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Recreation Conflict and Tolerance Among Skiers and Snowboarders

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ABSTRACT: Recreation conflict and tolerance between skiers and snowboarders has been an issue at winter resorts. With the number of snowboarding participants doubling in the last ten years and still growing, conflict situations with skiers seem likely to increase. The purpose of this study was to examine conflict and tolerance among skiers and snowboarders employing Jacob and Schreyer's (1980) conflict model. Conflict was measured in two ways. One measure assessed whether respondents experienced reduced enjoyment due to the presence or behavior of other skiers or snowboarders. The second conflict indicator measured the extent to which certain events were perceived as problems affecting enjoyment. These items were combined to create a general index of conflict for both skiers and snowboarders. Similarly, tolerance was measured with three multiple-item indices: skier tolerance, snowboarder tolerance, and general compatibility between the two activities. Data were collected at a rural ski town in northcentral Colorado using on-site surveys (n=186).

Three hypotheses about conflict, tolerance, and the relationship between conflict and tolerance among adult skiers and snowboarders were tested. One-way analysis of variance was used to explore the intra-and inter-activity conflict relationships between the two activities. Pearson r correlations were used to examine relationships between the tolerance indices and conflict measures for both activities.

Findings indicated that skiers and snowboarders had similar levels of conflict toward their outgroups. Both skiers and snowboarders expressed increased enjoyment when their respective groups were present or encountered, but skiers showed a greater degree of intra-activity conflict (conflict resulting from other skiers). In addition, skiers were less accepting than snowboarders towards the general compatibility of both activities. Finally, consistent with the findings of Jacob and Schreyer (1980), regardless of activity, individuals with higher tolerance experienced less conflict than individuals with lower tolerance. Information on the nature and extent of conflict among skiers and snowboarders can help managers resolve conflicts and ensure a high quality user's experience.

KEYWORDS: recreation conflict, tolerance, skiers and snowboarders

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Introduction

Participation in outdoor recreation escalated following the Second World War, and with the increased emphasis on leisure, the explosive growth contributed to competition over land and water use, and subsequently led to recreation conflict between participants engaged in various activities (Owens, 1985). Early research conceptualized recreation conflict as simply competition over the same resources by several competing activity groups (Devall & Harry, 1981), and / or incompatibilities between activities, groups or their respective goals (Bury, Holland & McEwen, 1983; Noe, Wellman & Hull, 1982). Although conflict relationships were found in earlier empirical research, these studies were limited by the few specific situations in which conflict was studied, largely in backcountry settings (Todd, 1987; Williams, 1993). In addition, the definition and conceptualization of conflict was problematic due to the lack of a theoretical framework (Gramann & Burdge, 1981; Owens, 1985).

Subsequently, there was a shift from viewing conflict as competition for scarce resources or incompatibilities between activities towards examining the underlying or fundamental factors that cause an individual or group to experience conflict. Conflict was defined as "goal interference attributed to another's behavior" (Jacob & Schreyer, 1980, p. 369). According to this definition, for conflict to occur, there must be direct or indirect social contact. Direct contact refers to face-to-face encounters with another activity group, such as hikers encountering stock users. Indirect contact refers to the presence or evidence of certain behaviors, for example a canoeist seeing a motorboat on the resource site, or a cross-country skier seeing a snowmobiler's tracks. Most previous research has studied direct contact / interpersonal conflict. The most consistent finding in this body of research is that recreation conflict most often occurs between users and non-users of mechanization, and is often asymmetrical. For example, cross-country skiers disliked their encounters with snowmobilers, but snowmobilers did not mind the encounters (Jackson & Wong, 1982; Knopp & Tyger, 1973). There is also some literature focusing on non-activity-specific comparisons. For example, non-activity based behaviors such as littering, drunkenness, noise, and rowdiness have been reported as sources of serious conflict (Jackson & Wong, 1982; Jackson, Haider & Elliot, 2002; Rudell & Gramann, 1994; Todd, 1987).

Jacob and Schreyer (1980) identified four major factors that contribute to conflict in what they termed goal interference theory. A single factor may be sufficient to cause conflict but in most circumstances conflict involves a combination of factors. The first factor, *activity style*, refers to attachment to the activity. Individuals who are intensely involved in an activity have specific objectives, expectations, well-defined goals, and high levels of experience and skills, and thus are more prone to experience conflict. The second factor, *resource specificity*, refers to attachment to a certain recreation resource. Recreationists who are possessive and consider the qualities

of the recreation site to be exceptional when compared to other sites are more likely to experience conflict than those who have no attachment to the specific resource. The third factor, *mode of experience,* refers to ways of perceiving and experiencing the environment. Participants may be in one of two modes, unfocused or focused. Participants in the unfocused mode perceive and experience the overall environment without close attention to details, whereas participants in the focused mode are very sensitive toward the particular details of the environment. When participants of the two modes come into contact, conflict is more likely to occur. The final factor, *tolerance for lifestyle diversity,* refers to the "tendency to accept or reject lifestyles different from one's own" (Jacob & Schreyer, 1980, p. 370). Participants who are unwilling to share resources with different lifestyle groups experience more conflict. Intolerance for lifestyle diversity stems from the stereotypes one group of recreationists holds about another group. These stereotypes or prejudices are linked to use of technology and resource consumption. People who are intolerant are more likely to experience conflict (Jacob & Schreyer, 1980).

Goal interference theory (Jacob & Schreyer, 1980) has been the subject of much empirical research and has generally been supported (Gramann & Burdge, 1981; Owens, 1985; Schneider, 2000; Watson, Niccolucci & Williams, 1994; Williams, 1993). Operationalization of conflict has varied within this research, and in some instances differs from the definitional perspective of conflict as outlined by Jacob and Schreyer (Schneider, 2000). For example, conflict has been operationalized based on whether participants found their encounters with other participants to be desirable or undesirable (Watson et al., 1994), or whether encounters with other participants interfered with or affected one's enjoyment (Watson, Williams & Daigle, 1991; Moore, Scott & Graefe, 1998; Thapa, 1996). Conflict has also been viewed from a normative perspective rather than based on goal interference theory (Vaske, Carothers, Donnelly & Baird, 2000). This approach involves asking participants to report whether certain specific behaviors of other participants are socially acceptable (Baird, 1993; Carothers, Vaske & Donnelly, 2001; Vaske, Donnelly, Wittmann & Laidlaw, 1995; Vaske et al., 2000). For example, inappropriate behaviors such as feeding or harassing wildlife were cited as a major source of conflict between hunters and non-hunters at Mt. Evans, Colorado (Vaske, et al., 1995).

As with conflict, the definition and conceptualization of tolerance has varied across different fields of research, but there has been a paucity of research on recreation tolerance. Recreation tolerance is defined as an attitude or a feeling towards an outgroup (someone participating in a different activity), and is not a behavioral response to a situation (Ivy et al., 1992). Participants classify themselves and others based on their participation in an activity; those people who fit into an activity group are classified as an ingroup, and those who do not fit into the activity group are classified as an outgroup (Ivy et al., 1992; Jacob & Schreyer, 1980).

Conflict theory suggests that when an individual encounters an ingroup member (someone participating in the same activity), he or she would most likely have a positive attitude towards the encounter. His / her level of tolerance would likely be high, and the conflict intensity would be low. Conversely, if the same individual encounters an outgroup member (someone participating in a different activity), that individual would likely have a negative attitude towards the encounter, his / her level of tolerance would likely be low, and thus conflict intensity would be higher.

Related Research on Skiers and Snowboarders

Skiing has been a popular winter recreation activity in the U.S. for numerous decades, while snowboarding has only been around for about 25 years. However, snowboarding has gained widespread interest and its popularity has increased over time with technological and demographic changes. According to the National Sporting Goods Association (2002), between 1991 and 2001 the number of participants in snowboarding increased from 1.6 million to 5.3 million, while the number of skiing participants decreased from 10.4 million to 7.7 million. Additionally, during the mid-1990s, there was a significant "activity cross-over effect" in which many new snowboarders were former skiers. A 1995 survey indicated 25.5% of the 2.8 million snowboarders had alpine skied (National Ski & Snowboard Retailers Association, 2002). However, this cross-over effect has since declined. In 2000, only 8.2% of the 4.3 million snowboarders had alpine skied (National Ski & Snowboard Retailers Association, 2002) suggesting that the current influx of new participants are most likely to be exclusively snowboarders. Surveys by the National Sporting Goods Association in 2000 and 2001 identified snowboarding as the fastest growing sport among 65 sports, fitness and recreation activities asked about. During the 2000-2001 season, a record of 57.3 million visits to 490 ski areas in operation in the U.S. were documented. Snowboarders made up 28% of these visits. It has been predicted that snowboarders will comprise 34% of ski area users within the next few years (National Ski Areas Association, 2002).

Although snowboarders have contributed to the revenues and / or profitability of the ski industry, the introduction of snowboarding has brought about various management issues (Makens, 2001). Stereotypes have been attached to participants of both activities, which in turn have been amplified by the mass media. Articles in academic (Baird, 1993; Makens, 2001; Thapa, 1996; Thapa & Graefe, 1999, 2003; Vaske et al., 2000; Williams, Dossa, & Fulton, 1994) and popular media outlets (Hughes, 1988; Keates, 1996; Maguire, 1999; Time, 1996) report a division between skiers and snowboarders. Some skiers have campaigned against snowboarders' attitudes and discourteous behavior on the slopes, such as jumping unsafely, unfriendliness, etc. Some resorts cater only to skiers to avoid any conflict situations while some have zoned or segregated certain trails exclusively for skiers or snowboarders (Mackens, 2001; O'Brien, 2000). In 1996, there were fifteen ski areas that banned

snowboarding on their premises (Time, 1996), but that number has declined to six (O'Brien, 2000). A minority (27%) of winter resort managers indicated that skiers have fully accepted snowboarders as another user group of the ski slopes, while 74% noted that skier-snowboarder relationships continue to improve (O'Brien, 2000). Therefore, it seems that the compatibility of participants still has room for improvement.

Results of studies investigating the nature of the conflict between skiers and snowboarders from a theoretical perspective have been mixed. In a study of skiers and snowboarders in British Columbia, Canada, Williams et al. (1994) found the tolerance between the two activity groups to be asymmetrical. Skiers were less tolerant than snowboarders and indicated that they preferred to have all or some of the slopes designated strictly for skiing. Also, some skiers expressed discontent with or animosity toward snowboarders and even implied that snowboarders should just go home and leave the mountain for skiers only. Conversely, the majority of snowboarders were more willing to share the mountain area with skiers. In contrast, Vaske et al. (2000) identified a symmetrical conflict relationship between skiers and snowboarders in Colorado, whereby participants of both activities experienced more outgroup than ingroup conflict, indicating a mutual dislike of each other. However, snowboarders were more likely than skiers to perceive similarity between the activities and the concern for safety was the most significant predictor of conflict with snowboarders among skiers.

Safety is a huge concern among managers. The combination of aggression, equipment and slope grooming has led to increased speed and subsequent lack of control among both skiers and snowboarders (Makens, 2001). Noise created by snowboards as they grate against the slopes also seems to be a major concern making skiers uncomfortable and cautious (Keates, 1996).

With the number of snowboarding participants more than doubling in the last ten years and still growing, there is potential for conflict situations between snowboarders and skiers to increase. It is important for managers to understand the basis of potential conflict between participants in these two activities to ensure a high quality user experience. Previous conflict research has chiefly targeted conflict and tolerance between different activities (i.e., inter-activity conflict). The purpose of this study was to examine the level of recreation conflict and the degree of tolerance among adult (18 years+) skiers and snowboarders. This study looks both within (intra-activity conflict) and between the activities to provide a comprehensive evaluation of the conflict associated with winter sports.

Hypotheses

This study was designed to test the following three hypotheses:

H1) Perceived conflict between skiers and snowboarders will be asymmetrical, with skiers experiencing a higher degree of conflict.

H2) Tolerance between skiers and snowboarders will be asymmetrical, with skiers having a lower degree of tolerance.
H3) Individuals with high tolerance will experience less conflict than individuals with lower tolerance.

Methods

The study site was a small rural "ski town" in northcentral Colorado that boasts an internationally recognized winter resort destination area. A random sampling plan was designed to achieve a representative sample of skiers and snowboarders between March 2nd and March 11th, 1996. All participants surveyed were 18 years of age or older with varying skill levels. Since the study was designed to measure the level of conflict between and within activities, it was appropriate to sample subjects after they had completed their respective activity for that day. Sampling occurred between 3 p.m. and 7 p.m. The reasoning behind this time frame is that the ski area closes at 4 p.m. and during this time there is a mass exodus of visitors from the ski area. Sampling was conducted at various sites including three ski / snowboard rental shops (one shop rented snowboards exclusively), a shuttle bus and shopping plazas. The designated sample collection sites were alternated daily and each site was used twice during the sampling period.

The interviewer used a systematic random sampling method (numbering system) to approach subjects. Systematic random sampling involves assignment of a unique identification number to each member of the study population, with selection of every 2nd, 3rd, 5th, etc., number (Henry, 1990). The number of surveys distributed at rental shops was a function of the number of equipment returns by renters. A random numbering system was also employed at shopping plazas. Similarly, the interviewer rode the shuttle (private bus) from 3 p.m. to 5 p.m. on two days. The shuttle (belonging to one of the major condominium complexes in the region) transported clients from the ski area to the lodging complexes. Since the study population was known from a head count of passengers, every second person was approached. The four-page questionnaire took an average of about 8 minutes to complete.

Over the sampling period, a total of 246 participants were approached and 186 agreed to complete the survey, yielding a response rate of 76%. The "activity of the day" variable was used to differentiate skiers and snowboarders; however, it is acknowledged that skiers and snowboarders are not mutually exclusive groups as some respondents in both categories practiced or had tried the other activity (especially the snowboarders). A total of 153 respondents were classified as skiers and 33 were snowboarders. Although some snowboarders were ineligible to participate in the survey because they were under 18 years of age, the sample proportion was roughly equivalent to the proportion of skiers and snowboarders on the slopes at the time of the study.

Operationalization of Conflict and Tolerance

Conflict was measured in two ways. To be consistent with Jacob and Schreyer's (1980) definition of conflict, the first measure focused on the presence or behavior of others at the site on the day of the activity. Respondents were first asked, "how did the presence or behavior of any [snowboarder / skiers] you might have seen affect your enjoyment of the trails?" The response format was a 7-point Likert-type scale (greatly reduced enjoyment to greatly increased enjoyment). In order to identify the presence of intra-and-inter-activity conflict, the question was repeated for both activities. Also, to understand the reasons for conflict or lack of conflict, an open-ended question asked respondents to describe the experience.

The second measure of conflict was based on a list of potential problems representing forms of goal interference due to another's behavior. Again a 7-point Likert-type scale (not a problem to very serious problem) was used. This type of conflict measure has been used as an alternative to or supplement to the first conflict measure (see Carothers et al., 2001; Moore et al., 1998; Ramthun, 1995; Vaske et at., 1995; Vaske et al., 2000). The problems listed were used to create two conflict indices, a conflict index for skiers and a corresponding conflict index for snowboarders. Each index had a total of 11 items derived from Baird's (1993) study of Colorado skiers and snowboarders (see Table 1). The means of the items were computed to generate a single index measure for each activity. Cronbach's alpha was used as a measure of reliability for both indices. An alpha value of .90 was identified for the conflict index for skiers while a value of .94 was noted for the snowboarder conflict index.

Multiple scaled items modified from the works of Baird (1993) and Ivy (1990) were used to measure tolerance. Tolerance was categorized into 3 different indices: Snowboarder tolerance (4 items); Skier tolerance (3 items), and General Compatibility (3 items). The three tolerance indices were created by computing the means of the items within each index. Some of the items within each index were reverse coded to maintain a consistent directionality of response, and the items retained in each index were selected to maintain the highest overall index reliability. The alpha values were .69 for the general compatibility index, .80 for the snowboarder tolerance index, and a moderately low alpha value of .51 was identified for the skier tolerance index (see Table 2).

Hypotheses Testing

The first hypothesis (conflict) was tested using one-way analysis of variance to determine the differences in perceived conflict between skiers and snowboarders. The two conflict measures, effect on experience (conflict on the day of the activity) and problem index (based on ratings of problems encountered), were treated as dependent variables and analyzed against activity (independent variable). Conflict was divided into ski conflict measures and snowboarder conflict measures, as both skiers and

Table 1
Items Used to Measure Respondents' Degree of Conflict

Items used to estimate degree of conflict on the day of the activity[a]

Conflict Resulting from Skiers:
How did the presence or behavior of any skiers you might have seen affect your enjoyment of the trails?

Conflict Resulting from Snowboarders:
How did the presence or behavior of any snowboarders you might have seen affect your enjoyment of the trails?

Items used as additional measures of conflict[b]

(Now think about all your experiences at this ski area with skiers and snowboarders) To what extent are the following conditions problems on the slopes?

Snowboarder conflict index (alpha=.94) and Skier conflict index (alpha=.90):

11 Items each for both Skiers and Snowboarders

- out of control
- pass too closely
- behave in a discourteous manner
- fail to beware of others around them
- jump unsafely
- fail to yield right of way to downhill skier/snowboarder
- obstructing a trail, liftline entrance, or a lift exit ramp
- cut others off
- on a trail above their ability
- snow conditions damaged
- encounters decreased the enjoyment of my trip

[a]Variable coded on a 7-point scale where 1=greatly increased enjoyment, 4=no effect on my enjoyment, and 7=greatly reduced enjoyment
[b]Variable coded on a 7-point scale where 1=not a problem, 4=moderate problem, and 7=very serious problem

snowboarders were asked for their perception of conflict resulting from both activities. A series of one-way analyses of variance were required to fully explore the intra-and-inter-activity conflict relationships between and within the two activities. That is, the analyses were repeated to specifically test for intra and inter-activity conflict.

The second hypothesis (tolerance) was likewise tested using a series of one-way analyses of variance to determine the differences in mean tolerance scores between skiers and snowboarders. Each tolerance index (dependent variable) was analyzed against activity (independent variable). Again, the analyses were further divided based on intra-and-inter-activity tolerance. The third hypothesis (relationship of conflict and tolerance) was tested using Pearson r correlations between the tolerance dimensions and the conflict measures for skiers and snowboarders. All hypotheses were tested at the .05 level of significance.

Table 2
Items Used to Measure Respondents' Level of Tolerance[a]

Snowboarder Tolerance Index (alpha=.80):

People on snowboards bother me*
I find it undesirable to meet snowboarders*
Parts of the mountain should be closed for skiers only*
People on snowboards make too much noise*

Skier Tolerance Index (alpha=.51):

People on skis bother me*
I find it undesirable to meet skiers*
Parts of the mountain should be closed for snowboarders only*

General Compatibility Index (alpha=.69):

Skiers and snowboarders are compatible with one other
It is not safe for snowboarders and skiers to share the same trails*
Snowboarders and skiers have different lifestyles*

*Reverse Coded
[a]Variables coded on a 7-point scale where -3=strongly disagree to +3=strongly agree.

Results

Males comprised 66% of the sample while 34% were females. The age distribution showed 43% in the 18-27 year old bracket, followed by 24% within the age group of 28-38 years. The youngest person to be sampled was 18 years of age and the oldest person was 71 years old. Study participants represented 27 different states with 18% of the participants from Colorado, 13% from Texas, and 11% from Tennessee.

The first hypothesis focused on the differences in conflict levels between the two activities, skiing and snowboarding. On comparison of skiers' and snowboarders' perceptions of conflict resulting from *skiers*, the first conflict measure (effect on experience) was significant at the .01 level. The mean degree of conflict experienced by skiers from the presence of skiers was 3.53, compared to 4.18 for snowboarders (on a 7-point scale where 1 indicated no conflict and 7 represented maximum conflict, with 4 indicating no effect). The mean values suggest that, for skiers, enjoyment tended to be slightly increased by the presence or behavior of other skiers. For snowboarders, the effect of skiers was more likely to be neutral or negative. Therefore, we concluded that the presence of skiers was less positive for snowboarders than it was for other skiers, although both groups' conflict levels were relatively low. This pattern was not replicated for the skier problem index. There was no significant difference between skiers and snowboarders in perceptions of problems caused by skiers (see Table 3).

Table 3
Comparison of Skiers' and Snowboarders' Perception of Conflict

Conflict Measure	Skiers			Snowboarders			
	Mean	(n)	Standard Deviation	Mean	(n)	Standard Deviation	F value
Conflict with Skiers							
Single Item[a] (Effect on experience)	3.53	(139)	1.18	4.18	(33)	1.33	7.66**
Problem Index[b]	2.58	(153)	1.15	2.78	(33)	1.15	.83
Conflict with Snowboarders							
Single Item[a] (Effect on experience)	4.29	(153)	1.26	2.52	(33)	1.33	53.04***
Problem Index[b]	3.01	(153)	1.60	2.08	(33)	.87	10.52**

**significant at .01 level (2-tail significance)
***significant at .001 level (2-tail significance)

[a]Variable coded on a 7-point scale where 1=greatly increased enjoyment, 4=no effect, and 7=greatly reduced enjoyment.

[b]Composite index score computed as the mean of index statements coded on a 7-point scale where 1=not a problem, 4=moderate problem, and 7=very serious problem.

The presence of snowboarders had a more negative impact on skiers than on snowboarders. This result was found using both the single item measure of conflict and the problem index. On the single item conflict measure skiers had a mean of 4.29, compared to 2.52 for snowboarders. Although skiers reported much higher conflict resulting from snowboarders, it is noteworthy that their mean score (4.29) was still relatively low (near neutral) on the 7-point scale. This finding was replicated for the snowboarder problem index. The snowboarder problem index mean scores were 3.01 for skiers and 2.08 for snowboarders (1= no conflict and 7=maximum conflict), confirming that skiers were more likely to experience conflict with snowboarders than snowboarders with fellow snowboarders.

Skiers' and snowboarders' perceptions of *outgroup* (inter-activity) conflict were not significantly different. Both measures (the single item effect on experience and the problem index) failed to reach significance at the .05 level (see Table 4). This result supports the case for a symmetrical conflict relationship (as opposed to the hypothesized asymmetrical conflict) by showing that each group (skiers and snowboarders) perceived the same degree of conflict with the other group.

When the *ingroup* (intra-activity) conflict relationships were examined, however, significant differences were observed. The single item intra-group conflict mean was 3.53 for skiers versus 2.52 for snowboarders, suggesting skiers experienced more conflict from other skiers than snowboarders did

from other snowboarders. The problem index yielded similar results showing skiers were more likely than snowboarders to experience intra-group conflict. In both cases, however, levels of conflict experienced and problems perceived were low. Overall, the first hypothesis was partially supported. While a symmetrical relationship was found for inter-group conflict, the intra-group conflict was asymmetrical as was hypothesized.

The second hypothesis (tolerance) examined the differences in mean tolerance levels between the two activities. Results indicate snowboarders (mean = 5.84) were more tolerant than skiers (mean = 4.36) of other snowboarders on a scale where 1=low tolerance and 7=maximum tolerance (see Table 5). Both snowboarders (mean = 4.81) and skiers (mean = 4.52) were equally tolerant of skiers. Snowboarders (mean = 5.11) perceived a greater level of general compatibility between the two activities than did skiers (mean = 4.35).

Further analyses isolated the intra-and-inter-activity tolerance relationships between skiers and snowboarders (see Table 6). Skiers (mean = 4.52) and snowboarders (mean = 5.84) differed significantly on their intra-activity tolerance. Findings were consistent with results described earlier that indicated snowboarders were more likely to be tolerant of fellow snowboarders than skiers with fellow skiers. The inter-activity tolerance relationship showed similar means (skiers=4.36; snowboarders=4.81),

Table 4
Comparison of Skiers' and Snowboarders' Perception of Inter-and Intra-Activity Conflict

Conflict Measure	Skiers			Snowboarders			
	Mean	(n)	Standard Deviation	Mean	(n)	Standard Deviation	F value
Outgroup Conflict (Inter-activity)							
Single Item[a] (Effect on experience)	4.29	(153)	1.26	4.18	(33)	1.33	.21
Problem Index[b]	3.01	(153)	1.60	2.78	(33)	1.15	.60
Ingroup Conflict (Intra-activity)							
Single Item[a] (Effect on experience)	3.53	(139)	1.18	2.52	(33)	1.33	18.85***
Problem Index[b]	2.58	(153)	1.15	2.08	(33)	.87	5.65**

**significant at .01 level (2-tail significance)
***significant at .001 level (2-tail significance)

[a]Variable coded on a 7-point scale where 1=greatly increased enjoyment, 4=no effect, and 7=greatly reduced enjoyment.

[b]Composite index score computed as the mean of index statements coded on a 7-point scale where 1=not a problem, 4=moderate problem, and 7=very serious problem.

Table 5
Comparison of Tolerance Levels between Skiers and Snowboarders

	Skiers		Snowboarders		
Tolerance Dimensions[a]	**Mean (n)**	**Standard Deviation**	**Mean (n)**	**Standard Deviation**	**F value**
Snowboarder Tolerance Index	4.36 (153)	1.39	5.84 (33)	1.06	33.48**
Skier Tolerance Index	4.52 (152)	1.18	4.81 (33)	1.38	1.51
General Compatibility Index	4.35 (151)	1.50	5.11 (33)	1.15	7.47***

**significant at .01 level (2-tail significance)
***significant at .001 level (2-tail significance)

[a]Composite index scores computed as the mean of index statements recoded on a 7-point scale where 1=low tolerance and 7=high tolerance.

which implied that snowboarders and skiers were equally tolerant of each other. As in the case of conflict (hypothesis one), the tolerance hypothesis (hypothesis 2) was partially supported. Snowboarders were particularly tolerant of other snowboarders, while skiers were less tolerant of their own group.

Relationships between tolerance and conflict were found to be significant in 10 of 12 comparisons made (see Table 7). In all of these cases tolerance was inversely related to conflict, supporting the third hypothesis. In other words, those with higher tolerance experienced less conflict. The significant correlations indicate the relationships were strongest with snowboarder tolerance, followed by general compatibility and skier tolerance. Two of the tolerance dimensions (snowboarder tolerance index and general compatibility index) were not significantly related to the "effect on experience" measure of conflict with skiers.

Table 6
Comparison of Inter-and Intra-Activity Tolerance Levels between Skiers and Snowboarders

	Skiers		Snowboarders		
Tolerance Dimensions[a]	**Mean (n)**	**Standard Deviation**	**Mean (n)**	**Standard Deviation**	**F value**
Inter-activity Tolerance	4.36 (152)	1.39	4.81 (33)	1.38	2.89
Intra-activity Tolerance	4.52 (152)	1.18	5.84 (33)	1.38	34.95***

***significant at .001 level (2-tail significance)

[a]Composite index scores computed as the mean of index statements recoded on a 7-point scale where 1=low tolerance and 7=high tolerance.

Table 7
Correlation of tolerance and conflict between skiers and snowboarders

Conflict	Tolerance Dimensions (three indices)		
	Skier tolerance index	Snowboarder tolerance index	General compatibility index
Skiers			
Single Item[a] (Effect on experience)	-.15*	.08	.09
Problem Index[b]	-.25**	-.16*	-.20**
Snowboarders			
Single Item[a] (Effect on experience)	-.25***	-.50***	-.46***
Problem Index[b]	-.29***	-.52***	-.49***

*significant at .05 level (2-tail significance)
**significant at .01 level (2-tail significance)
***significant at .001 level (2-tail significance)

[a]Variable coded on a 7-point scale where 1=greatly increased enjoyment, 4=no effect, and 7=greatly reduced enjoyment.

[b]Composite index score computed as the mean of index statements coded on a 7-point scale where 1=not a problem, 4=moderate problem, and 7=very serious problem.

Discussion

The findings in this study generally support previous research showing that the presence or behavior of an outgroup generates conflict. Literature suggests that groups identify with their own and prefer to be around members of their own activity group. This was the case for both activities in this study, as skiers and snowboarders alike generally expressed increased enjoyment when their respective ingroups were present or encountered. In addition, this study found that, although skiers tended to enjoy their interactions with other skiers, they also were more likely than snowboarders to experience intra-group conflict (skier versus skier).

Most conflict relationships previously reported in the literature have been asymmetrical. When the conflict involves traditional and new users a one way or asymmetric antipathy can occur in which the traditional user experiences more conflict than the new user. However, based upon the findings and within the parameters of this study, we found that skiers and snowboarders shared a symmetrical conflict relationship. This type of conflict symmetry was in concert with the findings of Vaske et al. (2000); they also collected data on skiers and snowboarders in Colorado during the mid-1990s and found both groups perceived more outgroup than ingroup conflict. Conflict intensity was not strong in either study but still warrants attention among managers as current problems and issues could escalate with increasing snowboarding participation. Individuals are more likely to

be tolerant of others who they perceive to have similar recreational pursuits (Gibbons & Rudell, 1995; Jackson & Wong, 1982; Jacob & Schreyer, 1980). Findings from this study confirm skiers have less tolerance towards snowboarders than snowboarders have towards other snowboarders. Surprisingly, however, snowboarders and skiers were equally tolerant towards skiers. Vaske et al. (2000) noted that snowboarders were more likely than skiers to perceive the two activities as similar. Based upon focus group interviews with skiers, snowboarders and ski area personnel, Williams et al. (1994) indicated that skiers and snowboarders shared an asymmetrical tolerance relationship. Skiers were less tolerant of snowboarders while snowboarders did not mind the presence or behavior of skiers on the mountain.

The tolerance factor between participants in these two activities is important for ski destinations. While a few resorts cater only to skiers to avoid any conflict situations, the question of segregating the two activities is a debatable issue. Vaske et al. (2000) recommended spatial separation of skiers and snowboarders by attraction areas or trails to minimize or mitigate conflict and safety concerns. However, Williams et al. (1994) found that snowboarders did not mind the skiers, and also did not want to be segregated or zoned in an area but rather wanted to enjoy the resource with everyone. Most destinations have not completely segregated these two activities, but rather have upgraded facilities and zoned certain areas to increase enjoyment or meet the demands of snowboarders. Basic necessities such as snowboard racks, rope tows on flat terrain, and areas to buckle in and out of snowboard bindings are being installed. Also, winter resort areas have built featured attractions such as “snowboard parks” with half-pipes (a U-shaped structure) to attract snowboarders and provide a venue for special events.

Several steps could be taken to gain a better understanding of the relationship between snowboarders and skiers on increasingly crowded slopes. First, given the recent surge in popularity of snowboarding among younger adults, a study focusing on younger participants (below 18) would be very informative. Second, operationalization of the tolerance variable needs to be improved. Since quantitative measures of tolerance have lacked consistency across several studies, perhaps a qualitative approach as used by Williams et al. (1994) or a mixed approach would yield a more comprehensive assessment. Third, tolerance measures could be branched into two categories, situational (site oriented) and attitudinal (non-site oriented) to better understand the factors that affect degree of tolerance and levels of conflict that would assist managers to apply managerial solutions. Fourth, a study of reciprocity, or the degree of tolerance when a new activity is introduced to a site primarily used by one activity, would also be useful.

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