

Reaching Snowmobile Riders with Effective Training Methods
International Snow Science Workshop 2012

Identifying unique, captivating educational techniques targeted to reach snowmobile riders

*Debra McGhan, Executive Director
North America Outdoor Institute, Wasilla, AK
Dorothy Adler, Education Director
North America Outdoor Institute, Sutton, AK
Merletta Morris, Creative Curriculum Specialist
Vandenberg AFB, Lompoc, CA*

Abstract: All across snow covered states, from bush villages in Alaska to the side streets of small towns, snowmachines have become an integral part of life. Alaskans use snowmobiles to race, climb and recreate. And they are a critical piece of transportation for everyday life in a state covered by snow more than half the year. But research shows that based on miles driven, chances are more than eight times higher that people riding or driving snowmobiles will be injured or killed than those driving a car.

Objectives –The objective of this project is to identify ways to engage and educate riders to help change the culture of recreational habits in Alaska and reduce injuries and deaths.

Methods – Over an eight-year span data was collected from 299 training sessions in Alaska reaching more than 48,000 people. We collected intake and exit assessment surveys from more than 10,000 individuals to learn about prior experience and knowledge as well as their feedback to determine the effectiveness of the training and to provide individuals the opportunity to share their interests and needs for future training.

Results – Our research shows that attendance at training sessions and repeat participation by students increased by more than 25% with the use of captivating, interactive education methods, celebrity role-models and gear incentives. We discovered that riders were especially turned off by technical lessons delivered by instructors with a lot of snow experience but little or no actual riding experience. It did not matter how much these trainers knew about avalanches, it only mattered that they understood what it was like to travel in the mountains from a rider's perspective. We

also found that keeping information focused on a few practical protocols that are easy to understand and implement, such as when to go, what to take and where to be, proved to have the highest retention rate by participants.

1. INTRODUCTION

Snowmobiling is one of the most exciting, fastest growing sports in the world today where ever you find snow. It is also inherently one of the most dangerous activities, especially without education or training. But how do you engage people to participate in safety education?

Kenneth Hayes, (KJ) took a group of family and friends into the Talkeetna Mountains near Cantwell in 1998 for a day of riding. Conditions were beautiful with a six inch coating of fresh snow covering the hills. Taking a break from riding, the group parked in a location that those with avy savvy eyes would recognize as a terrain trap. Unfortunately KJ was unaware they were in danger until it was too late. When he felt an odd sensation behind him, he turned around to see a small slide break across a ridge above them and suddenly realized, it was actually a gigantic ocean wave of snow hurtling right toward them.

He was screaming 'avalanche' and ordering everyone out of the 'bowl' but it was too late. Seven riders were caught in the slide. Three were injured, one died and six snowmachines destroyed. KJ didn't make it out.

A year later, Keith Coyne got a new helmet for Christmas and decided to take it up to Hatcher

* Debra A. McGhan, North America Outdoor Institute, 7362 W. Parks Hwy. #623, Wasilla, AK 99623-9300; tel: 907-982-0332; fax: 907-376-2898; email: dmcghan@naoiak.org

Pass for a test ride on his machine. A group of riders had been sledding on the slopes all day but were parked at the base of a 38 degree hill taking a break. Dozens of tracks decorated the snow. Coyne headed up the mountainside but the late afternoon spring snow had softened and his machine soon bogged down. When he jumped off the sled and began pulling on the machine, an avalanche triggered and propagated across the slope sending a wall of snow roaring downhill. Coyne was not wearing an avalanche transceiver and was buried in the debris. His body was recovered too late to save him.

More than a decade later, on February 13, 2010 Jim Bowles and Alan Gage of Anchorage headed out with a group of 12 riders to tour the Placer River Valley around Grandview. One of the riders rode up a southeast facing slope and got his machine stuck so the second rider went up to help. Suddenly the weight of these riders, combined with a third rider, crossing the slope about 200 feet away, triggered an avalanche and Bowles, Gage and the third rider were caught. The third rider was able to dig himself out but Bowles and Gage were buried more than six feet deep when the snow stopped moving. The men were wearing avalanche beacons but the safety gear only made it possible to find their bodies.

Brianna Campbell was 14-years-old the night she was following her brother on the trails and back roads around Wasilla and slammed her sled into the side of a truck. A champion gymnast and cheerleader, her life took a dramatic detour that day. To her fortune, she was wearing a helmet and sustained no head injuries. But she tore her ACL in her right leg and was suddenly sidelined from national competition and her shot at a college scholarship.

All of these case studies had one common denominator; the riders needed more information to help them make decisions that would keep them out of harm. All had some experience riding snowmobiles. Some had safety equipment. None of these riders had formal snowmobile or avalanche safety training. All of them were in the wrong place at the wrong time.

The victims in these examples ranged from youth with only a little experience to professionals with years of practice and education but not on specific awareness and terrain management. It is unknown how many had the opportunity to attend a safety awareness course and chose not to go. But speaking with family members after the fact made it clear, the lesson learned by the loss or injury of their loved one has changed the way they personally recreate. Three of these cases resulted in family members seeking out training and attending NAOI courses. All said they believe it is critical to share this information with everyone that works, plays, travels or lives in snow country.

Our goal is to figure out the best method for getting the message out there effectively without people having to die to provide the motivation.

1.1 History of Snowmobiles

All across snow covered states, from the national parks in Wyoming to bush villages in Alaska to the side streets of small towns, snowmobiles have become an integral part of life. Alaskans use snowmobiles (they call them snowmachines) to race, climb, recreate, transport gear, enhance subsistence lifestyles and as a critical piece of transportation for everyday life in a state where the land is typically covered by snow more than half the year.

It was 1927 when the first patent for a snowmobile was issued to Carl J. Eliason of Sayner, Wisconsin^{1*} but it wasn't until 1954 when David Johnson and partner Alan Edgar Hetteen of Polaris Industries developed the first recreational snowmobile^{2*}. This machine was fraught with problems and was soon scraped. Then in 1958 Joseph Armand Bombardier designed the predecessor to the modern snowmobile. Bombardier is considered the father of snowmobiling and began commercial production and marketing of the Ski-Doo snowmobile in 1959.^{3*}

Snowmobiling is a fun, exciting and healthy activity when done properly and with respect.^{4*}

1.2 Injuries and deaths related to snowmobiling

In the past decade, thanks to technological advances, snowmobiles have become lighter, faster, more powerful and able to take riders into

steeper terrain previously inaccessible to the recreational rider. This has also put riders, both beginners as well as seasoned snowmobilers, into situations they are often unprepared to handle due to a lack of knowledge, skill and/or physical conditioning. As a result, the number of injuries and fatalities from avalanches, impacts with objects, falling through fragile ice on rivers and glaciers and other backcountry riding accidents, has risen dramatically.*⁵ Today Alaska ranks number one in the nation per capita for both avalanche and snowmobile fatalities.*⁶

Doug Abromeit, director of the U.S. Forest Service's National Avalanche Center told USA Today*⁷ that one of the reasons is due to more and more people heading into dangerous terrain. "Technology for (snowmobiles,) skis and snowboards have improved so much that people want to (ride) on steeper and steeper slopes," said Abromeit.

According to Bruce Tremper, Executive Director of the Utah Avalanche Center and author of the book *Staying Alive in Avalanche Terrain*, "Almost all avalanche fatalities in North America involve recreationists, most notably snowmobilers, climbers, backcountry skiers, and boarders, in that order. Almost all are very skilled in their sport, male, fit, educated, intelligent, middle class, and between the ages of 18 and 40."*⁸

"Most times when people venture into the backcountry nothing happens, again and again, except they gain in confidence and look forward to the next time. And since snow is stable about 95 percent of the time, you get the 95 percent-success rate even if you know zero about avalanches. "

Ed Klim, president of the International Snowmobile Manufacturers Association, said this trend especially applies to snowmobile riders. "The snowmobiles are better and the people who ride them have learned how to ride them, so they are going further and further into the backcountry," said Klim.

"In a sport called 'highmarking,' riders drive as far as they can uphill until they lose

momentum," explains Mick Steinman, safety chairman for the Washington State Snowmobile Association. "In 1998, we could only go up half the hill. Now we have enough power and traction that we can go completely up the hill and then some."

According to an Alaska state and federal study published in 1999, based on miles driven, chances are more than eight times higher that people riding or driving snowmobiles will be injured or killed than those driving a car.*⁹

Snowmobiles also pose a much higher risk to children under 15-years.*¹⁰ According to the Canadian Pediatric Society, children are at greater risk for head injuries which remains the leading cause of mortality and serious morbidity.*¹¹ These injuries are typically sustained by the rider striking a stationary obstacle.

1.3 Snowmobile Safety Training

There are currently more than 1.4 million snowmobiles registered in the United States and over 590,000 registered in Canada.*¹² There are 25 states that require registration and seven states that participate in snowmobile safety courses online.*¹³ There are four states (Minnesota, Utah, Washington and Wisconsin) that require a safety certification by riders under 18-years. Nine states require helmets for everyone and a total of 12 states require helmets be worn by riders under 18 years.

The American Council of Snowmobile Associations (ACSA) publishes an online list of all US states with laws and rules regarding safety and registration requirements.*¹⁴ ACSA and the ISMA support and promote snowmobile safety through the *Safe Riders! You Make Snowmobiling Safe* campaign. There are currently no accredited snowmobile safety courses in the United States. Most states have grass roots volunteer instructors that provide limited organized training programs. Unlike the Safe Boating, motorcycle and ATV Institute training programs, snowmobilers have limited structure or support.

In the snowmobile-avalanche safety programs that are available in Alaska, the majority are taught by skiers with National Avalanche certifications and training. This is a big problem because riders don't want skiers telling them how to travel and as a result are not getting trained.

While skiers, boarders and those on snowshoes have embraced the educational approach to avoid tragedy resulting in a reduction in their numbers getting caught, riders in contrast have watched their numbers rise dramatically, especially with the introduction of the mountain sled.

2. TRAINING METHODS, THEROIES AND PRACTICES

Because of the maneuverability, rapid acceleration and high speeds attained by snowmobiles, it takes strength, agility and quick response to operate a snowmobile safely. Some of the most common causes of injury include striking a stationary object such as a rock, tree, fence or other vehicle, falling through dangerous ice or getting caught in avalanches.*¹⁵ All of these situations can be avoided and the risk mitigated with proper training and practices. The challenge is effectively reaching, engaging and educating people on ways to participate in snowmobiling in a safe, respectful manner.

Our research shows that the primary reason there are not more stringent safety training regulations, despite snowmobiles resulting in some of the highest injury and death rates among any other recreational activity,*¹⁵ is that riders don't want rules, restrictions or requirements. And because so many influential lawmakers get this, either because they own machines and ride, or because they too enjoy activities that they don't want regulated, few rules and requirements exist. If you ask the riding public, which we did in our surveys, that's exactly the way they want things to stay - self-regulated.

Those who have experienced loss understand, providing novice riders, especially children, with basic skills that can be easily implemented does reduce injuries and deaths,*¹⁷ resulting in grass-roots education programs springing up within the industry. People want to be safe and they want to learn and as a result, are seeking out training to satisfy the need.

Today the International Snowmobile Manufacturers Association (ISMA) advocates for education and has developed

the 'Safe Rider' program.*¹⁸ This organization is made up of snowmobile manufacturers including Arctic Cat, BRP/Skidoo, Polaris and Yamaha. ISMA and a few of the manufacturers are beginning to allocate resources to grass roots organizations and safety instructors to support training efforts.

To assist in the cause of reducing preventable snowmobile injuries and deaths, and to support the self-regulated way of operating, NAOI developed training programs with the goal of reaching all ages with relevant, critical safety messages. Keeping the information focused on 'when to go' and 'where to be' and utilizing interactive, experiential teaching methods, we incorporated incentives and pop culture into the lessons we developed.

But how do you get riders, especially those that typically avoid formal training programs, to actually show up and participate in annual education classes and then practice the lessons when riding, without requirements and regulations?

2.1 *Training Methodology*

Understanding how people learn and what motivates them is a huge step in designing and providing effective programs that result in successful outcomes.*¹⁹ Research reveals that providing experiential education in a captivating manner can and does make a difference in motivating people to participate in training and in changing behaviors that effectively reduce the rate of injuries and deaths.*²⁰

Between 2004 and 2011 the North America Outdoor Institute conducted 299 training sessions serving a total of 48,154 individuals under grants from the Alaska Division of Parks – Snowtrack and ORTAB, the Mat-Su Health Foundation and annual contracts from the Alaska Dept. of Public Safety. During this time we developed and tested a variety of training methods for engaging snowmobile riders in education. Utilizing curriculum created through peer review workshops and from established programs such as the ISMA Safe Riders, American Avalanche Association (AAA) and American Institute for Avalanche Research and Education (AIARE,) we employed professionals to train riders in Alaska under the Be Snow Smart® title.

At each training session data was collected to determine the experience students had when they entered, what knowledge they gained from the class and their overall thoughts in terms of pros and cons of the program. The intake forms show that 36% had some previous training and 64% were new to the program. Less than 5% had snowmobile specific training.

The exit assessment showed that 96% of attendants felt the program was worthwhile, provided new information and was beneficial for the time invested. And 87.5% wanted additional training opportunities.

Classroom trainings proved more effective when kept to practical, easy to implement lessons followed up with interactive field sessions to give hands-on practice time. And all trainings were better attended with the addition of celebrity figures as spokespeople, discounted safety gear and creative training methods such as the **Snowmobile Zombie Apocalypse** or **Avalanche!** games. Offering discounted helmets brought in more than 200 participants to a single program. Without these incentives, attendance was minimal (often serving less than 10 students.)

We found utilizing creative experiential learning methods to be far more effective than traditional didactic approaches by focusing on the personal experiences of attendees. This empowers students to learn and utilize their knowledge base while being challenged through interactive skill stations. Educators involved in incorporating the experiential process tended to be more enthusiastic and personal with their students, delivering a more passionate and appealing program. Through evidentiary data we have disseminated over the years, there is a clear trend towards students attending subsequent NAOI trainings and a demonstrated elevation in knowledge and skill base from the first experiential session attended. Of the 36% who reported they had previous training, 6% had gained this experience from a prior NAOI training program. And (97%) completed the exit assessment with a score of 95% or better.

When asked if the training session met or exceeded their expectations, 91% said it met and 5% said exceeded while 2% said it fell short. When asked what they liked best about the program, 52% said 'The presenter's first-hand knowledge and delivery of information.' When asked if they would like more training, 87.5% said yes.

Examples of feedback from experiential training sessions included: Aimee Hull, age 33. She attended **Avalanche!** the game at Hatcher Pass with 96 other students. She said the best thing about the program was, '... actually finding buried targets with the beacons.' Peter Brewer, age 15, attended a classroom program at REI with another experiential educator and said what he liked best, 'The hands on stuff!'

Responses like these were common among all students of the experiential training sessions. For the more traditional classroom programs presented in a lecture format, students gave high praise only when the instructor was a celebrity figure, a professional working in the field or an experienced rider with a compelling story. Instructors that were knowledgeable about snow safety but had limited or no experience riding and delivered information in a lecture format consistently scored the lowest for a positive outcome.

2.2 Experiential Education

Experiential education is likely the oldest approach to learning. Simply put, it is the process of learning *by doing*. More sophisticatedly approached, it is a myriad of creative tactics which achieves many goals for the learner including: constructing of knowledge, relating classroom theory with real-world practices, engaging in an experience that will have real consequences, developing leadership skills and positive group dynamics, as well as hands-on interactivity that strengthens skills in an engaging, non-competitive environment.

In experiential education, the student becomes more actively involved in the learning process than in traditional, didactic education. For example, going to a zoo and learning through observation and interaction with the zoo environment is experiential in contrast to reading and talking about animals in a classroom.*²¹ The main difference here, from a pedagogical point of view, is that the educator who takes his/her students to

the zoo rather than stays in the classroom, is more likely to value direct experience over abstract knowledge.

The objective of an experiential education model is to organize and deliver materials in a manner that enhances the subjective learning process of attendees, under the assumption that this will lead to genuine (meaningful and long-lasting) learning. This goal is active and participatory in nature throughout NAOI training sessions, beginning with an interactive intake assessment that allows students the opportunity to share briefly (with the group), their personal outdoor passions and experience level. Students of all ages appreciate the ability to share their knowledge and experience, a process which we believe is vital to a successful program and the continuum of outdoor safety training in one's personal life.

In the traditional didactic model, a teacher is *giving* information/knowledge to students as compared to the experiential model where a teacher is *sharing* that same information and knowledge through exercises, analogies, visual aids, stories and games; thereby the participants are able to become intimately connected to the information. It is an approach to learning based on direct experience and utilizes all the senses. Ultimately this process lends well to meaningful and life-long learning, which has the potential to reduce injuries and save lives in high-risk outdoor adventures such as snowmobiling.

2.3 Training Practices

When NAOI incorporated creative lessons that mirrored pop culture such as a video gaming experience, or incentives, like discounted gear, attendance to training programs increased by more than 75%. Two examples include: 1. A field training program at Hatcher Pass in 2007 titled **Avalanche!** *The Game*. This training program was designed to attract anyone that traveled in the mountains. 'Players' (students) traveled through skill stations learning to probe, shovel, search and manage terrain while earning points for sponsor donated prizes. When typical field classes had 6 to 10 students, this program attracted 97 participants. 2. A classroom program that included

a snowmobile helmet for \$25 if participants completed assessments and watched a presentation. With the helmets, attendance averaged 40 to 50 students per class. Without the helmets, attendance dropped to 8 students. Seeing this trend but without the resources to continue offering incentives like the helmets, NAOI has focused on delivering creative training methods to attract participants. In 2012 we launched the Snowmobile Zombie Apocalypse at Arctic Man and reached more than 150 riders with this introductory sample. Response from this program was 99% positive.

3. Conclusion

Our research has shown that keeping information focused on when to go, what to take and where to be, incorporating creative, interactive training methods, connecting pop culture, celebrity speakers and offering gear incentives does attract those most at risk, engages their interest and results in positive outcomes that have the potential to impact long-term changes in behaviors, thereby reducing injuries.

We believe that when individuals, organizations, communities, states and the federal government work together and recognize the importance of supporting and participating in safety programs that are proven to attract participation, there will be a significant savings amounting to thousands of dollars in medical, public safety and legal expenses and a reduction of injuries and deaths.

We are confident that an investment in developing experiential training materials and methods, producing them in a simple format and making them easily accessible through Methods of Instruction to a nationwide network of trainers has the potential to become a national training model that truly makes an impact on the snowmobile riding community and reduces the incidents of preventable injuries and deaths.

Keywords: Snowmobile training * snowmobile safety * creative education for snowmobilers

4. References

- 1* Bellis, M., 2010, The History of Snowmobiles Ask.com
- 2* Campbell, S., 1996 The History of Snowmobiling, Northern Timber Cruisers
- 3* MacDonald, L., 2001 The Bombardier Story, Planes, Trains and Snowmobiles. Torono: J. Wiley, 2001
- 4* International Snowmobile Manufacturers Association, 2012, Take a friend Snowmobiling manual
- 5* Landen MG, Middaugh J, Dannenberg AL (1999). "Injuries associated with snowmobiles, Alaska, 1993–1994". Public Health Rep 114 (1): 4852
- 6* Moomey, N. 2005, Turnagain Pass Avalanche Mapping – White Paper
- 7* Dorell, O, 2009. Deaths by avalanche rise this season, USA Today
- 8* Ultimate-ski.com 2012, Avalanche Fatalities/Victim profile. www.ultimate-ski.com/Off-Piste/Avalanches-and-Mountain-Safety/Avalanche-fatalities/index.html
- 9* US Federal and Alaska State report, 1999. Landen MG, Middaugh J, Dannenberg AL (1999.) Injuries associated with snowmobiles, Alaska
- 10* Currie, J. Hotz, Joseph. 2001. Accidents Will Happen? Unintentional Childhood Injuries
- 11* Canadian Paediatric Society, 2004, Recommendations for snowmobile safety page 1
- 12* ACSA 2012, Registered snowmobiles in the US
- 13* Snowmobilecourse.com, Educating riders online 2012
- 14* American Council of Snowmobile Associations, 2012 State Laws and Rules
- 15* Canadian Institute for Health Information, 2003 Fatal facts, Most common cause of injuries related to severe sports such as snowmobiling.
- 16* Hortemo GS. Brattek G, Hellesness (April 1990) The snowmobile only for fun?
- 17* OSHA, 2012. Injury and Illness Prevention Programs, White Paper. Page 6 – Evidence that education makes a difference
- 18* International Snowmobile Manufacturers Association, 2012, Safe Riders! You Make Snowmobiling Safe
- 19* Donovan, M.S., Brown, L.A, Cocking, R.R, 2000. How People Learn...Brain, Mind, Experience and School
- 20* NIOSH (1998). Assessing Occupational Safety and Health Training: a Literature Review, NIOSH Publication No. 98-145
- 21* Wilderdom.com, What is Experiential Education? James Neill, 2004