

**Exploring the Motivations and Experiences of Middle  
and Older Aged Adult Rock Climbers:  
SSHRC Grant Funding Proposal**

by

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## Ethics Statement

The author, whose name appears on the title page of this work, has obtained, for the research described in this work, either:

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or

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## **Abstract**

Lifelong adherence and attachment to physical activity, recreation, and leisure among older adults is an evolving topic; however, very little research has been conducted on older adults engaged in what is termed 'serious leisure activity.' One growing type of serious leisure activity is rock climbing. The aim of this Capstone Project is to develop a mock SSHRC grant funding proposal (Insight Development), which is established from a background review of literature and a small exploratory pilot project. The research grant proposes to compare and contrast the experiences and motivations of middle and older aged (50+) rock climbers with a matched sample of running group or club participants. The data collected as part of the preliminary qualitative-based Pilot Project were analyzed using a thematic analysis. Four major themes were identified and incorporated into the mock grant proposal: continued and increased participation; unique lifestyle characteristics; experiential and intrinsic rewards; and camaraderie and social context. The findings point to strong activity attachment, social network effects, and suggests that meaningful modes of physical activity encourage lifelong, engaged participation.

**Keywords:** rock climbing; gerontology; serious leisure motivations; lifelong participation; physical activity and aging.

This Capstone Project is dedicated to the many adventurous souls (young and old) from all beautiful corners of the world that I have met in the past decade through rock climbing.

May you *always* embrace failure and challenge as opportunities for growth.

*“For me, the appeal of climbing came from complex motives, ranging from a longing to escape from the artificial civilized order and its social and political controls to a need for self-rejuvenation and a desire to restore my sense of proportion. I could see everywhere there was a penalty for too much comfort.”*

--Fred Beckey

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“For me, climbing is a form of exploration that inspires me to confront my own inner nature within nature. It’s a means of experiencing a state of consciousness where there are no distractions or expectations. This intuitive state of being is what allows me to experience moments of true freedom and harmony.”

- Lynn Hill -

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# Chapter 1.

## Introduction

Canada's population is aging and it is projected that by 2036 approximately twenty-three to twenty-five percent of Canadians will be over the age of sixty-five (Statistics Canada, 2016). This is largely due to increasing life expectancy, the aging of baby boom cohorts, and immigration patterns (Public Health Agency of Canada, 2017). The baby boomers comprise one-third of the Canadian senior population, typically defined as persons born between 1946 and 1965 (Wister & Speechley, 2015), and therefore worthy of attention. Due to the large size of this cohort and its position in the age structure, there are population health concerns about middle and older aged adults' adoption of unhealthy lifestyle behaviours, such as sedentarism and physical inactivity. These unhealthy behaviours can contribute to the onset of chronic disease among middle-aged and older adults (Berk et al., 2006; Hamer et al., 2014). Indeed, Statistics Canada (2016) has reported that only 13% of men and 11% of women aged 60 and older meet the recommended guidelines for physical activity levels.

There is a large body of literature that identifies factors that influence physical activity patterns in middle and old age (Kim & Suh, 2017; Carlson et al., 2012; Beck et al., 2016; Petrescu-Prahova et al., 2016). One area of interest addressed in this proposed project entails decreased opportunities for meaningful leisure-time physical activity (PA) from a life course perspective among middle and older aged adults (Gibbs et al., 2016; Malavasi et al., 2010; Ku, Fox, & Chen, 2016; Taylor & Pescatello, 2016; Kluge, 2007). On the one hand, health-related challenges, lowered energy reserve, and fewer leisure-time physical activity opportunities act as barriers for participation in PA. On the other hand, life transitions, such as middle age and retirement, can be associated with increased financial resources, and available time to pursue new leisure or recreation activities. Overall, these periods represent an opportunity for many middle and older aged adults to discover new activities, but it is still unclear exactly what type of opportunities may best encourage long-term adoption of healthy physical activity behaviours which contribute to optimal health.

One form of leisure-time PA that is receiving attention in the literature is what is termed *serious leisure activity*. Serious leisure is the systematic pursuit of a core activity that is highly substantial, interesting, and fulfilling, where participants find a career in acquiring and expressing a combination of its special skills, knowledge, and experience (Stebbins, 1992, p.3). Serious leisure also refers to the goal-directed pursuit of a leisure activity that requires an investment of time, energy, the establishment of social networks, and the establishment of a leisure identity (Stebbins, 2007). Participants engaging in serious leisure activities have the opportunity to develop a sense of competence, positive feelings and enjoyment associated with leisure activity PA (Heo et al., 2013), in addition to harnessing the opportunity to develop notable personal identity and enhanced quality of life through serious leisure (Kleiber, 2012). General definitions of serious leisure include a substantive range of activities; from fine arts and crafts to more physically active endeavours, such as the topic of interest for this Capstone Project, rock climbing. Therefore, reviewed literature and further mention of serious leisure in this document will focus primarily on adventure-based activities inclusive and similar to rock climbing. Rock climbing has been previously identified as an increasingly popular form of serious leisure among younger individuals that has potential to enhance physicality (Wood, 2016). There is some evidence that middle and older aged persons are engaging in forms of rock climbing at increasing rates, yet few studies exist on this form of PA. The rising rate in participation for this demographic may be related to generational differences affected by the visibility and exposure to rock climbing as a form of sustainable and lifelong leisure-based PA.

The proposed research project will examine the experiences of older adults who participate in unique leisure-based physical activities, with a focus on rock climbing. The purpose of this Capstone Project is to provide: a) review of literature on the topic; and b) a proposed SSHRC-funded proposal for an exploratory mixed-methods research project examining middle and older aged adults' pathways to exposure into the activity, experiences while engaged in rock climbing, and motivations for continued participation in rock climbing.

## **1.1. Physical Activity Types, Patterns, and Research Gaps**

Physical inactivity remains one of the top three risk factors for disease burden in Canada across all age groups (Krueger, Krueger & Koot, 2015). Physical activity

participation has been demonstrated to improve outcomes of functional limitations, disability, or loss of independence (Iacone et al., 2016). The World Health Organization (2018) defines physical activity as “any bodily movement produced by skeletal muscles that requires energy expenditures.” From a broad perspective, physical activity is an umbrella term that can include: structured sports, leisure-based activities, daily living activities, active transportation, and exercise. Traditionally, research around physical activity and ‘active aging’ has been limited to a rather narrow scope of organized sport, exercise, or fitness-based participation (Wolinsky et al., 2013; Howes, 2017). Physical activity in gerontology research covers a wide range of behaviours, including active forms of recreation and leisure of physical activity (e.g., walking, resistance training, golf, curling).

Today’s aging baby boomer cohort is placing a greater emphasis on leisure than previous generations (Nimrod & Shrira, 2016). This shift in middle and older aged adults’ attitudes and values towards leisure can potentially encourage seeking out a broader array of activity opportunities. There are therefore increased opportunities for gerontologists to examine the diversity and unique characteristics of motivations underlying older adult participation in alternative and unique types of active leisure, for example: downhill skiing, surfing, and mountain biking, and rock climbing (Dogra, 2011).

As indicated by survey data, older populations are generally less physically active than younger adults (Chodzko-Zajko et al., 2009; American College of Sports Medicine [ACSM], 2006; Schutzer & Graves, 2004; Moschny et al., 2011). Age and gender continue to be the two most consistent demographic correlates of physical activity behaviour in middle and older aged adults (Troost et al., 2005). Socio-cultural factors may also affect physical activity participation based on: social norms (Swift et al., 2017; French et al., 2014), availability and visibility of programs (Hughes et al., 2009; Chodzko-Zajko, 2005; Ashworth et al., 2005), and geographic location (Van Der Deijl, 2014; Zhu et al., 2017; Shimura et al., 2009; Wilcox et al., 2006; Duncan et al., 2009). It is also recognized that strong social support has a positive correlation to physical activity participation rates and patterns for middle and older aged adults (Booth et al., 2000; Caserta & Gillet, 1998; Castro et al., 1999).

With respect to beneficial effects, regular physical activity increases average life expectancy through its influence on reducing chronic disease development and may

restore some functional capacity in previously sedentary middle and older aged adults (Huang, 2015; Hunter et al., 2000). Physical activity participation has also been associated with protective effects for individual health, disease, and illness status, for instance, by reducing the risk of developing cardiovascular and metabolic diseases (Gonzales et al., 2015).

A relatively substantive amount of research in gerontology has examined popular forms of physical activity program approaches targeting middle and older aged adults including the baby boomer generation, such as: walking (Dattilo et al., 2014), swimming (Cooper, Powel, & Rasch, 2007), yoga and tai chi (Wertman et al., 2016) or resistance training (Cavani et al., 2002). However, there is a gap in the literature that examines the less conventional forms of physically active leisure for middle and older aged adults, especially outdoor recreation as serious leisure activities providing engaging and meaningful experiences, and which remains a largely unexplored topic. Although some quantitative and qualitative research have previously examined the psychological and physical benefits of middle and older aged adults participating in adventure-based outdoor recreation programs, such as kayaking and backcountry hiking trips (Boyes, 2013; Kluge, 2005; Sugerman, 2003), there has been little research focusing on the contributing factors originating from individual pathways, motivations, and the experiences of persons engaging in these types of active leisure or recreation activities.

Research into middle and older aged adults who participate and identify as 'serious' rock climbers may uncover alternative pathways and experience of participation in this seemingly unconventional mode of physical activity. Since rock climbing has been articulated as an 'alternative' or 'fringe' but growing leisure activity, investigating middle and older aged adults who are seriously engaged in rock climbing offers a fresh perspective for active leisure pursuits in the field of gerontology. For example, previous work examining motivations for regular modes of physical activity participation among middle and older aged adults has included: establishing the direction and effective roles of social inclusion, capital, and networks (Legh-Jones & Moore, 2012) socio-environmental factors (Van Cauwenberg et al., 2012); analysis and perceptions of risk (Chaudhury & Shelton, 2010); and the intrinsic desire for continued participation (Hamer et al., 2014). Therefore, the type of outdoor leisure pursuit that is the focus of this Capstone Project entails examining middle and older aged adults who self-identify as serious rock climbers. This Capstone Project develops a mock grant proposal aimed at

examining their pathways into participation in this activity; shared experiences, given the nature of the activity; and other possible unique elements, such as overcoming negative views of aging and involvement in extreme forms of physical activity

## **1.2. Active Participation and Growth of Rock Climbing**

Rock climbing among middle and older aged adults represents an important area of research, given the unique nature of the activity, that requires a combination of individualized effort, partnership trust, analysis of movement and biomechanics, immersion in the experience, and problem-solving skills. Globally, it is estimated that there are 25 million active rock climbers, and this number continues to grow significantly (International Federation of Sport Climbing, 2017). The growth of rock climbing as a primary activity has flourished in the era of 'extreme sports' which began in the 1970's. Global participation rates of rock climbing have increased over 20% since 2009 (Outdoor Industry Foundation, 2011), making it relevant for examination as a serious form of PA. Additionally, the inclusion of artificial rock climbing in the upcoming 2020 Olympic Games in Tokyo has further increased the growing popularity of this activity through marketing, social media and increased exposure. World Cup rock climbing competitions on artificial walls are popular in most developed countries, and professional rock climbers are being sponsored by major companies such as: The North Face and Coca-Cola. Advertising tactics that are used as primary marketing approaches by outdoor rock guiding companies and indoor facilities suggest that rock climbing can improve one's physical strength, flexibility, and endurance (Galletta et al., 2015) in a social environment. While many rock climbing facilities and businesses aim to promote rock climbing and outdoor recreation by focusing on youth programming, there also exists a growing interest in catering to special populations such as: minority groups, adaptive climbing organizations for disabled persons (Bolikaj et al., 2014), and at-risk youth (Siegel & Fryer, 2017), but have yet to target middle and older aged adults.

The emergence of indoor rock climbing facilities in the 1990's and subsequent growth of instructional programs have enabled a greater diversity of individuals, including middle and older aged adults, to learn all of the necessary skills to ensure that they are equipped with safe and appropriate methods for risk management in diverse environments (Aras & Akalan, 2014). For example, there have been significant improvements in the past two decades with respect to the equipment and safety

techniques employed when 'sport' or 'traditional' climbing, where rock climbers utilize engineer-designed hardware or devices in conjunction with specific rope systems to prevent falling to the ground while scaling a rock cliff. Individuals interested in learning the repertoire of skills required to safely ascend a rock feature in an outdoor environment can be taught in extremely safe environments through local organizations or indoor rock climbing facilities. At an experiential level, rock climbing ultimately encourages: a heightened sense of adventure; development of problem solving skills; increases self-confidence; and a complete immersion with the natural environment (Boyes, 2013). The increasing popularity of rock climbing has also resulted in a significant industry boom with indoor and outdoor facilities, equipment design, and program development (Albayrak & Caber, 2016). This creates an opportunity to integrate specialized programs or opportunities for middle and older aged adults among rock climbing facilities, groups, and community organizations.

However, it is currently unknown what type of individual, environmental or social factors can facilitate middle and older aged adults' decision to take up an activity like rock climbing. One research question is whether the higher the level of interaction and social component of rock climbing necessary for the activity will result in long-term committed and regular social engagement (Lee & Payne, 2015; Boyes, 2013). These positive social interactions found in rock climbing participation (Hickman et al., 2017) may distinguish this mode of physically-active leisure apart from other more structured sports and fitness-based exercise commonly targeting middle and older aged adults.

Based on these developments, it is possible that the steady growth of the outdoor recreation industry and organizations may capitalize on offering opportunities for middle and older aged adults to develop meaningful experiences through serious leisure activities, such as rock climbing. The 2016 outdoor recreation participation report estimated that nearly half of all Americans (48.4%) participated in at least one outdoor activity in 2015; a figure that continues to grow yearly (Outdoor Foundation, 2016). The recent evolution of rock climbing as a more mainstream physical activity also offers unique socio-cultural, intergenerational experiences, and engagement with the natural environment and a community that differs substantially from organized fitness classes and sport participation (Hickman et al., 2017; Ashton, 2014; Fenton and Hamblin, 2016). The aesthetic attributes from rock climbing in natural environments also set the stage for total immersion within awe-inspiring geographical areas. As witnessed by my personal



experiences, many popular outdoor rock climbing areas are situated among some of North America's most dramatic landscapes, such as the fire-red and orange sandstone cliffs of Zion National Park, Utah, to the glacier-shaped granite formations found in Squamish, British Columbia. In recent decades, thousands of rock climbers have migrated to these destinations, creating independent lifestyles based on adventure, outdoor recreation and meaningful experiences.

Lee (2013) addressed some of the motivational characteristics of over four hundred young-adult rock climbers considered to be engaging in what has been termed a 'serious' leisure activity. The findings from this research demonstrated that intrinsic rewards from this activity were mostly driven by the internalization of subcultures and social interactions found specifically with rock climbing (Lee, 2013). Although this study did not narrow their focus on middle and older aged adult populations, it did reveal some important elements of serious leisure activities that can inform the present suggested research project with a focus on the pathways and motivations of middle and older aged adults who are rock climbers. Obtaining a deeper understanding of the pathways and motivations underlying participation in types of outdoor recreation, such as rock climbing, can highlight important information for organizations that aim to create innovative and meaningful leisure or recreational experiences for middle and older aged adults (Ewert, 2013; Galloway, 2012; Hammond, Backlund, & Bixler, 2004).

Fundamental knowledge about the motivations expressed by middle and older aged adults who participate in various forms of active leisure can potentially benefit a variety of physical activity, recreation and leisure program designers (Ewert et al., 2013; Chogbara, O'Brien Cousins & Wankel, 1998). The social elements (Courneya & McAuley, 1995) and individual benefits (Berk et al., 2006; Hamer et al., 2014; Stressman et al., 2009) resulting from valuable, engaging and meaningful physical activity opportunities to middle and older aged adults have previously encouraged long-term adherence (Berlin, Kruger & Klenosky, 2014). Traditional physical activity program models for older adults have normally adopted an exercise or fitness-based, structured 'classroom' approach. For example, the province of British Columbia strongly recommends exercise and fitness programs such as walking, hiking, swimming, water aerobics or 'aquatic fitness' classes (Province of British Columbia, 2017) to senior populations. While these approaches may be suitable for a portion of aging Canadians, organized fitness programs may not correspond to meaningful individual experiences

and changing preferences of aging baby boomer cohorts, and consequently fail to address a long-term adherence approach to an activity which encompasses healthy lifestyle attributes. A New Zealand study by Breheny and Stephens (2017) examined the association between leisure as productive time and leisure as personal time towards the maintenance of health and a valued social identity as an actively aging member of society (Breheny & Stephens, 2017). Acknowledging and promoting a broader scope of activities in active leisure and recreation may indeed fill this gap.

The proposed research study aims to obtain a comprehensive understanding of the multiple pathways or motivations that impact the decision for middle and older aged adults to participate in active forms of leisure, like rock climbing. They will be asked to disclose intrinsic motivational narratives, using qualitative interviewing methods, that may be essential in understanding their serious leisure experiences and elements of culture experienced through rock climbing. The body of knowledge gained from this research may also prove to be relevant for a variety of organizations involved in the creation, development or promotion of physical activity, recreation, and leisure programming for middle and older aged adults nationwide. This Capstone Project proposes a SSHRC-funded, mixed-methods research project to compare the experiences and motivations of middle and older aged adult rock climbers with participants involved in running groups or clubs. This proposed project is expected to offer insightful knowledge on comparing activity choices rather than solely focusing on the experiences and motivations of one activity.

### **1.3. Study Significance**

The examination of intrinsic pathways and mechanisms that affect middle and older aged adult decision-making to participate in active forms of serious leisure may be a fruitful research endeavour. It may be useful in the identification of aspects of the internalized motivational elements and rationalization that contribute to participation and continued adherence (Ryan & Deci, 2000). Despite the empirical evidence associating a myriad of physical and psychological health benefits to active lifestyles, as well as public health efforts to improve physical activity participation rates for middle and older aged adults (Berk et al., 2006; Hamer et al., 2014; Sabia et al., 2012; Ku et al., 2016), many remain inactive, or fail to meet the recommended intensity and frequency of physical activity participation (McPhee et al., 2016). Some studies have suggested that sedentary

older adults who become physically active later in life despite previous low participation rates can still gain significant improvements in physical and cognitive health (Berk et al., 2006; Hamer et al., 2014; Lautenschlager et al., 2008), dispelling the ageist myth that “you can’t teach an old dog new tricks”.

## **1.4. Purpose and Research Questions**

The purpose of this Capstone Project and the embedded mock grant proposal is to investigate the underlying psycho-social motivations of middle and older aged adult rock climbers through a comprehensive, mixed-methods research project. The proposed research is further strengthened through information gathered from a qualitative pilot project which was conducted in the summer of 2017. The SSHRC Insight Development grant provides funding for short-term research projects and supports research in its initial stages on topics relevant to the fields of social sciences and humanities (Social Sciences and Humanities Research Council, 2018). While the mock grant funding proposal is the primary objective of this Capstone Project and a stand-alone Chapter, the development of the proposal evolves from emergent themes from the aforementioned qualitative pilot project. Given the identified gap in research and literature on the topic of middle and older aged adult rock climbers, the pilot project reinforces conceptual elements and characteristics from the selected theoretical framework and models (Chapter 2). These characteristics that emerged from the pilot project help to shape and reinforce the methodology presented in the mock grant funding proposal, in addition to providing a qualitative baseline from a small sample size of middle and older aged rock climbers.

In conjunction with the pilot project results, the review of empirical literature on physical activity and serious leisure across the lifespan helps to connect the theoretical elements with the suggested mock grant funding proposal by shaping the research questions.

The guiding primary research question is:

- (PRQ) What are the internalized pathways, motivations and experiences of middle and older aged adult rock climbers?

Secondary research questions include:

- (RQ1) How were middle and older aged rock climbers initially exposed to this activity? Were the motivations self-directed or were they based on social modelling?
- (RQ2) Are there motivational differences between novice and experienced rock climbers?
- (RQ3) What types of barriers or limitations do middle and older aged adult rock climbers experience?
- (RQ4) What are the intrinsic tangible factors that contribute to the experience of middle and older aged rock climbers? (Positive or negative)
- (RQ5) What are the elements that reinforce the social connectedness found in rock climbing experiences?
- (RQ6) Does participation in active serious leisure (rock climbing) result in greater adherence, adoption into a regular lifestyle, as well as more psychological benefits?

## **1.5. Summary**

The investigation of motivations and pathways of middle and older aged adult rock climbers offers a contemporary research approach to physical activity and active aging. Identifying key motivational elements of middle and older aged adult rock climbers contributes to a body of knowledge that will directly and indirectly benefit current and future middle and older aged adults in Canada. This will be achieved through physical activity programming that encourages lifelong and meaningful participation. The following chapter will further elaborate three relevant theoretical perspectives: Serious Leisure perspective; Life Course perspective; and the Self-Efficacy Model. Conceptual elements found within these three perspectives have been selected as a guiding framework for the proposed research grant funding proposal, and the next chapter further articulates how they may be useful in conceptualizing this topic.

## **Chapter 2.**

### **Theoretical Perspectives**

This chapter reviews theoretical and conceptual models applied to serious leisure and aging in an effort to develop a synthesized framework for the proposed mock grant-funded research project. The components of a conceptual framework in empirical research must represent clearly identified and meaningful inputs, abstractions and outcomes that can be used to test and evaluate theories in both quantitative and qualitative research (Beaton and Funk, 2008). To date there have been minimal developments that attempt to theoretically connect the experiences and motivations of middle and older aged adults who choose to participate in ‘alternative’ forms of physical activity, recreation, or leisure, such as rock climbing (Kolt, Driver, & Giles, 2004). Given this gap in knowledge, it is important to establish a unique theoretical framework related to pathways for activity choice, long-term participatory motivation and individual agency. These theoretical models and concepts can help further explain why some middle and older aged adults begin or continue participating in an activity like rock climbing. Therefore, in order to create an ideal framework for the proposed study, it is essential to consider some previously established theoretical and conceptual models which are most closely related to the topic of research interest.

For the purpose of the proposed research and grant funding proposal, three primary models and theories will guide an overarching conceptual framework: the Serious Leisure Perspective [SLP], Life Course Theory [LCT], and the Social Cognitive Model [SCM].

#### **2.1. The Serious Leisure Perspective**

The first theoretic framework helps to identify unique socio-cultural aspects of rock climbing as an activity of interest for the proposed research. According to Stebbins (1992, p.3), “serious leisure is the systematic pursuit of an amateur, hobbyist, or volunteer core activity that is highly substantial, interesting, and fulfilling and where, in the typical case, participants find a career in acquiring and expressing a combination of its special skills, knowledge, and experience”. Stebbins’ (1992) Serious Leisure

Perspective argues that there are certain characteristics associated with individuals who are deeply engaged in a meaningful activity, such as the personal attachment or significance associated with the activity. The Serious Leisure Perspective blends characteristics of an activity with individual attachment and elements of self-fulfillment (Stebbins, 2018). Participation in active serious leisure often involves high levels of intrinsic motivation, fulfilment, and continued participation (Heo et al., 2013). The notion of internalization can be introduced to articulate motivations of serious leisure through Stebbins' extensive inquiry regarding motivations of serious leisure, which highlights an individual's adaptation in social regulations and subcultures (Stebbins, 2007). His work also recognizes the distinct relationship of serious leisure with participants as a form of meaningful physical activity, requiring various levels of commitment and effort, and even suggests it as a form of sustainable active lifestyle for older adults (Stebbins, 2007). Although the career or work-like nature of serious leisure, such as various levels of investment in the activity, can be perceived as unenjoyable, it should be noted that many participants engaging in forms serious leisure do so willingly. The attachment and ethic directed towards the activity is a product of the enjoyment and fulfilment that they receive from their participation.

Figure 1 emphasizes the associations between principal elements found among participants involved in Serious Leisure by Stebbins (2011). It illustrates the various important characteristics and pathways experienced by participants in serious leisure PA, and is related to participating 'serious' rock climbers.

The Serious Leisure Perspective addresses unique aspects of rock climbing, specifically: significant personal effort; durable individual benefits; perseverance; strong identification with the activity; and unique ethos (Kim et al., 2014; Stebbins, 2011). In contrast to other forms of physical activity typically examined in gerontology research, rock climbing is a self-directed form of active leisure or recreation that offers individual meaningful rewards through personal achievements rather than simply physical health benefits (Kim et al., 2014). It can be hypothesized that middle and older aged adults' pathways and exposure to rock climbing are associated with distinct, strong, internalized motivations for continued participation. Although the examination of psycho-social pathways with activities such as rock climbing has primarily involved young adult age-groups (Siegel & Fryer, 2017), applying elements such as the unique characteristics of career and activity attachment from the Serious Leisure Perspective to middle and older

aged adults highlight the importance of meaningful experiences in physical activity, leisure and recreation.

In order to understand associations between circumstantial life events and the role of temporality on the decisional process in an activity such as rock climbing, Life Course Theory is also relevant. Since the proposed research relates to middle and older aged adults, the directional role of both cumulative and transitional life periods or events are important to incorporate into a framework, especially given the significant role that they can play in the decision to begin or continue participation in physical activity

## **2.2. Life course Theory**

The life course theory has contributed valuable approaches to the study of human behavior and aging despite debates and critiques (Hirvensalo & Lintunen, 2011). This theoretical approach has become the “new wave” program for studying both aging and development, as a dynamic and heterogeneous phenomenon (O’Rand & Krecker, 1990, p. 248). It has been characterized simultaneously as a “perspective” (Elder, 1975), as a “paradigm” (Elder, 1995), or as a “theory” (Elder, 1997a, 1997b, 1999; Elder, Johnson, & Crosnoe, 2003; Elder & Shanahan, 2006). For relevancy of the topic, we will categorize it as the latter: from a theoretical perspective. Heikkinen describes that the aim of the life course theory is to explore a myriad of elements that act upon and influence health and diseases, functional capability, and disability (Hirvensalo & Lintunen, 2011). For example, participation in certain activities may be a result of the accumulation of various biological, psychological, behavioral, and social factors. One common approach in studying life course processes can be defined by significant periods, biological events, pathways and accumulation (Elder, 1995). For example, major life events across the life course, such as retirement, can increase an individual’s ability to engage in active leisure, especially given the increased availability of time and resources for participation. The life course model has also suggested that adverse exposure and health experiences can lead to additional ones, following a continual, accumulative fashion. One such example can be observed with sedentary occupations, where individuals may continue sedentary behaviors post-retirement as a pre-established lifestyle (McPhee et al., 2016). Conversely, it is theorized that healthy behaviors and pathways to those behaviors may accumulate through the life course, and positive

changes have been suggested to occur during significant life periods and circumstances, such as pregnancy, retirement or grandparenthood (Kenter et al., 2015).

Aging individuals who have experienced significant life events, for example cumulative exposure with certain types of physical activity throughout the life course, may possess unique motivational characteristics contributing to the uptake or continuation of these endeavors (Allender et al., 2008; Frederick & Ryan, 1993; Salguero, Gonzalez-Boto, & Marquez, 2006). The life course theoretical approach can allow a researcher to identify potential markers for differential uptake pathways in an activity, and associating events or periods of temporal relevance to these pathways (Hirvensal & Lintunen, 2011). This approach has been employed in previous empirical work involving team sports or exercise participation (Jenkin et al., 2016); Masters or Seniors' Games (Dionigi, 2006); golf (Siegenthaler & O'Dell, 2003); and curling (Leipert et al., 2011).

Serious leisure activities from the life course approach emphasizes the directional role of internalized motivations for continuation or uptake in activities such as rock climbing. For example, individual self-regulatory skills in conjunction with life events for middle and older aged adults such as retirement and widowhood can influence activity participation, uptake, and continuation (Schutzer & Graves, 2004). It is therefore important to include a broad spectrum of active leisure or recreation within these frameworks, especially since there are different internal rationalizations associated with choice of participation for this activity (Tinsley & Eldredge, 1995). Some middle and older aged adults may experience a re-engagement with rock climbing after a period of time, reflecting elements of self-preservation or self-reinvention innovation (Nimrod, 2016). Lastly, it has been suggested that individual agency and self-paced individual goals inherent in rock climbing participation have the ability to enhance the value of serious leisure activities (Stebbins, 2014), contributing to positive individual changes and attitudes through the life course; all of which resulting in growth of personal self-efficacy, which is discussed next.

### **2.3. Social Cognitive Model (Self-Efficacy Theory)**

The Social Cognitive Theory has been one of the most widely applied theoretical models related to previous work focusing on physical activity behaviors and



middle and older aged adults (McAuley & Blissmer, 2000). It can be a particularly useful framework for understanding the uptake and maintenance of physical activity patterns in middle and older aged adults (Bandura, 1997, 2004). The Social Cognitive Theory explains the basis of health behaviors through a set of psycho-social determinants, such as: self-efficacy, outcome expectations, goals, barriers and facilitators (White, Wójcicki, and McAuley, 2011). Particularly relevant to the area of rock climbing is the operation and role of self-efficacy. Self-efficacy can be described as “one’s beliefs in one’s capabilities to successfully complete a course of action, and has been shown to be an active agent in SCT models” (Bandura, 1997, p. 2). In terms of behavioral issues, it is suggested that self-efficacy, social support, and socio-cultural values are significant predictors for late life participation in activity (Chogahara, O’Brien Cousins, & Wankel, 1998; O’Brien Cousins, 1997).

It is suggested through this theory, that individuals with higher levels of self-efficacy exhibit positive expectations for the activity, set higher goals, and view themselves as capable of overcoming barriers (Dishman, Vandenberg, Motl, Wilson, & DeJoy, 2009). As a result, there is a greater likelihood of physical activity engagement and maintenance (Bandura, 2004). It is hypothesized that the personal agency involved with middle and older aged adult rock climbers will be associated with high levels of self-efficacy, therefore resulting in high levels of adherence. Since participating rock climbers must continuously and independently create individual choices involved in personal skill development through varied levels of activity participation, self-efficacy plays a substantial role in adherence. This adherence also corresponds with characteristics of serious leisure, where there are individual efforts allocating free leisure time to the specific activity (Stebbins, 2011).

Bandura’s work on self-efficacy and the role of individual agency on outcome expectations shape the determinants that regulate motivation (Bandura, 1998). Middle and older aged adults are hypothesized to become more physically active if they: value physical activity as a meaningful behavior; recognize and harness sources of support, companionship, or encouragement; hold mainly positive expectancies and few negative expectancies; and, believe that they are currently capable of physical activity (Bandura, 1997). Bandura also contends that individual self-efficacy has a direct impact on desired behaviors, while socio-structural factors, outcome expectations and goals play key roles in the decision process.

The concept of self-efficacy also suggests that there are various internal and social pathways which can encourage behavior in an activity such as rock climbing. The input associated with self-efficacy can help explain the unique individual and social outcomes from participation (Mullen et al., 2012; Hughes et al., 2011). By exploring mechanisms such as self-efficacy and internalized motivations through the use of social-cognitive models, we can better understand the motivations to begin and continue rock climbing among older people. For example, some middle and older aged rock climbers may have been introduced to the activity at an early age, discontinued participation, and re-integrated themselves with rock climbing as a way to increase opportunities for developing social capital (Hickman et al., 2017). Additionally, it has been suggested that physical activity, leisure, and recreation program designers should explore future opportunities in which middle and older aged adults can experience moments of meaningful play rather than just exercise, and also overcome social barriers to feel empowered and confident in their skills (Berlin & Klenoski, 2014; O'Brien Cousins, 2003). In this sense, middle and older aged adults may use leisure-based physical activities as a way to build self-efficacy and individual agency by feeling empowered through participating in an activity like rock climbing. This theoretical notion of empowerment through the use of adventure and nature-based environments add value to rock climbing as a suitable activity for middle and older aged adults (Boyes, 2013; Kluge, 2005; Hickman et al., 2017). It is hypothesized that elements of self-efficacy such as mastery, flow, and empowerment (Llewellyn et al., 2008; Bandura, 1997; Slanger & Rudestam, 1997), are essential components that contribute to the value of middle and older aged adults participating in rock climbing.

Instead of focusing on the creation of monotonous, structured modalities of physical activity, program designers have an opportunity to look at the broad spectrum of opportunities for middle and older aged adults to seek out enjoyable, meaningful experiences through active leisure or recreation, like rock climbing. It is suggested that this activity offers many opportunities to develop significant social relationships, networks and positive interactions among middle and older aged adults (Hickman et al., 2017; Kulczycki & Hinch, 2014; Boyes, 2013). As a result, both Bandura's SCM model and Stebbins' Serious Leisure Perspective help designate the role of social networks and individual self-efficacy in the motivations and experiences of older adult rock climbers. For this reason, insightful experiences and narratives shared by participating

middle and older aged adults who are rock climbers may bring attention to the strength and significance associated with the roles of social networks and self-efficacy.

## **2.4. Conceptualizing The Unique Elements of Rock Climbing**

Rock climbing involves very little systematic organization, regulations and limitations for participation, compared to a sport like football, for example. In football, logistic requirements include: a field of play, a timeframe or schedule, adequate equipment, two teams, an official, specific playing positions, and obeying rules and regulations for the game. Apart from safety practices, familiarization and knowledge using the required equipment, there exists few rules within rock climbing, and there is a variety of spaces and difficulty levels to choose from. This autonomous structure ultimately puts the onus on rock climbers to become personal agents in the decision-making process. Whether it is basic rock scrambling, steep or vertical rock faces, and even artificial walls, rock climbing can be practiced in even the most surprising or remote locations in the world. For example, in Canada, there are indoor rock climbing facilities located in Yellowknife, NWT, and Regina, SK, which can be surprising considering the lack of 'mountain culture' and outdoor rock cliffs or terrain. Within rock climbing as an activity, there is a range in varied opportunities for participation from rock scrambling, bouldering, sport climbing, traditional climbing, and even ice climbing. While some of these modalities can be practiced individually, most of them require reciprocal partnerships that are significantly based on trust, safety, and risk management. The spectrum of available disciplines, levels and locations to practice rock climbing engenders unique experiences, in which every individual must rely on their physical capacity to perform, harness inter-personal skills and more importantly, exhibit a strong belief in personal efficacy. The Life Course Theory suggests that deriving benefits of physical activity can influence continuation of participation in conjunction with positive experiences and considerations related to desired participation in an activity (Jenkin et al., 2017). Theoretically, middle and older aged adults who have been previously active in sport or physical activities may demonstrate a higher likelihood to seek out new activity opportunities, or increase participation based on determinants which influence patterns either positively or negatively over the lifespan (Sallis, Owen & Fisher, 2015).

Notions of serious leisure such as commitment to continued engagement in the activity and unique notions of culture or sub-culture have been previously observed among younger rock climbers (Llewellyn et al., 2008; Rickly, 2016; Wood, 2016; Stebbins, 2001). Participation in serious leisure activities in turn, offers exceptional opportunities for individuals to experience self-improvement, personal initiative, and independence (Franklin-Reible, 2006). Additionally, the opportunity to experience instances of 'flow' occur more frequently when participants are engaged in an activity that is engaging, fulfilling, and offers intrinsic rewards versus performance-based rewards (Kerr & Mackenzie, 2012). The implications resulting from either continued participation or re-immersion with activities such as rock climbing can have profound impacts on the adherence rates of an activity, based on the LCT. Although there are multi-factorial elements at play for heterogeneous groups of middle and older aged adults, some significant life events that are experienced through the aging process may contribute to the level of participation, for example: career, family, retirement, and so forth (Jenkin et al., 2017; Allender, Cowburn & Foster, 2006; Kleiber & Linde, 2014). Finally, contributing interpersonal aspects of younger rock climbing participants have been previously associated with the roles of self-efficacy, individual agency and empowerment (Mazzoni et al., 2009; Llewellyn et al., 2008; Zhao, Selbert & Hills, 2005). Whether middle and older aged adults exhibit similar levels of self-efficacy and individual characteristics similar to younger rock climbers has yet to be investigated.

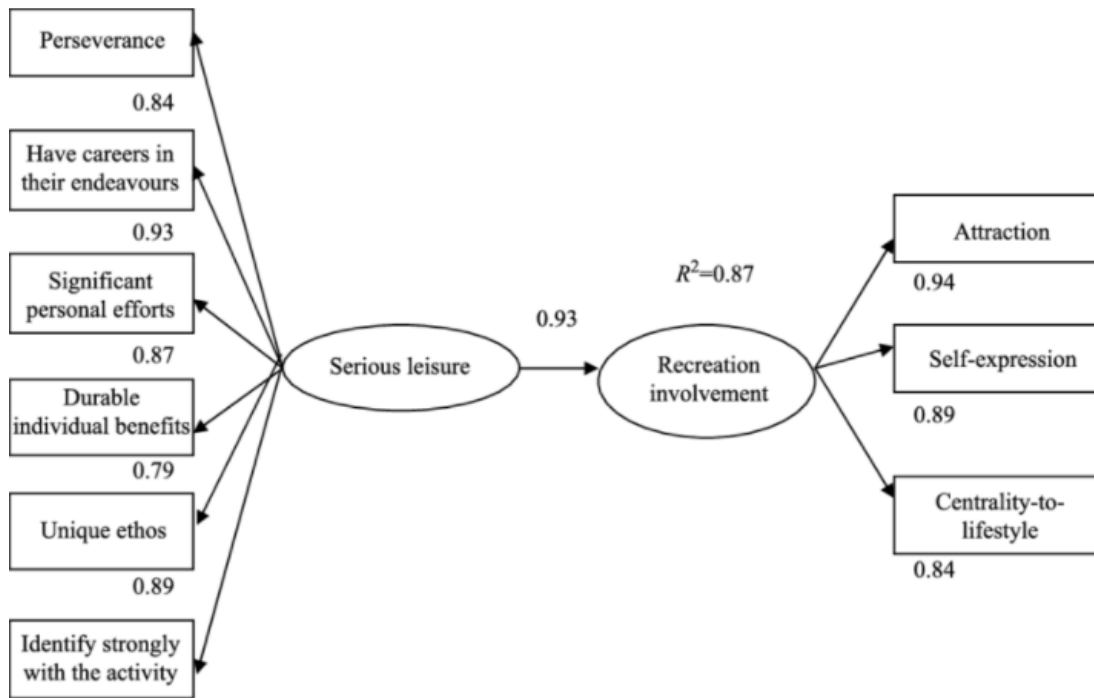
## **2.5. Integration of the Theoretical Perspectives**

The three models and theories presented in this chapter: Serious Leisure Perspective; Life Course Theory; and Social Cognitive Model each offer insightful elements and rationale to conceptualize the proposed research surrounding middle and older aged adults who are rock climbers. The Social Cognitive Model has previously explained the essential role of self-efficacy to the pathways and motivations for physical activity and exercise participation (Bandura, 2004). Due to the unique nature of emerging activities such as rock climbing, it is important to base empirical work from theoretical models which have previously examined physical activity that is pursued in a meaningful way. Stebbins' (2015) Serious Leisure perspective has been able to address the unique psycho-social aspects of rock climbers, for example career, 'sustainable lifestyle' elements and the importance or meaning attached to this specific activity.

Finally, the Life Course theory provides us with temporal information comparing associations between physical activity and circumstantial life events, continued participation, or even uptake resulting from an innate desire to create social networks or for health benefits and outcomes (Hirvensal & Lintunen, 2011). Empirical notions previously expressed within structured physical activity and exercise as singular modalities practiced by older adults, fail to recognize the unique aspects found with aging rock climbers. Beginner and experienced rock climbers of various age groups find meaningful experiences and participate in this activity despite the absence of a formal, structured environment (Berlin & Klenoski, 2014).

Integrating the three discussed theoretical models and theories help to conceptualize the specific elements which are hypothesized to contribute to the narratives which explain the experiences and motivations of middle and older aged adults who are rock climbers. From established theories and models previously mentioned, we can also begin to extrapolate particular elements related to rock climbing and middle and older aged adults, including: unique ethos (SLP); characteristics of career (SLP); cumulative exposure (LCT); belief in capacity (SCM); role of individual agency (SCM); influence of social network (SCM); and significance of life periods (LCT), such as retirement. These concepts help shape the design of the proposed research project, in addition to the pilot project which was conducted during the summer of 2017 in British Columbia. More information about the study details is found in (*Appendix A*) of this Capstone Project.

## 2.6. Figures



**Figure 1. Serious Leisure Perspective.**  
Source: Stebbins, 2011. Serious Leisure Perspective.

# Self-Efficacy

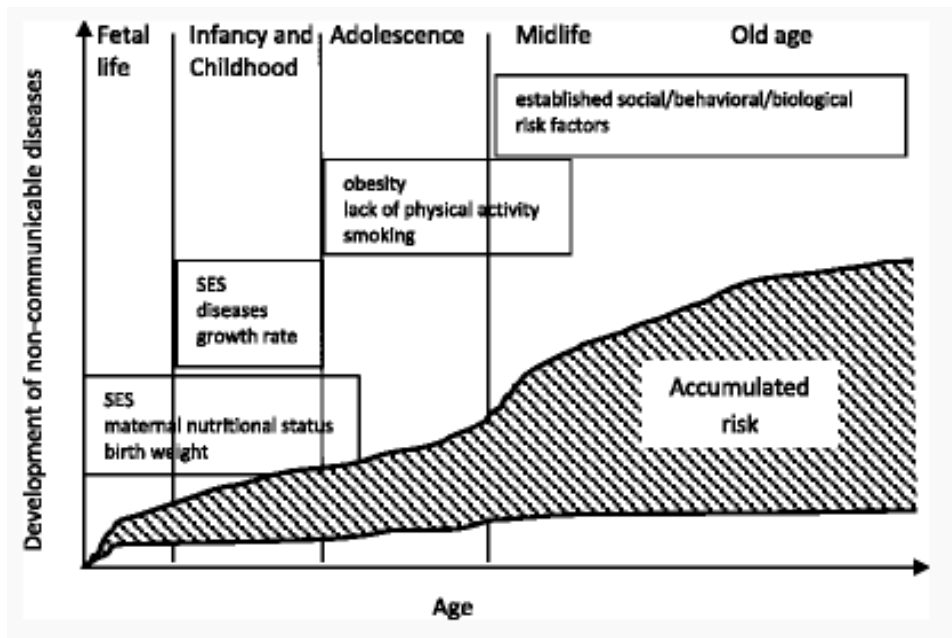
Albert Bandura (1986)

*“the belief in one’s capabilities to organise and execute the courses of action required to manage positive situations”*



**Figure 2. Self-Efficacy Theory.**

Source: Bandura, 1986.



**Figure 3. Life Course Theory.**

Source: Heikkinen, 2011.

## Chapter 3.

### Literature Review

The primary focus of this literature review is to examine currently known factors that affect older adults' motivation for engagement in serious leisure activities, including the role of individual self-efficacy, social interaction, physical activity agency, and life course activity trajectories. Definitions of terminology will be presented within each section, and this review will also address common trends and patterns that have emerged from recently published empirical research. In order to obtain a comprehensive review of relevant literature, numerous databases were utilized and searched, including: Ageline, PsycINFO, CINAHL, Medline, and Google Scholar. Due to the exploratory nature of the proposed research topic, it was important to include many forms of active leisure or recreation. The limited amount of literature specific to rock climbing precludes a full systematic review. Search keywords included: rock climbing, outdoor recreation, older adults, serious leisure, personal agency in physical activity, and adventure recreation. Since a broad set of terms were selected for the search, articles with an emphasis on rock climbing, and comparable forms of serious leisure were prioritized.

Following the initial search process and elimination of irrelevant articles, multiple essential articles were identified and collected, after which respective abstracts were read and reviewed for relevance to the capstone topic and research questions. From this search process, 54 key articles were identified. They included both qualitative and quantitative published empirical studies mostly originating from Canada, the United States, New Zealand, and Europe. Primary topics relevant to this literature review focused on: rock climbing and older adults, and active forms of serious leisure. While there were significantly more published research articles among the mentioned topics focusing on children and youth in contrast to middle and older aged adult cohorts, key articles expressed the call for future researchers to further explore the motivations and experiences contributing to participation in lifelong physical activity, and active forms of leisure or recreation. The following sections will elaborate on the reviewed literature's findings featuring: a) the role of intrinsic motivation for physical activity among middle and older aged adults; b) serious leisure and middle and older aged adults; c)



connecting serious leisure with rock climbing; and concluding with d) potential research directions.

### **3.1. Generic Patterns of Motivation and Barriers to Physical Activity Among Middle and Older Aged Adults**

This section of the literature review covers generic factors underlying general patterns of leisure-time physical activity among middle and older aged adults. The review of literature supports the importance of both generic motivating factors (e.g., beliefs, efficacy, intention to participate, etc.) and various barriers to participate in leisure-time physical activity (e.g., energy, health problems, cost, etc.) among older persons. Research suggests that one's motivation to engage in an activity may be a more important predictor of continued engagement than the health benefits of the activity itself (Ainsworth et al., 2007; Frederick & Ryan, 1993; Salguero, Gonzalez-Boto, & Marquez, 2006). Motivations to participate are typically contextualized based on social and environmental contexts. For instance, O'Brien Cousins (2003)'s research on physical activity among middle and older aged adults shows that individual beliefs underlying physical activity may vary according to different social contexts and lifestyle factors. Environmental or structural factors such as ageism or lack of available programs result in negative experiences such as undesirable emotions and decreased adherence (Edmunds, Ntoumanis & Duda, 2006; Thøgersen-Ntoumani & Ntoumanis, 2006). Barriers to physical activity, such as lack of interest, time, facilities, or knowledge, pain, self-consciousness, fear of falling, poor health, and weather-related barriers can also contribute to lower activity levels (Cerin, Leslie, Sugiyama & Owen, 2010; Crombie et al., 2004; Mathews et al., 2010; Moschny, Platen, KlaaBen-Mielke, Trampisch, & Hinrichs, 2011). Since middle and older aged individuals gain more leisure time through retirement or reduced working hours, choosing a leisure activity that is physically-based may provide the opportunity to fulfill physical needs as well as fulfilling psychological needs of the individual (Siegenthaler & O'Dell, 2003; Kolt, Driver, & Giles, 2004; Kilpatrick, Hebert, & Jacobson, 2002). I will now turn to the second featured finding of the literature, Serious Leisure and Middle and Older Aged Adults.

### **3.2. Serious Leisure and Middle and Older Aged Adults**

Objectively, leisure is related to subjective perceptions of choice and intrinsic motivation, and the subsequent application of available time to an activity that is perceived as beneficial or enjoyable (Grainger-Jones, 1999, p.5). Conventional definitions of physical activity include the active recruitment of skeletal muscle to produce bodily movement (Beaton & Funk, 2008), however this fails to capture the intended connotations of physically active leisure, or serious leisure. These notions of serious leisure encapsulate the proposed mock grant-funded research and Capstone Project, and are associated with characteristics of middle and older aged adults who engage in activities such as rock climbing.

Many studies have suggested that as people age, leisure becomes a means for maintaining health, retaining cognitive abilities, and preserving a sense of self through engagement and enjoyable experiences (Dionigi, 2006; Yarnal, 2006; Nimrod & Shrira, 2014; Berlin & Klenoski, 2014; Kim et al., 2014). This implies that leisure may constitute a unique resource for physical and psychological resilience, providing cumulative protective factors that help middle and older aged adults cope with some risk factors posed by the aging process (Nimrod & Shrira, 2016). Since serious leisure-based activities can be further distinguished by intensity (i.e., light, moderate and vigorous), this section of the literature review will focus on serious leisure experiences which: 1) require, at a minimum, moderately intense physical activity exertion, and 2) are perceived by individuals as freely chosen, as well as either beneficial or enjoyable (Beaton & Funk, 2008). However, it remains unknown whether primary autonomous characteristics in rock climbing participation may or may not be entirely related to benefits associated with physical health, but rather, the meaningful experiences associated with the activity.

Research over the past decades has advanced our understanding of the psychological and physical benefits of serious leisure. One particular, Stebbins (1992, 2001, 2007), has contributed the most influential work to this area through extensive empirical research examining the role of serious leisure on adults. Stebbins (1992) has specifically identified personal and social benefits of serious leisure which include: enjoyment, sense of belongingness, feelings of accomplishment, self-enrichment, and sustained physical health. Furthermore, Stebbins (2001, 2007) has contributed

extensively to the personal identification and weighing of the social, physical and personal rewards and benefits obtained from serious leisure experiences, thereby establishing a stance that there are significant benefits to serious leisure. He states that these include, “fulfilling one's human potential, expressing one's skills and knowledge, having cherished experiences, and developing a valued identity” (Stebbins, 2001, p. 154). The exploration and subsequent identification of the subjective value from these experiences suggest that there are nuanced perceived benefits to participation in serious leisure for middle and older aged adults.

The extensive repertoire of serious leisure experiences is typically on a continuum ranging from activities such as trekking or backpacking, intensive swimming, to more extreme types of outdoor recreation and adventure-based activities such as rock climbing. Frank et al., (2009) measured physiological variables related to improvements in neuromuscular function among older Australian surfers, including maximal isometric voluntary contraction force, rate of force development, and steadiness in force production. Older long-term surfers demonstrated better performance in control of steady muscle contractions and upright posture compared with age-matched and physically active control group (Frank et al., 2009). Furthermore, the authors suggest that these findings can ultimately lead to improved quality of life for the older surfer populations. Researchers have found that outdoor adventure recreation participants often seek specific experiences that appear significant and meaningful, rather than merely sensation seeking (Ewert & Hollenhorst, 1999; Stebbins, 2005). This inherent desire can often translate into a high level of adherence and continuous inclination to participate in an activity as an essential component of self-identification and personal fulfillment.

In recent years, numerous qualitative studies of serious leisure among young adults have been conducted on a variety of recreational and related activities such as: Whitewater kayaking tours (Kane & Zink, 2004), endurance sports, such as Triathlon (Shipway & Jones, 2008), and snowboarding (Stebbins, 2005), among many others. These studies capture the serious leisure experiences undertaken within a community, and the interactions or challenges involved in adapting values obtained from serious leisure to society (Ewert et al., 2013). It should be noted that this type of research is most commonly conducted with younger adult populations; ranging from approximately twenty to thirty years old. The meaningful experiences and pathways articulated by

middle and older aged adults participating in serious leisure are presumed to be affected by the frequency and typology of activities undertaken. A gap remains in the literature related to the serious leisure participation of middle and older aged adults who engage in adventurous forms of leisure. One must ask, what type of motivations, pathways and experiences emerge from middle and older aged adults who participate in an activity like rock climbing? The next section will discuss the underlying interconnection between aspects of rock climbing and serious leisure.

### **3.3. Connecting Serious Leisure With Rock Climbing**

When differentiating between physical activity and serious leisure, it is essential to distinguish fitness-based exercise and active leisure modalities as separate entities. Whereas fitness-based exercise is often undertaken for its physical benefits alone (Buford et al., 2014; Chmelo et al., 2015; Giné-Garriga et al., 2014), active forms of serious leisure activities are undertaken out of individual choice and offer significant levels of personal challenge and meaning (Stebbins, 2007; Lee & Payne, 2015). Exercise is defined as a form of activity that is “planned, structured, repetitive, and purposeful in the sense that the improvement or maintenance of one or more components of physical fitness is the objective” (WHO, 2010, pp. 52). In various ways, rock climbing is a form of physical activity that falls under serious leisure, since it generates physical strength, cognitive capacity, mobility, and fitness, as well as significant challenge and meaning. Additionally, the unique opportunities, settings for social interactions, and engagement with natural environments through an activity like rock climbing, encourages positive, strong internalized motivations for adaptations and continued participation (Boyes, 2013). For instance, in a quantitative study examining the experiences and motivations for older adults (n=782) participating in outdoor recreation programs in the United States, Sugerman (2001) demonstrated that the value of the activity is determined by its meaning to the individual.

Specifically, the reviewed published work for this literature have primarily focused on themes related: to physiology of rock climbers (Giles et al., 2006); psychophysical benefits in younger adults (Gallotta & Emerenziani, 2015); the meaning and role of risk management (West & Allin, 2010); lifestyle elements in mobile rock climbers (Rickly, 2016; Hamilton, 1979); and the psychological role of flow (Schattke et al., 2014).

Hickman et al., (2017) recently examined the perceptions and experiences of young-old adult rock climbing on artificial walls in the UK. Their findings suggest that participants use artificial climbing walls as a focus for achievement, endorsing Stebbins' notions that self-paced goals enhance the value of serious leisure (Stebbins, 2014; Hickman et al., 2017). The participants also reflected complex dimensions with respect to the attraction and motivation to climb (Storry, 2003), and shared growing concerns for the health and well-being of the general aging population. Additionally, the cohort of young-old rock climbers (N=10) embraced strong concepts of self-awareness that were shaped by the adventure environment and experiences of rock climbing (Hickman et al., 2017).

The role of social capital and camaraderie in rock climbing can also play an important role for continued participation and enjoyable experiences. Using a mixed-methods approach, Boyes (2013) has established that social capital can be generated from outdoor adventure and serious leisure among middle and older aged adults by fostering belonging to a community with strong social ties. In particular, interaction, social support and shared experiences that form a myriad of social benefits appear to be central contextual factors (Brymer, Downey, & Gray, 2009; Wood & Giles-Corty, 2008). For example, the mandatory safety requirement for climbers to work with partners reinforces this facet (Hansen & Parker, 2009), as well as the highly interactive and social potential of indoor rock climbing facilities (Atchinson-Jones, 2004; Pomfret, 2011). Evidence suggests that the higher the social component of serious leisure the more likely that committed and regular engagement will occur (Lee & Payne, 2015).

### **3.4. Potential Research Directions**

Considering the continued growth and popularity of alternative serious leisure activities such as rock climbing, further researchers should examine subjective insights that make these activities meaningful. Middle and older aged adults from the baby boomer generation will require varied innovative approaches to active aging, physical activity, and leisure initiatives which focus on healthy aging. Indeed, most of the literature reviewed encourages future researchers to examine such alternative forms of serious leisure, emphasizing a myriad of benefits that encompass more than just physical health, notably personal intrinsic advantages (Hickman et al., 2017).

Specific to this Capstone Project, the literature indicates that individuals engaged in rock climbing have experienced increased social capital opportunities (Brymer, Downey, & Gray, 2009; Wood & Giles-Corti, 2008); an enhanced sense of self-efficacy and confidence through mastery (Bandura, 1992, 1997) and opportunity for personal growth (Jankowski, Diedrichs, Williamson, Christopher, & Harcourt, 2016; Oliver, Hudson, & Thomas, 2016; Strachan, Brawley, Spink, & Glazebrook, 2010). Indeed, there is an increasing focus on physical activity among middle and older aged adults being meaningful enough to maximize quality of life (McBarnett, 2016, p. 23), and activities that contribute to functional health and well-being (Chodzko-Zajko, Schwingel, & Park, 2009). Given the elements of adventure that are inherent in rock climbing experiences, this activity has the potential to contribute to individual health in a different approach than traditional forms of physical activity previously available to middle and older aged adults. Howes (2016) suggests that new forms of serious PA have significant, and largely uncharted, potential for developing individual benefits such as self-control, mastery, flow and autonomous achievement. Future research into these areas can potentially expand our understanding of the motivations, pathways and experiences of serious leisure activity among aging middle and older aged adults.

## Chapter 4.

### Results from the Pilot Study

#### 4.1. Methods

In June 2017, a qualitative pilot project was conducted as a component of the mock grant proposal comprising the focus of this Capstone Project. The purpose was to pretest an initial interview schedule and to provide important contextual information for the mock SSHRC Insight Development Grant proposal. A research ethics application was approved by SFU's Research Ethics Board (# 2017s0271). A semi-structured interview guide was created based on previous work on serious leisure, motivation, and experiences with the specific activity of rock climbing (*Appendix B*). A small purposive sample (n=8) was obtained, using a snowball methodology where participants were recruited through advertisements and word of mouth at an indoor rock climbing facility in Squamish, British Columbia.

Rich narratives pertaining to various pathways and experiences related to rock climbing were shared with the researcher/interviewer (Michelle LeBlanc). Due to the familiarity with language and culture involved with rock climbing participants, the interviewer was able to prompt and encourage participants to share in detail as many stories and experiences as possible. Although the life stage at which participants began their rock climbing careers varies between participants, it was interesting to note that they all shared similar experiences and attitudes towards the activity. For example, some participants were introduced to rock climbing from a very young age while some only discovered it later in life. In addition, some of the participants had mentioned experiencing minor and major health implications (e.g., injuries, menopause, cancer) during their careers with rock climbing. It was noteworthy that, despite their changes in individual health status, their attachment toward the activity remained constant.

Upon receiving verbal and written consent, the researcher proceeded with scheduling interviews with the participants individually, and were conducted at a location convenient for the participant and the interviewer. The semi-structured interviews were recorded using a smart phone device, and were saved on an external hard drive, without personal identifying characteristics and maintaining participant anonymity. Once the

interviews with the eight participants were completed, the interviewer transcribed the interviews verbatim. These texts were imported onto NVivo software, where they were analyzed and coded into various themes.

The goals associated with this Capstone Project primarily include: a) suggest a mock research project through the SSHRC Insight Development's grant funding program, b) review of relevant empirical literature on lifelong serious leisure and physical activity participation, and, c) providing preliminary qualitative findings to strengthen the conceptual framework. The Insight Development grant funding program is designed to foster creative research approaches and explore new research topics for emerging scholars in fields related to social sciences and humanities.

This Chapter will therefore attempt to highlight the Pilot Project's findings, including their relevancy and importance to the mock grant-funding proposal; compare and contrast similarities to previous studies in the literature; discuss study limitations; and, lastly, make suggestions for future research.

## **4.2. Major Findings of Pilot Project**

Four major themes emerged from the Pilot Project and include: A) Continued and Increased Participation, B) Unique Lifestyle Characteristics, C) Experiential & Intrinsic Rewards to Participation, and, D) Camaraderie and Social Context. The categorization of these themes help identify specific elements that contribute to their desire for continued, increased, and lifelong participation.

A] *Continued and increased participation* was identified in the analysis of the transcribed interviews through thematic coding as the most significant theme expressed by participants. As one participant [age 63] enthusiastically discussed their increased skill and progression as a rock climber:

My footwork has really improved so...it's so amazing that even though I'm getting older...that I climbed a route a few weeks ago...but I was on that route a couple of years ago, and I was terrified, and I led you know two pitches, but not these two hardest pitches. And...it was just totally fine, and I wasn't scared and my movement was good, and I'm going 'wow, this is really fantastic' that even though in theory because I'm getting older, strength, no matter what you...decreases, cardio decreases all that stuff, but the mental aspect of...is...super important...



This participant and many of the other interviewed participants utilized various strategies of adaptation to enable continued participation, for example: cross-training or strength training programs, specialized rock climbing training programs, and individual physical or lifestyle adaptations. As one participant [age 68] indicated:

You know, age, age is a thing. Because, you know, I mean, if I go on a trip with somebody who wants to climb every day, you know well, I'm not gonna do that. Because you know that's counterproductive for my body, right.

Long-term adherence to physical activities has been previously examined in the forms of sport and fitness-based activities (Buford et al., 2010; Manini et al., 2014; Chmelo et al., 2015; Giné-Garriga et al., 2014). These results indicate that aging rock climbers require continued training in order to engage in this challenging activity. Participants did not express negative opinions with respect to additional efforts and time spent going above and beyond normal fitness training programs in order to continue rock climbing. In fact, most of the interviewed appeared to enjoy and embrace changes to their rock climbing careers. Some participants even utilize rock climbing as a form of chronic back pain relief:

...actually limited to what I can do in hiking, so you know...I can still ride my mountain bike on the road. But you know...so that keeps me aerobically fit, but umm, rock climbing is my outlet right now, and it's a great relief from pain, you know I did some workouts on the treadmill at (Ground Up) today and I just got such relief from my back pain, which is really great so. [Age 67]

B] *Unique Lifestyle Characteristics* was the second major emergent theme from the Pilot Project. In response to questions about the evolving nature of rock climbing participation and associated motivations, one participant [age 57] clearly articulated the attractive, alternative nature of rock climbing as part of 'extreme' or 'lifestyle' activities:

...my guess is that it's become cool, it's become trendy...I do think we live in a society now where they look up to, you know, extreme skiers, and you know, BMXers, and, it's like climbing is part of that thing, right? And so I think it's drawing this crowd that's looking for alternative ways to live their life for example, that kind of stuff.

The interviewed rock climbers possess unique lifestyle characteristics and ethos similarly found among previous research examining serious leisure participants (Stebbins, 2001, 2007; Kane & Zink, 2004; Ewert et al., 2013). These characteristics appear to reinforce the experiences, careers and strong identification with the sub-

culture of rock climbing (Stebbins, 2014). Further investigation of the socio-cultural aspects expressed by middle and older aged adult rock climbers suggest a strong association with the distinct attachment through the natural unique aspects of the activity, much like other serious leisure participants (Stebbins, 2007, 2014).

Some of the respondents also expressed playing roles of mentorship associated with their rock climbing identity, and contributions that benefited from these mentoring opportunities, especially for individuals who may not participate in traditional team sports.

At the climbing gym, he's one of the belay slaves, and he's really good with the kids right so...like, this is amazing! So yeah, that's just one example, and you know, it's all, a lot of the kids at the Edge who weren't like...typically they were seen as phys. ed. students and they became world class athletes. They got focused on something they were good at, cause team sports aren't for everyone. [age 67]

C] Meaningful experiences from participants were positively expressed through experiential and intrinsic rewards related to participation in rock climbing. The third emergent theme from the Pilot Project is related to: *Experiential & Intrinsic Rewards to Participation*. Indeed, expressions of meaningful, positive and fun experiences contribute to the participants' attitude towards rock climbing:

I've climbed a lot over the years...I had a rebirth in climbing when I went to Europe... and it's like, I'm sort of pissed off that some of my buddies that dropped climbing when they were 30 and took up mountain biking. It's like I go, man this is like fun! We're allowed to do this sport and have fun! [age 59]

...guess part of the reward is like I love the feeling of moving on rock, if I look at what it is about climbing that really draws me, I really love the feeling of doing that, and the analytical piece of figuring out like how the hell to make this work for me, right, you know? Like here's this particular problem. Here's the body that I have, and the what I bring and what I don't bring, you know, how can I get myself through this? Then that feeling of when I get outta my head and just let my body climb, and go, and see what happens, and then go, wow that was awesome. [age 64]

Yeah, it was a sense of flow. Like, if you're familiar with the whole flow thing which I'm sure you are, it's exactly that. It was just like, ahhh that feels so cool, I shifted my weight and I moved and, it's..I call it an unbearable lightness of being, it's when you move and it feels so...easy and natural. [age 57]

The interconnection of intrinsic motivation is associated with the role of self-efficacy in individual patterns of physical activity participation (O'Brien Cousins, S., 2003; Bandura, 1997). Consistent with previous researchers examining activities such as surfing (Frank et al., 2009), backcountry hiking experiences (Boyes, 2013), and kayaking (Sugerman, 2001), these internalized rewards are essential to reinforce the desire for continued, lifelong participation. These results also suggest that comparing and contrasting middle and older aged adults who are rock climbers with a group of other fitness-based exercise participants (see mock grant funding proposal, Chapter 5), may highlight the unique elements that may reinforce or discourage participation in this activity.

D] Finally, contributing to the experiences and motivations of middle and older aged adult rock climbers are the camaraderie and social contexts found within the activity. *Camaraderie and Social Context* is the final emergent theme from the Pilot Project:

...I found that when I was hardly climbing due to illness that I really missed hanging out with my friends at the gym or at the crag or talking about routes..." "...the connection with friends that love the same thing and being able to share that, and...also another thing that I find incredibly rewarding is helping newer climbers. [age 63]

...cause it's, I think it's very social. I think people like this, you know you go to let's say yoga and you have an instructor, but it's not very social. But the climbing is, you can come by yourself and you can sit on the bench and you can actually start to chat with someone. Or join them even. Or just go on your pace and be yourself, like even to the Hive and you just by yourself and you meet some friends and you chat little bit. It's almost like a hub, right. [age 53]

...and those people they're all in their early 20's and, I just love that energy and new perspective of life so...I prefer like, sounds kinda weird maybe but it's like, I'd rather hang out with them because I know what the 50 year olds are thinking, cause I grew up with them and it's like, I wanna know what these 20 year olds are thinking about the world and life and...it's cool. [age 57]

The strong role of social capital and positive social reinforcement are consistent with previous research identifying the social environment as a contributing factor for participation in an activity (Mullen et al., 2012; White, Wójcick, & McAuley, 2011; Nimrod, 2016). It is suggested by the participants in the Pilot Project that there are unique sources of interactions with other participants who share similar cultural values and

interests, which result in strong social relationships formed through adventurous situations. This unique social context and camaraderie amongst rock climbers is essential and has been previously observed by researchers with younger cohorts (Lewicka, 2005; Kruger, 2006).

Since there is an association between declining later life physical activity patterns of Canadian middle and older aged adults (Gibbs et al., 2016; Malavasi et al., 2010; Statistics Canada, 2016), there are many reasons to examine the distinctive role of experiences and motivations with alternative modes of serious leisure, such as rock climbing. Tangible reasons include, for example: increasing physical activity participation adherence into older age; broadening the scope of current types of physical activity, recreation and leisure; and, creating opportunities for increased meaningful, fulfilling activities for middle and older aged adults. Participation in active serious leisure has been previously demonstrated to yield positive benefits for middle and older aged adults, including social elements (Courneya & McAuley, 1995; Boyes, 2013); improving cognitive health (Berk et al., 2006; Hamer et al., 2014); and individuals' inherent desires for commitment and effort (Stebbins, 2007).

As participants in an alternative form of active serious leisure, the narratives shared among the interviewed group of middle and older aged adult rock climbers suggest that there are unique motivational elements which require further exploration. These experiences and motivations are articulated through the identification and subsequent categorization of the four major themes, which emerged from interviews conducted in the summer of 2017. In summary, these findings suggest strong feelings of activity attachment, significant opportunities for social connections, and expressions of sub-culture for middle and older aged adults who are rock climbers.

### **4.3. Pilot Project Limitations**

There are several limitations to the undertaken Pilot Project. First, the participants who were recruited for this project currently live in or near Canada's most prominent rock climbing destination, Squamish and North Vancouver, British Columbia. The popularity of indoor and outdoor rock climbing provides the visibility and accessibility necessary to encourage introduction and familiarization with the activity. It is important to

consider that there may be a geographic advantage for the 'outdoor recreation' lifestyle which dominates the mountainous, western provinces of Canada.

Second, the interviews were conducted, coded, and analyzed by one researcher. A more extensive research project, as the one suggested in the SSHRC grant funding proposal, should include cross-analysis by another researcher to increase validity (Bryman, 2006). However, given the distinct nature of the focused research topic, rock climbing contains unique terminology, locations of interest, and socio-cultural experiences with the interviewer, it is possible that the participants were eager and willing to share rich, detailed experiences. In this sense, it is important to consider the ethnographic nature of the topic to address the interviews and analysis as such. Having a researcher who is very familiar with rock climbing terminology and experiences can therefore be seen as an asset to data collection.

Third, the size of the sample population does not allow the researcher to generalize findings for a broader audience. A larger, diverse sample size would increase data validity and reliability while offering a wider range of experiences. Furthermore, there has been minimal investigation in the Pilot Project and previous research work related to rock climbing and gender differences. It should be noted that the primary goal of the pilot project is to supplement the grant funding proposal and to provide a baseline for future research projects related to older adult rock climbers. The participants in this pilot project ranged in age from 53 to 69. Given more time and resources, there exists research opportunities to obtain an older sample of rock climbers than the current pilot study. This is evidenced by the fact that the author has personally interacted with many rock climbers of advanced age during trips to climbing destinations in the United States, for example, in their seventies and eighties.

It is a worthwhile research endeavor to examine whether there are underlying, or comparative differences between the social context of middle and older aged adult rock climbers, versus regular physical activity participants, such as sport or fitness-based exercisers. Additionally, there is increasing interest in identifying the role of aging-related chronic illness acting as a barrier to participation (Hackstaff, 2009). If such differences do in fact exist, facilitators or barriers to participation can be identified to benefit the development and promotion of successful programs or initiatives.

## **4.4. Development of the Mock Grant Funding Proposal**

The mock grant funding proposal is an integral part of this Capstone Project given the scarce literature on middle and older aged adults who engage in alternative forms of physical activity and serious leisure. Examining the experiences and motivations of middle and older aged adult rock climbers in contrast to a more traditional form of activity such as running groups or clubs, has the potential to provide informative and comparative data on activity engagement and adherence. The Insight Development grant was selected as the most appropriate grant funding stream since the proposed research project is well-suited to the grant objectives: to build knowledge through support for researchers; support new approaches to research on complex or important issues; provide a high-quality research training experience; fund research expertise that relates to societal challenges and opportunities; and, finally, mobilize research knowledge, to and from academic and non-academic audiences (SSHRC, 2018).

The funding proposed through the mock grant proposal would address the required needs of a prospective PhD candidate and researcher, and includes a uniquely developed knowledge mobilization plan that aims to engage stakeholders involved in both academic, and non-academic fields. Given the scarcity of empirical evidence in the literature on the proposed research topic, research efforts to understand middle and older aged adult rock climbers contributes new and relevant knowledge.

My personal involvement with rock climbing began in 2007, after a career of competitive, varsity-level hockey at the University of New Brunswick. As my passion grew for rock climbing over the years, I became an active member of various rock climbing organizations, competed at a regional level in New Brunswick and Nova Scotia, became a sponsored athlete at the grassroots level, and developed women-specific programs. In addition to the many health benefits I have experienced, rock climbing has also further developed my personal sense of adventure, and has encouraged international traveling to: South Korea, Chile, Nepal, and many areas in the United States. Being a part of the rock climbing community is a privilege that has brought along many positive aspects to my personal life.

## 4.5. Suggestions for Future Research

The world of sport, physical activity, recreation and fitness have undergone generational changes in recent decades as a result of the introduction of 'alternative' activities like rock climbing, surfing, skiing, and mountain biking (Klein & Weaving, 2015; Kluge, 2005; Ellmer & Rynne, 2016). The middle and older aged adults interviewed in this pilot project have expressed elements of exceptional intrinsic meaning with their participation in rock climbing. In contrast to traditional forms of sport, exercise or fitness that are bound by regulatory frameworks, for example time, space and mode, this activity encourages independent progression through endless opportunities for challenge (Hamer et al., 2014; Lee & Payne, 2015; Hickman et al., 2017). Rock climbing is portrayed by these individuals as a lifestyle which simultaneously provides them with a strong sense of community, enriches their lives, and has provided opportunity for personal growth. Therefore, exploring lifelong participation inclusive of a broad range of activities has relevancy for physical activity, recreation and leisure program design, especially considering the heterogeneity of Canadian middle and older aged adults.

As suggested in the mock SSHRC grant-supported research project (Chapter 5), instrumentation collecting both quantitative and qualitative data, with the goal of comparing two population sample groups: rock climbers versus running groups or clubs, will generate comprehensive data with higher validity and reliability. Due to the emerging interest in examining middle and older aged adults' motivations for lifelong physical activity participation (Nimrod & Shrira, 2016; Hamer et al., 2014), this type of research requires innovative methodological approaches, in addition to collaborative efforts between scholars and experts who have previously examined similar topics.

Participants in the pilot project have willingly opted to re-locate, travel, physically train, alter their professional careers, and have also created their own adaptations for continued, lifelong participation in rock climbing. When asked about the future perception of their rock climbing careers, many of the participants have indicated that they plan to significantly increase their involvement in various ways, including travels, mentorship, and community memberships. These adaptations reflect a heightened sense of mastery through personal confidence that appears to facilitate and support highly meaningful pursuits (Bandura, 1998).

Rock climbing and other 'lifestyle' pursuits of serious leisure enable participants to create sustainable active aging opportunities by virtue of the attachment towards this activity (Lee, 2013; Berlin & Klenosky, 2014), as opposed to reliance on physical health benefits, or 'having to stay fit'. In fact, the many physical health benefits of rock climbing appeared to hold secondary or irrelevant importance for the interviewed participants, warranting further investigation into this as an attractive and suitable activity for middle and older aged adults.



## **Chapter 5.**

### **Grant Funding Proposal**

#### **5.1. Summary of Proposal**

Canada's population is aging and it is projected that by 2036 approximately twenty-three to twenty-five percent of Canadians will be over the age of sixty-five (Statistics Canada, 2016). This is largely due to increasing life expectancy, the aging of baby boom cohorts, and immigration patterns (Public Health Agency of Canada, 2017). The baby boomers comprise one-third of the Canadian senior population, typically defined as persons born between 1946 and 1965 (Wister & Speechley, 2015), and therefore worthy of attention. Due to the large size of this cohort and its position in the age structure, there are population health concerns about middle and older aged adults' adoption of unhealthy lifestyle behaviours, such as sedentarism and physical inactivity. These unhealthy behaviours can contribute to the onset of chronic disease among middle-aged and older adults (Berk et al., 2006; Hamer et al., 2014). Indeed, Statistics Canada (2016) has reported that only 13% of men and 11% of women aged 60 and older meet the recommended guidelines for physical activity levels.

One area of interest addressed in this project entails decreased opportunities for meaningful leisure-time physical activity (PA) from a life course perspective among middle and older aged adults (Gibbs et al., 2016; Malavasi et al., 2010; Ku, Fox, & Chen, 2016; Taylor & Pescatello, 2016; Kluge, 2007). On the one hand, health-related challenges, lowered energy reserve, and fewer leisure-time physical activity opportunities act as barriers. Meisner et al., (2017) examined the role of chronic disease, pain-related impairment and physical activity among middle and older aged adults in Canada using data from the Canadian Community Health Survey. Their findings indicated that despite chronic illness and pain status experienced by older adults, physical activity played a key role in "healthy aging" (Meisner et al., 2017). On the other hand, life transitions, such as middle age and retirement, can be associated with increased financial resources, and available time, to pursue new leisure or recreation activities. Overall, these periods represent an opportunity for many middle and older aged adults to discover new activities, but it is still unclear exactly what type of

opportunities may best encourage long-term adoption of healthy physical activity behaviours which contribute to optimal health.

One form of leisure-time physical activity (PA) that is receiving attention in the literature is what is termed *serious leisure activity*. Serious leisure is the systematic pursuit of a core activity that is highly substantial, interesting, and fulfilling, where participants find a career in acquiring and expressing a combination of its special skills, knowledge, and experience (Stebbins, 1992, p.3). Serious leisure also refers to the goal-directed pursuit of a leisure activity that requires an investment of time, energy, the establishment of social networks, and the establishment of a leisure identity (Stebbins, 2007). Participants engaging in serious leisure activities have the opportunity to develop a sense of competence, positive feelings and enjoyment associated with leisure activity PA (Heo et al., 2013), in addition to harnessing the opportunity to develop personal identity and enhanced quality of life through serious leisure (Kleiber, 2012). General definitions of serious leisure include a substantive range of activities; from fine arts and crafts to more physically active endeavours, such as the topic of interest for this Capstone Project, rock climbing. Therefore, reviewed literature and further mention of serious leisure in this document will focus primarily on adventure-based activities inclusive and similar to rock climbing.

Traditionally, research around physical activity and 'active aging' has been limited to a rather narrow scope of organized sport, exercise, or fitness-based participation (Wolinsky et al., 2013; Howes, 2017). Rock climbing has been previously identified as an increasingly popular form of serious leisure among younger individuals that has potential to enhance physicality (Wood, 2016). There is some evidence that middle and older aged persons are engaging in forms of rock climbing at increasing rates, yet few studies exist on this form of PA. The rising rate in participation for this demographic may be related to generational differences affected by the visibility and exposure to rock climbing as a form of sustainable and lifelong leisure-based PA.

Age and gender continue to be the two most consistent demographic correlates of physical activity behaviour in middle and older aged adults (Troost et al., 2005). Socio-cultural factors may also affect physical activity participation based on: social norms (Swift et al., 2017; French et al., 2014), availability and visibility of programs (Hughes et al., 2009; Chodzko-Zajko, 2005; Ashworth et al., 2005), and geographic location (Van

Der Deijl, 2014; Zhu et al., 2017; Shimura et al., 2009; Wilcox et al., 2006; Duncan et al., 2009). It is currently unknown whether there exist gender differences in rock climbing participation with middle and older aged adult rock climbers. However, it is recognized that strong social support has a positive correlation to physical activity participation rates and patterns for middle and older aged adults (Booth et al., 2000; Caserta & Gillet, 1998; Castro et al., 1999).

Research into middle and older aged adults who participate and identify as 'serious' rock climbers may uncover alternative pathways and experience of participation in this seemingly unconventional mode of physical activity. Since rock climbing has been articulated as an 'alternative' or 'fringe' but growing leisure activity, investigating middle and older aged adults who are seriously engaged in rock climbing offers a fresh perspective for active leisure pursuits in the field of gerontology. The proposed research project will examine middle and older aged adults' pathways into participation in this activity; shared experiences, given the nature of the activity; and other possible unique elements, such as overcoming negative views of aging and involvement in extreme forms of physical activity.

## **5.2. Roles and Responsibilities**

The team for this proposed research project is comprised of emerging scholars and established experts in the fields of: leisure & recreation, physical activity, active aging, and gerontology. Previous individual research work and experiences found within the team members contribute to cover many aspects related to the research questions.

*Michelle LeBlanc, MA*, is a PhD candidate with the Faculty of Gerontology at Simon Fraser University. Ms. LeBlanc has previously worked as a health and wellness professional for the public and private sector in Eastern Canada, in addition to three years of Research Associate work with the Canadian Longitudinal Study on Aging. She has been actively involved with rock climbing clubs and associations since 2007. Her primary roles as Research Coordinator will include: leading the participant recruitment process, training the student interviewer, data analysis, and leading the knowledge mobilization plan.

*Dr. Robert Stebbins, PhD*, is a sociologist and researcher in Serious Leisure, and is affiliated with the University of Calgary, Alberta. His 2007 publication titled 'Serious Leisure: A Perspective for Our Time' has been instrumental in the conceptualization and articulation about serious leisure studies. He has published several peer-reviewed books and monographs on the topic of serious leisure, and has previously received SSHRC grants. Given his expertise on the topic, his role and responsibilities primarily include consulting and advising the research team in order to address any methodological or theoretical concerns. Additionally, he will be an asset in procedures related to knowledge mobilization.

*Dr. Mary Ann Kluge, PhD*, is an Associate Professor with the Department of Health Sciences at the University of Colorado, Colorado Springs. Her research and publications have focused on sports and outdoor recreation as a health promotion tool for aging/older adults. Her innovative approaches to Health Sciences in combination with her previously published research have offered a strong foundation for the proposed research project. Similar to Dr. Stebbins, Dr. Kluge's role will include consultation and suggestions towards overall methodological considerations and data analysis.

*Dr. Andrew Wister, PhD*, is the Director of the Gerontology Research Centre at Simon Fraser University. Specifically related to the proposed research project, he has completed numerous research projects related to Baby Boomer health dynamics and health promotion for aging populations. He is the Research Coordinator's Senior Supervisor. Within the research team, Dr. Wister's role will include: assistance and supervision of the overall project, in addition to communication and facilitating networking opportunities for knowledge mobilization.

The research team will work closely through in-person and tele-conference communications to ensure methodological concerns, timelines, and the knowledge mobilization plan are addressed as required. Apart from the Research Coordinator, members of the research team are primarily expected to have a consulting role throughout the research process. As members of the team have been identified as appropriate researchers and experts within the topic of research interest, their insights and contributions will be highly valuable.

### **5.3. Roles and Training of Students**

One Student Researcher will be hired to assist the Research Coordinator. The Student Researcher will be contracted from September 2018 until April 2019. The Student Researcher will be recruited and hired with help from Simon Fraser University's Department of Gerontology. Required qualifications for the position will be as follows:

- I - post-bachelor student status (PBD or MA student)
- II - adequate experience with interview skills (either qualitative or quantitative)
- III- interest in working with older adults/gerontology
- IV- interest in physical activity and health promotion
- V – Experience with transcription of audio files

Their primary roles will include:

- a) Assisting the Research Coordinator if necessary for participant interviews (fitness-based)
- b) Assisting with the analysis of quantitative and qualitative data

The Research Coordinator will be primarily responsible for training the Student Researcher. It will be essential to immerse and familiarize the Student Researcher with the language and dialogue found amongst rock climbers. The Research Coordinator will prepare and brief the Student researcher through three half days of training; equivalent to 10 hours. In this preparation and training, interview techniques and familiarization (if applicable) of data analysis software, such as SPSS and NVivo will be conducted. Due to the nature of the topic, it is expected that the Student Researcher will primarily assist the Research Coordinator with the fitness-based activity sample group. Additionally, it is expected that the Student Researcher will assist the Research Coordinator as required for the CAG Conference and BCRPA Symposium preparations and presentations.

### **5.4. Knowledge Mobilization Plan**

The primary goal associated with the proposed research project would include the exploration of contributing motivational elements that reinforce older adults' lifelong

physical activity participation in activities such as rock climbing. Primary stakeholders and partnerships involved in the communication of results through networking and promotion strategies include: outdoor recreation outfitters [Mountain Equipment Co-op], government-funded recreation agencies [BCRPA], and academic partners whose research interests align with the topic [Dr. Stebbins, Dr. Kluge].

The Research Coordinator has experience with communications and marketing through a previous position as employee Wellness Coordinator with the government of New Brunswick. A large part of her responsibilities included the promotion of wellness-related activities, and interacting with employees through workshops. Additionally, she has presented pre-conference workshops related to rock climbing programs for middle and older aged adults in 2016 and 2017 at the Climbing Wall Association summit in Loveland, Colorado. Given the Research Coordinator's experience with the communication of gerontology-based knowledge at this conference to an audience who are primarily invested in the private, for-profit sector, she is acutely aware that there are creative ways to bridge the gap between the scientific community and the general public. These presentations received positive feedback regarding

Due to the innovative nature of the proposed research project, the strategy involved in the dissemination of research results will include a creative approach intended to reach three primary audiences: 1) middle and older aged adults in British Columbia through presentations at provincial MEC locations, and a published short newsletter; 2) academic and industry peers attending the CAG Conference and, 3) the BCRPA Annual Symposium. The efficacy of this mobilization strategy will be formally evaluated by the Research Coordinator through measuring audience reach and other relevant criteria.

MEC is a co-operative run by 5 million members strong, specializing in the sale of outdoor recreation equipment. They fund and support community-based initiatives to increase participation in adventure-based activities, such as rock climbing. Their Community Grants supports initiatives that reduce barriers to outdoor activity and increases the community of active outdoor enthusiasts. In this sense, a partnership with MEC is an innovative way to connect research knowledge through practical translation approaches, including community outreach through: social media, newsletters, and presentations at provincial locations. In addition to these presentations and outreach

approaches, financial capital from MEC will partially fund this research project. Given the inclusion of a diverse demographic of middle and older aged adults who are not often represented with many outdoor recreation companies, MEC stands to gain positive exposure from the proposed research project. This partnership is significant to the research team and the company itself, since the founders of MEC, were west coast mountaineers and rock climbers.

The BCRPA is a non-profit organization dedicated to enhancing quality of life for British Columbians supporting physically active lifestyles and connected communities. The Annual Symposium and CAG Conference will be unique opportunities to share research results and offer insightful recommendations for agencies and organizations directly responsible for the delivery of physical activity, recreation and leisure programs throughout BC. Research exposure and networking opportunities available at this type of conference will further facilitate conversations between members of the academic and non-academic world.

Upon completion of the proposed research project, the research team will perform end-of-grant projects. For example, publication in relevant Canadian and American academic journals. Additional presentations and communication to the general public will be dependant on the evaluation results and outreach criteria, which will be identified by the Research Coordinator. There are also increasing opportunities to document the experiences of middle and older aged adult rock climbers. The Banff Mountain Film Festival, for example, highlights adventure-based documentaries and storytelling through their annual film competition. Exposure through this capacity would provide viewers and participants with positive aging narratives, especially since aging mountain athletes are becoming a niche but growing topic amongst documentarians.

## **5.5. Expected Outcomes**

### **5.5.1. Summary of Expected Societal Outcomes**

Through a collaborative, innovative approach to knowledge mobilization with partners and stakeholders, the proposed research project will aim to expand our understanding of how leisure-time physical activity can be maintained and enhanced across the life course. This will be achieved through sharing knowledge among various

stakeholders, and suggesting new ideologies for the types of physical activity opportunities that are created for older adults. In doing so, members of the academic community, physical activity and recreation program designers, and older adults alike will gain a sense of social encouragement for participation and active engagement in activities such as rock climbing. Additionally, the proposed research may create new positive attitudes and dialogue toward aging through intergenerational participation and engagement in an activity that is normally reserved for children and youth.

### **5.5.2. Summary of Benefits to Potential Target Audiences**

The potential target audiences [middle and older aged adults] will benefit directly and indirectly through the knowledge gained from the proposed research project. First, the proposed research will further investigate the various ways in which middle and older aged adults decide to participate in non-traditional activities such as rock climbing. Second, it will offer an opportunity to examine the differences that exist between older adult rock climbers and running group or club participants. Third, the proposed research project aims to acknowledge the similarities and differences which exist between middle and older aged adults' desire to try new types of physical activity at any age, to examine gender differences, and also encourages sustainable forms of activity that contribute to long-term physical, social and emotional benefits. Lastly, exploring the experiences and motivations of middle and older aged adult rock climbers can be treated as a potential source of inspiration for older adults who may be reluctant to try this activity.



## 5.6. Funds Requested from SSHRC (Year 1)

Personnel Costs	SSHRC	Other Sources	Total
Research Coordinator	\$30,326		\$30,326
<p><i>Justification:</i> One PhD candidate will be hired to coordinate the proposed research project. Assigned tasks will include: data collection, collaboration and regular communication with the research team, actively engaging members of the BCRPA/other stakeholders, and, coordination of the knowledge mobilization plan. The research coordinator will be contracted from May 2018 to April 2019.</p> <p>20 hours/week x \$27/hour x 52 weeks = \$28,080 + 8% non-discretionary benefits</p>			
Student Researcher	\$5,184		\$5,184
<p><i>Justification:</i> One post-graduate level student researcher from the Department of Gerontology will be hired to assist the research coordinator in their duties, including: help with interviewing participants, transcription of audio files, data analysis, and other duties as required. The student researcher will be hired from September 2018 to April 2019.</p> <p>10 hours/week x \$20/hour x 24 weeks = \$4,800 + 8% non-discretionary benefits.</p>			
Total Personnel Costs	\$35,510		\$35,510
Travel	SSHRC	Other Sources	Total
Knowledge Mobilization		Up to \$5,000	\$5,000
<p><i>Justification:</i> The RC will coordinate with Mountain Equipment Co-op to organize presentations with inter-provincial locations in British Columbia. As a primary stakeholder and funding partner, MEC will cover travel expenses as part of their 'Community Contributions' grants.</p>			
Total Contributions		Up to \$5,000	\$5,000
Conference Travel	\$705		\$705
<p><i>Justification:</i> Registration fees and conference travel for one team member to attend two conferences: 1) BCRPA Symposium in Vancouver for knowledge mobilization, and 2) Canadian Association on Gerontology Conference in Vancouver, BC. Both of the conferences will be attended by the Research Coordinator for poster presentations, networking, and as part of the knowledge mobilization plan.</p> <p>Transportation per diem = \$20 x 4 (Return mileage for 2 x conferences) = \$80            BCRPA: Educational Exhibitor = \$475            CAG Vancouver (Student member) = \$150</p>			
Total Travel Costs	\$705	\$5,000	\$5,705
Other Expenses	SSHRC	Other Sources	Total
Miscellaneous	\$500		\$500
<p><i>Justification:</i> Purchase of required office supplies and/or software for analysis; print copies of a 2-page newsletter format with research results and information for audiences at the: BCRPA; CAG; and for the MEC location presentations.</p>			
Total Other Expenses Costs	\$500		\$500
<b>Total Budget</b>	<b>\$36,715</b>	<b>\$5,000</b>	<b>\$41,715</b>

### **5.6.1. Summary of Expected Scholarly Outcomes**

Some of the primary expected scholarly outcomes for the proposed research project include: a) exploratory research into an emerging form of serious leisure among middle and older aged adults; b) expanding existing research knowledge for outdoor recreation, serious leisure, and physical activity, and, c) collaboration between emerging and established scholars. In addition, it is anticipated that the knowledge gained from the research topic will contribute new ideas to multiple fields of study, such as: gerontology, health promotion, physical activity, recreation, and leisure studies.

## **5.7. Detailed Description**

### **5.7.1. Objectives**

This research proposal addresses the SSHRC's Insight Development program goal to: *build knowledge about individuals and societies*, specifically groups of individuals belonging to a sub-culture, or middle and older aged adults engaging in serious leisure activities like rock climbing. Since the topic of research interest has been rarely examined by researchers, this proposal is an opportunity to comprehensively explore middle and older aged adult rock climbers through a mixed-methods approach. Additionally, this research proposal will highlight the tangible motivational elements found within participants of alternate forms of physical activity such as rock climbing. Specific to the objectives highlighted in the Insight Development program, the proposed research would allow the research team to build knowledge that relates directly to the health and well-being of the aging population, and also encourages innovative initiatives.

A mixed-methods approach (see Methodology) will be employed to differentiate elements of intrinsic motivations that contribute to the attitudes and experiences of middle and older aged adults' participation by contrasting and comparing: rock climbing and running group or club participants. In line with the SSHRC *Challenge and Feasibility* Criteria, the proposed research project will address the topic of research to contribute to the field of gerontology in a unique manner. The research project also includes a significant collaboration and knowledge mobilization plan that is innovative, and is expected to reach a large audience in North America.

The primary objectives for the proposed research project include the following:

- a] Examine the experiences and motivations of middle and older aged adult rock climbers (qualitatively and quantitatively).
- b] Compare and contrast the differences between middle and older aged adult rock climbers with running group or club participants from Community Centres in the Lower Mainland area (Vancouver area).
- c] Contribute new ideas, theories, and applied knowledge to the scientific community.
- d] Innovative dissemination of research results with the general population.
- e] Creatively engage stakeholders and partners in order to maximize audience reach through the knowledge mobilization plan.
- f] Suggest and advocate for broader available physical activity, recreation and leisure programming for middle and older aged adults.

In order to address and evaluate the proposed research project's objectives, a formative evaluation will be conducted by the Research Coordinator to ensure the objectives are met as an end-of-grant project. Each individual objective will be given a monthly score during the research process, and at the end of the project. The scoring range will include: 1 = Inadequate; 2 = Adequate; 3 = Achieved Objective.

### **5.7.2. Context**

Research suggests that one's motivation to engage in an activity may be a more important predictor of continued engagement than the health benefits of the activity itself (Ainsworth et al., 2007; Frederick & Ryan, 1993; Salguero, Gonzalez-Boto, & Marquez, 2006). Motivations to participate are typically contextualized based on social and environmental contexts. For instance, O'Brien Cousins (2003)'s research on physical activity among middle and older aged adults shows that individual beliefs underlying physical activity may vary according to different social contexts and lifestyle factors. Environmental or structural factors such as ageism or lack of available programs result in negative experiences such as undesirable emotions and decreased adherence (Edmunds, Ntoumanis & Duda, 2006; Thøgersen-Ntoumani & Ntoumanis, 2006). Barriers to physical activity, such as lack of interest, time, facilities, or knowledge, pain, self-consciousness, fear of falling, poor health, and weather-related barriers can also

contribute to lower activity levels (Cerin, Leslie, Sugiyama & Owen, 2010; Crombie et al., 2004; Mathews et al., 2010; Moschny, Platen, KlauBen-Mielke, Trampisch, & Hinrichs, 2011).

Since middle and older aged individuals gain more leisure time through retirement or reduced working hours, choosing a leisure activity that is physically-based may provide the opportunity to fulfill physical needs as well as fulfilling psychological needs of the individual (Siegenthaler & O'Dell, 2003; Kolt, Driver, & Giles, 2004; Kilpatrick, Hebert, & Jacobson, 2002). The role of social capital and camaraderie in leisure-based PA such as rock climbing can play an important role for continued participation and enjoyable experiences.

Given the elements of adventure that are inherent in rock climbing experiences, this activity has the potential to contribute to individual health in a different approach than traditional forms of physical activity previously available to older adults. Howes (2016) suggests that new forms of serious PA have significant, and largely uncharted, potential for developing individual benefits such as self-control, mastery, flow and autonomous achievement. Future research into these areas can potentially expand our understanding of the motivations, pathways and experiences of serious leisure activity among aging middle and older aged adults. Using a mixed-methods approach, Boyes (2013) has established that social capital can be generated from outdoor adventure and serious leisure among middle and older aged adults by fostering belonging to a community with strong social ties. In particular, interaction, social support and shared experiences that form a myriad of social benefits appear to be central contextual factors (Brymer, Downey, & Gray, 2009; Wood & Giles-Corty, 2008).

Three established models and theories will form the foundation of the proposed research project: Serious Leisure Perspective; Life Course Theory; and Social Cognitive Model. Each offer insightful elements and rationale to conceptualize the proposed research surrounding older adults who are rock climbers. The Social Cognitive Model has previously explained the essential role of self-efficacy to the pathways and motivations for physical activity and exercise participation (Bandura, 2004). Due to the unique nature of emerging activities such as rock climbing, it is important to base empirical work from theoretical models which have previously examined physical activity that is pursued in a meaningful way. Dr. Stebbins' Serious Leisure Perspective has been

able to address the unique psycho-social aspects of rock climbers, for example career, 'sustainable lifestyle' elements and the importance or meaning attached to this specific activity. Finally, the Life Course theory provides us with temporal information comparing associations between physical activity and circumstantial life events, continued participation, or even uptake resulting from an innate desire to create social networks or for health benefits and outcomes (Hirvensal & Lintunen, 2011).

Integrating the three discussed theoretical models and theories help to conceptualize the specific elements which are hypothesized to contribute to the narratives which explain the experiences and motivations of middle and older aged adults who are rock climbers. From established theories and models previously mentioned, we can also begin to extrapolate particular elements related to rock climbing and middle and older aged adults, including: unique ethos (SLP); characteristics of career (SLP); cumulative exposure (LCT); belief in capacity (SCM); role of individual agency (SCM); influence of social network (SCM); and significance of life periods (LCT), such as retirement.

Fundamental knowledge about the motivations expressed by middle and older aged adults who participate in various forms of active leisure can benefit a variety of physical activity, recreation and leisure program designers (Ewert et al., 2013; Choghara, O'Brien Cousins & Wankel, 1998). It is hypothesized that middle and older aged adults engaged in serious leisure activities such as rock climbing will have greater adherence levels, adoption into a regular lifestyle, as well as more psychological benefits. The proposed research project and knowledge mobilization plan will facilitate current and future researchers in creating unique multi-disciplinary connections between: i) academic researchers in gerontology; health promotion; physical activity, recreation and leisure studies; ii) engage members of the general public and middle and older aged adults; iii) and lastly, inform organizations and individuals responsible for the creation of physical activity programming.

## **5.8. Methodology**

### **5.8.1. Approach and justification**

The proposed research project will employ a mixed-methods methodology. A mixed-methods approach to a research project such as this one enables triangulation of the evidence (Huberman & Miles, 2002). This research design will elicit shared and individual narratives to offer insightful perspectives, as well as quantifying correlations between the used constructs and variables. A sequential exploration strategy will be used as data is gathered first by using a survey to support quantitative analysis and to make adjustments to the interview guide. Second, semi-structured interviews will be collected for the qualitative portion of the proposed research project. This approach is used primarily to: test the elements of a theory, development of instrumentation, and generalizing qualitative findings to different samples (Terrell, 2012).

There have been growing developments in current research methodology in the field of aging and gerontology, particularly with qualitative research available to scholars (Sparkes & Smith, 2014), and which enhances the older adult voice within empirical research. Descriptive, rich data is achieved through a mixed-methods approach. This will enable the researcher to simultaneously capture information such as characteristics related to health status, motivations, experiences, and activity attachment for middle and older aged adult rock climbers compared with aquatic fitness populations.

### **5.8.2. Data collection instruments**

Appendix A is the developed interview guide that was used for the pilot project with serious rock climbers aged 50+ in British Columbia. The elements of this semi-structured interview guide include participants' experiences and background with the activity (rock climbing). For example, questions aim to gather information about: the career of the activity; lifestyle characteristics; family and social ties; influences of occupation; orientations and motivations for adherence; and lastly, experiences with flow during participation.

Data collection instrumentation for the quantitative portion of the proposed research study are found in Appendix C. They include evidence-based developed

questionnaires that have previously demonstrated high levels of reliability and validity. It is anticipated that the interviews will take approximately thirty to sixty minutes to complete.

### **5.8.3. Sample definition**

The sample population will consist of: two groups of seventy ( $n = 70$ ) participants each will be selected for the quantitative population sample, and a sub-set of twenty ( $n = 20$ ) participants will participate in the qualitative portion of the suggested research project. Review of available literature indicates that there will be a medium effect size on key outcome variables when comparisons of the two groups of participants are made. This requires a minimum of 70 participants in each group to reach a .80 level of statistical power.

Selection criteria for the Group A will be: currently active rock climbers; fifty-five years or older; and have the ability to respond to the questionnaire. Group B will be fifty-five years or older; current participants in a running group or club; and have the ability to respond to the questionnaire. The rationale behind the two chosen sample groups is that both activities have different characteristics related to: activity structure; promotion, availability and visibility to older adults. During data analysis, both of these groups will be matched by age and gender to increase validity and reliability.

### **5.8.4. Recruitment**

Recruitment for the sample population will occur primarily in the Lower Mainland/Vancouver Island region of British Columbia. Research Ethics Board-approved posters and material will be placed at indoor rock climbing facilities and through running groups or clubs (see Appendix D). It is expected that a snowball sampling approach may naturally occur, where recruited participants refer additional prospective participants to the research team. In such instances, voluntary eligible participants will have the opportunity to contact the research team for recruitment.

### **5.8.5. Research procedures**

In the initial stages of the research project, recruited participants will respond to a short (quantitative-based) questionnaire, which will take approximately thirty to sixty minutes to complete. This questionnaire will be completed verbally, employing printed copies of the valid and reliable data collection instruments (Appendix C). The general format of the questionnaire will include the following:

- a) Demographic information (Age, Gender, Education, Nationality, Marital Status, etc).
- b) Quality/Satisfaction with Life Questionnaire
- c) Health Status (Self-perceived)
- d) Personality
- e) Self-efficacy (General Self-Efficacy Scale)

The second stage of the research project will be qualitative-based. The primary qualitative research questions will elicit narratives that will help conceptualize the experiences and motivations for participation in either rock climbing or fitness-based activities. The qualitative interviews will be scheduled to take approximately sixty minutes to complete. The interview guide will include questions that address theoretical elements from previous similar research projects, including the pilot project which was conducted in July/August 2017 with eight rock climbers between the ages of 53 to 69 in British Columbia. Emergent themes and theoretical elements to consider for the interview guide will include:

- a) Unique cultural aspects of the activity
- b) Camaraderie and Social Context
- c) Historical experiences in physical activity participation (pathways & entry)
- d) Personal attachment with the activity

### **5.8.6. Analysis**

The sample population involved in the suggested research project will be encouraged to be active participants through qualitative inquiry, rather than passive



recipients of the research project (Hubble & Tew, 2013). Attempts will be made to acquire an equal split in the sample group between females and males. The quantitative data (questionnaires) will be analyzed using SPSS software, and the qualitative data (audio files) will be analyzed using NVivo, available at Simon Fraser University computers and the Department of Gerontology's research centre. The Research Coordinator is familiar with both types of research analysis, and will systematically consult with the research team for critical insights during the data collection and analysis process.

In order to satisfy an adequate statistical analysis methodology, the following strategies and requirements will be employed. The application of ANOVA will be used to determine statistical significance ( $p$ -value), and Chi-squared test for variance in a normal population. This tests whether the variance of the population has a pre-determined value.

The transcribed qualitative data from the interviews will be thematically coded until saturation is reached. Thematic coding of the data will be reviewed by multiple members of the research team. Ongoing discussion between members of the research team about the deductive themes will encourage the development of major themes introduced through the data.

Monthly phone-in conference calls will be scheduled amongst the research team in order to address pressing issues, and to offer further recommendations or suggestions to the research design. These monthly meetings will keep the entire research team updated on progress, in addition to the monthly evaluation of the research objectives. The Student Researcher will assist the Research Coordinator with methodological tasks, including: recruitment; help with analysis; transcription of audio files; etc.

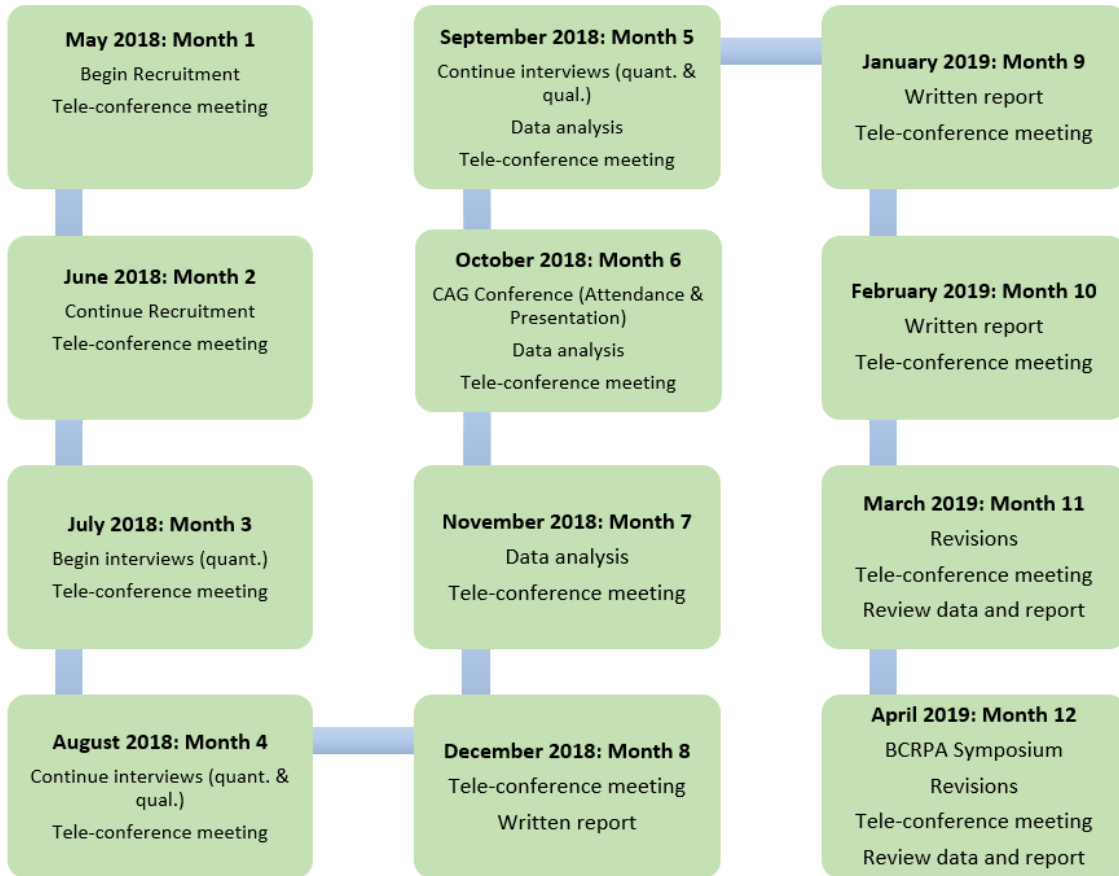
### **5.8.7. Ethics**

Ethical considerations for the proposed research project will be achieved through an application with the SFU's Research Ethics Board, similar to the completed application for the pilot project (refer to Appendix A). Given the similarity in research

topic and design methodology, there are minimal risks involved in the participating sample population.

## **5.9. Timelines**

This one-year proposed project will begin in May 2018, and will end in April 2019. Active recruitment of participants will begin in the first two months of the project, and should be complete by the end of month two. In months three to five, the Research Coordinator will schedule and complete interviews with eligible participants. Quantitative data will be collected during the first wave of interviews, and qualitative data recorded on an audio device will be completed between months four and seven. During month five (September), the Research Coordinator and the Student Researcher will perform analysis of the quantitative interviews using SPSS, and transcribe the audio recordings using NVivo. As previously stated, monthly phone-conference meetings will take place amongst the research team for data collection and analysis updates. In months eight to ten, a written report, short presentation, and informational newsletter will be prepared by the Research Coordinator. The final two months of the research project will include revisions to the written reports, newsletter, and completing any extraneous data analysis. A chart highlighting the timeline in further detail highlights the activities for each month:



## References

- Ainsworth, B.E., Mannell, R.C., Behrens, T.K., & Caldwell, L.L. (2007). Perspectives of public health and leisure studies on determinants of physically active leisure. *Journal of physical activity and health, 4*(s1), S24-S35.
- Albayrak, T., & Caber, M. (2016). Destination attribute effects on rock climbing tourist satisfaction: An Asymmetric Impact-Performance Analysis. *Tourism Geographies, 1*-17.
- Allender, S., Hutchinson, L., & Foster, C. (2008). Life-change events and participation in physical activity: a systematic review. *Health promotion international, 23*(2), 160-172.
- Allender, S., Cowburn, G., & Foster, C. (2006). Understanding participation in sport and physical activity among children and adults: a review of qualitative studies. *Health education research, 21*(6), 826-835.
- Aras & Akalan (2014) The effect of anxiety about falling on selected physiological parameters with different rope protocols in sport rock climbing. *The Journal of Sports Medicine and Physical Fitness, 54*, 1-8.
- Armit, Brown, Ritchie, & Trost. (2005). Promoting physical activity to older adults: A preliminary evaluation of three general practice-based strategies. *Journal of Science and Medicine in Sport, 8*(4), 446-450.
- Atchinson-Jones, D., & Atchinson-Jones, C. (2004). Portugal: Sport Onsite, Bouldering: Rock Climbing.
- Ashton, J. (2014). Outdoor education is a public health issue. Keynote speech at the Institute for Outdoor Learning North-West Conference. *Dallam Outdoor Centre, 24th January*.
- Ashworth, N.L., Chad, K.E., Harrison, E.L., Reeder, B.A., & Marshall, S.C. (2005). Home versus center based physical activity programs in older adults. *The Cochrane Library*.
- Attarian, A. (1999). Artificial climbing environments. *Adventure programming, 341*-346.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. Macmillan.
- Bandura, A. (1998). Health promotion from the perspective of social cognitive theory. *Psychology and health, 13*(4), 623-649.
- Bandura, A. (2004). Health promotion by social cognitive means. *Health education & behavior, 31*(2), 143-164.

- Bastos, A.D.A., Salguero, A., González-Boto, R., & Marquez, S. (2006). Motives for participation in physical activity by Brazilian adults. *Perceptual and Motor Skills*, 102(2), 358-367.
- Beaton, A.A., & Funk, D.C. (2008). An evaluation of theoretical frameworks for studying physically active leisure. *Leisure Sciences*, 30(1), 53-70.
- Beck, K., Weeks, L., Montelpare, W., & Macdonald, D. (2016). Identifying important factors for older adults' physical activity participation across individual/group, structured/unstructured contexts. *European Journal of Ageing*, 13(3), 209-218.
- Berk, D., Hubert, H., & Fries, J. (2006) Associations of changes in exercise level with subsequent disability among seniors: a 16-year longitudinal study. *Journal of Gerontology Serie A* 61:97–102.
- Berlin, K., Kruger, T., & Klenosky, D. (2014). Older Women And Activity: A Mixed Methods Investigation Of Older Women's Motivations For Continued Activity. *Medicine & Science in Sports & Exercise*, 46, 65.
- Bherer, L., Erickson, K. I., & Liu-Ambrose, T. (2013). A review of the effects of physical activity and exercise on cognitive and brain functions in older adults. *Journal of aging research*, 2013.
- Bolikal, Priya D., Bentley, Katherine, Cheng, Jenfu, Botticello, Amanda, & Cheng, Renu. (2014). Poster 556 Feasibility of Peak Potential, an Adaptive Rock Climbing Program for Children with Cerebral Palsy and Physical Disabilities. *PM&R*, 6(9), S380.
- Booth, M.L., Owen, N., Bauman, A., Clavisi, O., & Leslie, E. (2000). Social–cognitive and perceived environment influences associated with physical activity in older Australians. *Preventive medicine*, 31(1), 15-22.
- Booth, M.L., Hunter, C., Gore, C.J., Bauman, A., & Owen, N. (2000). The relationship between body mass index and waist circumference: implications for estimates of the population prevalence of overweight. *International journal of obesity*, 24(8), 1058.
- Boyes, M. (2013). Outdoor adventure and successful ageing. *Ageing & Society*, 33(4), 644-665.
- Breheny, M., & Stephens, C. (2017). Spending time: The discursive construction of leisure in later life. *Annals of Leisure Research*, 20(1), 39-54.
- Brymer, E., Downey, G., & Gray, T. (2009). Extreme sports as a precursor to environmental sustainability. *Journal of Sport & Tourism*, 14(2-3), 193-204.
- Bryman, A. (2006). Integrating quantitative and qualitative research: how is it done?. *Qualitative research*, 6(1), 97-113.

- Buckley, R. (2012). Rush as a key motivation in skilled adventure tourism: Resolving the risk recreation paradox. *Tourism Management*, 33(4), 961-970.
- Buchner, D.M., Cress, M. E., De Lateur, B. J., Esselman, P. C., Margherita, A. J., Price, R., & Wagner, E. H. (1997). The effect of strength and endurance training on gait, balance, fall risk, and health services use in community-living older adults. *The Journals of Gerontology Series A: Biological Sciences and Medical Sciences*, 52(4), M218-M224.
- Buford, T. W., Cooke, M. B., Manini, T. M., Leeuwenburgh, C., & Willoughby, D. S. (2010). Effects of age and sedentary lifestyle on skeletal muscle NF-κB signaling in men. *Journals of Gerontology Series A: Biomedical Sciences and Medical Sciences*, 65(5), 532-537.
- Buford, T., Hsu, F., Brinkley, T., Carter, C., Church, T., Dodson, J., Pahor, M. (2014). The Angiotensin- Converting Enzyme I/D Polymorphism and Exercise- Induced Changes in Physical Function among Caucasian Older Adults: 2259 May 30, 11. *Medicine & Science in Sports & Exercise*, 46, 598.
- Carlson, M., Parisi, J., Xia, J., Xue, Q., Rebok, G., Bandeen-Roche, K., & Fried, L. (2011). Lifestyle Activities and Memory: Variety May Be the Spice of Life. The Women's Health and Aging Study II. *Journal of the International Neuropsychological Society*, 18(2), 286-294.
- Carruthers, C., & Hood, C.D. (2007). Building a life of meaning through therapeutic recreation: The leisure and well-being model, part I. *Therapeutic Recreation Journal*, 41(4), 276.
- Caserta, M.S., & Gillett, P. A. (1998). Older women's feelings about exercise and their adherence to an aerobic regimen over time. *The Gerontologist*, 38(5), 602-609.
- Castro, C.M., Sallis, J.F., Hickmann, S.A., Lee, R.E., & Chen, A.H. (1999). A prospective study of psychosocial correlates of physical activity for ethnic minority women. *Psychology and Health*, 14(2), 277-293.
- Cavani, V., Mier, C.M., Musto, A.A., & Tummers, N. (2002). Effects of a 6-week resistance-training program on functional fitness of older adults. *Journal of aging and physical activity*, 10(4), 443-452.
- Cerin, E., Leslie, E., Sugiyama, T., & Owen, N. (2010). Perceived barriers to leisure-time physical activity in adults: an ecological perspective. *Journal of physical activity and health*, 7(4), 451-459.
- Chaudhury, M., & Shelton, N. (2010). Physical activity among 60-69-year-olds in England: Knowledge, perception, behaviour and risk factors. *Ageing and Society*, 30(8), 1343- 1355.

- Chmelo, E.A., Crotts, C.I., Newman, J.C., Brinkley, T.E., Lyles, M.F., Leng, X., & Nicklas, B.J. (2015). Heterogeneity of physical function responses to exercise training in older adults. *Journal of the American Geriatrics Society*, 63(3), 462-469.
- Clark, D.O. (1996). Age, socioeconomic status, and exercise self-efficacy. *The Gerontologist*, 36(2), 157-164.
- Chodzko-Zajko et al., 2009 Chodzko-Zajko, W.J., Proctor, D.N., Fiatarone Singh, M. A., Minson, C.T., Nigg, C.R., Salem, G.S., & Skinner, J. (2009). Exercise and Physical Activity for Older Adults. *Medicine & Science in Sports & Exercise*, 41(7), 1510-1530.
- Chodzko-Zajko, W., Schwingel, A., & Park, C.H. (2009). Successful aging: the role of physical activity. *American Journal of Lifestyle Medicine*, 3(1), 20-28.
- Chogahara, M., Cousins, S., & Wankel, L. (1998). Social Influences on Physical Activity in Older Adults: A Review. *Journal of Aging and Physical Activity*, 6(1), 1-17.
- Courneya, K., & McAuley, E. (1993). Can Short-Range Intentions Predict Physical Activity Participation? *Perceptual and Motor Skills*, 77(1), 115-122.
- Connell, J. (2001). *Managing leisure*: B. Grainger-Jones; Butterworth-Heinemann, Oxford, 1999, 231pp., £ 19.99, ISBN 0-7506-3717-X.
- Cooper, L.W., Powell, A.P., & Rasch, J. (2007). Master's swimming: An example of successful aging in competitive sport. *Current Sports Medicine Reports*, 6(6), 392-396.
- Courneya, K.S., & McAuley, E. (1995). Cognitive mediators of the social influence-exercise adherence relationship: A test of the theory of planned behavior. *Journal of behavioral medicine*, 18(5), 499-515.
- Cornwell, E., & Waite, L. (2009). Social Disconnectedness, Perceived Isolation, and Health among Older Adults. *Journal of Health and Social Behavior*, 50(1), 31-48.
- Cress, M.E., Buchner, D.M., Prohaska, T., Rimmer, J., Brown, M., Macera, C., & Chodzko-Zajko, W. (2005). Best practices for physical activity programs and behavior counseling in older adult populations. *Journal of aging and physical activity*, 13(1), 61-74.
- Crombie, I.K., Irvine, L., Williams, B., McGinnis, A.R., Slane, P.W., Alder, E.M., & McMurdo, M.E. (2004). Why older people do not participate in leisure time physical activity: a survey of activity levels, beliefs and deterrents. *Age and ageing*, 33(3), 287-292.
- Davidson, L., & Stebbins, R. (2011). *Serious leisure and nature: Sustainable consumption in the outdoors*. Springer.

- Dattilo, J., Martire, L., Gottschall, J., & Weybright, E. (2014). A pilot study of an intervention designed to promote walking, balance, and self-efficacy in older adults with fear of falling. *Educational gerontology, 40(1)*, 26-39.
- Dionigi, R. (2006). Competitive sport and aging: The need for qualitative sociological research. *Journal of Aging and Physical Activity, 14(4)*, 365-379.
- Dishman, R. K., Vandenberg, R. J., Motl, R. W., Wilson, M. G., & DeJoy, D. M. (2009). Dose relations between goal setting, theory-based correlates of goal setting and increases in physical activity during a workplace trial. *Health education research, 25(4)*, 620-631.
- Dogra, S. (2011). "Better self-perceived health is associated with lower odds of physical inactivity in older adults with chronic disease," *Journal of Aging and Physical Activity, vol. 19, no. 4*, pp. 322–335, 2011.
- Duncan, M., Mummery, K., Steele, R., Caperchione, C., & Schofield, G. (2009). Association between degree of urbanization, physical activity and perceptions of the environment in Queensland adults. *Journal of Science and Medicine in Sport, 12*, S71-S72.
- Edmunds, J., Ntoumanis, N., & Duda, J. L. (2006). A test of self-determination theory in the exercise domain. *Journal of Applied Social Psychology, 36(9)*, 2240-2265.
- Elder Jr, G.H. (1995). The life course paradigm: Social change and individual development.
- Elder, G. H., Johnson, M. K., & Crosnoe, R. (2003). The emergence and development of life course theory. In *Handbook of the life course* (pp. 3-19). Springer, Boston, MA.
- Ellmer, E., & Rynne, S. (2016). Learning in action and adventure sports. *Asia-Pacific Journal of Health, Sport and Physical Education, 7(2)*, 107-119.
- Ellmer, E., & Rynne, S. (2016). Learning in action and adventure sports. *Asia-Pacific Journal of Health, Sport and Physical Education, 7(2)*, 107-119.
- Ewert, A., Gilbertson, K., Luo, Y., & Voight, A. (2013). Beyond "Because It's There": Motivations for Pursuing Adventure Recreational Activities. *Journal of Leisure Research, 45(1)*, 91-111.
- Ewert, A., & Hollenhorst, S. (1989). Testing the adventure model: Empirical support for a model of risk recreation participation. *Journal of Leisure Research, 21(2)*, 124.
- Fenton, K., & Hamblin, P. (2016). Public health is a priority for our National Parks. Available from: <https://publichealthmatters.blog.gov.uk/2016/08/08/public-health-is-a-priority-for-our-national-parks>



- Franklin-Reible, H. (2006). Deviant leisure: Uncovering the “goods” in transgressive behaviour. *Leisure/Loisir*, 30(1), 55-71.
- Frederick, C. M., & Ryan, R. M. (1993). Differences in motivation for sport and exercise and their relations with participation and mental health. *Journal of sport behavior*, 16(3), 124.
- French, D. P., Olander, E. K., Chisholm, A., & Mc Sharry, J. (2014). Which behaviour change techniques are most effective at increasing older adults’ self-efficacy and physical activity behaviour? A systematic review. *Annals of Behavioral Medicine*, 48(2), 225-234.
- Gallotta, M., Emerenziani, G., Monteiro, M., Iasevoli, L., Iazzoni, S., Baldari, C., & Guidetti, L. (2015). Psychophysical Benefits of Rock-Climbing Activity. *Perceptual and Motor Skills*, 121(3), 675-689.
- Galloway, S. (2012). Recreation Specialization Among New Zealand River Recreation Users: A Multiactivity Study of Motivation and Site Preference. *Leisure Sciences*, 34(3), 256-271.
- Gibbs, B., Brach, J., Byard, T., Creasy, S., Davis, K., McCoy, S., Jakicic, J. (2017). Reducing Sedentary Behavior Versus Increasing Moderate-to-Vigorous Intensity Physical Activity in Older Adults. *Journal of Aging and Health*, 29(2), 247-267.
- Giné-Garriga, M., Roqué-Fíguls, M., Coll-Planas, L., Sitjà-Rabert, M., & Salvà, A. (2014). Physical exercise interventions for improving performance-based measures of physical function in community-dwelling, frail older adults: a systematic review and meta-analysis. *Archives of physical medicine and rehabilitation*, 95(4), 753-769.
- Gonzales, E., Matz-Costa, C., & Morrow-Howell, N. (2015). Increasing Opportunities for the Productive Engagement of Older Adults: A Response to Population Aging. *The Gerontologist*, 55(2), 252-261.
- Hackstaff, L. (2009). Factors Associated with Frailty in Chronically Ill Older Adults. *Social Work in Health Care*, 48(8), 798-811.
- Hamilton, L. C. (1979). Modern American rock climbing: Some aspects of social change. *Pacific Sociological Review*, 22(3), 285-308.
- Hammett, W., Backlund, E., & Bixler, R. (2004). Experience use history, place bonding and resource substitution of trout anglers during recreation engagements. *Journal of Leisure Research*, 36(3), 356-378.
- Hamer, M., Kivimaki, M., & Steptoe, A. (2012). Longitudinal patterns in physical activity and sedentary behaviour from mid-life to early old age: A substudy of the Whitehall II cohort. *66(12)*, 1110-1115.

- Hamer M, Lavoie KL, Bacon SL (2014) Taking up physical activity in later life and healthy ageing: the English longitudinal study of ageing. *British Journal of Sports Medicine*, 48:239–243.
- Hansen, K., & Parker, M. (2009). Rock Climbing. *Journal of Physical Education, Recreation & Dance*, 80(2), 17-55.
- Hayslip Jr, B., Weigand, D., Weinberg, R., Richardson, P., & Jackson, A. (1996). The development of new scales for assessing health belief model constructs in adulthood. *Journal of Aging and Physical Activity*, 4(4), 307-323.
- Heo, J., Stebbins, R., Kim, J., & Lee, I. (2013). Serious Leisure, Life Satisfaction, and Health of Older Adults. *Leisure Sciences*, 35(1), 16-32.
- Hickman, M., Stokes, P., Beard, C., & Inkster, A. (2017). Doing the plastic fantastic: 'artificial' adventure and older adult climbers. *Journal of Adventure Education and Outdoor Learning*, 1-11.
- Hirvensalo, M., & Lintunen, T. (2011). Life-course perspective for physical activity and sports participation. *European Review of Aging and Physical Activity*, 8(1), 13.
- Howes, S., Charles, D., Marley, J., Pedlow, K., & Mcdonough, S. (2017). Gaming for Health: Systematic Review and Meta-analysis of the Physical and Cognitive Effects of Active Computer Gaming in Older Adults. *Physical Therapy*, 97(12), 1122-1137.
- Huang, J. (2015). Commentary on "Relation between BMI and Diabetes Mellitus and Its Complications among US Older Adults". *Southern Medical Journal*, 108(1), 37-38.
- Huang, A.M., Jen, C.J., Chen, H.F., Yu, L., Kuo, Y.M., & Chen, H.I. (2006). Compulsive exercise acutely upregulates rat hippocampal brain-derived neurotrophic factor. *Journal of neural transmission*, 113(7), 803-811.
- Hubble, N., & Tew, P., (2013). Ageing, narrative and identity: New qualitative social research. London: Palgrave MacMillan.
- Huberman, M., & Miles, M. B. (2002). The qualitative researcher's companion. Sage.
- Hughes, A., Galbraith, D., & White, D. (2011). Perceived competence: A common core for self-efficacy and self-concept?. *Journal of Personality Assessment*, 93(3), 278-289.
- Hughes, S.L., Seymour, R.B., Campbell, R.T., Whitelaw, N., & Bazzarre, T. (2009). Best-practice physical activity programs for older adults: findings from the national impact study. *American journal of public health*, 99(2), 362-368.

- Hunter, G.R., Wetzstein, C.J., Fields, D.A., Brown, A., & Bamman, M.M. (2000). Resistance training increases total energy expenditure and free-living physical activity in older adults. *Journal of Applied Physiology*, *89*(3), 977-984.
- Iacone, Scanzano, Guida, Gerardi, Russo, D'isanto, D'elia. (2016). Association between skeletal muscle mass, physical activity and aging. *Nutrition*, *32*(3), 401.
- Jankowski, G. S., Diedrichs, P. C., Williamson, H., Christopher, G., & Harcourt, D. (2016). Looking age-appropriate while growing old gracefully: A qualitative study of ageing and body image among older adults. *Journal of Health Psychology*, *21*(4), 550-561.
- Jenkin, C., Eime, R., Westerbeek, H., O'sullivan, G., & Van Uffelen, J. (2016). Are they 'worth their weight in gold'? Sport for older adults: Benefits and barriers of their participation for sporting organisations. *International Journal of Sport Policy and Politics*, *8*(4), 663-680.
- Kane, M.J., & Zink, R. (2004). Package adventure tours: Markers in serious leisure careers. *Leisure studies*, *23*(4), 329-345.
- Kenter, E.J., Gebhardt, W.A., Lottman, I., van Rossum, M., Bekedam, M., & Crone, M. R. (2015). The influence of life events on physical activity patterns of Dutch older adults: A life history method. *Psychology & health*, *30*(6), 627-651.
- Kerr, J.H., & Mackenzie, S.H. (2012). Multiple motives for participating in adventure sports. *Psychology of Sport and Exercise*, *13*(5), 649-657.
- Kilpatrick, M., Hebert, E., & Jacobsen, D. (2002). Physical activity motivation: A practitioner's guide to self-determination theory. *Journal of Physical Education, Recreation and Dance*, *73*(4), 36-41.
- Kim, J., Yamada, N., Heo, J., & Han, A. (2014). Health benefits of serious involvement in leisure activities among older Korean adults. *International journal of qualitative studies on health and well-being*, *9*(1), 24616.
- Kim, Y., & Suh, S. (2017). Factors Affecting the Physical Activity of Older Adults in the Community. *Journal of Korean Gerontological Nursing*, *19*(2), 154-163.
- Kleiber, D.A., & Linde, B.D. (2014). The case for leisure education in preparation for the retirement transition. *Journal of Park and Recreation Administration*, *32*(1).
- Kleiber, D. (2012). Taking leisure seriously: New and older considerations about leisure education. *World Leisure Journal*, *54*(1), 5-15.
- Kleiber, D.A. (2001). Developmental intervention and leisure education: A life span perspective. *World Leisure Journal*, *43*(1), 4-10.

- Klein, K., & Weaving, C. (2015). Alternative Chicks: Examining Women Freeskiers and Empowerment. *FairPlay, Revista de Filosofía, Ética y Derecho del Deporte*, 3(2), 1-23.
- Kluge, M. A. (2005). It's never too late to dare: Outdoor adventure programming for the age wave. *Journal of Physical Education, Recreation & Dance*, 76(5), 39-46.
- Kluge, M. (2007). Re-creating Through Recreating. *Journal of Transformative Education*, 5(2), 177-191.
- Kolt, G., Driver, R., & Giles, L. (2004). Why older Australians participate in exercise and sport. *Journal of Aging and Physical Activity*, 11, 185-198.
- Krueger, H., Krueger, J., & Koot, J. (2015). Variation across Canada in the economic burden attributable to excess weight, tobacco smoking and physical inactivity. *Canadian Journal of Public Health*, 106(4), E171-E177.
- Kruger, L.E. (2006). Recreation as a path for place making and community building. *Leisure/Loisir*, 30(2), 383–392. doi:10.1080/14927713.2006.9651359
- Ku, P., Fox, K., & Chen, L. (2016). Leisure-Time Physical Activity, Sedentary Behaviors and Subjective Well-Being in Older Adults: An Eight-Year Longitudinal Research. *Social Indicators Research*, 127(3), 1349-1361.
- Ku, P., Fox, K., Liao, R., Sun, Y., & Chen, W. (2016). Prospective associations of objectively assessed physical activity at different intensities with subjective well-being in older adults. *Quality of Life Research*, 25(11), 2909-2919.
- Kulczycki, C., & Hinch, T. (2014). “It’s a place to climb”: place meanings of indoor rock climbing facilities. *Leisure/Loisir*, 38(3-4), 271-293.
- Lautenschlager, N.T., Cox, K.L., Flicker, L., Foster, J.K., van Bockxmeer, F.M., Xiao, J., & Almeida, O. P. (2008). Effect of physical activity on cognitive function in older adults at risk for Alzheimer disease: a randomized trial. *JAMA*, 300(9), 1027-1037.
- Laverty, A.A., & Flint, E. (2014). Retirement and physical activity. *Journal of Epidemiology and Community Health*, 68(8), 701-702.
- Legh-Jones, & Moore. (2012). Network social capital, social participation, and physical inactivity in an urban adult population. *Social Science & Medicine*, 74(9), 1362-1367.
- Lee, S., & Scott, D. (2013). Empirical Linkages Between Serious Leisure and Recreational Specialization. *Human Dimensions of Wildlife*, 18(6), 450-462.

- Lee, C., & Payne, L. (2015). Exploring the Relationship Between Different Types of Serious Leisure and Successful Aging. *Activities, Adaptation & Aging*, 39(1), 1-18.
- Leipert, B. D., Plunkett, R., Meagher-Stewart, D., Scruby, L., Mair, H., & Wamsley, K. B. (2011). " I Can't Imagine My Life Without It!" Curling and Health Promotion: A Photovoice Study. *CJNR (Canadian Journal of Nursing Research)*, 43(1), 60-78.
- Lerner, R. M. (2006). Developmental science, developmental systems, and contemporary theories of human development. *Handbook of child psychology*.
- Lewicka, M. (2005). Ways to make people active: The role of place attachment, cultural capital, and neighborhood ties. *Journal of Environmental Psychology*, 25, 381–395. doi:10.1016/j.jenvp.2005.10.004
- Llewellyn, D. J., Sanchez, X., Asghar, A., & Jones, G. (2008). Self-efficacy, risk taking and performance in rock climbing. *Personality and Individual Differences*, 45(1), 75-81.
- Malavasi, L., Park, C., Kim, K., Parrot, E., Najib, S., & Chodzko-Zajko, W. (2010). How Older Adults Perceive Their Local Environment In Relation To Physical Activity Opportunities: 1368. *Medicine & Science in Sports & Exercise*, 42, 248-249.
- Malavasi, L., Park, C., Kim, K., Parrot, E., Najib, S., Lindley, B., Chodzko-Zajko, W. (2011). Older Adults' Perceptions Of Lifestyle Choices In Their Local Environment: 733. *Medicine & Science in Sports & Exercise*, 43(Suppl. 1), 65.
- Manini, T., Buford, T., Lott, D., Vandenborne, K., Daniels, M., Knaggs, J., Anton, S. (2014). Effect of Dietary Restriction and Exercise on Lower Extremity Tissue Compartments in Obese, Older Women: A Pilot Study. *Journals of Gerontology Series A: Biomedical Sciences and Medical Sciences*, 69(1), 101-108.
- Marshall, S. J., Jones, D. A., Ainsworth, B. E., Reis, J. P., Levy, S. S., & Macera, C. A. (2007). Race/ethnicity, social class, and leisure-time physical inactivity. *Medicine & Science in Sports & Exercise*, 39(1), 44-51.
- Mazzoni, E. R., Purves, P. L., Southward, J., Rhodes, R. E., & Temple, V. A. (2009). Effect of indoor wall climbing on self-efficacy and self-perceptions of children with special needs. *Adapted Physical Activity Quarterly*, 26(3), 259-273.
- McAuley, E., & Blissmer, B. (2000). Self-efficacy determinants and consequences of physical activity. *Exercise Sport Science Revue*, 28(2), 85-88.
- McDonald, S., O'Brien, N., White, M., & Sniehotta, F. F. (2015). Changes in physical activity during the retirement transition: a theory-based, qualitative interview study. *International Journal of Behavioral Nutrition and Physical Activity*, 12(1), 25.

- McPhee, J. S., French, D. P., Jackson, D., Nazroo, J., Pendleton, N., & Degens, H. (2016). Physical activity in older age: perspectives for healthy ageing and frailty. *Biogerontology*, *17*(3), 567-580.
- Meisner, B. A., Linton, V., Séguin, A., & Spassiani, N. (2017). Examining Chronic Disease, Pain-Related Impairment, and Physical Activity Among Middle-Aged and Older Adults in Canada: Implications for Current and Future Aging Populations. *Topics in Geriatric Rehabilitation*, *33*(3), 182-192.
- Mullen, S. P., McAuley, E., Satariano, W. A., Kealey, M., & Prohaska, T. R. (2012). Physical activity and functional limitations in older adults: the influence of self-efficacy and functional performance. *Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, *67*(3), 354-361.
- Moschny, A., Platen, P., Klaaßen-Mielke, R., Trampisch, U., & Hinrichs, T. (2011). Physical activity patterns in older men and women in Germany: A cross-sectional study. *BMC Public Health*, *11*, 559.
- Nimrod, G. (2016). Innovation theory revisited: Self-preservation innovation versus self-reinvention innovation in later life. *Leisure Sciences*, *38*(5), 389-401.
- Nimrod, G., & Shrira, A. (2016). The Paradox of Leisure in Later Life. *Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, *71*(1), 106-111.
- O'Brien Cousins, S. (1997). Elderly tomboys? Sources of self-efficacy for physical activity in late life. *Journal of aging and physical activity*, *5*, 229-243.
- O'Rand, A. M., & Krecker, M. L. (1990). Concepts of the life cycle: Their history, meanings, and uses in the social sciences. *Annual review of sociology*, *16*(1), 241-262.
- Owen, N., Healy, G. N., Matthews, C. E., & Dunstan, D. W. (2010). Too much sitting: the population-health science of sedentary behavior. *Exercise and sport sciences reviews*, *38*(3), 105.
- Petrescu-Prahova, M., Belza, B., Kohn, M., & Miyawaki, C. (2016). Implementation and Maintenance of a Community-Based Older Adult Physical Activity Program. *The Gerontologist*, *56*(4), 677-686.
- Pomfret, G. (2011). Package mountaineer tourists holidaying in the French Alps: An evaluation of key influences encouraging their participation. *Tourism Management*, *32*(3), 501-510.

- Richard, S., & Jones, I. (2008). The great suburban Everest: An 'insiders' perspective on experiences at the 2007 Flora London Marathon. *Journal of Sport & Tourism*, 13(1), 61-77.
- Rickly, J. M. (2016). Lifestyle mobilities: A politics of lifestyle rock climbing. *Mobilities*, 11(2), 243-263.
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American psychologist*, 55(1), 68.
- Sabia, S., Dugravot, A., Kivimaki, M., Brunner, E., Shipley, M. J., & Singh-Manoux, A. (2012). Effect of intensity and type of physical activity on mortality: results from the Whitehall II cohort study. *American journal of public health*, 102(4), 698-704.
- Sallis, J. F., Owen, N., & Fisher, E. (2015). Ecological models of health behavior. *Health behavior: Theory, research, and practice*, 5, 43-64.
- Schattke, K., Brandstätter, V., Taylor, G., & Kehr, H. M. (2014). Flow on the rocks: motive-incentive congruence enhances flow in rock climbing. *International Journal of Sport Psychology*, 45(6), 603-620.
- Schutzer, K., & Graves, S., (2004). Barriers and motivations to exercise in older adults. *Preventive Medicine*, 39, 1056-1061.
- Shimura, J., Hiroko, Togo, J., Fumiharu, Park, J., Hyuntae, Park, J., Sungjin, Shephard, J., Roy, & Aoyagi, J., Yukitoshi. (2009). Geographic Distribution Of Physical Activity Patterns In Older Japanese Adults: The Nakanojo Study: 2744: Board #138 May 29 2:00 PM - 3:30 PM. *Medicine & Science in Sports & Exercise*, 41(5 Suppl 1), 446-447.
- Siegel, S., & Fryer, S. (2017). Rock Climbing for Promoting Physical Activity in Youth. *American Journal of Lifestyle Medicine*, 11(3), 243-251.
- Siegenthaler, K. L., & O'Dell, I. (2003). Older golfers: Serious leisure and successful aging. *World leisure journal*, 45(1), 45-52.
- Slanger, E., & Rudestam, K. E. (1997). Motivation and disinhibition in high risk sports: Sensation seeking and self-efficacy. *Journal of Research in Personality*, 31(3), 355-374.
- Smith, J., & Bryant, F. (2016). The Benefits of Savoring Life. *The International Journal of Aging and Human Development*, 84(1), 3-23.
- Sparkes, A. C., & Smith, B. (2014). Qualitative research methods in sport, exercise and health: from process to product. London: Routledge.
- Stebbins, R. (2007). Serious leisure : A perspective for our time / Robert A. Stebbins.

- Stebbins, R. (2001). *Serious leisure. Society, 38(4), 53-57.*
- Stebbins, R. A. (2005). Choice and experiential definitions of leisure. *Leisure Sciences, 27(4), 349-352.*
- Stebbins, R. A. (1992). Amateurs, professionals, and serious leisure. McGill-Queen's Press-MQUP.
- Stebbins, R. A. (2007). *Serious leisure: A perspective for our time (Vol. 95).* Transaction Publishers.
- Stebbins, R. (2014). *Careers in serious leisure: From dabbler to devotee in search of fulfilment.* Springer.
- Stebbins, R. A. (2005). Inclination to participate in organized serious leisure: An exploration of the role of costs, rewards, and lifestyle. *Leisure/Loisir, 29(2), 183-201.*
- Storry, T. (2003). Ours to reason why. *Journal of Adventure Education & Outdoor Learning, 3(2), 133-143.*
- Strachan, S. M., Brawley, L. R., Spink, K., & Glazebrook, K. (2010). Older adults' physically-active identity: Relationships between social cognitions, physical activity and satisfaction with life. *Psychology of Sport and Exercise, 11(2), 114-121.*
- Sugerman, D. (2003). Motivation of older adults to participate in outdoor adventure programs. *The Journal of Experiential Education, 25(3), 346.*
- Swift, H. J., Abrams, D., Lamont, R. A., & Drury, L. (2017). The risks of ageism model: How ageism and negative attitudes toward age can be a barrier to active aging. *Social Issues and Policy Review, 11(1), 195-231.*
- Taylor, & Pescatello. (2016). For the love of it: Affective experiences that may increase physical activity participation among older adults. *Social Science & Medicine, 161, 61-63.*
- Terrell, S.R. (2012). Mixed-methods research methodologies. *The qualitative report, 17(1), 254-280.*
- Tinsley, H. E., & Eldredge, B. D. (1995). Psychological benefits of leisure participation: A taxonomy of leisure activities based on their need-gratifying properties. *Journal of Counseling Psychology, 42(2), 123.*
- Thøgersen-Ntoumani, C., & Ntoumanis, N. (2006). The role of self-determined motivation in the understanding of exercise-related behaviours, cognitions and physical self-evaluations. *Journal of sports sciences, 24(4), 393-404.*



- Trost, S. G., Owen, N., Bauman, A. E., Sallis, J. F., & Brown, W. (2002). Correlates of adults' participation in physical activity: review and update. *Medicine & Science in Sports & Exercise*, 34(12), 1996-2001.
- Van Cauwenberg Jelle, Clarys Peter, De Bourdeaudhuij Ilse, Van Holle Veerle, Verté Dominique, De Witte Nico, & Deforche Benedicte. (2012). Physical environmental factors related to walking and cycling in older adults: The Belgian aging studies. *BMC Public Health*, 12(1), 142.
- van der Deijl, M., Etman, A., Kamphuis, C. B., & van Lenthe, F. J. (2014). Participation levels of physical activity programs for community-dwelling older adults: a systematic review. *BMC public health*, 14(1), 1301.
- Voss, M. W., Prakash, R. S., Erickson, K. I., Basak, C., Chaddock, L., Kim, J. S., & Wójcicki, T. R. (2010). Plasticity of brain networks in a randomized intervention trial of exercise training in older adults. *Frontiers in aging neuroscience*, 2, 32.
- West, A., & Allin, L. (2010). Chancing your arm: The meaning of risk in rock climbing. *Sport in Society*, 13(7-8), 1234-1248.
- White, S. M., Wójcicki, T. R., & McAuley, E. (2011). Social cognitive influences on physical activity behavior in middle-aged and older adults. *Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 67(1), 18-26.
- Wilcox, S., Dowda, M., Griffin, S. F., Rheume, C., Ory, M. G., Leviton, L., & Estabrooks, P. A. (2006). Results of the first year of active for life: translation of 2 evidence-based physical activity programs for older adults into community settings. *American Journal of Public Health*, 96(7), 1201-1209.
- Wilcox, S., Castro, C., King, A. C., Housemann, R., & Brownson, R. C. (2000). Determinants of leisure time physical activity in rural compared with urban older and ethnically diverse women in the United States. *Journal of Epidemiology & Community Health*, 54(9), 667-672.
- Wister, A., & Speechley, V. (2015). Inherent Tensions Between Population Aging and Health Care Systems: What Might the Canadian Health Care System Look Like in Twenty Years? *Journal of Population Ageing*, 8(4), 227-243.
- Wolinsky, F. D., Vander Weg, M. W., Howren, M. B., Jones, M. P., & Dotson, M. M. (2013). A randomized controlled trial of cognitive training using a visual speed of processing intervention in middle aged and older adults. *PloS one*, 8(5), e61624.
- Wood, M. (2016). On norms and their transgression in serious leisure: Two case studies from rock climbing. *Culture and Organization*, 22(3), 262-282.
- Yarnal, C. M. (2006). The Red Hat Society®: Exploring the role of play, liminality, and communitas in older women's lives. *Journal of Women & Aging*, 18(3), 51-73.

Zhao, H., Seibert, S. E., & Hills, G. E. (2005). The mediating role of self-efficacy in the development of entrepreneurial intentions. *Journal of applied psychology, 90*(6), 1265.

Zhu, Wadley, Howard, Hutto, Blair, & Hooker. (2017). Objectively Measured Physical Activity and Cognitive Function in Older Adults. *Medicine & Science in Sports & Exercise, 49*(1), 47-53.

## Other sources

American College of Sports Medicine [ACSM]. (2006). Retrieved from <http://www.acsm.org/public-information/acsm-journals/guidelines>

Department of Health and Human Services. (2000). Retrieved from <https://www.hhs.gov/aging/index.html>

International Federation of Sport Climbing. (2017). Retrieved from <http://www.ifsc-climbing.org/>

Province of British Columbia. Retrieved from (2017). [http://bcbudget.gov.bc.ca/2017/stplan/Strategic\\_Plan\\_2017-18\\_2020-21.pdf](http://bcbudget.gov.bc.ca/2017/stplan/Strategic_Plan_2017-18_2020-21.pdf)

Public Health Agency of Canada. (2017). Retrieved from <https://www.canada.ca/en/public-health.html>

Outdoor Industry Foundation. (2011). Retrieved from <https://outdoorindustry.org/press-release/the-outdoor-foundation-releases-2011-outdoor-recreation-participation-study/>

Outdoor Participation Report, Outdoor Foundation. (2016). Retrieved from [https://outdoorindustry.org/wp-content/uploads/2016/09/2016-Outdoor-Recreation-Participation-Report\\_FINAL.pdf](https://outdoorindustry.org/wp-content/uploads/2016/09/2016-Outdoor-Recreation-Participation-Report_FINAL.pdf)

Statistics Canada, (2016). Retrieved from <http://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/index.cfm?Lang=E>

Social Sciences and Humanities Research Council, (2018). Retrieved from [http://www.sshrc-crsh.gc.ca/funding-financement/programmes/insight\\_development\\_grants-subventions\\_de\\_developpement\\_savoir-eng.aspx](http://www.sshrc-crsh.gc.ca/funding-financement/programmes/insight_development_grants-subventions_de_developpement_savoir-eng.aspx)

Whaley, Brubaker, Otto, & Armstrong. (2006). American College of Sports Medicine, 2006. Retrieved from <http://www.worldcat.org/title/acsms-guidelines-for-exercise-testing-and-prescription/oclc/56415071>

World Health Organization, 2010, pp. 52. Retrieved from <http://www.who.int/wer/2010/wer8507/en/>

# Appendix A.

## Research Ethics & Study Details and Approval

### Application

Application Number: 2017s0271

### STUDY DETAILS

**“Examining the unique experiences and motivations of aging rock climbers: Pilot Project for a mock grant funding proposal”**

#### 1. Introduction

**Project title:** Examining the unique experiences and motivations of aging rock climbers: pilot project for a mock grant funding proposal.

**Principal researcher:** Michelle LeBlanc (MA Student, Gerontology); Senior Supervisor: Dr. Andrew Wister (Faculty of Gerontology).

**Conflict of interests:** None anticipated.

**Location where research will be conducted:** Squamish, British Columbia.

**Relationship with other previously approved studies:** In the 2015 fall semester, a similar topic was investigated as part of Gero804 Qualitative Research Methods term project. This mini-study was approved by the Faculty Chair and instructor, Dr. Habib Chaudhury. Since the project only involved two participants and was meant to be used as a practical example for the purpose of the course, we were not required to individually apply for ethics approval through ORE.

#### 2. Summary of Proposed Research

**Study purpose:** The purpose of this study is to gather qualitative data through interviews, on the experiences and motivations of eight (8) rock climbers who are over 50 years old. This pilot project will provide the graduate student (Michelle LeBlanc) with

emerging themes and theoretical information to be included within the final Capstone Project: a mock grant funding proposal.

**Hypotheses and research questions:** What are the pathways (motivations) which affect participation rates of older adult rock climbers?

**Research procedures and methods:** Eight participants will be recruited through word of mouth and poster advertisements at an indoor rock climbing facility located in Squamish, BC. Convenience and snowball sampling methods will be used. Only those participants who primarily contact the PI (Michelle LeBlanc) through the advertisement/poster, or those who have verbally agreed to contact will be contacted for participation. The participants will: a) complete consent forms; b) complete a 60-90 minute semi-structured interview; c) interview data and notes will be analyzed using nVivo by Michelle LeBlanc (Researcher); d) emergent themes will be included in the theoretical framework design of the final Capstone Project.

**Instrumentation:** Audio voice recorder (such as an iPhone); computer with nVivo Software; and additional interview observation notes. Since this study will involve the analysis of audio files (interviews), participants will consent to being recorded and allow the PI to take field notes during the interview. The audio files will be destroyed after a period of twenty-four (24) months from analysis. The Principal Investigator (Michelle LeBlanc), and Senior Supervisor (Dr. Andrew Wister) will be the only

**Data analysis plan:** Analysis will be completed using nVivo computer software; emergent Thematic Nodes will be assigned to narratives and ideas that emerge from the interview text, as well as any additional interview observation notes.

**Material Incidental Findings plan:** There are no perceived risks of incidental findings, considering the qualitative nature of this pilot project.

### 3. Prospective participant information

**Description of the study population:** Participants in the pilot project will be active rock climbers, over 50 years old, residents of Squamish, BC. Given the nature of the study topic (rock climbing), participants are expected to be in relatively good health. Participants may be recruited in other geographic locations if the Squamish recruitment is insufficient, for example, the Metro Vancouver area.

**Inclusion criteria:** Participants must be engaged in rock climbing activities at least 1x/week in the past 12 months; and have the ability to answer the questions included in the semi-structured interview.

**Exclusion criteria:** Anyone with the inability to respond to semi-structured interview questionnaire.

**Number of participants:** Eight (8)

**Time dedicated to participants:** Sixty to ninety (60-90) minute interviews.

**Require organizational permissions and approvals:** (Researcher) Michelle LeBlanc already has an agreement with the indoor climbing facility in Squamish, Ground Up Climbing Centre, to actively recruit participants from there. A letter from Ground Up Climbing Centre confirming permission to recruit from the facility will be sent to: [dore@sfu.ca](mailto:dore@sfu.ca).

#### 4. Recruitment methods

**Justify methods employed:** 'Ground Up Climbing Centre' is the primary hub for both the indoor and outdoor rock climbing community in Squamish, BC. Although Squamish is considered a rural community, there exists a very active outdoor recreation community, primarily including rock climbers, mountain bikers, skiers, hikers, kite surfers, etc.

**Incentives:** None

#### 5. Obtaining consent

**How will you obtain consent:** Every participant will be required to read and sign the consent form in front of the Researcher.

**Who will obtain consent:** The Principal Investigator (Michelle LeBlanc).

**How will consent be documented:** Electronically scanned copies of the signed consent forms will be distributed by e-mail to each participant. The original copies of the consent forms will be destroyed within 12 months of project completion.

**Participant withdrawal:** Options regarding withdrawal from participation in the pilot project will be communicated verbally by the Researcher prior to the interview, and described on the signed consent forms. The researcher will read the consent form and study information with each individual participant, therefore audio and written consent will be obtained.

## **6. Potential benefits (direct benefit to participants, benefit to others, etc)**

While there are no direct benefits to participants in the proposed pilot project, the data collected will be used to strengthen the rationale for the Researcher's mock grant funding proposal, as part of requirements for the Master's Degree program. Since the topic area of aging rock climbers is relatively new, this pilot project will provide additional direction for a theoretical framework.

## **7. Potential risks (physical or psychological risks to participants, risk of stigmatizing others, etc).**

There exists minimal to very low foreseeable physical or psychological risks to participants in this pilot project.

## **8. Risks to researchers**

There exists minimal to very low foreseeable physical or psychological risks to researchers in this pilot project.

## **9. Participant confidentiality measures**

**Data type and method of ensuring confidentiality and privacy:** Research data will be transferred from the audio device onto a removable hard drive. The audio files will remain on the removable hard drive until transcription has been completed. Once the files have been transcribed, they will be destroyed. The written transcribed files will be destroyed twelve months after the completion of the pilot project. For confidentiality and privacy purposes, the transcribed text will identify each participant through assigned pseudonyms, never the participant's actual names.

## **10. Data stewardship plan**

Special responsibilities of data steward for this study (evaluating requests for data, authorizing access for future use of data, etc).

**Access to the data – Investigators and staff:** Faculty of Gerontology staff members, Researcher, and grant funders may request access to the transcribed data for evaluation purposes. The transcribed texts will never include the participants' names.

**Retention and destruction of data:** All audio files (interviews) will be destroyed/erased from the external hard drive or personal computer upon completion of

transcription. All transcribed interviews and text will be destroyed within twelve months upon completion of the pilot project.

## **11. Future use of data**

Projected future use of the data will primarily include the final Capstone Project mock Grant Funding Proposal. There are no additional intended uses for the data, unless there has been a request made by external researchers. Participants will have the option on the consent form to agree with future contact once the research has been completed. This contact could be related to future publications or presentation of the data, while always maintaining participant confidentiality and privacy.

## **12. Dissemination of results**

Participants may also consent to receive feedback or communications related to the pilot project findings upon completion of the project. Although the transcribed interviews will not be a part of the documents included in the final Capstone Project, the emergent themes and resulting framework will be essential components of the mock Grant Funding proposal. The Capstone Project will be published through specific departmental or University-related publications as required by Simon Fraser University.

# **Research Ethics Consent Form**

**“Examining the unique experiences and motivations of aging rock climbers: pilot project for a mock grant funding proposal”**

Application Number: 2017s0271

## **STUDY TEAM**

***Who is conducting the study?***

**Principal Researcher:** Michelle LeBlanc, MA Student, Department of Gerontology

**Faculty Supervisor:** Dr. Andrew Wister, Faculty of Gerontology

## **INVITATION AND STUDY PURPOSE**

***Why should you take part in this study? Why are we doing this study?***

You are being invited to take part in this research study because we are interested in learning more about the experiences and motivations for older adults (50+) who are rock climbers. This study is part of a pilot project which will be used for a grant funding

proposal (graduate Capstone Project). Ground Up Climbing Centre has provided written permission for the active recruitment of participants through the facility.

## **VOLUNTARY PARTICIPATION**

### ***Your participation is voluntary***

Your participation is voluntary. You have the right to refuse to participate in this study. If you decide to participate, you may still choose to withdraw from the study at any time without any negative consequences.

## **STUDY PROCEDURES**

### ***How is the study done?***

*If you say 'Yes,' here is how we will do the study:*

We will ask you about your past and current experiences and motivations related to rock climbing. The interview will be conducted by the 'Researcher' (Michelle LeBlanc), and it should take approximately 60 to 90 minutes in total. This interview will be scheduled at a convenient time for you, at your preferred location. The interview will be recorded using an audio recording device, such as a smartphone. The full audio interview will be transcribed and analyzed by the Researcher using a research software. A final written document highlighting resulting themes will be included in the Researcher's final Capstone Project.

## **POTENTIAL RISKS OF THE STUDY**

### ***Is there any way this study could be bad for you?***

There are no foreseeable risks to you in participating in this study.

## **POTENTIAL BENEFITS OF THE STUDY**

### ***Will being in this study help you in any way? What are the benefits of participating?***

We do not think taking part in this study will help you in any way. However, in the future, others may benefit from what we learn in this study, for example, suggesting motivating pathways to physical activity and recreation programmers. There are no material incentives or payment associated with participating in this study.



## **CONFIDENTIALITY**

### ***How will your identity be protected? How will your privacy be maintained?***

Your confidentiality will be respected. Information that discloses your identity will not be released without your consent. A pseudonym will be used instead of your name in the final written document. This document will be shared with the Researcher's Senior Supervisor (Dr. Andrew Wister). It will be safely stored on the Researcher's secured removable computer Hard Drive. The audio files will be destroyed after a period of twenty-four (24) months from analysis. The Principal Researcher (Michelle LeBlanc) and Senior Supervisor (Dr. Andrew Wister) are the only persons who will have access to the audio files. If there are any additional publications of the final written document, you will be notified by the Researcher.

## **WITHDRAWAL**

### ***What If I decide to withdraw my consent to participate?***

If you choose to enter the study and then decide to withdraw at a later time, all data collected about you during your enrolment in the study will be permanently destroyed using the assigned pseudonym given by the Principal Investigator.

## **STUDY RESULTS**

### ***What will happen to the study results?***

The major themes and results of this study will be reported in a graduate capstone project and may possibly be published in journal articles and books.

## **CONTACT FOR INFORMATION ABOUT THE STUDY**

### ***Who can you contact if you have questions about the study?***

If you have any questions about the study, you may contact the Researcher by e-mail.

## **CONTACT FOR COMPLAINTS**

### ***Who can you contact if you have complaints or concerns about the study?***

If you have any concerns about your rights as a research participant and/or your experiences while participating in this study, you may contact Dr. Jeffrey Toward, Director, Office of Research Ethics.

## **FUTURE USE OF PARTICIPANT DATA**

The primary use of this research data will strengthen and guide the rationale for a mock Grant Funding proposal which will be part of the Researcher's graduate Capstone Project.

## **FUTURE CONTACT**

Please check the 'yes' box if you would like to be contacted for possible future research related to older adults and rock climbing, or for updates regarding publication/future use of data. Your preferred method of contact can be included on the blank space provided.

Yes Contact information: \_\_\_\_\_

No

## **PARTICIPANT CONSENT AND SIGNATURE PAGE**

Taking part in this study is entirely up to you. You have the right to refuse to participate in this study. If you decide to take part, you may choose to pull out of the study at any time without giving a reason and without any negative impact on your role in the climbing community.

- Your signature below indicates that you have received a copy of this consent form for your own records.
- Your signature indicates that you consent to participate in this study.
- You do not waive any of your legal rights by participating in this study.

Print Name: \_\_\_\_\_

\_\_\_\_\_  
Participant Signature

\_\_\_\_\_  
Date (YYYY/MM/DD)

# Office of Research Ethics Approval



OFFICE OF RESEARCH ETHICS  
dore@sfu.ca  
<http://www.sfu.ca/ore>

Director 778.782.6593  
Associate Director 778.782.9631  
Manager 778.782.3447

## Minimal Risk Approval – Delegated

**Study Number:** 2017s0271

**Study Title:** Examining the unique experiences and motivations of aging rock climbers: pilot project for a mock grant funding proposal

**Approval Date:** 2017 June 29

**Expiry Date:** 2018 June 29

**Principal Investigator:** LeBlanc, Michelle

**Supervisor:** Wister, Andrew

**SFU Position:** Graduate Student

**Faculty/Department:** Gerontology

**SFU Collaborator:** n/a

**External Collaborator:** n/a

**Research Personnel:** n/a

**Project Leader:** n/a

**Funding Source:** none

**Funding Title:** n/a

### Document(s) Approved in this Letter:

- Study Details, version 1, dated 2017 June 26
- Consent Form, version 1, dated 2017 June 26
- Recruitment Poster, version 1, dated 2017 June 26
- Interview Guide, version 1, dated 2017 June 26
- Ground Up Climbing Centre Permission letter, undated

The application for ethical review and the document(s) listed above have been reviewed and the procedures were found to be acceptable on ethical grounds for research involving human participants.

The approval for this Study expires on the **Expiry Date**. **An annual renewal form must be completed every year prior to the Expiry Date. Failure to submit an annual renewal form will lead to your study being suspended and potentially terminated.** The Board reviews and may amend decisions or subsequent amendments made independently by the authorized delegated reviewer at its regular monthly meeting.

**This letter is your official ethics approval documentation for this project. Please keep this document for reference purposes.**

**This study has been approved by an authorized delegated reviewer.**

## Appendix B.

### Pilot Project Interview Guide

#### INTERVIEW GUIDE: UNIQUE EXPERIENCES OF AGING ROCK CLIMBERS

*[Pre-amble text]: Thank you so much for agreeing to participate in my Pilot Project about the experiences and motivations of aging rock climbers over 50+. Your responses will be kept confidential, and if any question(s) make you feel uncomfortable, please let me know and we can skip to the next question.*

*If you need clarifications, please tell me.*

#### **I. CAREER**

1. Can you recall when you first became interested in rock climbing? [describe how this happened].

2. How did this initial interest continue? [get history of involvement, including membership in clubs, etc].

a) Were any of your friends [or relatives] instrumental in your initial involvement in rock climbing?

b) Did you have any hiking or camping experience [outdoor recreation] before you entered the world of rock climbing?

3. Have you participated in any type of competitions in rock climbing?

4. What are your plans for the future so far as rock climbing is concerned?

a) Do you think your rock climbing career will continue to grow, or decline in the future?

## **II. LIFESTYLE**

1. How many hours would you estimate that you spend in a typical week during the peak outdoor season in rock climbing, including community or group involvement (for example, trail maintenance, route cleaning, etc)?
2. Are you a member of a rock climbing club or association?
3. On the average past year, how many sessions of outdoor rock climbing have you participated in each month?
4. What percentage of your close and moderately close friends and relatives are rock climbers?
  - a) Are your friends and relatives in rock climbing mostly the same age as you?
  - b) What do your non-rock climbing friends and relatives think about your participation?

## **III. FAMILY AND SPOUSE OR OTHER COMPANION**

1. Does your spouse or partner accept, tolerate, or reject your involvement in rock climbing?
  - a) (if tolerate or reject) What is there about the rock climbing lifestyle that he or she dislikes?
  - b) (if tolerate or reject) Has this created any conflict in the relationship?
2. Does [or has] your spouse or partner become involved in rock climbing in any way?
3. Does [or has] the rest of your family become involved in rock climbing in any way?

## **IV. WORK/OCCUPATION**

1. What is your present job?
2. What is your present and highest level of education?
3. Does your work conflict with rock climbing?

a) (if yes) How does work conflict?

4. Is rock climbing often on your mind at work?

## **V. ORIENTATIONS AND MOTIVATIONS**

1. What are the personal rewards of rock climbing?

2. Are there any dislikes or disadvantages to rock climbing?

3. Do you get nervous before challenging rock climbing situations?

a) (if yes) How do you deal with it?

4. Are there situations you wish to avoid while rock climbing?

5. What role [if any] has your (personal) aging played in your experiences of rock climbing?

a) Has your participation: increased/decreased/remained the same?

6. Why do you think other people get involved in rock climbing?

## **VI. EXPERIENCES OF 'FLOW'**

1. How do you push your personal limits in rock climbing?

a) Is this important to you?

2. What type of climbing experiences do you enjoy the most?

a) What elements create or reinforce these experiences?

3. What has [have] been the most rewarding aspect(s) of your rock climbing career?

a) Has there been a change in this [these] reward(s) over the years?

4. Do you have any unique experiences [or adventures] that have contributed to your continued participation in rock climbing?

5. How do you feel when you are rock climbing [outdoors]? (ask to elaborate as specifically as possible)

a) How do you feel after a rock climbing experience [physically and psychologically]?

## **VII. MISCELLANEOUS**

1. What are your other hobbies?

- (if any listed) How do you compare your other hobbies to rock climbing?

2. [Additional comments, notes, and observations].

## **Appendix C.**

### **Instrumentation for Quantitative Data Collection**

1] Quality of Life: WHOQOL-OLD

2] Self-rated physical and mental health functioning: Medical Outcomes Study 36-Item Short-Form Health Survey [SF-36]

3] Personality functioning: Severity Indices of Personality Functioning – Short Form (SIPP- SF)

4] Self-efficacy: Exercise Self-Efficacy Scale



## Appendix D.

### Recruitment Poster



SIMON FRASER UNIVERSITY  
ENGAGING THE WORLD

Application # 2017s0271

Hello climbers:

I am looking to find 8 volunteer participants who are 50+ years old for a Pilot Project as part of my Master's Degree in Gerontology:

*"Examining the unique experiences and motivations of aging rock climbers: pilot project for a mock grant funding proposal"*

The volunteer climbers will participate in a 60 to 90-minute interview, where I will ask you questions about your climbing experiences, your motivations for climbing, etc.

In the past year, if you have a) climbed an average of once/week; b) aged over 50; and c) you are interested in participating, or if you have any questions, please contact me (Michelle LeBlanc).

Thank you for your help!

Michelle LeBlanc