

RE-THINKING THE AVALANCHE EDUCATION CURRICULUM FOR SNOWMOBILERS

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ABSTRACT: *The BC Coroner's avalanche death review panel (British Columbia Coroners Service, 2009) made fifteen recommendations aimed at cultivating a culture of avalanche safety within the snowmobiling community. The avalanche community has embraced many of these recommendations. A few remain outstanding. Perhaps it is time to rethink how avalanche education for the snowmobile community has been approached. There is still much work to be done to improve snowmobiler avalanche hazard management. Possible solutions include: development of a snowmobile-specific competency matrix, addition of an AST Level 3 course, and a change in the delivery model for AST courses.*

KEYWORDS: snowmobile, education, terrain management

1. INTRODUCTION

Curriculum has been defined as having four components: a learner, a teacher, subject matter and an environment (Connelly & Clandinin, 1988). Many current avalanche education programs for snowmobilers are missing the target. The teacher, subject matter and environment used for a ski touring learner cannot be directly applied to a sled-based learner. The messaging to the snowmobile community is "Get the gear, Get the training, Check the avalanche forecast". The gear message has come through clearly. Most mountain sledders are carrying transceivers and the uptake in avalanche balloon packs is high within the snowmobile community. However, the uptake of avalanche education within snowmobile community is much less than within the ski community. According to Avalanche Canada, only 10% of AST 1 students are snowmobilers: while estimates put the number of mountain snowmobilers at about 50% of the total number of recreational backcountry users in BC. The problem is even worst for the AST 2 course. The message "get the training" has somehow faltered at training beyond level 1, as if somehow two days of training is sufficient to be ready to make decisions in challenging and complex terrain.

2. THE CHALLENGE

Avalanche decision-making is a complex topic. There is no singular answer or process that will solve the question for every group on every slope. Hazard mitigation is possible, but risk elimination is not.

The 2017 line-up of mountain sleds are incredibly capable machines, with 160+ bhp engines and 174-inch tracks with 3-inch lugs. Combined with a good technical skill set, on a given day, mountain riders can travel through more terrain than a Cat ski guide and almost as much as a Heli ski guide. A competent rider can easily reach start zones in complex terrain and travel through multiple valleys, aspects and slope inclines. Many "expert" mountain riders do not possess the level of training and expertise held by certified ski guides, yet they are making a similar number of terrain travel and avalanche risk management decisions.

A new user group will be entering avalanche terrain over the next few years. The increased availability and capacity of snow bikes is set to revolutionize motorized mountain travel and introduce a user group that has never been in avalanche terrain. Thousands of dirt bikers now have the option of converting their bikes for snow travel. These bike move differently from snowmobiles as they are much more agile. The challenge of educating the motorized mountain rider is about to become much more complex.

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3. POSSIBLE SOLUTIONS

3.1 *Competency Matrix*

The recommendations from the 2009 Coroners report provide a starting point from which to seek solutions. One of these recommendations was to develop a Competency Matrix that clearly outlines qualification criteria and explains the limits of training offered through the AST programs. A Graduated license program might help to achieve this result; AST 1 for simple terrain and below, AST 2 for challenging terrain and AST 3 or professional training for complex terrain.

3.2 *Expansion of the ATES scale*

The snowmobile community will be further aided by an expansion of the ATES scale, moving from a three-part scale to a four-part scale. Simple terrain could be divided into two parts: non-avalanche terrain and Simple terrain 9as per the current definition). The rationale for this is that snowmobilers can have enjoyable days playing in low angle terrain in the mountains. This option is not available to backcountry skiers who are seeking turns, but is available to snowshoers and cross-country skiers.

Non-avalanche terrain could be defined as

- Slope angle - less than 20°
- Slope shape – uniform
- Forest density – mixed treed and open terrain
- Terrain traps – none
- Avalanche frequency - $1:100 \geq$ size 1
- Route options – numerous
- Exposure time – none
- Glaciation - none

3.3 *New Tools*

Tools that still need to be developed and implemented include key travel techniques. Decision making in lightly used areas is more complex than when travelling in areas that have experienced heavy previous use. Track observations provide the user with pertinent information, particularly when dealing with compaction through previous slope use.

Other techniques include: maintaining eyes on your partner, managing other users and consistently assessing regroup areas. These travel techniques are unique to snowmobiling. Maintaining eyes on your partner is easy on big open terrain, but much more difficult in the trees. Riding part-

ners may be moving at different speeds and in different directions. Communication is further exacerbated by the noise generated by each rider's own machine. This contrasts markedly with skiers who have the ability to yell or whistle at each other to maintain communication in treed terrain.

4. THE EDUCATION PROCESS

Many snowmobilers have completed high school and excelled in Trades training, but not gone on to complete post-secondary qualifications. Learners who did not have good experiences in high school classrooms may rebel against avalanche educators who recreate that scenario. Avalanche education can benefit from looking to successes in the Trades training.

A number of studies offer strategies with proven success. Major reasons for not maximizing the benefit and learning from vocational training courses include the quality of teaching staff, the content of the course not matching their needs and being unable to fit the course within their job demands (Langill, 2015).

4.1 *Alternate Training Models*

In a study of best practices in trades training across Canada, the Industry Training Authority made the following recommendations (Langill & Norman, 2006)

- A blended approach of combining face-to-face training and self-paced/independent learning is the most effective approach to delivering practical skills based training
- Spend less time in the classroom and more time hands-on
- Allow the learner to move through the curriculum at a self-paced rate
- Use media and state of the art technology to facilitate learning
- Use of quality content

A number of Blended learning delivery models were suggested (Langill & Norman, 2006, p. 58)

- Independent Learning /Classroom Model
- Online, Self-Paced and On the Job Training/Practical Component
- Online and Print, Self-Paced, and Face-to-Face Practical Component
- Classroom Based with Online Learning as a Wrap Around
- Mobile Trades Training Unit, Video Conferencing, Self-Paced Learning, and

Online Learning Industry

4.2 *Cooperative Learning Theory*

Li and Lam (2013) described a cooperative learning process as a strategy that although facilitated by the instructor is focused on the needs of the student. The onus for learning is placed on small groups of students that are responsible to and for each other. The role of the instructor is to facilitate the process and engagement by posing stimulating questions. Each student is expected to provide insight into his or her solutions, shared within the group setting. As a standard practice within the trades' jobsite, a leader, or a foreman directs the efforts of the team. This workplace practice can be emulated in the learning environment. The emphasis is placed on creating a social learning environment where students are mutually dependent.

Langill (2015) studied the apprenticeship model used for trades training in BC. He produced the following recommendations based on his research.

- Use complete authentic activities. Cooperative learning activities are most effective when they are perceived to be "real".
- Stimulate a desire to learn by demonstrating the need.
- Pose problems that require team solutions.
- Encourage discussion
- Provide incremental challenges that continue to push the learner without overwhelming.
- Give quality directions prior to activities.
- Challenge the student with some exercises that they need instructor assistance to complete.
- Provide higher levels of support initially, then gradually wean them off as they gain skill.
- Challenge the student to demonstrate their skills both in the group setting and alone.
- Activities need to stimulate and challenge both cognitive and behavioural outcomes.

5. SUMMARY

Avalanche education for snowmobilers has come a long way since 2009, but there is still much work to be done. Changes to the subject matter, teachers and the delivery model are needed. The strongest message that comes out of the research done on trades training suggests that more time

be allocated to field training in small teams and less time spent in the classroom. The participants can further utilize cooperative learning strategies used in the delivery of training courses when they head out into the mountains with their friends.

The most important message that needs to change is the encouragement of a life-long learning process. Avalanche education is not a single step or course. It is the continual quest for understanding of a complex topic, recognizing that there is no end point. There will always be more to learn.

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