ABSTRACT: The Avalanche puzzle is an educational tool that is focused on engaging demographics of the public that would not normally seek out formal avalanche education. The goal of The Avalanche Puzzle is to create a fun and educational tool that helps to make avalanche awareness part of the everyday culture of those living in mountainous regions. Able to be used by families in a home setting, teachers in classrooms, or in public gathering places such as libraries, cafes or recreation centers.

The Avalanche Puzzle utilizes an artist-created depiction of a mountain scene that includes numerous elements from the five observation categories of terrain, weather, avalanche activity, snow pack and human factors. Each piece of the puzzle has a few words of text on the opposite side with an observation in that category (e.g. a puzzle piece showing blue sky might have an observation relative to temperature or radiation, a puzzle piece from terrain may indicate slope angle or ground cover) The image created can be customized to apply to a variety of user groups ranging from children to backcountry skiers to snowmobilers. Not only can the image be modified to apply to different user groups, so can the complexity of the puzzle such as smaller puzzles with fewer pieces for children or larger puzzles with more pieces for adults.

By making participants aware of various observations that deserve attention, it is hoped that when these individuals then enter the backcountry, they will be more cognizant of widespread observations that pertain to avalanche formation and release. By introducing these concepts, the hope is recognition of hazard and modified social behavior.

1. INTRODUCTION

One of the greatest challenges in the realm of public avalanche education is reaching out to and connecting with demographics that would not normally seek formal training. In the backcountry skiing culture, formal avalanche training has become an accepted norm. In the snowmobile culture, formal training is still struggling to take a foothold. There are numerous other user groups that could benefit from formal training (such as climbers) for which the term “formal training” can be daunting. If as a society, we can make basic avalanche hazard awareness more of a social norm, not only could accidents be prevented but, the culture of avalanche education could become less intimidating and an appetite for seeking more knowledge be initiated.

There are many examples of deeply engrained safety habits common in modern society. One of the most common examples may be traffic safety. As small children, many of us were told that roads were dangerous. When crossing roadways we were often told to “hold hands and look both ways before crossing the street”. If a car was coming, we were taught to wait until that hazard passed and then to still proceed carefully. As we got older, perhaps we ceased to hold hands but we were still cautious about looking both ways before proceeding across even the most traffic free roadways. In the years when we began to travel more quickly on bicycles and skateboards, a glance in each direction remained. As we entered adulthood, these habits remained even as we are now driving in one of the vehicles that we were so diligently taught to be careful of.

As young children many of us were instilled with a sense of caution relating to the injurious or potentially lethal hazard of roadways. The methods to deal with these hazards were imprinted, and habits formed. If children and
adults, especially those living in mountainous areas, can be instilled with an awareness of the potential hazards of avalanche terrain, and observations which indicate hazard may be present, step one is complete. If recognition of hazard can be accomplished, the teaching of methods to deal with these hazards can then be undertaken more easily.

2. ENJOYABLE & AFFORDABLE LEARNING

If you were to use an example of a blue collar, North American family that wishes to begin undertaking winter activities, their opportunities to participate in these activities is limited. For many families, there may be as few as 10-20 weekends per year available for them. In order to acquire the equipment, learn the physical skills necessary, and go out to pursue their chosen activity. Add in family obligations, unfavorable weather and the amount of time available may decrease sharply. Also considered must be the expense of equipment necessary.

If you approach the head of the household and inform them that they must also pursue formal training that can be both time consuming and costly for a family, some resistance can be expected. When informed that they will likely need to spend three or more days in a course, and spend several hundred dollars to do so, their budget of precious resources of time and money become threatened. While we know this formal education is an important foundation to good decision-making in mountainous terrain, the cost/benefit to the head of household may not be clear. Imagine telling an industrial worker that before they can take their family snowmobiling they need to participate in a costly and time-consuming course. During the previous weeks in their workplace they may have had to participate in numerous training courses that were boring, not necessarily applicable to their role, and costly to their employer. It is understandable that they may assume the recommended course to be so as well.

Outside of the family setting, in a social group of friends, many of the same considerations can be considered, although possibly with less severity for concerns of time and expense. If a group of friends planning a weekend snowmobile tour or ski-in hut trip can get together and participate in a fun and social learning exercise, communication may be enhanced.

This activity may be an opportunity for more experienced members of the group to mentor the less experienced. This activity may also work as a catalyst towards proper trip planning. Once in the field, whether it be a family or group of friends, widespread observations are more likely to be taken by all members of the group. If all members of the group are taking widespread observations and sharing them, communication may increase. By enhancing communication, everyone becomes part of the decision making process, and ultimately better decisions may be made. Not only can better decisions be made, everyone participating will continue to gain knowledge, benefiting each individual and the group as a whole.

3. THE TOOL

The Avalanche Puzzle utilizes an artist created image of a mountain scene that includes features pertaining to the five observation categories (Fig. 1). By creating a custom image, it is possible to have numerous factors included in one scene. Turbulent and clear weather, avalanche activity and non-activity, a variety of terrain features, steep and lower angle terrain, varied elevations, deep and shallow snowpack, human activity etc.

By utilizing a custom created image, and the ability to create more or less complex puzzles by utilizing more or less puzzle pieces, puzzles can be tailored to different users. A puzzle for children may utilize a very simple, almost cartoon-like image with few pieces. A puzzle for skiers or snowmobilers may employ a much more elaborate image and considerably more pieces, allowing for “red flag observations” to be included as well widespread observations of stability as well.
It is the hope of the creator of the Avalanche Puzzle that at the least, this item will stimulate conversation about avalanche awareness. The greater hope is that the Avalanche Puzzle will become attractive to the demographics that are the most difficult to reach by the current methods of outreach and stimulate conversation about future learning.

FIG. 1: The Avalanche Puzzle Image

4 ACKNOWLEDGEMENTS

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