EXPLORING OPPORTUNITIES FOR SNOWMOBILE AVALANCHE EDUCATION
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ABSTRACT: Avalanches are a significant risk for those who choose to recreate in the mountains. Despite efforts to raise avalanche awareness and educate people, the prevalence of avalanche deaths occurring in the snowmobile population compared to other recreational activities is a growing concern. There has been limited research undertaken to determine why fatality rates are so high and, consequently, strategies developed to potentially decrease them are somewhat limited. This study aims to interview snowmobilers in the community to develop a grounded theory, determining the factors involved in individuals’ participation in avalanche education and subsequently to provide recommendations to identify opportunities to more effectively educate snowmobilers.

1. INTRODUCTION
Avalanches are an inherent risk to those who work, travel or recreate in avalanche terrain, and have caused many large scale disasters, as well as affecting the pursuits of individuals and small groups in the mountains. In recent years the increase in the number of snowmobiler fatalities has been of particular concern, as they have contributed to some of the highest fatality years in history (CAC, 2012). Attributed to this statistic is the fact that snowmobiling has seen a rapid increase in technology in the last decade, which has resulted in more people being able to access more areas and terrain with less experience and skill. Unfortunately, this increase in technology has not been paralleled by an increase in avalanche knowledge and education within the community.

There is a need to further understand why there has been an increase in snowmobiler fatalities and to target programs to educate snowmobilers, with the goal of reducing their risk for being involved with avalanches. Broadly speaking, the amount of research undertaken to identify the needs of recreationalists in terms of avalanche education has been limited, and even less focus has been directed towards the unique needs of snowmobilers.

2. LITERATURE REVIEW
Avalanches are complex phenomena, involve a multitude of factors, and their specific occurrence depends heavily on local conditions.

These factors make individual slopes difficult to evaluate in the field, where decisions made by individuals are heavily dependent on field observations and human factors. Limited research has been performed from a social science perspective, and that which has been conducted presents some interesting complexities.

Laura Adams (2004) implemented grounded theory research to explore the knowledge and experience of avalanche professionals and apply it to education, decision support and accident prevention for backcountry skiers and snowboarders. In her study she sent an online questionnaire to these professionals, asking them to elaborate on the factors, knowledge, education, awareness, communication and decision support they believed to affect avalanche accidents and decision making. Her theory and recommendations culminated in a focused list of the causes of avalanche accidents, factors in avalanche decision making and key themes for supporting sound decisions. These professionals brought forth excellent ideas on which to base targeted education and training. Although Adams presents valuable information regarding the education and training of people, there is still a need to understand how to target training to the public and specific user groups (2004).

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One further study included in the perspectives of recreationalists in a demographics survey and a discrete choice experiment that provided opportunities for researchers to investigate the motivations, perceptions and decision making of recreationalists (Haegeli, P., Haider, W., Longland, M., & Beardmore, B., 2010). This study expanded the knowledge of the demographics of skiers and snowmobilers and provided valuable insight into the factors considered in choosing when and where to recreate in the backcountry. This experiment provided an interesting perspective into the decisions of recreationalists, however, it is difficult to generalize the discrete choices to the complexity found in real life recreational situations. The factors involved in the choice were presented in a visual format in front of the participant, removing the actual need for attention, field observation and data collection that are equally important in decision making.

From the limited base of behavioural research involving avalanche hazard, it is evident that the majority of research has mainly been focused on data from avalanche professionals and skiers. This research is taking a new direction by focusing on the perspectives and insights of snowmobilers themselves in order to build towards an understanding of why snowmobilers continue to be involved in avalanche accidents, and in addition, moving towards preventing these accidents in the future.

3. METHODS

In order to fully benefit from the advantages of exploration in research, grounded theory methodology was used to frame procedures for data collection and analysis (Glaser & Strauss, 1999). Unlike quantitative and statistically based methods of research, where a particular data set is used to support or refute a claim, grounded theory allows data to be collected over a much broader realm of interest. Although avalanche education is the main area of investigation, the information highlighted in participants’ interviews determines the primary focus and concepts used in the theory. From data collection to the end of analysis, the data is coded and sorted in order to identify inherent categories and concepts. These emerging points of theory are suggestively supported by the collected data and their general validity is grounded within it. While the theory is based on the data, the nature of the methodology allows for fluctuations and changes in order to accommodate new pieces of information that emerge with further data collection.

Throughout the winter season of 2011/2012, I interviewed 38 snowmobilers at a popular backcountry cabin location, as a part of their snowmobiling group. Interviews typically lasted between 10 and 15 minutes and followed an interview outline with roughly 17 open ended questions. The questions encouraged responses that were conducive to elaboration, exploration and grounded theory generation. I recorded interviewees’ answers using field notes and later transcribed into digital form. From that point, the data was coded and analyzed according to methods appropriate for grounded theory.

4. RESULTS AND DISCUSSION

4.1 Shedding Misperceptions

Challenging misperceptions of the snowmobiling community is the initial step toward framing the collected data with an open mind. While misperceptions about snowmobilers may not be directly impacting the avalanche fatality rates, it does affect the perceptions, intentions and aims of those individuals working towards the provision of education programs specific to the snowmobile community. By framing the community in a manner that is accurate, education efforts can more effectively embrace the nature and the needs of snowmobilers.

Despite the assumption that snowmobiling thrives on high risk activities, it was found during the interviews that most people valued snowmobiling for the challenge it presented. No one expressed interest in challenging an avalanche itself; people expressed only fear, respect or a desire to avoid avalanches. The most common motivations for snowmobiling were the powder and scenery, the thrill and adventure and having fun with friends. They valued the challenge – “you don’t think you can do something, and you do it.” They also highlighted the thrill, excitement, adrenaline and adventure of snowmobiling – “pure enjoyment and adrenaline.” One individual said, “Awesome – the best drug I’ve done” and another highlighted an important hallmark of flow, “You can’t think about your problems, you need to be focused on what is going on right now.”

4.2 The Heedless/Attentive Dichotomy

Emerging from the data was the evidence of a dichotomy that, for the most part, allows riders to be divided into two main groups, each with an opposite set of categories. Table 1 demonstrates the categories that define each of the two concepts: Heedless and Attentive snowmobilers.
Table 1: Heedless/Attentive Dichotomy

<table>
<thead>
<tr>
<th>Heedless</th>
<th>Attentive</th>
</tr>
</thead>
<tbody>
<tr>
<td>No formal avalanche safety training</td>
<td>Has formal avalanche safety training</td>
</tr>
<tr>
<td>Less days on the sled total (inexperienced or doesn’t sled often)</td>
<td>More days on the sled total (experienced)</td>
</tr>
<tr>
<td>Scared of or ignores possibility of avalanches</td>
<td>Respectful and cautious of avalanches</td>
</tr>
<tr>
<td>Unaware of educative efforts</td>
<td>Looks for opportunities for education</td>
</tr>
<tr>
<td>Airbags are important</td>
<td>Transceivers are important</td>
</tr>
<tr>
<td>Avalanche hazard sometimes or never affects riding choices</td>
<td>Avalanche hazard affects riding choices</td>
</tr>
<tr>
<td>Misperceives terrain and safety rules</td>
<td>Looks and understands terrain and safe travel practices</td>
</tr>
<tr>
<td>Has been involved or avoids avalanche terrain</td>
<td>Has not been involved in avalanches</td>
</tr>
<tr>
<td>Agree that education is a positive and everyone should have training</td>
<td></td>
</tr>
<tr>
<td>Has recommendations for getting people trained</td>
<td></td>
</tr>
</tbody>
</table>

Whether an AST course had been taken was the main difference that categorized people into each of these concepts. The attitudes, values and perceptions of those who had taken an AST course were vastly different from those who had not. People who had taken AST courses are excited to talk about what they learned, how they practise, how they maintain their knowledge and how they educate their friends. They also mention repeatedly that the training has changed the way they look at snow, understand avalanche bulletins and travel through terrain. These people have more experience snowmobiling in the mountains and express a cautious respect toward avalanches, some describe them as being "in the back of their mind" yet they did not "live in fear of them." Most importantly, they express that avalanche hazard affects their choices when riding. This group is best described with the concept name Attentive, as they pay attention to all factors that allow them to enjoy snowmobiling safely in avalanche terrain.

The second group, which unfortunately includes slightly more than half of the snowmobilers interviewed, had not completed formal avalanche training, or had only taken a very limited type of training such as a three hour Avalanche Awareness Seminar. They tend to be fearful of avalanches, talk about avoiding them or are heedless of any warnings such as high danger. They lack awareness of the education efforts that take place in communities and they appear to focus on the value of avalanche airbags over the value of transceivers. Of most concern was the tendency for avalanche conditions to have no effect on their trip planning and slope choices, and of possible relation, the high number who had been involved personally in one or more avalanches. This group was appropriately given the name of Heedless as they do not appear to heed the safety messages that are offered by avalanche professionals.

These two groups highlight the opposing values, attitudes and beliefs; however, there are also some similarities between both groups. The majority agreed that avalanche training is important and everyone should take a course. Both groups also made recommendations for making AST courses more accessible.

The question that arises from this dichotomy is: why are people not getting training despite their agreement that they all should?

One of the challenges framed by avalanche awareness is the word awareness itself. The two groups of snowmobilers were both, in a literal sense of the word, aware of avalanches. What separates the two groups above and beyond awareness is the presence of action in their pursuit of avalanche knowledge and training. The Attentive group uses their awareness of avalanches and takes action to develop a better understanding of avalanche safety. Many of these individuals talked about practicing their rescue skills and teaching their friends about avalanche safety. The Heedless group tends not to heed the awareness, and therefore does not take the action necessary to pursue education. The presence of action or initiative demonstrates people taking responsibility for their own education. However, those who do not take this responsibility do not proceed from awareness to action.

People without AST training are typically fearful of being caught in an avalanche. Many people did not hesitate to admit they were “scared to death of avalanches” or their wives and family were scared for them. Other people demonstrated feeling out of control when it comes to managing their risk. One participant made the motion of rolling the dice, and another said my questions scared him and made him think about things he didn’t like. Another expressed that he would probably never come back to the mountains if he was ever in an avalanche. These views highlight the common view of an external locus of control in terms of avalanches.
The people with training had a much different attitude; they were respectful and cautious. They think about avalanches but have a certain sense of control about them. They discuss ways of managing their risk, and take into account the conditions. These people do not live in fear of avalanches. This internal locus of control created through education allows people a greater feeling of competence in risk management while snowmobiling.

A feeling of greater control over avalanche risk management can be explained in terms of self-efficacy. While both the Heedless and Attentive groups are aware of avalanche risk, the higher self-efficacy of individuals in the Attentive group allows these individuals to manage their risk instead of living in fear of avalanches. This increased self-efficacy of individuals in the Attentive group is expected to be a result of the personal empowerment gained by their participation in AST courses and the skills they learned through this experience and the practice that follows.

4.3 Promoting Self-Efficacy through Education

One of the most predominant patterns in the data from the participant interviews is among people who were just entering into snowmobiling. They appeared to use their short duration in the sport as an excuse for not having avalanche training. However, all of these people carry a transceiver, shovel and probe and many have purchased an avalanche airbag. This is a common attribute of the Heedless group of riders. They are aware of avalanches, and are following the recommendations gathered through advertising and awareness advice. But, they are not being exposed to the message of the importance of education and its ability to empower individuals with self-efficacy in avalanche risk management. Education that promotes personal empowerment to demonstrate snowmobilers’ abilities to manage their own risk will provide them the tools and confidence they need to snowmobile safely.

The values of the snowmobiling community demonstrated through the media are reflected in the preparation of new riders. New snowmobilers buy new sleds, avalanche gear and often an airbag; however, virtually none of the individuals interviewed had taken an AST course (one exception). Retailers could be a valuable resource in promoting avalanche education messaging when snowmobilers engage in the purchase of a new sled and related avalanche gear.

Avalanche airbags have introduced an interesting factor into the discussion between avalanche awareness and action. One character that emerged from the dichotomy of heedless and attentive snowmobilers is a difference in opinion on the importance of airbags. People without avalanche education seemed to place a high value on airbags, while people who had education, even though they often carried airbags as well, placed a higher value on the avalanche transceiver.

The airbag is a commonly used piece of gear in snowmobiling. What the airbag gives people that an AST course does not is immediate, tangible results, instead of requiring time, effort, and action to acquire a more abstract form of protection through knowledge. They are a form of reactionary avalanche safety that is available for everyone – even those individuals who have not reached the self-efficacy required to tackle risk management as their main source of avalanche avoidance.

The culture of snowmobiling promoted in the media is one of power, technology, thrills and pushing oneself and machine to the limits. These values are demonstrated in the media, which highlights new technology and professional riders performing impressive feats. The media is a powerful resource for driving new and exciting information in the industry.

As highly valued new technology dominates the media, avalanche education and gear does not attract the same attention. Most of the people who read magazines, watched videos and joined forums believed that there was little to no emphasis on avalanche education through these resources. Unfortunately, the media is set out to attract people’s attention as a consumer based industry, and people do not buy magazines or watch videos to see new avalanche safety information. The difficulty behind this is when people join the sport and use these media resources to learn more about it, they do not learn to value avalanche safety as part of the community because it is not a prominent point in these resources.

Taking a more proactive approach in avalanche education as well may help demonstrate its importance to those who may not be aware. It appears that education is not reaching those who would benefit the most. A thorough integration of avalanche education and safety values into the everyday life of the community is required to ensure avalanche education is a highly visible part of the sport for new or untrained riders.
5. CONCLUSIONS

Current perceptions of snowmobiling do little to help the state of avalanche education within the community. It is unfortunate that the current perception of snowmobilers in the media is one of recklessness and ignorance. Often the media takes a certain stand over a topic which is then used as a curriculum from which the rest of the population learns (Watt, 2007). However these misperceptions are formed, their potential for teaching these mistaken views to the public is detrimental when working towards avalanche education that is enticing to snowmobilers. Reviewing all of the data and suggestions by snowmobilers, it is evident that education has not yet been built into the community and culture. In order for avalanche education to be prioritized by snowmobilers, it must be internalized by the sport and valued by all of its members. Assisting snowmobilers to build their own curriculum into every aspect of snowmobiling would create more value and respect for avalanche safety and education in the community. Adjusting curriculum to fit works, but empowering the community to take responsibility for learning is far more valuable.

6. REFERENCES


