Factors Affecting Downhill Skiing Participation of Canadian Consumers

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ABSTRAC

According to Statistics Canada (2013), downhill skiing participation rates have declined from 14% in 1992 to 6% in 2010. Finding ways to counteract this decline by revitilizing intrest in downhill skiing is necessary to avoid further negative effects on the economic sustainablity of the ski industry in Canada. This study proposes a reliabale and valid measuring instrument to identify current factors that affect ski participation among various segments of skier groups.

An online questionnaire is developed using extended Shank and Lyberger's (2015) sports consumption model. It consists of five sections. Data was collected in the winter of 2019 from a convenience sample of 150 university students (targeting 30 participants for each: non-skiers, former-, low-, moderate-, and high-frequency skiers). Reliability was tested using a test(T1)-retest(T2) method among the same participants with a 14-day interval, calculating correlations.

Of the initial 64 items, only 29 showed sufficient reliability. Generally speaking, the internal and external factors showed higher correlations, while the situational factors showed very low correlations and all 15 situational items had to be dropped. The results revealed that internal constraints influence former and low-frequency skiers more than higher-frequency skiers, and that all current skiers, particularly in the high-frequency group, were strongly driven by internal facilitators such as positive perceptions. Family and financial constraint as an external, facilitating factor appears to be equally important among all groups of ski participants. Culture, another external factor, acts as a constraint on non-skiers, former skiers and low-frequency skiers, but has significantly less effect on high-frequency skiers. Former skiers are most affected by financial constraints, although this factor is also a constraint for other groups, if to a lesser extent.

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Chapter 1

Introduction

According to Statistics Canada (2013), downhill skiing participation rates have declined from 14% in 1992 to 6% in 2010. Previous research on socioeconomic, attitudinal, and behavioral characteristics related to participation in skiing was predominantly focused on those already involved in skiing (i.e., existing skiers), while non-skiers and former skiers were typically neglected and have rarely been a priority in ski consumer behaviour studies (Hudson & Gilbert, 2000; Hudson, 2000). It would be highly relevant to investigate why nearly 90% of Canadians are not attracted to participate in skiing (Hudson, 2000). Clearly, non-skiers and former skiers represent a huge potential market to sustain or grow the ski industry (Hudson & Gilbert, 2000). Ski marketers must identify and satisfy the demands of every possible segment in the ski market (Mullin, Hardy & Sutton, 2014). Thus, further effort is needed to influence the non-skiers and former skiers to take to the slopes and galvanize skiers into participating more (Hudson & Gilbert, 2000).

When analyzing factors constraining or facilitating participation in skiing, it is important to distinguish between non-skiers and skiers. Non-skiers have never experienced skiing, and as such, can only express their perception, attitudes, and beliefs, or what they learned cognitively about skiing. For example, non-skiers may be constrained to participate in skiing because they think of skiing as being an expensive sport (i.e., perception – an internal psychological factor), without knowing the actual costs. In constrast, skiers do know the actual cost to participate, but may decide not to participate because they cannot afford it; in this case, the cost of skiing should be interpreted as an external constraining factor. Previous research investigating factors affecting

ski participation employed focus groups combining non-skiers, former skiers, and skiers in one group (e.g., Gilbert & Hudson, 2000 and Hudson & Gilbert, 2000), unable to reveal these subtle, but important differences in factors affecting ski participation between these different user groups. We therefore propose a quantitative research method which, in addition to larger samples. This approach allows for a clear delineation of various segments of skier groups (e.g. non-skiers, former skiers, low-frequency skiers, intermediate-frequency skiers, and high-frequency skiers) to better understand the influencing factors of those who have experienced skiing versus those who have never experienced skiing.

Past research identified several factors influencing people's ski behaviour, such as perception of high cost (Williams & Basford, 1992; Gilbert & Hudson, 2000; Williams & Fidgeon, 2000; Hudson & Gilbert, 2000), perception of skiing as a dangerous sport (Williams & Basford, 1992; Williams & Fidgeon, 2000), lack of time and partner (Gilbert & Hudson, 2000; Hudson & Gilbert, 2000; Klenosky, Gengler, and Mulvey, 1993), location (Williams & Lattey, 1994; Faullant, Matzler, & Füller, 2008; Füller & Matzler, 2008), and facilities (Alexandris, Funk, & Pritchard, 2011). Based on Shank & Lyberger's (2015) sport consumption behaviour model, a myriad of other factors could also affect skiing participation such as personality (i.e., the internal or psychological factors), and social surrounding, task definition, antecedent states (i.e., situational factors), and social class (i.e., external factors). Besides, past researchers excessively relied on the influence of internal psychological factors (e.g., motivation, perception or constraining factors), but ignored the importance of external and situational factors. Hence, we propose to develop a questionnaire which concentrates on factors affecting skiing participation based on Shank & Lyberger's (2015) more comprehensive sports consumer model.

Furthermore, a review of the skiing participation literature shows that a great number of studies did not address the specific procedures to establish the reliability of their survey instruments. Although these studies had their unique value, they provided insufficient information to allow the reader to make decisions about the reliability of the questionnaire; therefore, their results may be questioned (Silverman & Subramaniam, 1999). Thus, our research is targeting to establish a reliable instrument.

Finally, the last study analyzing ski participation in the Canadian context dates from Williams & Fidgeon (2000). It can be argued that the data are somewhat outdated and that there is a need for a more current picture of the market situation to better understand the influencing factors affecting skiing participation of different participation groups (i.e., non-skiers, former skiers, and skiers). The proposed application of a more comprehensive sports consumer model requires the development of a reliable and valid measuring instrument. Hence, while the overall purpose of the study is to examine factors affecting ski participation of a sample of Canadian consumers, the primary purpose of the study is to develop a reliable measuring instrument to do so. Ultimately, this study will add to the body knowledge on downhill skiing participation by identifying facilitating and constraining factors for current skiers, former skiers, and non-skiers, thereby contributing to developing marketing initiatives to keep current participants in the sport or increase their participation as well as attract new participants into the sport.

Theoretical Framework

Consumer Behaviour Models.

Sport Consumer behaviour is defined as: "[the act of] buying units and the exchange processes involved in acquiring, consuming, and disposing of sporting goods, services,

experiences, and ideas" (Trail, 2018, p. 51). A considerable amount of sports consumer behaviour models have been developed to attempt to deepen understanding what influences an individual's decisions to consume a sport product or participate in a sport. Cawley (2004) developed an economic framework to understanding how people allocate their time and money for losing weight. In his model, individuals faced three constraints: (1) budget constraints (i.e., income and money spent on food or other goods); (2) time constraints (i.e., SLOTH model: S represents time on sleeping, L for time on leisure or sports activity, O for occupation, T for spending time on transportation, and H for time spend on home production); (3) and biological constraints (i.e., caloric intake and expenditure for losing weight). However, his model highly focuses on external and situational factors but is not helpful in understanding how people are affected by internal or psychological factors.

Alexandris, Funk, & Pritchard (2011) expressed that the results of an individual's negotiation of leisure constraints is highly related to the psychological motivational factors. The authors found negative relationships between constraints and motivation, and between constraints and activity attachment, but positive relationship between motivation and activity attachment and future behavioural intentions, meaning the more constraints that must be negotiated, the less likely the individual will be motivated (e.g., skiing is a sport with many obstacles; Alexandris et al., 2011). Furthermore, Faullant, Matzler, & Füller (2008) investigated the relationship between perceptions and loyalty. Ski resorts with the highest satisfaction ratings and the highest image ratings had the highest loyalty scores. Thus, the consumers' image and perceptions, both psychological in nature, have a significant impact on loyalty and satisfaction (Faullant et al., 2008).

Scanlan, Simons, Carpenter, Schmidt, & Keeler (1993) developed a sport commitment model (i.e., a psychological state representing the desire to participate sport). They expressed that the sport commitment can be determined by five factors, which are sport enjoyment, involvement alternatives, personal investments, social constraints, and involvement opportunities. Greater sport enjoyment, personal investments, social constraints, involvement opportunities, and less attractive involvement alternatives are predictors of higher levels of sport commitment. However, this is another example of a model grounded in psychological theory and research; it is not helpful for investigating external and situational factors.

Mullin, Hardy & Sutton (2014) developed a sport consumer behaviour model, indicating that individual and environmental influences impact consumer interest, involvement, and commitment. Individual factors include emotion, learning, perception, motivation, stage in life, self-concept and social identity. Environmental factors consist of culture, reference groups, significant others, market behaviour of firms, cultural norms and values, class, race, and gender elements. Note that this model does not include situational factors. Shank and Lyberger's (2015) sport consumer model includes internal, external and situational factors, and is thus more comprehensive in nature. Moreover, it is specifically developed for sport participation. Therefore it will serve the purpose of this study to examine factors affecting ski participation very well. The details of this model will be further elaborated.

Consumption Behaviour Model from Shank & Lyberger (2015)

Participant consumption behaviour is defined as "actions performed when searching for, participating in, and evaluating the sports activities that consumers believe will satisfy their needs" (Shank & Lyberger, 2015, p. 136). Shank and Lyberger's (2015) model is presented in *Appendix 1.* The decision-making process, at the center of this model, is influenced by three

components: (1) internal or psychological factors; (2) external or sociocultural factors; and (3) situational factors.

Psychological and internal factors.

There are basic psychological or internal factors for guiding sports participation decisions (e.g., personality, motivation, learning, and perception; Shank & Lyberger, 2015). First, personality has been defined as "a set of consistent responses an individual makes to the environment" (Shank & Lyberger, 2015, p. 144). Ko, Chang, Jang, Sagas, and Spengler (2017) indicated that individuals' sports participation is highly influenced by their personality. Participants with high extraversion personality are more likely to watch combat sports. On the contrary, neuroticism personality tends to reveal lower confidence and life satisfaction, as well as meeting more psychological barriers if they decide to participate in a sport. For example, someone who enjoys outdoor sport might be more inclined to take up skiing. Second, motivation is "an internal force that directs behavior toward the fulfillment of needs" (Shank & Lyberger, 2015, p. 146). While motives can vary, there needs to be some level of motivation of potential participants to participate in skiing. Another psychological factor affecting participation decisions is learning (Shank & Lyberger, 2015). Participants learn about skiing by gathering information about the sport (Shank & Lyberger, 2015). Perception, another internal factor is defined as "the complex process of selecting, organizing, and interpreting stimuli" (Shank & Lyberger, 2015, p. 151). People's perception of skiing will affect their behaviour; views are based on past experiences, needs, wants, and expectations (Shank & Lyberger, 2015).

External or sociocultural factors.

The external factors include culture, social class, reference groups, and family. “Culture is the set of learned values, beliefs, language, traditions, and symbols shared by a people and passed down from generation to generation” (Shank & Lyberger, 2015, p. 160). Given the strong tradition of winter sports in Canada, skiing is part of the Canadian culture. According to Hudson, Hinch, Walker, & Simpson (2010), there were huge differences between Chinese-Canadians and Anglo-Canadians in perception of intrapersonal constraints in downhill skiing participation even if they both live in Canada. Cultural identity clearly had an impact on constraints and motivations in downhill skiing participation (Hudson et al., 2010). The reference group is defined as “individuals who affect the information, attitudes, and behaviors of members of other groups” (Shank & Lyberger, 2015, p. 160). For instance, having peers who are actively involved in skiing, may stimulate other people pick up the sport. The family also plays an important role in sports participation (Shank & Lyberger, 2015). If skiing is a family tradition, it is highly likely that all family members will have the opportunity to experience the sport (e.g., primary socialization in sport; Gruneau, 1999). Finally, social class is defined as “the homogeneous division of people in a society sharing similar values, lifestyles, and behaviors” (Shank & Lyberger, 2015, p. 160). Preferences for certain sports can be influenced by social class (Bourdieu, 1979). In Flanders, for example, skiing is known to be an upper-middle class sport (Scheerder, Taks, & Renson, 2002).

Situational factors.

The elementary situational factors are physical surroundings, social surroundings, task definition, and antecedent states (Shank & Lyberger, 2015). Physical surroundings include

location, weather, and physical environment. It is clear that all three elements are important in the context of skiing: ski slopes (location), snow (cold weather) and mountains (physical surroundings) are accessible to many Canadians. Social surroundings refer to other people who take part in the sport, but unlike peers, this factor is more situational in nature (Shank & Lyberger, 2015). For example, if my friends decide to go skiing this weekend, I may decide to join them, even if I do not like cold weather. "Task definition refers to the reasons that occasion the need for people to participate in a sport" (Shank & Lyberger, 2015, p. 169). People may only participate in skiing once a year when they have a vacation or they were given a ski ticket. Finally, "temporary physiological and mood states that people bring to the participant situation are antecedent states" (Shank & Lyberger, 2015, p. 169). More specifically, in certain situations, people may feel worn out, which may become a facilitator to stimulate some individuals to take part in sports (Shank & Lyberger, 2015). People may feel too exhausted to go skiing.

Literature Review

Psychological or Internal Factors Affecting Ski Participation

Internal constraints.

From past literature, it is evident that the internal (or psychological) factors were the key barriers preventing non-skiers from participating in downhill skiing. High potential non-skiers felt they had no interest, and preferred to go elsewhere rather than ski resorts (Gilbert & Hudson, 2000; Hudson & Gilbert, 2000), they didn't think of skiing as a fun activity (Alexandris et al., 2011), or felt that skiing was not glamorous enough for them (Gilbert & Hudson, 2000; Hudson & Gilbert, 2000). Perception of embarrassment was another internal constraints (e.g., the feeling

of embarrassment in front of friends and self-consciousness; Gilbert & Hudson, 2000; Williams & Fidgeon, 2000; Hudson & Gilbert, 2000).

Furthermore, in most of the aforementioned research, perception of danger was the prevalent internal constraint for non-skiers as well as skiers (e.g., going too fast, losing control, poor introduction leading to personal injury, being scared of height and afraid of injury; Williams & Basford, 1992; Gilbert & Hudson, 2000; Williams & Fidgeon, 2000; Hudson & Gilbert, 2000). Moreover, individuals might feel stressed while skiing (Gilbert & Hudson, 2000; Hudson & Gilbert, 2000). Skiing was perceived by some as a sport meant for younger people (Williams & Fidgeon, 2000) and recognized as a very physically demanding and technical sport (Williams & Basford, 1992; Gilbert & Hudson, 2000; Williams & Fidgeon, 2000; Hudson & Gilbert, 2000), as well as an expensive sport (Hudson & Gilbert, 2000).

Regarding gender, consumption behaviours between females and males appeared to be quite different, guided by both physical and psychological factors (Matzler, Füller, Renzl, Herting, & Späth, 2008; Mullin et al, 2014). Hudson (2000) and Williams and Lattey (1994) found that woman were significantly more constrainted by danger than men; more woman perceived skiing as being too physically demanding, and felt less confident about their abilities, making them less likely to pursue the sport compared to men (Hudson, 2000). Thus, various internal constraining factors have been identified in previous studies.

Internal facilitators.

Motives, attitudes, interests, opinions, preferences, and perceptions are examples of internal facilitators to get people active. Consumers are motivated because they seek to fulfill certain benefits to satisfy their psychological and physical needs, including needs for affiliation,

achievement, health, and fitness (Mullin et al., 2014). Lifestyle preference and personal mental characteristics also stimulate sport consumption (Mullin et al., 2014).

Previous studies identified several motivational factors that played an important role in stimulating skiers' interests. For example, some participants expressed that skiing was fun and offered opportunities for self-enrichment (Hungenberg, Gray, Gould, & Stotlar, 2016; Faullant, Matzler, & Füller, 2008; Füller & Matzler, 2008). Besides, people who participate in skiing might not only to do so for the sake of exercising but also for travel purposes. For example, Hungenberg and colleagues (2016) investigated travel exploration, destinations attributes, stress relief, competitive desire, physical fitness, skill mastery as well as social needs. These motives were key factors to stimulate skiers to increase their participation (Hungenberg et al., 2016). For sport-oriented groups, self-enrichment, social needs, and physical fitness were predominant reasons for participation (Hungenberg et al., 2016). For travel-oriented segments, exploration and destination attributes were more important influences (Hungenberg et al., 2016). It should be acknowledged that travel motivation is important for individuals who want to ski.

Participants felt skiing was very important in their life and they remained loyal to skiing even if they suffered similar constraints as non-skiers (e.g., inconvenient location, cost of time) (Alexandris et al., 2011). In terms of Alexandris, Kouthouris, Funk, & Giovani's (2009) study, consumers' profiles can be created and understood by studying their motivation. This is useful to properly position services, and to launch effective communication strategies that can satisfy consumers' needs. In his study, it was also apparent that the more people enjoyed skiing, motives such as enjoying nature and the need to escape became more important.

Faullant and colleagues (2008) analyzed the relationship between the frequency of participation and resort image. The authors split respondents into two groups in terms of first-

time and regular (or returning) guests. They found that once first-time visitors decided to revisit and become high-frequency skiers, their image of the resort became stronger and less susceptible to change (Faullant et al., 2008). Thus, the frequency of participation strengthens the perceived image of the resort.

External or Sociocultural Factors Affecting Ski Participation

External constraints.

There is a significant social class difference in sports participation (e.g., income, education, age, gender, occupation; Williams & Fidgeon, 2000; Scheerder et al., 2002). For many people, skiing is recognized as a luxury and expensive sport, which needs a substantial financial outlay from participants. In Flanders, people from the upper-middle class participate proportionally more in skiing than people from lower social layers in society (Taks & Scheerder, 2006).

The cost of skiing is an important socio-economic barrier for skiers and non-skiers. Williams and Basford (1992) found that female skiers were highly constrained by cost barriers (e.g., cost of equipment, tickets cost of lifts, transportation and accommodation fee). For skiers, the cost was also a key factor to influence participants' overall satisfaction (Faullant et al., 2008).

Reference groups can also play a vital role in constraining participation (e.g., lack of partner, not the right skill level to join others; Gilbert & Hudson, 2000; Hudson & Gilbert, 2000). More importantly, family responsibility and family members' attitude were strong barriers on skiing participation (Williams & Basford, 1992; Williams & Fidgeon, 2000; Alexandris et al., 2011).

Füller and Matzler (2008) investigated five different lifestyle groups (e.g., non-family/diversion, family, sporty/life-conscious, demanding and settled/intellectual). The non-family segment refers to customers who are younger and interested in sports and do not care too much about family factors. The family segment, couples with kids, were price-sensitive (Füller & Matzler, 2008). The sporty segment included young families, to whom leisure activity is very important (Füller & Matzler, 2008). The demanding segment consisted of consumers who were older and more prone to spend more money on the leisure activity. In the settled segment, family and health were predominant factors rather than leisure and diversion (Füller & Matzler, 2008). Typically, they were older couples and no kids (Füller & Matzler, 2008). The ‘‘price-quality ratio’’ and accessibility were important for all segments (Füller & Matzler, 2008). The “non-family,” “family”, and “sporty” segments would pay more attention on slopes factors (Füller & Matzler, 2008). ‘‘Kids slopes’’ is an important factor for increasing satisfaction of consumers, but irrelevant for “non-family” segment (Füller & Matzler, 2008). Thus, family constellation and socio-demographic characteristics affect motives and preferences for certain aspects of the ski experience. This shows that the components of Shank and Lyberger’s (2015) model are intertwined, and should not be looked at in isolation.

Tsiotsou (2006) suggested that classifying ski resort tourists should be done in terms of the frequency of visits. She investigated two groups of tourists: weekly (likely to visit ski resorts every week) and monthly (likely to visit ski resorts every month). The results indicated that these groups differed in terms of their skiing experience and their satisfaction and income level. Weekly skiers had higher incomes than monthly skiers, suggesting that high-income skiers visit ski resorts more often, even where they had less ski experience and were less satisfied than monthly skiers (Tsiotsou, 2006). The high cost of ski resorts was the main reason preventing

monthly skiers from coming more often (Tsiotsou, 2006). According to this study, income and frequency of visits allow identification of distinct segments to help resorts better satisfy their needs.

External facilitators.

For sociocultural and external factors, while reference groups can play a constraining role, they can also facilitate participation. For example, female consumers were found to be more likely to ski if they had a companion (e.g., partners, family, friends, or co-workers; Williams and Lattey, 1994).

Situational Factors Affecting Ski Participation.

Situational constraints.

Time, weather, physical surroundings are some examples of possible constraints, For non-skiers, time (or lack thereof) is a significant constraining factor (Williams & Basford, 1992; Williams & Lattey, 1994) because of work family, and/or social commitments (Alexandris et al., 2011). It is a seasonal sport; weather conditions are extremely important as they can both hinder or stimulate participation. Skiers of all types identified lack of snow, overcrowded ski hills, steep slopes as important constraining factors (Faullant, Matzler, & Füller, 2008; Füller & Matzler, 2008).

In terms of location, Perdue (1996) grouped consumers into non-resident skiers and resident skiers and examined key differences between these groups. The non-local skiers believed that skiing was a vacation activity, which required a long time to prepare for (Perdue, 1996), which confirming Gilbert and Hudson's (2000) finding that consumers believed that skiing required a lot of effort to plan.

Situational facilitators.

Perdue (1996) suggested that local skiers and non-resident skiers displayed different behaviours and attitudes to skiing participation. Local skiers preferred taking day or weekend trips, and they believed that skiing played an important role in their recreational activities (Perdue, 1996). Skiers appreciated the physical surroundings because this allows them to spend time in nature, and enjoy the beautiful, and relaxing environment (Alexandris et al., 2009). Furthermore, the variety, quality and safety of the slopes, employees' attitude and service, special offering s for kids, the quality of restaurant, and the accessibility of ski resorts were all key factors for enhancing participants' overall satisfaction and loyalty (Faullant, Matzler, & Füller, 2008; Matzler et al., 2008; Alexandris, Kouthouris, & Meligdis, 2006).

According to Matzler and colleagues (2008), the quality and safety of slopes were key factors for skiers age 50 and older to a far greater extent than in the young (12-34) and middle-aged (35-49) groups. Faullant and colleagues (2008) also investigated the consumers' overall satisfaction based on age, separating respondents into those under 25 years of age, those between 25 and 50, and those over 50. For the under-25 year age group, slopes, party, price, and children's deals were the important factors influencing their satisfaction. For the older target group, the price, wellbeing and accessibility factors mostly affected their overall satisfaction (Faullant et al., 2008). Furthermore, most of the nature-oriented skiers prefer long and varied routes (Landauer, Pröbstl, & Haider, 2012). They favored snowmaking facilities and a high number of snow days over quality services and were willing to spend more money on skiing compared to other segments (Landauer et al., 2012). Thus, these authors demonstrated how personal lifestyle (i.e., nature-oriented) affects preferences for certain external situational factors.

Again, illustrating that the dimensions of Shank and Lyrberger's(2015) model are intertwined, and should not necessarily be look at in isolation.

Matzler and colleagues (2008) demonstrated that age and gender only have limited impact on ski satisfaction, and that product usage segmentation (one day visitors versus repeat visitors) and the degree of difficulty of slopes have greater influence, making them more suitable to use as factors to predict consumer satisfaction and to segment the ski market. In the case of ski resorts, many central characteristics such as the landscape, altitude, and steepness of the mountainside directly impact the level of difficulty of slopes, which thus requires different skiing levels and skills (Matzler et al., 2008). The ski level also influences consumers' destination choices. For instance, difficult terrains are more likely to attract experts than easy slopes (Matzler et al., 2008). For expert skiers, the variety of slopes and sports facilities were more vital than for beginner skiers, who preferred easy slopes (Matzler et al., 2008). It has been shown that expert skiers are more absorbed by the skiing itself than the other variables such as waiting time at ski lifts and employees (Matzler et al., 2008). Further, repeat visitors seem to pay more attention to the variety of slopes and concentrate less on the restaurants and bars than one day visitors (Matzler et al., 2008). Lastly, Williams and Lattey (1994) found that women paid more attention to the emotional and social dimensions of skiing, offering less attention to material aspects, such as ski lifts and equipment technologies than men (Williams and Lattey, 1994 & Hudson, 2000). They were less interested in skiing if there was no opportunity for social interaction with family or friends (i.e., references group; Williams & Lattey, 1994). According to Faullant and colleagues (2008), the cultural events and parties, as well as the discounts promotion, were the vital factors for increasing consumers' overall satisfaction. These studies demonstrate that the three components of Shank and Lyberger's (2015) model cannot be seen in

isolation; internal, external and situational factors are interrelated, and will ultimately determine variations in ski consumption patterns and preferences.

Ski Market Segmention

Demographic, psychographic, product benefits and product usage segmentation are common methods to segment markets (Mullin et al., 2014). Previous literature review demonstrated that skiing preferences variety according to demographic characteristics such as gender and age (demographics, Lera-López & Rapún-Gárate, 2007; Matzler et al., 2008; Hudson, 2000; Williams and Lattey, 1994; Hudson, 2000; Faullant et al., 2008; Perdue, 1996), lifestyle (psychographics; Alexandris, Kouthouris, Funk, & Giovani, 2009; Füller and Matzler, 2008), motives (product benefits; Hungenberg and colleagues, 2016; Landauer, Pröbstl, & Haider, 2012), and frequency of skiing (product usage; Greenberg and McDonald, 1989; Szromek, Zemla, & Hadzik, 2012; Tsiotsou, 2006; Faullant et al., 2008). These characteristics appeared to be relevant in all three overarching factors (internal, external and situational).

Given the overall purpose of the study to examine factors affecting ski participation, usage segmentation, or the frequency of participation is of primary concern. Usage segmentation profiles consumers based on how much they purchase, of how frequently they use a service or participate in sport. Mullin and colleagues (2014) use the escalator concept to visualize user segmentation, with the non-users at the bottom, followed by light, mediums and heavy users. In the context of this study, the frequency of participation is the dependent variable (i.e., the variable to be explained), with the constraining and facilitating factors as the independent variables (the determinants). For winter sports, one of the most often used segmentation methods is the frequency of participation (Szromek et al., 2012). As indicated earlier, a reliable and valid instrument is necessary to examine factors affecting skiing participation of a sample of Canadian

consumers. Shank and Lyberger's (2015) comprehensive sport consumer model will serve as a framework to explain factors affecting ski participation in a Canadian sample.

Validity and Reliabilty of Survey Instruments

Given the complexity of Shank and Lyberger's sport consumption model, validity and reliability of a measuring instrument will have to be establsihed. Content validity will be established based on the aforementioned literature review and expert evaluation. Reliability refers to the consistency of the research study (Litwin, 1995).Traditionally, reliability can be measured by three general types techniques: the alternate-form reliability or the more advanced Kuder-Richardson Test, test-retest reliability, and internal consistency reliability (Litwin, 1995).

According to Litwin (1995), "alternate form refers to the amount of agreement between two or more research instruments such as two different questionnaires on a research construct that are administered at nearly the same point in time" (p. 198). Same construct can be examined by differently worded questionnaire (Litwin, 1995). Questions in a survey will be reworded and the order of questions will be changed to create two similar items (Litwin, 1995). However, it is difficult enough to create items that address the same exact meaning with same vocabulary level (Litwin, 1995), and creating two items for each possible constraint would make our questionnaire too long. Another drawback is that this method is more suitable for large set of questions (e.g., 100 items are recommended) which all examine the same knowledge, which does not align well the the measuring instrument for this study in which we measure constraints and facilitators of multiple factors.

Kuder-Richardson test is more advanced and complex version of split halves test (Litwin, 1995). This method is used for calculating the average correlation for all possible split half combinations (Litwin, 1995). The main weakness of this method is that the response for

questions must be simple right or wrong answers, zero or one (Litwin, 1995), strongly limiting the type of questions that can be asked.

Test-retest reliability can be examined by having the same participants complete the same survey twice at two different points in time to examen the stable of responses (Litwin, 1995). Test-retest reliability analysis entailes a Pearson's product-moment correlation and the intraclass correlation coefficient (ICC) between a first (T1) an a second (T2) measurement within the same group. ICCs assess both the relative consistency of repeated measures (i.e., the consistency of rank orders within a group) and the absolute agreement (i.e., the consistency of individual scores). Usually, a time interval of 14 days is recommended to test the reliability of a survey, and correlation score exceeds .70 representing a good correlation (Litwin, 1995).

Finally, *internal consistency (or homogeneity)* is a common method used when developing survey instruments as it indicates how well different items complement each other and measure the same thing (i.e., factor, contruct, or dimension; Litwin, 1995). However, it requires a minumiun of three items per construct. Internal consistency is measured by calculating Cronbach's alpha coefficients; a value of .70 or higher represents adequate internal consistency (Chung, Pillsbury, Walters, & Hayward, 1998). Given the multitude of facilitators and constraints for each element in Shank and Lyberger's sport consumption model, it was not an option to develop minimum three items for each element. Hence, test re-test was selected as the preferred method to establish the first reliability analysis of the survey. Internal consistency is subsequently applied, when specific factors or dimensions arise.

Hypotheses

Besides developping a valid and reliable instrument to analyse facilitators and contraints for skiing, we test the following hypotheses based on the aforementioned literature regarding skiing participation:

(1) Non-skiers and former skiers are more constrained by internal factors than current skiers.

(2) Current skiers are more constrained by situational factors.

(3) External factors are equally important among all groups of ski participants, both as constraints and facilitators.

Epistemology

The epistemology in this study is rooted in postpositivist, which provides a philosophical basis for quantitative research (Creswell, 2014). A post-positivist stance entails recognition that knowledge can never be assumed to be the absolute truth as observations during human behavioral observations can denote errors (Creswell, 2014). This stance is somewhat contradictory to some traditional stances where the assumption is made that knowledge can be held in absolute truth (Creswell, 2014). Post-positivism theorists seek objectivity, however consider the impact of biases within this (Creswell, 2014). Post-positive philosophies are largely deterministic and subsequently take a quantitative approach to research, with the intention being to identify cause and effect influences on behavior (Creswell, 2014). Quantitative objectivity is achieved through combining observations of behavior with numerical recording methods, such as surveys, or by requesting participants complete varying measures that are linked to behavior (Creswell, 2014). These measures are subsequently used to inform the development of

behavioural theories, enhance the understanding of relationships between variables and facilitate the acceptance or failure to accept specific hypotheses (Creswell, 2014).

Methodology

Study Design

A short-term longitudinal design was performed in this study. One of the advantages of this study design is that people's feelings and behaviours can be in-depth investigated repeatedly across a brief period of time (Fraley & Hudson, 2014). Survey research is a useful and important approach available to social science to investigate beliefs, opinions, characteristics and behaviour of target population (Neuman & Neuman, 2006; Creswell, 2014; Johnson, 2001). Researchers can ask many questions at one time, and test various variables as well as hypotheses in a single survey (Neuman & Neuman, 2006). Surveys have special strengths (Johnson, 2001). First, surveys are particularly useful in describing the characteristics of a large population (Johnson, 2001). A carefully selected probability sample in combination with a standardized questionnaire offers the possibility of making refined descriptive assertions about a student body, a city nation, or any other large population (Johnson, 2001). Moreover, the survey method is very flexible. Many questions may be asked on a given topic, giving you considerable flexibility in your analyses (Johnson, 2001).

Questionnaire Method

According to Gratton & Jones (2003), "a questionnaire as the most common method is a standardized set of question to gain information from a subject, which is often associated with quantitative research design" (p.115). The advantages of using questionnaires include the potential reduction in bias, anonymity, the collection of structured data, and increased time for

respondents (Gratton & Jones, 2004). On the other hand, questionnaires allow researchers to collect data from a geographically dispersed sample group at a much lower cost than interviewing a similar sample (Gratton & Jones, 2004). Moreover, using questionnaires also allows a larger sample to be investigated and make contact with responses from relatively remote locations, which may, therefore, be seen to generate findings that are more generalizable (Gratton & Jones, 2004; Rowley, 2014). Another strength of this method is that well-designed questionnaires can reduce bias in the results, as researchers do not show body language that might influence participants (Gratton & Jones, 2004). Questionnaires allow using both closed-end open-ended questions. Closed-ended questions increase the response rates and are easy to code and analyze (Rowley, 2014). Open-end questions allow collecting more in-depth insights and expressions of personal views (Neuman & Neuman, 2006; Rowley, 2014). Finally, questionnaires tend to provide highly structured quantitative data that is easily comparable (Gratton & Jones, 2004).

Instrument Development

A questionnaire (*see Appendix B*) is developed based on the above literature information on factors affecting skiing participation. Respondents received a questionnaire consisting of five sections: (1) ski participation behaviour; (2) constraints; (3) facilitators; (4) loyalty and intention to ski; (5) demographic information. The demographic factors were asked last, because of potential sensitivity as they were personal in nature (Neuman & Neuman, 2006).

Part 1: Ski Participation.

The first section includes questions pertaining to skiing participation. First respondents were asked to self-identify as a non-skier (i.e., those who never skied), a former skier (i.e., who

had skied before but stopped skiing), or a current skier. The next question will collect more specific information on ski participation. Question 1 asks: "Have you ever participated in skiing?" (yes, no). If the respondents answer "NO" they are asked to briefly describe why not in an open-ended question, and to proceed to Question 5 since they never have skied before. If the respondents answer "yes", they proceed to next questions. Question 2 asks: "Which of the following seasons have you participated? (2018-2019 winter season, 2017-2018 winter season, 2016-2017 winter season, Prior to 2016 winter season)". This question was specifically included because of the definition of former skier: those who skied before, but stopped skiing within at least the last two years) (Williams and Basford, 1992).; Question 3 refers to the level of the skiers: "Thinking about your last season of skiing, how frequently did you ski? (smaller than 1 times, 1-2 times skiing experience per season - beginners, 3-10 times skiing experience per season - intermediates, 11 times or more skiing experience per season – advanced (based on the classification of Gilbert & Hudson, 2000)"; (4) "Thinking about your last season of skiing, would you consider you participated less, more or the same than previous seasons? (less, more, the same)."

Part 2: Constraints.

In this section, 29 items examine internal, external, and situational constraints of skiers and non-skiers. Participants were asked to indicate how much they agree with each of the statements. Non-skiers were asked to read the statements as: " I will not ski in the next year because…; former skiers as: "I will not ski in the next year because…"; current skiers as: " I will not ski or ski less in the next year because…". A 6-point Likert scale (from 1= "strongly disagree" to 6= "strongly agree" was used to measure the statements. A 6-point Likert scale has the advantage that forces the participants in a more positive or more negative direction, avoiding

a neutral middle point (Croasmun & Ostrom, 2011). So, the participants will evaluate the importance of each item as constraints (or not) for their skiing participation. Other advantages of a 6-point Likert scale are better results for internal consistency (Abdul, 2010; Croasmun & Ostrom, 2011).

For internal constraints, personality (e.g., Skiing makes me feel embarrassed), motivation (e.g., skiing is not fun), perception (e.g., skiing is too difficult to learn), learning (e.g. I do not know how to ski), and attitudes (e.g., skiing is too dangerous) were examined. For situational constraints, physical surroundings (e.g., the ski slopes are overcrowded, skiing is too far to travel), time (e.g., I will not have time due to other commitments) were asked. *For external constraints*, culture (e.g., skiing is not part of my culture), reference groups (e.g., I have not partner or friend to accompany me), social class (e.g., skiing is too expensive for me), family (e.g., my family does not like skiing). We refer to *Appendix 3* for a complete overview of the items and the constraints and facilitators according to Shank and Lybergers model (2015).

This sections end with an open-ended question enquiring whether the participants can think of other reasons you can think of why they do not, or will not ski in the coming season? Participants were also asked to provide the cost per person for one ski session (Question 6). This is to find out if the respondents actually know the cost of skiing or not (e.g., option to answer: I do not know the exact costs).

Part 3: Facilitators.

The third section concentrated on facilitators and is made up of two subsections: one enquiring about the reasons that facilitate skiing (question 7a: 19 items) and one enquiring about specific conditions that would facilitate skiing (Question 7b: 6 items; i.e., mainly situational factors). Similar to the constraints, a 6-point Likert scale is used to measure the statements (from

1= “strongly disagree” to 6= “strongly agree”). Question 7a posits: “What factors (may) facilitate you to participate in skiing (more) in the coming season?” Non-skiers are asked to respond to the items as follows: “I would consider taking up skiing because …”; former skiers as: “I would consider skiing again because …”; current skiers as: “I would consider skiing more because …”.

Internal facilitators include personality (e.g., skiing develops a sense of self-pride), motivation (e.g., skiing is fun), perception (e.g., skiing is exciting), learning (e.g., skiing develops my skills and abilities), and attitudes (e.g., skiing is thrilling) were examined. Situational factors in this subsection include physical surroundings (e.g., great variety in ski slopes; excellent service); social surroundings (e.g., my friends go skiing). *For external facilitators*, culture (e.g., skiing is part of my culture), reference groups (e.g., I want to spend time with my friends), family (e.g., I want to spend time with family and friends) were examined.

Subsection 7b (4 items) refers to *situational facilitators*, such as physical surroundings (e.g., public transportation is provided for easy access, discounts for ski lessons are offered). These are mainly marketing incentives.

An open-ended question at the end of these sections asked respondents to identify any other reasons they could think of why they would like to ski (more) in the coming season.

Part 4: Loyality and Intention to ski.

Skiers’ loyalty was measured with the three following items: (1) ‘‘I intend to go skiing over the next season’’; 2) I want to ski more next season; 3) I have no intention to go skiing in the future, based on a six-point Likert-type scale ranging from (1) “strongly disagree” to (6) “strongly agree”, taken from previous studies (e.g., Alexandris & Stodolska, 2004; Alexandris,

Funk, & Pritchard, 2011). The intention scale a had high value of alpha (0.97) from past studies (Alexandris & Stodolska, 2004).

Part 5: Demographic Information.

Basic demographic information was gathered regarding gender, age, occupation, income, household status, and education level. This scale was developed and standardized in the Canadian population and adjusted to be applicable in the context of skiing participation.

Content validity

Content validity means whether or not the questionnaire measures what it is supposed to measure (Chung et al., 1998; Litwin, 1995). Statistical evidence cannot be applied for content validity (Litwin, 1995). The literature served as a basis to develop the questionnaire, thereby establishing the first level of content validity. Besides literature informing the construction of a survey, another way to test content validity is to have the logic of the instrument evaluated by experts (i.e., expert judgment; Chung et al., 1998; Keating & Silverman, 2004; Silverman & Subramaniam, 1999; Litwin, 1995). Four experts who are specialist in marketing or sports management fields were identified and asked to evaluate the content and items of the questionnaire before conducting the study.

An e-mail was sent to four identified experts to inquire if they were willing to participate in the study (Siverman & Subramaniam, 1999; Litwin, 1995; Keating & Silverman, 2004). After the agreement, an informed consent form, the content-validity form, and the original questionnaire were sent to the experts. Experts were asked whether or not they believed each item accurately reflected a facilitator or constraint for participation in skiing (yes or no on the content-validity form) (Silverman & Subramaniam, 1999; Litwin, 1995); Keating & Silverman,

2004). One expert suggested less than 1 time per season should be added in the frequency participation part, because some participants may ski only once per two seasons.

Data collection

To examine test-retest reliability, the same questionnaire was completed twice by the same participants, with an interval of approximately two weeks. Participants were recruited in the faculty of Human Kinetics at the University of Ottawa (e.g., undergraduate an graduate students, staff, and professors). By default, these participants were 17 years or older. Since the purpose of the study was to create a valid instrument and examine the reliability of the questionnaire, the representativeness of samples was not as important as the sample size (Keating & Silverman, 2004). The participants represent a convenience sample because of the difficulty of finding the same people in public place to fill out the questionnaire a second time.

Specifically, participants were recruited by asking several professors permission to visit their courses at the start or the end of a class unit to invite the students to participate in an online survey, briefly explaining the purpose of the study and handing out flyers with the URL of the questionnaire. The possibility to win a $50 cash prize was used to entice participation in the study. Similar flyers were posted in the HK building and handed out to graduate student, staff, and professors.

The online version of the survey started with the letter of consent (see appendix D) which the participants needed to agree to before filling out the survey. For simplicity reasons, the questionnaire was offered in English only. After completing and returning the questionnaire, the participants had a choice to participate in a draw to win a $50 cash price. The data collection period began from March 5th to March 24th , 2019.

Sample

During the first data collection (T1), 155 participants filled out the questionnaire; 73 participants filled out the questionnaire a second time (T2). T1 is used for investigating factors affecting downhill skiing participation, T2 is used for examing reliability of the instrument. For the ski profile of T1, 22% were non-skiers (n= 35; i.e., who never skied before), 16% were former skiers (n= 25; i.e., who stopped skiing within last two years), 26% were current low frequency skiers (n= 41; i.e., who skied less than 2 times per season), 37% were current high frequency skiers (n= 58; i.e., who skied more than 3 times per season). This provided sufficient statistical power for further analysis within and between user groups (Litwin, 1995).

In the T1 sample (n = 155), 54% were female (n = 86), 41% were male (n = 65), the majority were students (n=134). Education levels ranged from diploma or less (n = 8; 5%), college education, diploma and degree (n = 7; 4%), some university education (n = 66; 42%), university degree (n = 65; 41%). For household status, single without children was the predominant group (N = 105; 66%) (see Table 1).

Data analysis

To establish reliability, test-retest reliability for all survey items was calculated based on the responses of the 73 participants who completed the initial (T1) and the same survey a second time (T2) with an interval of approximately 2 weeks. Pearson correlations were calculated using SPSS (version 24). Scores of 1.0 indicate perfect correlation and scores of -1 indicate a negative correlation. A two-way mixed effect model based on single ratings and absolute agreement assessed the intra-rater repeatability. Mean estimations along with 95% confidence intervals (CI)

were reported for each ICC. r < .50, poor; between 0.50 and 0.75, fair, between 0.75 and 0.90, good; above 0.90, excellent.

Preliminary analyses showed the relationship to be linear with both variables normally distributed, as assessed by Shapiro-Wilk's test ($p > .05$), and there were no outliers. Of the 66 items, 29 items had correlation scores over 0.7, indicating sufficient reliability.

Next, Principal Components Analysis (PCA) was run on the items pertaining to constraints and facilitators of downhill skiing that had demonstrated sufficient reliability. PCA allowed to reduce the data and to test Shank and Lyberger's (2015) sport participation model by identifying various sets of factors. This analysis was based on all 159 participants who participated in T1. Suitability of PCA was assessed prior to analysis. Inspection of the correlation matrix showed that all variables had at least a correlation coefficient greater than 0.5. The overall Kaiser-Meyer-Olkin (KMO) measure was 0.873, classifications of Meritorious according to Kaiser (1974). Bartlett's Test of Sphericity was statistically significant ($p < .0001$), indicating that the data was likely factorizable. Cronbach's alpha was calculated to establish internal consistency for all factors of the PCA. Cronbach's Alpha measure of the reliability of the summative rating scale, ranging from 0 to 1.0 (i.e., 1.0 indicates perfect internal consistency).

Finally, analyses of variance was performed to test significant differences between the ski consumer segments.

Results

Test-Retest Reliability of the Survey Instrument

Table 2 presents the results of the Pearson correlations and the ICC for the test-retest reliability for the reliable items only (detailed results are described in Appendix E). Of the initial

64 items, only 29 showed sufficient reliability. Generally speaking, the internal and external factors showed higher correlations, while the situational factors showed very low correlations and all 15 situational items had to be dropped (see Appendix F).

Facilitating and Constraining Factors in Participation in Skiing

Principal component analysis (PCA) revealed five components that had eigenvalues greater than one and which explained 37.8%, 13.97%, 8.97%, 5.8% and 5.4% of the total variance. Internal consistency was sufficient, with Cronbach's alpha coefficients ranging from 0.75 to 0.91 (see Table 3). The five components reflect: (1) negative perceptions and feelings (internal constraints, consisting of eight items), (2) positive feelings and personal benefits (internal facilitators, consisting of five items), (3) financial constraints (external constraints, consisting of two items), (4) culture (external constraints and facilitators, consisting of three items), and (5) family socialising (external facilitator, consisting of one item).

Facilitating and Constraining Factors by Level of Participation in Skiing

Participants were classified into four participation segments: non-skiers, those who had never skied before (n = 35); former skiers, those who had stopped skiing within the last two years (n = 25); low-frequency skiers, those who skied two times or less per season (n = 41); and high-frequency skiers, those who skied three times or more per season (n = 58). This four-group classification system was determined to be the most meaningful choice during ANOVA and subsequent post hoc analysis. The results of the ANOVAs are presented in Table 4 and Figure 1.

Negative Perceptions and Feelings (Internal Constraints) showed statistically significant differences between the four groups ($F_{(3, 155)} = 33.280$, $p < .001$). In terms of the descriptive statistics, non-skiers showed higher levels of negative perceptions than other groups. In

particular, negative perceptions scores were significantly higher among non-skiers (*M = 3.68, SD = 0.876*) than among high-frequency skiers (*M = 1.78, SD = 0.722*). Tukey post hoc analysis revealed that the mean was significantly lower among non-skiers than among former-skiers (0.69, 95% CI [0.052, 1.33]; $p < .05$); the difference between high-frequency skiers and low-frequency skiers was also statistically significant (1.2, 95% CI [0.71, 1.71]; $p < 0.05$). Anxiety around the possibility of sustaining injuries was highest among non-skiers *(M = 3.91: SD= 1.245).*

Learning (Internal Constraints). Among non-skiers, not knowing how to ski *(M = 4.86; SD= 1.353)* was the most important consideration.

Positive Feelings and Personal Benefit (Internal Facilitators) showed significant differences among the four groups ($F_{(3, 155)} = 14.636$, $p < .05$). High-frequency skiers were mainly driven to ski by positive feelings about the activity (*M = 4.86, SD = 0.80*). Tukey post hoc analysis revealed that there was no statistical difference in the role of this component among former skiers, non-skiers and low-frequency skiers. The higher current participation among high-frequency skiers correlated with a dramatic increase in the positive perceptions mean.

Financial Constraints (External). Former skiers ($n = 25$) generally had high constraints mean scores on the financial dimension *(M= 4.14; SD= 1.54).* This was also true of low-frequency skiers, whose mean scores in this component were not significantly different from those of former skiers.

Culture (External Constraints) showed a significantly different level of influence between high-frequency skiers and other groups ($F_{(3, 155)} = 20.39$, $p < .00$). Many non-skiers indicated that a lack of support for skiing in their culture, or of opportunities to ski with their families, was a constraint on their participation in skiing (*M = 3.58, SD = 1.11*). Tukey post hoc

analysis revealed that compared to high-frequency skiers, former skiers and low-frequency skiers also experienced higher levels of constraint from cultural factors.

Family Socialisation (External Facilitators). There were no significant differences among the four groups pertaining to the family socialisation component. Scores ranged from an average of 4.12 (*SD* = 1.70) for high-frequency skiers to 4.05 (*SD* = 1.21) for non-skiers; this indicates that it was a relatively important factor for all four groups.

Discussion

The objective of the present study was to develop a reliable and valid questionnaire to investigate factors (constraints and facilitators) affecting participation in downhill skiing, based on Shank and Lyberger's (2015) sport consumption model.

Reliability of the Survey Instrument

All four questions in part one, Ski Participation, showed sufficient reliability (r values between 0.75 and 0.935). In part two, Constraints, only 12 of 28 items showed reliability scores > 0.70 and were brought forward for further analysis. In part three, Facilitators, 9 of 22 items showed sufficient reliability and were kept. In part four, Intention to Ski, intentions 1 and 2 were kept. All three variables in part five, Demographic Information, were sufficiently reliable and were retained for further analysis.

Constraints and facilitators showed higher correlation scores than situational dimensions; one possible explanation for this is that motivation factors have been the subject of extensive research and are well-established (Alexanderis *et al.*, 2009). Manfredo and Tarrant (1996) conducted a meta-analysis and offered further evidence for the reliability and validity of the measurement, which could be applied to recreational skiing. In 2009, Alexanderis *et al.*

investigated recreational skiers through motivation segmentation, further improving the detail and accuracy of the motivational scale.

Furthermore, the constraining factors were taken from a well-established leisure constraint model originally developed by Jackson (1988) and further improved by Gilbert and Hudson (2000). The first stage of constraints is intrapersonal; leisure preferences are formed following the negotiation or absence of an individual's intrapersonal constraints. The next stage, interpersonal constraints, as well as structural constraints, consists of constraints which occur as a result of interactions or relationships with others. If non-skiers are able or encouraged to overcome these interpersonal or structural constraints, this could result in their conversion into participants in the sport.

The situational factors chosen for this study showed particularly low reliability scores (see Appendix F), which might be due to the scarcity of literature related to customer satisfaction with ski resorts. A review of the literature reveals only a few studies investigating situational factors in participation in skiing (e.g., Facullant *et al.*, 2008; Klenosky *et al.*, 1993; Konu *et al.*, 2011; and Matzler *et al.*, 2008). Konu *et al.* (2011) created a questionnaire and conducted 10 unstructured interviews in which respondents were asked to describe the "pull factors" affecting their choice of skiing destination. The researchers used a 4-point Likert-type scale and only tested reliability using Cronbach's alpha coefficients, which may be insufficient to ensure sufficient reliability. In another study conducted by Croasmun & Ostrom (2011), there was a significant difference between Likert-type scales of different levels. Matzler, Füller, Renzl, Herting, and Späth (2008) investigated customer satisfaction with ski resorts, using questions with a 6-point Likert-type scale according to expert judgment, as well as interviews with a range of marketing scholars. Past studies have generally used internal consistency (Cronbach's alpha)

and confirmatory factor analysis to test reliability. These remain the predominant and most widely-circulated methods in the field, according to Mao *et al.* (2019). There is a significant gap, however, between the test-retest method and testing through Cronbach's alpha (Mao *et al.*, 2019). The situational scales used in previous research may therefore not be appropriate for the present study; a reliability test could be conducted using multiple methods rather than relying solely on Cronbach's alpha. Moreover, most studies have only tested one of internal, external or situational factors. Our study tested situational factors in the last section, after constraints and facilitators; this may have resulted in fatigue for participants by the time they reached that stage of the questionnaire.

Relevance of Shank & Lyberger's Sport Consumption Model for Understanding Participation in Skiing

Principal component analysis revealed five dimensions with conceptually clear scales and good levels of internal consistency. These results support previous research noting the relevance in skiing participation of the dimensions: positive feelings and personal benefit (Faullant *et al.*, 2008; Füller & Matzler, 2008; Hungenberg *et al.*, 2016; Alexandris *et al.*, 2011; Klenosky *et al.*, 1993); negative perceptions and feelings (Williams & Fidgeon, 2000; Alexandris *et al.*, 2011; Williams & Basford, 1992; Gilbert & Hudson, 2000; Hudson & Gilbert, 2000; Williams & Lattey, 1994); financial constraints (Williams & Fidgeon, 2000; Klenosky *et al.*, 1993); family socialisation (Gilbert & Hudson, 2000; Hudson & Gilbert, 2000; Klenosky *et al.*, 1993); and culture (Chen, 2000; Erdmann, 2000; Füller & Matzler, 2008). However, the five dimensions found in our study only capture a part of Shank and Lyberger's sport consumption model.

The findings of this study are generally consistent with Shank and Lyberger's model, in that the positive feeling and personal benefit dimension relates to motivation factors (internal

factors), negative perceptions and feelings relate to perception (internal factors), and financial constraints, family socialising and culture constraints relate to external factors. However, Shank and Lyberger's model (2015) does not explicitly separate factors into constraints (factors preventing participation) and facilitators (factors stimulating participation). This is an important gap, given that the outcome of the negotiation process depends on the interaction between constraints and facilitators (Jackson *et al.*, 1993). Future research should aim to develop scales that can test all dimensions of Shank and Lyberger's model (2015), including internal, external, and situational factors and their roles as constraints or facilitators. Although Shank and Lyberger's model (2015) is comprehensive, our study demonstrates the difficulty of investigating all factors in their model through one questionnaire. Future research might do better by concentrating on one set of factors (e.g., internal, external, or situational) affecting participation in skiing.

Facilitating and Constraining Factors Affecting Participation in Skiing

Internal Factors

The *negative perceptions and feelings* of the four groups around skiing were analysed individually. High-frequency skiers were largely unaffected by internal or psychological constraints, while non-skiers and former skiers were more constrained by internal factors than current skiers of any frequency, supporting both H1 and previous studies (e.g., Gilbert & Hudson, 2000).

Our results indicated that individuals who experienced more internal constraints were less likely to participate in skiing, supporting the findings of Alexandris *et al.* (2011). For non-skiers, the high mean score on "I (still) do not know how to ski" (M = 4.86), and "skiing is too difficult

to learn" (M = 3.49) is worth noting; it indicates that non-skiers do not expect to learn skiing and improve their skills and abilities – an expectation that ski resorts should take into account. Furthermore, in a finding similar to that of a study by Williams and Basford (1992), beliefs that skiing leads to injuries and that skiing is too dangerous appeared as some of the top constraints for the non-skiers in our study. These negative perceptions may be derived from the experiences of friends, relatives, and associates, or from representation of skiing in the media. Non-skiers may have an overall impression that skiing is a treacherous activity not to be attempted without considerable preparation and thought (Williams & Fidgeon, 2000).

Another interesting finding was that there was no significant difference in the constraints dimension between low-frequency skiers and former skiers, indicating that low-frequency skiers and former skiers have similar negative feelings when thinking about skiing. This suggests that low-frequency skiers are at a significant risk of dropping the activity altogether and becoming former skiers. According to Funk & James (2001), people's perceptions and feelings may change quickly when situational or external factors change or when alternative entertainment options are available. In this regard, motivational factors also played an important role in the decision-making process for all four groups (Funk & James, 2006).

Positive feelings and personal benefit. Previous research suggests the significant role of feelings of pleasure, fun, and excitement as facilitators of activities like skiing (Alexandris *et al.*, 2008). Studies have also illustrated that people enjoy or attend an activity principally because of facilitators such as achievement, entertainment, escape, action, drama, physical attraction, social interaction, and wholesome environment (Funk & James, 2001; Yoon & Uysal, 2005). The present study confirms that these facilitators have a strong influence on skiing participation.

Our data indicate that individuals who express a high level of positive feeling (e.g., skiing helps me to release tension, skiing increases my feeling of self-worth, skiing is more worthwhile than spending time on other leisure activities, skiing is exciting, and skiing is fun for me) are more likely to ski. High-frequency skiers had the highest mean scores on all positive feeling and personal benefit dimensions, confirming previous studies (Hungenberg, Gray, Gould, & Stotlar, 2016; Faullant, Matzler, & Füller, 2008; Füller & Matzler, 2008). "Skiing is exciting" (M = 5.53), "skiing is fun" (M = 5.48), and "skiing helps me to release tension" (M = 4.69) had the highest mean scores for both high-frequency skiers and low-frequency skiers, indicating that current skiers perceive skiing as an activity that provides them with a chance to experience excitement in a natural, relaxing environment, away from stressful city conditions (Alexandris *et al.*, 2009). Non-skiers were less likely to be influenced by these factors; for them, the potential pleasures and benefits of skiing are outweighed by the effort of participation and planning required, and/or by the perception of risk involved (Gilbert & Hudson, 2000).

These results corroborate past findings (e.g., Funk & James, 2006; Alexandris *et al.*, 2008; Alexandris *et al.*, 2009) that participation in and loyalty to sports is facilitated by the sport's provision of benefits and fulfilment of the participant's needs. This evidence also complements findings (e.g., Funk & James, 2006; Alexandris *et al.*, 2011) that higher levels of motivation lead to repeat purchase behaviour and loyalty.

External Factors

Financial constraints. In line with other studies (Williams & Basford, 1992; Faullant *et al.*, 2008), we found cost to be an important constraint for all skiing consumer groups; that is, there were no significant differences among the four groups in this dimension ($F_{(3, 155)} = 1.640$, p = ns). It is interesting to note that financial constraints (for example, the phrase, "skiing is too

expensive, I cannot afford to go skiing") were not one of the principal constraints for non-skiers. Former and current skiers were equally influenced by financial constraints. In contrast, previous studies reported that former skiers were more effected by financial constraints (Hudson *et al.*, 2010; Williams & Fidgeon, 2000; Klenosky *et al.*, 1993). Meanwhile, as Williams and Fidgeon (2000) point out, many non-skiers assume that the sport is too expensive without confirming this perception through research. Williams and Fidgeon further asserted that overcoming financial constraints will remain a critical factor in attracting new non-skiers and in keeping current skiers involved in the sport, and that the reality of the cost of participation should be made more widely known. Similarly, Gilbert and Hudson (2000) suggesedt that, rather than playing down the cost, the industry should highlight the sense of emotional well-being offered by skiing.

Cultural factors. It is clear that the external factor of cultural background can have a powerful influence on participation in skiing. It is important to note the background of the present study before discussing the role of cultural factors for our participants: the study was conducted in Ottawa, Canada, where immigrant culture has historically been and remains today a strong presence.

Culture can be both a facilitator of and a constraint on participation in skiing. Non-skiers and former skiers are more likely than other groups to feel constrained to some degree by their cultural background. Non-skiers tend to believe that skiing is not an important part of their culture (M = 3.51) and to say that they do not ski because their family does not like skiing (M = 3.43). High-frequency skiers are likely to come from a background where skiing is already part of cultural or familial tradition.

Existing research offers significant evidence of the influence of cultural background on participation in sports (Chen, 2000; Crotts & Erdmann, 2000); indeed, the initial choice to

participate in a particular sport is affected by cultural values (Chick & Dong, 2005). Furthermore, research suggests that divergent cultural marketing strategies should be utilised to target potential non-skiers from different cultural backgrounds. Frisby (2011) has pointed out the role of immigration here, particularly the fact that language barriers can make it difficult for immigrants to Canada to understand certain national policies, including the recommended approach to physical exercise. Furthermore, they may also be constrained by cultural views on gender and social mobility (Frisby, 2011). These factors, combined with unfamiliarity with popular Canadian sports, can lead these populations to become excluded from skiing culture (Doherty & Taylor, 2007).

Family socialising. No significant differences were apparent among the four groups in this dimension ($F_{(3, 155)} = 0.565$, p = ns), indicating that spending time with family members was an important facilitator for all groups. This suggests that one way to persuade non-skiers to take part in skiing might be to focus on providing a comfortable learning environment and stimulating friends and family to go with them (Hudson, Hinch, Walker, & Simpson, 2010).

In terms of our results, the term "culture" was somewhat ambiguous, since it was not cleary identiefied which type of culture the survey referred to, such as a family's sporting culture (i.e., skiing is part of what our families values and participates in), and/or etnic culture (e.g., African immigrant being less likely to ski). It is evident that families' cultures play a significant role in influencing individuals' propensity to take part in skiing (Birchwood, Roberts, & Pollock, 2008). Family sports culture is often developed from a very young age for Canadians: parents who come from sporting cultures are more prone to introducing their young children to different sports (Birchwood *et al.*, 2008). This practice stimulates motivation to pursue sports, and even increases enjoyment of them, in later life (Birchwood *et al.*, 2008). It can be argued that etnic

culture will influence participation in skiing in a similar way. It it is not part of the culture, people will be less likely to participate.

Situational Factors

Because of low reliability scores, our study was unable to reveal to what extent situational factors affect participation in skiing among the different consumer groups. Thus, we are unable to confirm Hypothesis 2.

Practical Implications for the Skiing Industry

It should be noted that the respondents to this study were limited to Ottawa; a larger sample would be needed to provide a more comprehensive understanding of the factors that influence participation in downhill skiing. Students, currently dominant in the non-skier group, could be a fruitful target market for the industry; this study's findings suggest some strategies and approaches which could be used to tap into this market. The following suggestions are categorised according to the level of involvement, namely non-skiers, former skiers, and current skiers.

Marketing to Non-skiers and Former Skiers

Non-skiers' lack of personal, first-hand experience with skiing poses a challenge for marketers. First, as previously discussed, the key factors preventing non-skiers from engaging with the sport are negative perceptions and feelings about skiing. It is particularly vital that the skiing industry works to decrease people's perception of danger. Williams and Lattey (1994) suggest that marketing should highlight protective measures taken by the industry to reassure audiences about safety and reduce the impact of the psychological constraint of fear.

Another way to reduce internal constraints (e.g., I do not know how to ski) would be to offer more teaching sessions and fun introductory activities, which would help beginners to improve their skills and familiarise themselves with skiing basics and snowy environments (Alexandris *et al.*, 2006). For example, according to Hudson (2000), some American resorts have reshaped slopes to create "learning parks" and "zone-flow systems" for skiers, in which the beginner's slope is divided into four zones for teaching specific skills, such as use of equipment, balancing, and maneuvers like turns. Hudson's findings show that, in a resort where beginner drop-out rates were a significant issue, this method correlated with a significant increase in the number of new skiers returning for a second day of ski school.

Although it is not possible to completely eliminate negative perceptions associated with skiing (e.g. that it is dangerous, has a high risk of injury, and/or is challenging to learn), an individual will likely base their decision to ski on personal benefits and positive feelings as well. Skilled marketers can encourage increased participation in skiing by emphasising positive feelings and visible benefits associated with it. Resorts currently downplay the risks of skiing, but often neglect to indicate its intrinsic rewards in terms of emotional and physical wellbeing. Rather than ignoring the risks of skiing, it would be better to highlight its ability to energise, invigorate, and give pleasure. Resorts would also benefit from emphasising the sense of achievement that comes with learning a difficult new skill, to address audiences' doubts about their ability to learn.

Ski resort employees play a crucial role in how skiers feel about their experience (Alexandris *et al.*, 2006). Tsiotsou (2006) asserts that "experiences have a hedonic element related to the aesthetic aspect of the product" (p. 258); that is, resorts should seek to provide guests with a personable level of service which helps them to feel included and valued. This

should be done by providing employees with effective communication training and even training in foreign languages (Alexandris *et al.*, 2006). The necessarily remote location of most ski resorts makes it unlikely that non-skiers will find their way in, and so, essential guides should be provided that familiarise potential new participants with the activity.

Additionally, ski resorts cannot afford to ignore active non-skiers who travel to the mountains in the winter for other reasons (Hudson, 2000). Williams and Dossa (1990) estimate that between 20 and 30 percent of visitors to ski centres in Canada do not ski. Similarly, an analysis of market trends in Europe shows that an increasing proportion of those who partake in winter sports holidays regularly do not ski at all (Hudson, 2000). This suggests that resorts should seek to provide a wider variety of activities to cater to this market if they wish to be successful in the future. For example, with people spending less and less time on the slopes, resorts should prioritise expanding their services to include a broader range of snow-based activities as well as the traditional shopping and dining opportunities (Hudson, 2000). The active non-skiers will be seeking an increasing number of alternative sports facilities, such as heated swimming pools, gyms, tennis courts, skating rinks, and saunas and solaria (Hudson, 2000).

Studies show that financial constraints play a major role in limiting repeated visits for existing skiers (Hudson, 2000). Promotion of ski resorts should frame the expense as one that is worth the benefits the activity brings. Those who have experienced the positive aspects of skiing (e.g., exhilaration, the beauty of the mountains, the rush of adrenaline, etc.) should be continually reminded of these emotional gains (Hudson, 2000). Thus, rather than downplaying the expense of the sport, which is the major constraint perceived by former-skiers, resorts should assert that the activity provides benefits to one's emotional well-being that justify the expense (Hudson, 2000). However, the industry could also downplay skiing as an expensive activity by

emphasising affordable variants on skiing holidays and counteracting the current elitist image of the sport (Williams and Fidgeon, 2000).

Finally, to address cultural constraints, Canadian ski resorts could provide opportunities for non-skiers and former skiers to learn about skiing culture and history (Doherty & Taylor, 2007). Another way to attract and include a more diverse clientele would be to prioritise frontline minority hiring, so that skiers from minority cultures are more represented at ski resorts. Employing bilingual ski instructors would also alleviate some of the concerns of non-participants from diverse cultural backgrounds. Moreover, making information and education materials (e.g., brochures, maps) available in languages other than English and French would be worth considering (Hudson *et al.*, 2010).

Marketing to Current Skiers

Retention of current skiers as loyal and frequent customers is crucial to the success of the industry. This means that resorts must devote resources to building and maintaining strong relationships with skiers as well as attracting current non-skiers. Tsiotsou (2006) asserts that the role of experience in tourism behaviour is heavily influenced by consumers' knowledge or familiarity. Ski resorts should offer opportunities for skiers to increase their knowledge of skiing activities and skills, for example by organising a variety of skiing events, delivering teaching seminars regarding facilities, and accounting for a range of proficiency levels. These measures would also help to develop a safe, inclusive environment and reduce the perception of danger (Alexandris *et al.*, 2006).

Moreover, recent studies in the field of leisure and tourism have indicated that the concept of place attachment is useful for understanding aspects of an individual's leisure and tourism behaviour (Alexandris *et al.*, 2006). Managers should make efforts to improve the

physical environment of their skiing resorts (e.g., the design of the facilities, the condition of skiing equipment, and the quality of the ski slopes). Ski destinations operate in an increasingly diverse and demanding marketplace with more niche facilities and services; meanwhile, they also need to satisfy skiing enthusiast consumers who believe the number of ski slopes is too limited (Hudson, 2000). This means careful management of space and resources is crucial for resort managers.

The environment is also an important consideration here, both in terms of the natural environment, such as flora and fauna, and the design of the skiing centre/slopes. This includes design and physical environment sub-dimensions such as hygiene issues, the condition of ski equipment, lift functioning, slopes capacity, and the design of the resort, as well as the social dimension, that is, the attitude and behaviour of skiers and employees (e.g. following the rules and adhering to safety regulations). Careful maintenance of these aspects can help the development of both place dependence and place identity dimensions (Alexandris *et al.*, 2006).

Additionally, it should be noted that skiing resorts are service organisations in which every employee should also be considered a part-time marketer (Zeithaml and Bitner, 2003). Resort managers should therefore also pay close attention to the interaction and relationships element of service quality. In particular, they should seek to develop rigorous hiring and training procedures, as well as offering continuing professional development to improve the expertise of their employees. Most resort employees are front line employees, and as such, they are in constant contact with skiers and visitors. This means that they are a substantial factor in the quality of a visitor's overall experience.

Providing personalised services is also a key strategy which is associated with greater customer retention rates (Zeithaml & Bitner, 2003). The development of a membership system

aids this process as well as building a steady customer base. Moreover, since members are highly involved with the activities provided by resorts, they should also be considered as a good source of information for managers. Frequent communication with them in the form of official or unofficial marketing research provides valuable marketing information through which marketers can improve their services and add new ones proposed by loyal customers.

Another social aspect of service quality is the perception of crowding, which has been studied by Kyle *et al.* (2004a), considering behaviour and attitude variables in a range of recreational settings. Hudson (2000) suggested that perceptions of overcrowding are a significant factor that discourages potential visitors. That study suggested that, as the industry matures, visitors are spending fewer hours each day on the slopes. With this in mind, alternative Alpine activities could be developed for the winter season, which would reduce the number of people on the slopes at any one time (Hudson, 2000).

Shuttle buses are an important convenience which should be provided to customers to facilitate participation. This will reduce the problem of customers struggling with the distance to the ski resort from the airport or train station. Such provisions would negate the need for customers to bring their car or hire one for the duration of their trip.

Finally, the ski industry should ensure that it provides a range of ski packages to cater to a variety of abilities. Williams and Fidgeon (2000) suggest that these packages should include the provision of lift passes, transport, accommodation, food and drink, ski lessons, and equipment. Such packages may provide reassurance for new skiers, who may be unsure of all the things they need and the individual costs of each element of a ski holiday.

Conclusions, Study Limitations, and Suggestions for Further Research

This study suggests that internal constraints influence former and low-frequency skiers more than higher-frequency skiers, and that all current skiers, particularly in the high-frequency group, were strongly driven by internal facilitators such as positive perceptions. Family and financial constraint as an external, facilitating factor appears to be equally important among all groups of ski participants. Culture, another external factor, acts as a constraint on non-skiers, former skiers and low-frequency skiers, but has significantly less effect on high-frequency skiers. Former skiers are most affected by financial constraints, although this factor is also a constraint for other groups, if to a lesser extent.

There are limitations to this study that need to be acknowledged. Questionnaires present some common problems, including difficulties with complex questions, lack of control over the sample, lack of opportunity to follow up or gain clarification, and the risk of a low response rate (Gratton & Jones, 2004). In this study, the emotional complexity of some questions and the possibility of multiple or qualified answers posed a problem, as questions had to be clear enough for all participants to understand because there was no opportunity to seek clarification from the researchers (Gratton & Jones, 2004). Lack of control over or prior knowledge of respondents' demographic information was another weakness in this study, as it was important to collect data from different market segments (e.g., non-skiers, former skiers, and skiers), but it was difficult to identify respondents' characteristics before they completed the questionnaire.

The participants in the study were mostly from Ottawa. This means that their perspectives cannot be considered representative of all Canadians. Further research is required, with a larger, more diverse sample, to gather a more comprehensive overview of factors influencing participation in skiing.

Moreover, following the consumption behaviour model, there is low reliability for many items in the study, particularly in terms of situational factors such as the natural environment (weather), social surroundings, time, and definitions of tasks. The responses differed widely between non-skiers and skiers in the perception of situational factors. Non-skiers, having no experience, cannot offer useful perceptions of situational factors related to skiing. Meanwhile, skiers might be more likely to travel to different ski resorts; however, situational factors are subject to change, which might partially explain the low reliability scores in the context of a test-retest reliability design. Moreover, our study used three techniques to test reliability (Pearson correlations and intraclass correlation coefficient for test-retest reliability, and Cronbach's alpha to test the inter-reliability of the items in a factor). Most previous research has tested reliability solely using Cronbach's alpha scores, which can only be done if for each factor, a minimum of three items are included in the measuring instrument; in this case, that would have made the survey too long for our purposes and the scope of our research. Situational factors have not been prioritised in previous research; for example, Mullin *et al.*'s (2014) consumer behaviour model only includes individual (or internal) and environmental (or external) influences, and does not reflect situational factors as a separate category. A final possible reason for the low reliability results for situational factors may have been their positioning at the end of the questionnaire; it is possible that respondents were fatigued or disengaged by that point and were less likely to provide accurate answers. Future research could use different questionnaire structuring to test reliability more accurately. It is important that future researchers seek a more reliable way to capture the reliability of data about situational factors, such as alternate-form method, as investigating this would provide additional insights to help resorts to attract potential visitors and overcome the obstacles that prevent them from participating in skiing.

There is also a problem in terms of the definition of culture in situational factors. In Shank's model, culture is identified as "the set of learned values, beliefs, language, traditions, and symbols shared by a people and passed down from generation to generation" (Shank & Lyberger, 2015, p. 160). However, participants are likely to have their own interpretations of what is meant by culture. For instance, skiing is part of Canadian culture, but this was difficult to identify, because nationality or ethnicity was not included in the demographic section of the questionnaire.

Furthermore, although snowboarding was not investigated in this study, "downhillers" (i.e., skiers and snowboarders) as a group may be worthy of investigation in future research. A dramatic change has been reported among skiers, boarders, and cross-country skiers. There is a substantial rise in the percentage of the youth market who are turning to snowboarding (Hudson, 2000). Considering this increase in demand, as well as changes to the values and tastes, lifestyle, leisure time and finances of each of these demographics, resorts and holiday operators will need to accommodate all of these groups on the mountains, creating an environment in which every participant feels included (Hudson, 2000).

Finally, this study raises significant questions around the role of immigration in Canadian culture and the effect this has on the best marketing strategies for skiing. It is increasingly important for marketers in the industry to take practical steps to include immigrants, whose participation in winter sports will likely be influenced by their cultural backgrounds.

Statement of Contribution

Marketing research seeks to collect data which are both correct and accurate, to provide decision makers with the best information. The purpose is lost if information is incorrect, untimely, or inaccurate. Of course, some errors will be present in any measurement process,

which is why reliability tests play such an important role in this type of research. The difficulty is that methods of measuring reliability vary widely; there is no guarantee that the same results will occur with different methods. Although internal consistency reliability is used more frequently than test-retest or alternate-form techniques in sport marketing research designs, test-retest has the advantage of examining the transient error problem, and there is a significant gap between test-retest and Cronbach's alpha estimates (Mao et al., 2019). This study used internal consistency and test-retest methods to develop a more reliable instrument to measure the ski consumption of a Canadian sample, based on Shank's and Lyberger's (2015) sports consumption model.

Skiing is a long-standing and popular part of Canadian sporting tradition (Williams & Fidgeon, 2000). The positive imagery around it often springs from sharing the experience and time with family and friends, achieving improvement in skiing skills, and the excitement of being outside in a natural environment (Williams & Fidgeon, 2000). Skiing offers people the opportunity to get away from working life, or from city life, and enjoy a change of environment and activity (Williams & Fidgeon, 2000). However, despite these factors, studies indicate that Canada's downhill skiing industry has seen a critical retrogression for nearly three decades (Statistics Canada, 2013). This causes a continuous retrogression in the wider skiing industry, including skiing equipment, skiing lessons, food or beverage services, and accommodation facilities in ski resorts (Williams & Fidgeon, 2000). The impact of reduced participation in skiing on the industry is significant.

This is one of the few studies of Canadian consumers' perspectives on skiing which uses a quantitative research approach, that is, a questionnaire. It provides some unique insights into what is facilitating and constraining Canadians from participating in skiing, and the central

recommendation offered is to market activities that would be applicable for both non-skiers and skiers; this gives insight into how the industry can (1) attract new participants, (2) prevent current participants from dropping out, and (3) increase their participation rates.

Tables

Table 1
Demographics and ski profile for respondents in T1 and T2

Sample Characteristic (n = 159)	T1 (N=159)	T2 (N=73)
Age (*M, SD*)	22.79 (6.54)	22.03 (4.74)
Gender (in %)		
Male	41	31.5
Femal	54	67.1
Occupation (in %)		
Student	87	91.8
Teacher/professo	0.6	1.4
Self-employed farmer, cattle breede	0.6	1.4
Self-employed tradesman, or cradtsma	0.6	1.4
Mid level management positio	1.9	1.4
Professional (medical doctor, lawyer, etc	3.2	1.4
Unemploye	0.6	1.4
Skilled labourer	0.6	1.4
Clerical/ office worker	1.3	1.4
Household status (in %)		
Single without children	68.6	83.6
Single with children	0.7	0
Married/partner without children	6.5	4.1
Married/ partner with children	9.8	6.8
Education level (in %)		
Diploma or less	5.2	1.4
Some college education	1.3	60.3
Some university education	42.9	0
College diploma	1.3	0
College/Trade school degree	1.9	0
Some university degree	42.2	37
Level of ski participation (in %)		
Non skiers	22	11
Former skiers	16	27
Current low frequency skiers	26	26

Current high frequency skiers	36	36

Table 2. Pearson's r and Interclass Correlation Coefficients (ICC) between Time1 and Time 2 survey (reliable items only; N=73)

Measures	r	ICC
Part 1: Ski Profile		
How do you self-identify as a skier	.935**	.935***
How do you self-identify your level of skiing?	.910**	.905***
Have you ever participated in skiing?	.881**	.875***
How frequently did you ski per season?	.751**	.750***
Part 2: Negative Perceptions and Feelings		
I (still) do not know how to ski	.755**	.773***
I do not feel confident	.773**	.769***
Financially I cannot afford to go skiing	.734**	.733***
Skiing is too physically demanding	.717**	.715***
Skiing is too dangerous	.780**	.780***
Skiing is too difficult to learn	.718**	.716***
Skiing leads to injuries	.766**	.763***
The ski slopes are unsafe	.756**	.743***
Skiing is not part of my culture	.730**	.732***
Skiing is too expensive	.707**	.708***
Skiing makes me feel embarrassed	.737**	.732***
My family dows not like skiing	.706**	.707***
Part 3: Positive feeling and Personal Benefit		
Skiing helps me to release tension	.765**	.763***
Skiing is more worthwhile than spending time on other leisure activities	.740**	.738***
Skiing is exciting	.763**	.759***
Skiing is part of my culture	.837**	.838***
Skiing increases my feeling of self-worth	.727**	.713***
Skiing is fun for me	.800**	.802***
I want to spend time with family	.704**	.704***
Part 4: Loyalty and Intention to Ski		
I intend to go skiing in the future	.905**	.902***
I want to ski more in the future	.912**	.911***
Part 5: Demographic factors		
Sex	1.00***	1.000***
Occupation	.777**	.765***
Household status	.776**	.778***
Education level	.743**	.746***

Table 3 Rotated Structure Matrix for PCA with Varimax Rotation (N=159)

Items			Rotated Component Coefficients				
			1	2	3	4	5
Mean(1) (SD)	X_2	Mean					
Negative Perceptions and Feelings (α=0.91)	***29.444****	**2.70 (1.19)**					
Skiing is too dangerous		2.80 (1.50)	.849				
The ski slopes are unsafe		2.69 (1.43)	.842				
Skiing leads to injuries		3.13 (1.51)	.786				
Skiing is too difficult to learn		2.42 (1.34)	.780				
Skiing is too physically demanding		2.69 (1.43)	.752				
Skiing makes me feel embarrassed		2.77 (1.88)	.684				
I (still) do not know how to ski		2.35 (1.35)	.643				
I do not feel confident		2.77 (1.88)	.565				
Positive Feelings and Personal Benefit (α=0.85)	***12.66****	**4.27 (1.04)**					
Skiing helps me to release tension		4.15 (1.32)		.815			
Skiing increase my feeling of self-worth		3.69 (1.52)		.800			
Skiing is more worthwhile than spending time on other leisure activities		3.81 (1.35)		.740			
Skiing is exciting		4.94 (1.09)		.690			
Skiing is fun for me		4.74 (1.32)		.686			
Financial Constraints (α=0.87)	***3.38***	**3.56 (1.44)**					
Financially I cannot afford to go skiing		3.80 (1.44)			.936		
Skiing is too expensive		3.32 (1.63)			.906		
Culture (α =0.75)	***25.16****	**2.58 (1.61)**					
Skiing is not part of my culture		2.81 (1.30)				.717	
(reversed) Skiing is (not) part of my culture		3.39 (1.61)				.713	
My family does not like skiing		2.45 (1.57)				.631	
Family Socializing	***1.20***	**4.13 (1.45)**					
I want to spend time with family		4.13 (1.45)					.842

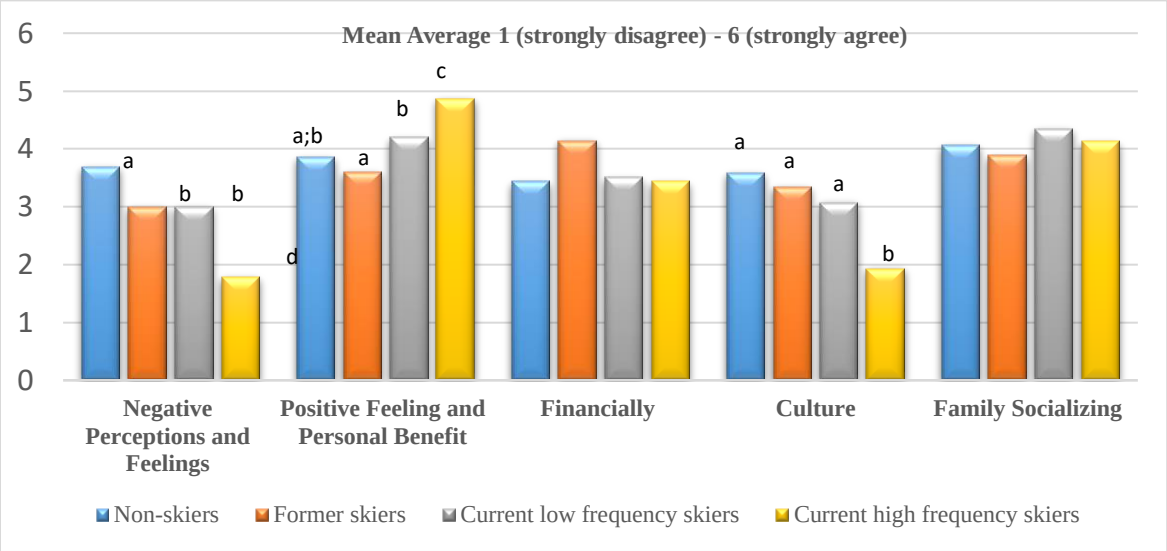
Note. (1) Rate how much you agree with each statement: Scale from 1 = strongly disagree to 6 = strongly agree

Table 4 comparative Factors Affecting Downhill Skiing Participation among four groups

	Mean Level of Aggreement					
Measures	Non-skiers	Former-skiers	Low-frequency skiers	High-frequency skiers	p	F
Negative Perceptions and Feelings	**3.68**	**2.99**	**2.99**	**1.78**		
1. Skiing is too dangerous	3.66	3.20	3.05	1.93	***	14.057
2. The ski slopes are unsafe	3.43	2.72	2.95	2.05	***	13.336
3. Skiing leads to injuries	3.91	3.72	3.44	2.19	***	15.947
4. Skiing is too difficult to learn	3.49	2.52	2.76	1.48	***	26.124
5. Skiing is too physically demanding	3.43	2.72	2.95	2.05	***	8.514
6. I (still) do not know how to ski	4.86	2.76	3.00	1.34	***	49.573
7. Skiing makes me feel embarrassed	3.31	2.56	2..49	1.57	***	16.684
8. I do not feel confident	3.43	3.40	3.20	1.79	***	12.453
Positive Feelings & Personal Benefits.	**3.85**	**3.59**	**4.19**	**4.86**		
1. Skiing helps me to release tension	4.00	3.24	4.07	4.69	***	8.393
2. Skiing increase my feeling of self-worth	3.31	2.96	3.76	4.19	**	5.108
3. Skiing is more worthwhile than spending time on other leisure activities	3.51	3.00	3.71	4.40	***	8.264
4. Skiing is exciting	4.43	4.44	4.83	5.53	***	12.459
5. Skiing is fun for me	4.00	4.32	4.59	5.48	***	13.289
Financial Constraints	**3.42**	**4.14**	**3.50**	**3.43**		
1. Skiing is too expensive	3.63	4.24	3.88	3.66	.n.s.	1.183
2. Financially I cannot afford to go skiing	3.37	3.04	3.02	1.88	.n.s.	5.201
Culture	**3.58**	**3.35**	**3.01**	**1.93**		
1. Skiing is not part of my culture	3.51	3.04	2.90	1.60	***	15.640
2. Skiing is part of my culture	3.80	4.16	3.54	2.71	***	6.998
3. My family does not like skiing	3.43	2.84	2.76	1.48	***	16.885
Family Socializing						
I want to spend time with family	4.06	3.88	4.34	4.12	.n.s.	.565

*Note. Mean scores are based on a Likert-type scale of 1 (strongly disagree) to 6 (strongly agree); higher scores indicate more constraint or facilitator. * p< .05, ** p<.01, or *** p<.001, n.s. = not significant.*

Figure1: Factors Affecting Downhill Skiing Participation (N=159)



F1 (3, 155) = 33.880, p<.001, F2 (3, 155) = 14.636, p<.001, F3 (3, 155) = 1.640, p=N.S, F4 (3, 155) = 20.387.880, p<.001, Socializing (3, 155) = 0.565, p=N.S.

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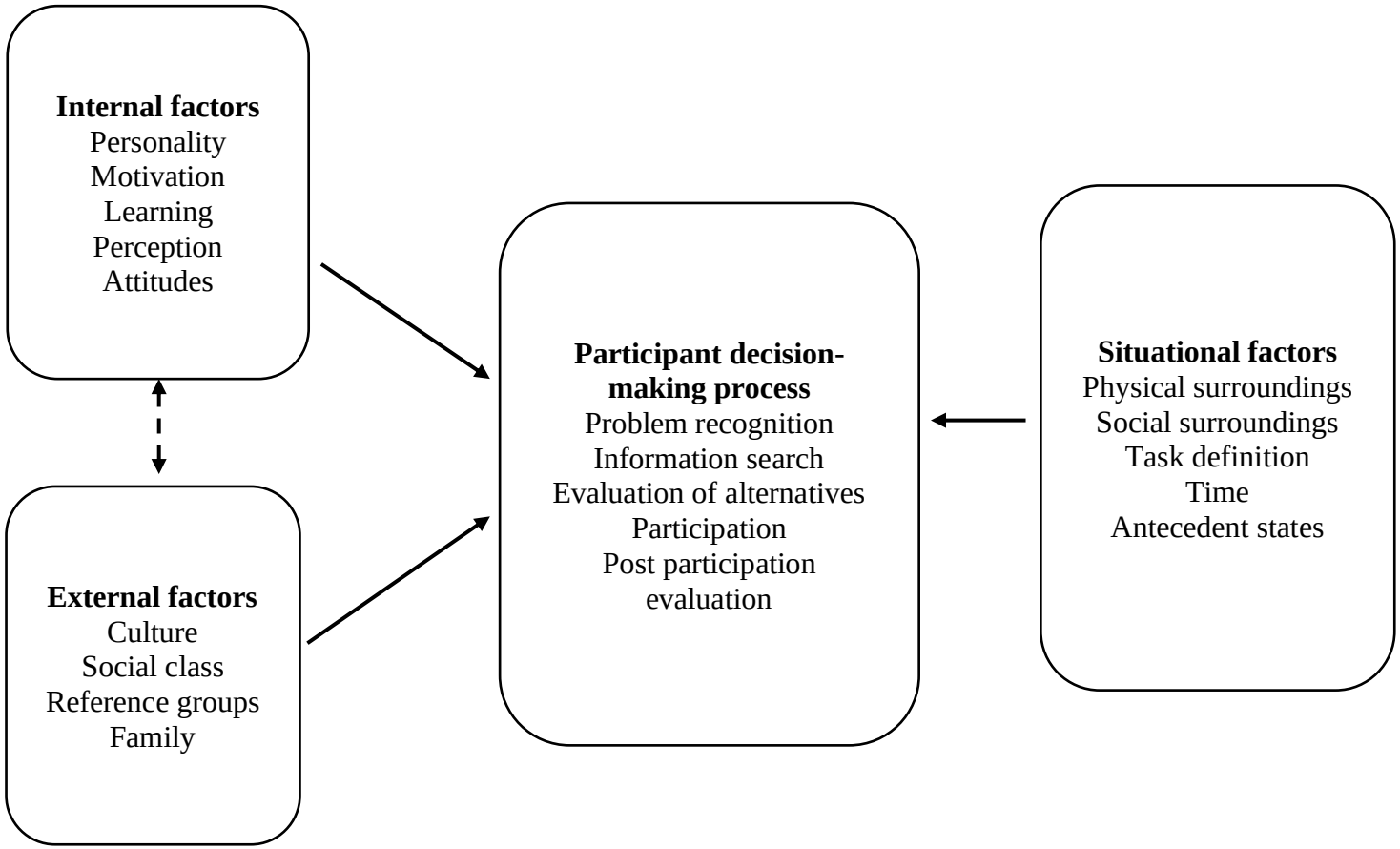
Appendix A: Model of Participant Consumption Behavior (Source: Shank & Lyberger, 2015, p. 138)



Appendix B: Online Survey

Participant Survey: Factors Affecting Downhill Skiing Participation of Canadian Consumers
Please check the appropriate answers

Part 1. Ski participation

Q0. How do you self-identify as a skier (check one):

- □ A non-skier
- □ A former skier
- □ A current skier

Q1. Have you ever participated in skiing?
□ Yes → will automatically go to Q2

□ No If no, why not? Please briefly describe in the box below

→ will automatically go to Q5

Q2. Which of the following seasons have you skied (check all that apply)?
□ 2018-2019 winter season
□ 2017-2018 winter season
□ 2016-2017 winter season
□ Prior to 2016 winter season

How do you self-identify your level of skiing?
□ Beginner
□ Intermediate
□ Excellent

Q3. Thinking about your last season of skiing, how frequently did you ski? (choose one)
□ Smaller than 1 times
□ 1-2 times
□ 3-10 times
□ 11 times or more

Q4. Thinking about your last season of skiing, would you consider you participated less, more or the same than previous seasons ? (choose one)

□ less □ more □ the same

Part 2. constraining factors

Q5. What factors may constrain you to participate (more) in skiing in the next year? Indicate how much do you agree with each statement:
Non-skiers read the statements as follows: "I will not ski in the next year because…."
Former skiers read the statements as follows: "I will not ski in the next year because…."
Current skiers read the statements as follows: "I will not ski or ski less in the next year because…."

		Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
1	I (still) do not know how to ski	1	2	3	4	5	6
2	Skiing is too difficult to learn	1	2	3	4	5	6
3	I do not know where I can learn to ski	1	2	3	4	5	6
4	I do not feel confident	1	2	3	4	5	6
5	Skiing makes me feel embarrassed	1	2	3	4	5	6
6	Skiing is too physically demanding	1	2	3	4	5	6
7	Skiing is too competitive	1	2	3	4	5	6
8	Skiing is too dangerous	1	2	3	4	5	6
9	Skiing leads to injuries						
10	Skiing is a sport for younger people	1	2	3	4	5	6
11	Skiing is not fun	1	2	3	4	5	6
12	I will not have time due to work commitments	1	2	3	4	5	6
13	I will not have time due to family commitments	1	2	3	4	5	6
14	I will not have time due to other social commitments	1	2	3	4	5	6
15	The ski slopes are unsafe	1	2	3	4	5	6
16	The ski slopes are overcrowded	1	2	3	4	5	6
17	There is not enough variety in the slopes	1	2	3	4	5	6
18	It is too far to travel	1	2	3	4	5	6
19	The snow conditions are unfavourable	1	2	3	4	5	6

20	Accommodations (bars and restaurants) in the ski resorts are of low quality	1	2	3	4	5	6
21	It is too cold and wet for me	1	2	3	4	5	6
22	The ski slopes are not well maintained	1	2	3	4	5	6
23	Transportation to ski resorts is too costly	1	2	3	4	5	6
24	Financially I cannot afford to go skiing	1	2	3	4	5	6
25	Skiing is too expensive	1	2	3	4	5	6
26	My family constellation hinders me to ski (e.g., children are young, care giving)	1	2	3	4	5	6
27	I have no partner or friend to accompany me	1	2	3	4	5	6
28	Skiing is not part of my culture	1	2	3	4	5	6
29	My family does not like skiing	1	2	3	4	5	6

Are there any other reasons you can think of why you do not, or will not ski in the coming season? Briefly describe in the box below:

Q6. What is the cost average per person for one ski session?

□ less than $100 □ $101 to $200 □ $ 201 to $500 □ $501 and more □ I do not know the exact cost

Part 3. Facilitators

Q7a. What factors (may) facilitate you to participate in skiing in the coming season? Indicate how much do you agree with each statement:
Non-skiers read the statements as follows: “I would consider taking up skiing because…”
Former skiers read the statements as follows: “I would consider skiing again because…”
Current skiers read the statements as follows: “I am a skier and would consider skiing more because…”

	Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree

1	Skiing helps me to release tension	1	2	3	4	5	6
2	Skiing helps me to escape from my daily routine	1	2	3	4	5	6
3	Skiing keeps me physically fit	1	2	3	4	5	6
4	Skiing is more worthwhile than spending time on other leisure activities	1	2	3	4	5	6
5	Skiing is exciting	1	2	3	4	5	6
6	Skiing develops my skills and abilities	1	2	3	4	5	6
7	Skiing increases my feeling of self-worth	1	2	3	4	5	6
8	Skiing develops a sense of self-pride	1	2	3	4	5	6
9	Skiing is fun	1	2	3	4	5	6
10	Skiing is thrilling	1	2	3	4	5	6
13	I enjoy spending time in nature	1	2	3	4	5	6
14	I want to spent time with my friends	1	2	3	4	5	6
15	I want to spend time with family	1	2	3	4	5	6
16	Skiing is part of my culture	1	2	3	4	5	6
17	Others think well of me if they know I am a skier	1	2	3	4	5	6
18	I want to impress others	1	2	3	4	5	6
19	My friends go skiing	1	2	3	4	5	6

Q7b. what factors (may) facilitate you to participate in skiing in the coming season? Indicate how much do you agree with each statement:

Non-skiers read the statements as follows: " I would consider taking up skiing IF…"
Former skiers read the statements as follows: "I would consider skiing again IF…"
Current skiers read the statements as follows: " I am a skier and would consider skiing more IF…"

		Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
1	Public transportation is provided for easy access	1	2	3	4	5	6
2	Special offers and activities are provided	1	2	3	4	5	6
3	Discounts for lift tickets are offered	1	2	3	4	5	6
4	Discounts for ski lessons are offered	1	2	3	4	5	6

5	There is great variety in ski slopes	1	2	3	4	5	6
6	Employees provide excellent service	1	2	3	4	5	6

Are there any other reasons you can think of why you do would like to ski (more) in the coming season? Briefly describe in the box below:

Part 4. Loyalty and Intention to ski
Q8. Indicate how much you agree with each statement

	Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
How determined are you to continue skiing	1	2	3	4	5	6
How committed are you to continue skiing	1	2	3	4	5	6
How difficult would it be for you to stop skiing	1	2	3	4	5	6

Part 5. Please tell us a bit about yourself
Q9. Gender: □ Female □ Male □ Other

Q10. Age: □ 17-24 □ 25-34 □ 35-54 □ 55 and older

Q11. Occupation:
□ Student. □ Nurse/care giver □ Unemployed
□ Teacher/professor. □ Retired □ Self-employed farmer, cattle breeder
□ Stay at home spouse □ Self-employed, tradesman, or craftsman. □ Semi-skilled labourer
□ Mid level management position. □ Skilled labourer □ Upper level management/senior executive
□ Clerical/office worker □ Professional (Medical doctor, lawyer, etc.)
□ Other (specify): _____

Q12. Annual Household Income after Tax：
□ Less than $20,000 □ $20,000 to $29,999 □ $ 30,000 to $49,999
□ $ 50,000 to $79,999 □ $ 80000 to 100,000 □ $ 100,001 or more

CONSUMERS

Q13. Household status:
□ Single without children □ Married/partner without children
□ Single with children □ Married/partner with children

Q14. Education level:
□ Diploma or less. □ College diploma
□ Some college education □ College / Trade school degree
□ Some university education □ University Degree

COMPENSATION

To thank you for your contribution to the research project, you will be given the option to enter your name and Email address in a draw to win 50$. The draw is open to all research participants who enter their name in the draw. A name will be randomly selected amongest those who have entered and the person whose same is drawn will be informed by Email. To win the prize, the person must participate twice survey. If the person cannot be reached within 14 days from the date of the draw, the prize will be awarded to the second name that is randomly selected and so on until the prize has been awarded.

Your information that you provide when you enter the draw is collected for the purposes of contacting you if your name is selected in the draw. Your name and the contact information you have provided will be kept confidential and then destroyed once the prizes have been awarded.

We reserve the right to cancel the draw or cancel the awarding of the prize of the integrity of the draw or the research or the confidentiality of participants is compromised. The draw is governed by applicable laws of Canada.

PLEASE ENTER YOUR EMAIL HEAR TO PARTICIPAT IN
Name: _____
Email Address: _____

Appendix C: Factors Affecting Downhill Skiing Participation

Psychological or Internal factors: Personality (i.e., consistent responses an individual makes to the environment)	I am not confident (Alexandris, Funk, & Pritchard, 2011)
Psychological or Internal factors: Learning (i.e., a relatively permanent change in response tendency due to the effects of experience, which includes behavioral learning, cognitive learning and social learning)	Lack of knowledge how to learn (Williams & Fidgeon, 2000) I posses a great deal of knowledge about skiing (Alexandris, Funk, & Pritchard, 2011) Compared to other sports, I consider myself and expert on skiing (Alexandris, Funk, & Pritchard, 2011) If I were to list everything I know about skiing, the list would be quite long (Alexandris, Funk, & Pritchard, 2011) I am not skilled enough (Alexandris, Funk, & Pritchard, 2011) I am not fit enough (Alexandris, Funk, & Pritchard, 2011)
Psychological or Internal factors : attitudes (i.e, learned thoughts, felling and behaviors toward some given object)	Skiing is very physically demanding (Williams & Basford, 1992; Williams & Fidgeon, 2000) Hard to learn than other sports (Williams & Basford, 1992; Gilbert & Hudson, 2000; Williams & Fidgeon, 2000; Hudson & Gilbert, 2000) Have no enough proficiency level to join others (Gilbert & Hudson, 2000) Physical challenge (Hudson & Gilbert, 2000) Skiing is very competitive sports (Williams & Lattey, 1994) Skiing is not glamorous enough (Gilbert & Hudson, 2000; Hudson & Gilbert, 2000) Skiing is for younger people (Williams & Fidgeon, 2000) It is elitist sports (Gilbert & Hudson, 2000; Hudson & Gilbert, 2000)
Psychological or Internal factors: perception (i.e., kind of image, the complex process of selecting, organizing and interpreting stimuli such as sports)	Fear for embarrassment in front of friends (Gilbert & Hudson, 2000; Williams & Fidgeon, 2000; Hudson & Gilbert, 2000) Feel self-conscious or embarrassed (Gilbert & Hudson, 2000; Hudson & Gilbert, 2000) going too faster (Williams & Basford, 1992; Williams & Fidgeon, 2000) loosing control (Williams & Basford, 1992; Williams & Fidgeon, 2000)

	Ski hills are very steep (Williams & Basford, 1992; Gilbert & Hudson, 2000) Personal physical injury (Williams & Basford, 1992; Gilbert & Hudson, 2000; Williams & Fidgeon, 2000) Location (steep and high mountain) (Williams & Basford, 1992) poor introduction lead injury (Williams & Basford, 1992) Ski lifts are scary (Williams & Basford, 1992; Gilbert & Hudson, 2000; Williams & Fidgeon, 2000; Hudson & Gilbert, 2000) Scared of height (Hudson & Gilbert, 2000) Afraid of injury (Hudson & Gilbert, 2000) Fear of skiing (Williams & Lattey, 1994) Feel stressful (Gilbert & Hudson, 2000; Hudson & Gilbert, 2000) They will get cold and wet (Gilbert & Hudson, 2000; Hudson & Gilbert, 2000) price-quality-ratio (Faullant, Matzler, & Füller, 2008) (Füller & Matzler, 2008) Too expensive (anticipant)(Hudson & Gilbert, 2000) Cost of equipment (Williams & Basford, 1992; Gilbert & Hudson, 2000; Williams & Fidgeon, 2000) (Hudson & Gilbert, 2000) Tickets cost of lifts (Williams & Basford, 1992) Transportation fee (Williams & Basford, 1992) (Williams & Fidgeon, 2000) Accommodation fee (Williams & Basford, 1992) Don't have enough money (Gilbert & Hudson, 2000; Hudson & Gilbert, 2000) Young family constrain on children and money (Gilbert & Hudson, 2000) Hassle getting equipment (Hudson & Gilbert, 2000)
Psychological or Internal factors: motivation (i.e., internal force that directs behavior toward the fulfillment of needs) (e.g., achievement, competition, social facilitation, physical fitness, skill mastery, physical risk, affiliation, aesthetics, aggression, values	a lesser extent well-being (Faullant, Matzler, & Füller, 2008) parties and fun (Faullant, Matzler, & Füller, 2008) (Füller & Matzler, 2008) self-enrichment (Hungenberg, Gray, Gould, & Stotlar, 2016) travel exploration (Hungenberg, Gray, Gould, & Stotlar, 2016) skill mastery (Hungenberg, Gray, Gould, & Stotlar, 2016) social needs (Hungenberg, Gray, Gould, & Stotlar, 2016) destinations attributes (Hungenberg, Gray, Gould, & Stotlar, 2016) stress relief (Hungenberg, Gray, Gould, & Stotlar, 2016)

development, self-esteem, self-actualization and stress release)	aggression (Hungenberg, Gray, Gould, & Stotlar, 2016) competitive desire (Hungenberg, Gray, Gould, & Stotlar, 2016) physical fitness (Hungenberg, Gray, Gould, & Stotlar, 2016) I regret when I am unable to participate in skiing (Alexandris, Funk, & Pritchard, 2011) Even when participating is inconvenient I still try to participate (Alexandris, Funk, & Pritchard, 2011) I feel that participation in skiing is vitally important to me (Alexandris, Funk, & Pritchard, 2011) I am really interested in participating in skiing (Alexandris, Funk, & Pritchard, 2011) I feel that spending time for skiing is more worthwhile than spending time for other leisure activities (Alexandris, Funk, & Pritchard, 2011) Skiing is important to me (Alexandris, Funk, & Pritchard, 2011) I do not have fun when I go skiing (Alexandris, Funk, & Pritchard, 2011) I do not like skiing very much (Alexandris, Funk, & Pritchard, 2011) Variety and challenge of the hills and trails derive from perceived and the desire for fun and achievement (Klenosky, Gengler, and Mulvey (1993)
Sociological or external factors: culture (i.e., learned values, beliefs, language, traditions, and symbols shared by a people and passed down from generation to generation)	Cultural events and party offers (Füller & Matzler, 2008)
Sociological or external factors: reference groups (i.e., individuals who affect the information, attitudes, and behaviors of members of other groups)	Lack of partner, girl/boy friend (Gilbert & Hudson, 2000; Hudson & Gilbert, 2000) Others too good to take me, no right skill level to join others (Gilbert & Hudson, 2000; Hudson & Gilbert, 2000) Partners do not have the money (Gilbert & Hudson, 2000; Hudson & Gilbert, 2000) Others don't have time (Gilbert & Hudson, 2000) My friends have a positive impression of me is they know that ski (Alexandris, Funk, & Pritchard, 2011) Others think well of me if they know I am a skier (Alexandris, Funk, & Pritchard, 2011)

	Being a skier helps me project a good image to others (Alexandris, Funk, & Pritchard, 2011) I do not have friends to go with (Alexandris, Funk, & Pritchard, 2011) My friends do not like skiing (Alexandris, Funk, & Pritchard, 2011)
Sociological and External factors: family	Family responsibility (Gilbert & Hudson, 2000; Hudson & Gilbert, 2000) Family is too young (Hudson & Gilbert, 2000) Family responsible (Williams & Basford, 1992) Family status (Williams & Fidgeon, 2000) My family does not like skiing (Alexandris, Funk, & Pritchard, 2011)
Sociological and external factors: 1.social class (i.e., the homogeneous division of people in a society sharing similar values, lifestyles, and behaviors) occupation, income and education	Occupation (Williams & Fidgeon, 2000) Income (Williams & Fidgeon, 2000) Education level (Williams & Fidgeon, 2000) Age (Williams & Fidgeon, 2000) Gender (Williams & Fidgeon, 2000) Money saving (Klenosky, Gengler, and Mulvey, 1993).
Situational factors: 2. time (i.e., the effect of the presence or absence of time),	Time savings, which derive from close to home location thereby enabling more time for skiing (Klenosky, Gengler, and Mulvey, 1993). Others don't have time (Gilbert & Hudson, 2000) Too much efforts to planning (Gilbert & Hudson, 2000) Too many other leisure commitments (Gilbert & Hudson, 2000; Hudson & Gilbert, 2000) Don't have enough time (Gilbert & Hudson, 2000; Williams & Fidgeon, 2000; Hudson & Gilbert, 2000) Lack of all inclusive holidays (Hudson & Gilbert, 2000) No time (Williams & Basford, 1992) Time cost (Williams & Lattey, 1994) Prefer holiday elsewhere (Gilbert & Hudson, 2000; Hudson & Gilbert, 2000) Too many other leisure commitments (Gilbert & Hudson, 2000; Hudson & Gilbert, 2000)

	I do not have time because of my work commitments (Alexandris, Funk, & Pritchard, 2011) I do not have time because of my family commitments (Alexandris, Funk, & Pritchard, 2011) I do not have time because of my social commitments (Alexandris, Funk, & Pritchard, 2011)
situational factors: 3. physical surrounding (i.e., location, weather, and physical aspects of the participation environment)	SPA services and restaurant (Konu, Laukkanen, & Komppula, 2011) Shopping (Konu, Laukkanen, & Komppula, 2011) Snow conditions which is associated to safety concerns (Klenosky, Gengler, and Mulvey (1993) The offers for children (Faullant, Matzler, & Füller, 2008) (Füller & Matzler, 2008) Slopes (Faullant, Matzler, & Füller, 2008) (Füller & Matzler, 2008) Slopes are too overcrowded (Gilbert & Hudson, 2000; Hudson & Gilbert, 2000) Concerned about lack of snow (Hudson & Gilbert, 2000) Too far to travel (Williams & Lattey, 1994) (Faullant, Matzler, & Füller, 2008) (Füller & Matzler, 2008) Road condition and building (e.g., restaurant and cafeteria) (Alexandris et al., 2006) Natural environment (e.g., flowers and tree) (Alexandris et al., 2006) hygienic issues (Alexandris et al., 2006) wellness offer (Füller & Matzler, 2008) culinary offer (Füller & Matzler, 2008) I do not like the physical environment/facilities (Alexandris, Funk, & Pritchard, 2011) Employees: Employee's service and attitude (Alexandris, Kouthouris, & Meligdis, 2006) Appearance of employees (Matzler et al., 2008) Friendliness of employees (Matzler et al., 2008) (Füller & Matzler, 2008) Competence of employees (Matzler et al., 2008) Helpfulness of employees (Matzler et al., 2008) Quality and safety: Quality of slopes (Matzler et al., 2008)

	Conditions of snow (Matzler et al., 2008) Safety of slopes (Matzler et al., 2008) Restaurant and bar: Seating capacity (Matzler et al., 2008) Atmosphere (Matzler et al., 2008) Quality of food (Matzler et al., 2008) Variety of food and drinks (Matzler et al., 2008) Parking area (Alexandris et al., 2006) Variety of slopes and sport facilities: permanent race slopes (Matzler et al., 2008) entertainment in area (Matzler et al., 2008) Additional sport facilities (Matzler et al., 2008) Mogul slopes (Matzler et al., 2008) Late-night activities (Matzler et al., 2008) Facility design (Alexandris et al., 2006) Design of skiing centre and slopes (Alexandris et al., 2006) Skiing lifts quality (Alexandris et al., 2006) Number of skiing slopes (Alexandris, Kouthouris, & Meligdis, 2006) Ski lifts: Waiting times at cash desk (Matzler et al., 2008) Waiting times at ski lift (Matzler et al., 2008)
situational factors: 4. social surroundings (i.e., the effect of other people on a participant during participation in a sport)	Social atmosphere (including friendly people and environment), which is derived from the desire for a sense of belonging (Klenosky, Gengler, and Mulvey, 1993) Cultural events and party offers (Füller & Matzler, 2008)
Situational factors: 5. reason for participation or task definition (i.e., the reasons that occasion for consumers to participate in sport)	

Situational factors: 6. antecedent states (i.e., temporary physiological and mood states that a consumer brings to the participant situation)	

Appendix D: Consent Form

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Topic of the research project: Factors Affecting Downhill Skiing Participation of Canadian Consumers (Phase 1)

Invitation to Participate: You are invited to participate in a research study entitled *Factors Affecting Downhill Skiing Participation of Canadian Consumers* conducted by Yiqi Yang as part of her Master thesis, under the supervision of Dr. Marijke Taks of University of Ottawa.

Purpose of the Study: The general purpose of the study is to better understand factors affecting ski participation. A reliable and valid measuring instrument will be developed to do so.

Participation:
The length of time for the completion of the survey is 10 to 15 minutes. Participants will have approximately one week to submit the survey. Two weeks after the completion of the first survey, you will be re-invited to fill out the questionnaire a second time. There should be an interval of two weeks between completion of the 1st and 2nd survey. Participants must be 17 years or older. The decision to complete and return this survey will be interpreted as an indication of your consent to participate. Participants do not have to answer any questions that they do not want to answer. We would appreciate to receive your answer before [DATE]. The survey is only available in English.

Benefits: This is one of the few studies of Canadian consumers' perspectives on skiing using a quantitative research approach to develop a questionnaire concentrating on skiing participation. It provides some insights of the problems that the ski industry is facing, and allows to offer recommendations for marketing activities that would be applicable for both non-skiers and skiers, thereby shedding light on the process of helping the ski industry to (1) attract new participants, (2) prevent current participants from dropping out, (3) and increase their participation rates.

Confidentiality and Anonymity: Personal information will remain strictly confidential and will be solely used for the purposes of this research. It will be separated from the survey and entered into separate data base. At no point in time, can participants be identified with the survey. It will be used to contact you if you win a prize, and for

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sending you a reminder to fill out the survey a second time. This information will be kept confidential and destroyed once the prize has been awarded.

Conservation of data: The only people who will have access to the research data are *the principal researcher Yiqi Yang and Dr. Marijke Taks (supervisor).* The answers of participants to open-ended questions may be used verbatim in presentations and publications but participants will not be identified. The data collected will be kept in a secure manner on a password-protected computer. All physical and electronic data will be stored and conserved by the professor and the principal investigator in a locked cabinet in the office on campus. The data will be kept for 5 five years.

Compensation: To thank for your contribution to the research project, you will be given the option to enter your name and e-mail address in a draw to win a $50 cash prize for the first round of data collection; the second time you participate in the study you can win one of the three $50 cash prizes (enhancing your chance three times). The draw is open to all research participants who enter their name in the draw, regardless of whether you decide to withdraw from further participating in the research project.

A name will be randomly selected amongst those who have entered and the person whose name is drawn will be informed by e-mail. To win the prize, the person must correctly answer a skill testing question. If a winner cannot be reached within 14 days from the date of the draw, another name will be drawn for the prize. The odds of winning a prize will depend on the number of eligible entries received.

We reserve the right to cancel the draw or cancel the awarding of the prize if the integrity of the draw or the research or the confidentiality of participants is compromised. The draw is governed by the applicable laws of Canada.

Voluntary Participation: You are under no obligation to participate and if you choose to participate, you may withdraw from the study at any time and/or refuse to answer any questions. If you choose to withdraw, all data gathered until the time of withdrawal will be destroyed and not used for any research purpose.

If you have any questions or require more information about the study itself, you may contact the researcher or her supervisor at the numbers mentioned herein.

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Appendix E: Results of the Pearson Correlations and ICC

For part 1, Ski Participation, all four questions showed sufficient reliabilty (r between .75 and .935) . *For part 1: Ski Participation*. Question 1 (How do you self-identify as a skier?) showed significantly correlated at r(73)= .935 with a the absolute agreement ICC(2,1) was r(73)= .935 (95% confidence interval from .898 to .958 (F72)= 29.701, p<.001). For Question 2 (How do you self-identify your level of skiing?), Pearson correlation was at r = .910, with an ICC (2,1) of r = .905 (95% CI [.854, .940], p = .000. For Question 3 (Have you ever participated in skiing?), Pearson correlation was at r = .881, with an ICC (2,1) of r = .875 (95% CI [.808, .920], p = .000. For Question 4 (How frequently did you ski per season?), Pearson correlation was at r = .751, with an ICC (2,1) of r = .750 (95% CI [.620, .840], p = .000.

For part 2: Constraints. In this section, 12 of 28 items were kept. Results revealed adequate reliability, the Pearson score between r = .706 and r = .780. Constraints 1 (I (still) do not know how to ski) at r(73)= .755 with a the absolute agreement ICC(2,1) was r(73)= .773 (95% confidence interval from .662 to .851, p<.001). For constraints 2 (I do not feel confident), Pearson correlation was at r = .773, with an ICC (2,1) of r = .769 (95% CI [.656, .848], p = .000. For Constraints 3 (Financially I cannot afford to go skiing), Pearson correlation was at r = .734, with an ICC (2,1) of r = .733 (95% CI [.606, .823], p = .000. For constraints 4 (Skiing is too physically demanding), Pearson correlation was at r = .717, with an ICC (2,1) of r = .715 (95% CI [.582, .811], p = .000. For constraints 5 (Skiing is too dangerous), Pearson correlation was at r = .780, with an ICC (2,1) of r = .780 (95% CI [.671, .856], p = .000. For constraints 6 (Skiing is too difficult to learn), Pearson correlation was at r = .718, with an ICC (2,1) of r = .716 (95% CI [.584, .812], p = .000. For constraints 7 (Skiing leads to injuries), Pearson correlation was at r = .766, with an ICC (2,1) of r = .763 (95% CI [.648, .844], p = .000. For constraints 8 (The ski slopes are unsafe), Pearson correlation was at r = .756, with an ICC (2,1) of r = .743 (95% CI [.615, .832], p = .000. For constraints 9 (Skiing is not part of my culture), Pearson correlation was at r = .730, with an ICC (2,1) of r = .732 (95% CI [.604, .824], p = .000. For constraints 10 (Skiing is too expensive), Pearson correlation was at r = .707, with an ICC (2,1) of r = .708 (95% CI [.573, .806], p = .000. For constraints 11 (Skiing makes me feel embarrassed), Pearson correlation was at r = .737, with an ICC (2,1) of r = .732 (95% CI [.604, .823], p = .000. For constraints 12 (My family dows not like skiing), Pearson correlation was at r = .706, with an ICC (2,1) of r = .707 (95% CI [.571, .806], p = .000.

For part 3: Facilitators. In this section, 9 of 22 items were kept. Facilitators 1 (Skiing helps me to release tension) at r(73)= .765 with a the absolute agreement ICC(2,1) was r(73)= .763 (95% confidence interval from .648 to .844, p<.001). For Facilitators 2 (Skiing is more worthwhile than spending time on other leisure activities), Pearson correlation was at r = .740, with an ICC (2,1) of r = .738 (95% CI [.613, .827], p = .000. For Facilitators 3 (Skiing is exciting), Pearson correlation was at r = .763, with an ICC (2,1) of r = .759 (95% CI [.643, .842], p = .000. For Facilitators 4 (Skiing is part of my culture), Pearson correlation was at r = .837, with an ICC (2,1) of r = .838 (95% CI [.754, .895], p = .000. For Facilitators 5 (Skiing increases my feeling of self-worth), Pearson correlation was at r = .727, with an ICC (2,1) of r = .713 (95% CI [.577, .810], p = .000. For Facilitators 6 (Skiing is part of my culture), Pearson correlation was at r

= .837, with an ICC (2,1) of r = .838 (95% CI [.754, .895], p = .000. For Facilitators 7 (Skiing is fun for me), Pearson correlation was at r = .800, with an ICC (2,1) of r = .802 (95% CI [.702, .871], p = .000. For Facilitators 8 (I want to spend time with family), Pearson correlation was at r = .704, with an ICC (2,1) of r = .704 (95% CI [.565, .804], p = .000.

For Part 4: Intention to ski. Intention 1 (I intent to go skiing in the future) showed significantly correlated at r(73)= .905 with a the absolute agreement ICC(2,1) was r(73)= .902 (95% confidence interval from .849 to .937, p<.001). For intent 2 (I want to ski more in the future), Pearson correlation was at r = .912, with an ICC (2,1) of r = .911 (95% CI [.862, .943], p = .000.

All three variables in part 5, demographic information, were sufficiently reliable, and kept for further analysis. *For Part 5: Demographic information.* Sex with perfect correlation at r(73)= 1.000. For Occupation, Pearson correlation was at r = .777, with an ICC (2,1) of r = .765 (95% CI [.651, .846], p = .000. Household status with correlation r = 776, ICC of r = .778 [668, 855], p = .000. Education level with correlation r = 743, ICC of r = .746 [623, 833], p = .000.

Appendix F: Test – retest Reliability results for the situationa factors

Table 5. Pearson's r between Time1 and Time 2 survey on situational factors (N=73)

Measures	r
I will not have time due to work commitments	.648**
I will not have time due to family commitments	.669**
I will not have time due to other social commitments	.625**
The snow conditions are unfavourable	.501**
I find the weather unpleasant	.670**
There is not enough variety in the slopes	.613**
It is too far to travel	.539**
The ski slope are overcrowed	.407**
The ski slope are not well maintained	.661**
I enjoy spending time in nature	.659**
Public transportation is provided for easy access	.431**
Special offers and activities are provided	.326**
Discounts for lift tickets are offered	.463
Discounts for ski lessons are offered	.552
There is great variety in ski slopes	.502
Employees provide excellent service	.480