research Ethics Analyst, Research Services Office, University of Calgary at (403) 220-6289/220-4283; email cfreb@ucalgary.ca. A copy of this consent form has been given to you to keep for your records and reference. The investigator has kept a copy of the consent form.