LEARNING FROM AUTHENTIC SITUATIONS – DESCRIPTION OF GOOD LEARNING SITUATION IN AVALANCHE EDUCATION IN NORWAY
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ABSTRACT: Avalanche education is important for professionals that are exposed in avalanche terrain with responsibility for other people’s life. In a process to evaluate and debate the future avalanche education, it is necessary to gain knowledge about learning situations that occur in avalanche education. The aim of this study is to gain insight into how newly educated Norwegian Mountain Guides (International Federation of Mountain Guides Association, IFMGA), and newly educated outdoor educators with specialization in alpine ski touring, and a bachelor degree in Outdoors Education, describes good learning situations in their avalanche education. The analysis is based on three qualitative focus group interviews of 12 men and women (25 – 37 year). The informants all emphasizes practical participation in authentic situations as central to learning. This is consistent with Endsley’s (2006) concept of “situation awareness”. The informants highlights the importance of 1) choosing a location in authentic avalanche terrain, 2) an instructor that open for learning processes through an abdicratic leader style, and 3) a learning process that takes place in the social group and in a participation framework, known as “situated-learning”. The concept of “situated-learning” can be described as authentic participation within a group whereby members contribute through shared practices within a given context. Good learning situations in avalanche education are described as authentic with a learning oriented leadership that create time and space for learning to occur in the group and as an individual.

KEYWORDS: Avalanche education, learning, situation awareness, leadership.

1. INTRODUCTION

Insight into learning processes in avalanche education is important for professionals in the avalanche field because their decisions and behavior are related to their education and their practical experiences (Beames and Brown, 2016). They are responsible for other people’s life directly or indirectly through avalanche terrain, and a mistake or not enough attention can cause a dangerous accident. Professionals are also a part of the Norwegian accident reports and international rescue reports (Norwegian Geotechnical Institute, 2015; International Commission for Alpine Rescue, 2015). In a process to evaluate and debate the future avalanche education, it is necessary to gain knowledge in what learning situations the participants highlight from their education.

The aim of this study is to gain insight into how newly educated Norwegian Mountain Guides (International Federation of Mountain Guides Association, IFMGA), and newly educated outdoor educators with specialization in alpine ski touring, and a bachelor degree in Outdoors Education, describes good learning situations in their avalanche education.

2. METHODS

The analysis is based on three qualitative focus group interviews of 12 men and women (25 – 37 year). The informants consists of eight newly educated outdoor educators and four Norwegian IFMGA Mountain Guides. The focus group interview where transcribed and analyzed by the interviewer. The analysis follows a systematic analysis process for focus group interviews (Krueger, 2009). The analysis categories where developed from the interview and the interpreting is seen in a context. The report follows a narrative format. The study is reported to NSD (Norwegian Centre for Research Data), and approved by them.

3. THEORY

The sociocultural learning perspective have gained an increasing attention on practical skills (Dysthe, 2001). Within this view of learning, we can argue that good learning depends on the context (nature, group and activity) that constitute the learning landscape. Learning in this view is also best when the learner is active and engaged in the
learning process (Boyes and O’Hare, 2011; Wattchow and Brown, 2011; Brown, 2009; Gurholt, 2010).

In connection to avalanche terrain this means that learning should be conducted in real and authentic situations. Within the situated-learning perspective, Lave and Wenger (1991) claimed that learning outcomes increases if the learners reach a high degree of "legitimate peripheral participation". Thus, courses and training should facilitate learning situations where participants are given the opportunity to have responsibilities and choices. To get the learner able to feel responsibility and complicity in learning situations, it is essential that the leadership transfer responsibility to the participants. The transfer of responsibilities to the group participants in a situation that could be described as serious and characterized by risk, can be problematic. The solution to these learning situations is therefore smaller groups with an experienced instructor, where the groups can be interrupt if they make serious mistakes in their decisions (Vikene, Vereide and Hallandvik, 2016).

Within education and learning of safe travel in potentially avalanche terrain, there is limited research literature. Nevertheless, literature shows that human use of intuition and rule-based methods are good strategies and approaches to make good decisions in risky situations (Boyes and O’Hare, 2011; Shooter and Furman, 2011). A specific study of Stewart-Patterson (2013) shows how 35 ski guides make their decisions in potentially dangerous avalanche terrain. Main findings from the interviews was that most ski guides used their intuition or good feeling to control if the area was secure or not. When the ski guides experienced a conflict between positive and negative emotions associated with the situation, they took a "step back" and used more analytical and theoretical approaches for their decisions.

Simone (1992) states that the challenge of making use of intuition is to discover relevant information from the environment. The skill to discover relevant information in a specific situation can be learned. The ecological psychology perspective with Gibson (1979) is about "education of attention". Learning is about discovering the affordances in the situation. If we were able through education and our experience to sort out what in the situation that is relevant information, it will help us to take good decisions in avalanche terrain.

Endsley (1995; 2006) termed decisions in serious and critical situations to "situation awareness" (SA). SA is categorized into three levels: 1) the perception of elements in the current situation, 2) the comprehension of the current situation and, 3) the projection of future status.

Endsley claims that the inability to detect important and relevant sensory information are mainly the reasons why many do miscalculations. Transferred to avalanche problems, we can then argue that people who expose themselves to avalanche terrain should have knowledge of the avalanche problem. If we can discover what important information that "lies" in the environment, we will be able to take good decisions, because we have the opportunity to consider what might happen in the near future.

4. ANALYSIS/DISCUSSION

4.1 Authentic situations and situated-learning

Through the sociocultural learning perspective, we argue that learning situations not only affects learning, but is a part of the learning. We can say that the activity is situated through the context surroundings (Lave and Wenger, 1991). In avalanche education, it is therefore central to seek potentially avalanche terrain, through specific landscapes and situations. Wattchow and Brown (2011) argue that the choice of location in relation to learning outcomes is important. A study of Magnussen (2012) shows that kayak paddlers learned best through situations where they had/have to experience real challenges and resistance from nature. In relation to the importance of getting experience in real situations, our informants "Oda" says:

What I have liked with the education was that we searched real situations. If it was unstable conditions, we go for a walk until we got [experience] a whumping. Then we could dig into to the snowpack to find the weak layer that collapsed. /.../ searching for real conditions and situations are very instructive.

By this quotation, "Oda" emphasizes that the best learning takes place when the learner is active and engaged in the learning processes (Wattchow and Brown, 2011; Brown, 2009; Gurholt, 2010). The concept of "legitimate peripheral participation" is relevant in relation to being active and engaged in the learning situation (Lave and Wenger, 1991). Therefore, it is central to the good learning that the participants in the learning situation are given the opportunity to take an active role. Although there is a degree of risk in the situation, the learners should get the opportunity to experience real situations. Regarding contribution and to be visible in
the community of practice, the informant "Eirik" emphasizes the importance of group size:

The group is important. Group discussion might be a tool. I have experienced that one participant understands the clue and explains it to the others. I have experienced the best "flow" on guide tours and avalanche courses with 4-5 persons. Then you have enough [people] to create a learning environment, and there are so few [people] that all are visible and active.

In accordance to the situation-learning perspective, all participants in a community of practice are central to the learning. In the example of "Oda", the choice of location was central to learning and by the quotation from "Eirik", we see that the group also has a role in the learning process. Central to the situation-learning perspective is thus participant’s degree of "legitimate peripheral participation". In a small group, everyone becomes more visible and involved in their common goal, to learn the most about being safe in avalanche terrain. All participants in the group get to experience being both communicators and transceiver of knowledge. In a small learning group it is also easier for the participants' to feel safe and to restrain, and thus achieves a high degree of "legitimate peripheral participation" (Lave and Wenger, 1991).

4.2 Situation awareness

Based on the expertise literature, we know that it requires a lot of time and experience from specific environments to achieve expertise (Ericsson, 2006). Both Simone (1992) and Endsley (1995) pointed out that people often have the problem of detecting and "filtering" out what is relevant information from the environment in a given situation. Compared to discover relevant information from the environment "Niklas" says:

I think it is relatively easy to see danger signs, when you know what to look for. There is nothing "hocus pocus" to perceive a whomping, or if it is wind packed snow, with bounded-snow, whether it is surface hoar or finding faceted snow in a small block test, which creates a weak layer. All individual elements are there, with the danger of being arrogant, very easy to catch up on. The danger is when to add the puzzle together, and you are on a slop above 30 degrees, and if you miss then you trigger it. So it's that bit that is the complex and not individual elements.

Although Endsley (1995) states that the problem in many situations is that there are errors and missings in human perception SA level 1, this is not the situation for "Niklas". The problem for this informant is rather to interpret and understand the information (SA level 2), and could predict that this information and interpretation is of consequence to whether it can trigger an avalanche or not (SA level 3). Although the informant here says that he thinks it is not a problem to capture information on SA Level 1, we can argue that he has throughout his education and experience, knowledge of what he should look for in this context. We can also assert that he through relevant practice has developed the ability to perceive the information offered from the environment (affordances), thus he has trained his attention (Gibson, 1979).

Difficult decisions related to avalanche and further exacerbated by the avalanche problems, can be described as an uncertain and dynamic field (Shanteau, 1992). Several sources stressed that the complexity of the snowpack makes it difficult to assess the risk level (Fredstone and Fesler, 2010; Landrø, 2007). Hogarth (2001) describes situations where the information or feedback from the environment is dynamic and uncertain, as wicked. This is also underlined by "Niklas" when he says that the problem arises when you want to add the sum of the information together and make up an assessment of whether conditions are safe or unsafe.

Atkins (2000) shows that only 17% of accidents related to avalanche accidents were missing information from the terrain, weather or snowpack as a contributing factor. This shows that there may not be a lack of information on SA level 1, but how we take into account the information in the assessment of SA level 2 and 3. Atkins (2000) says that it is the human factor that is the problem. Therefore, he says that to stay alive is not as simple as just being able to detect the avalanche problems. However, "Anders" underlines the importance of discovering when he says: The course taught me what I should direct my attention toward. The human factor is the main cause of avalanche accidents, and our ability to think consequence compared to what we have discovered is essential. Nevertheless, the first step is to discover the danger signs located in the situation. As Endsley (2006) emphasize, we cannot predict what may happen in the near future, SA level 3, without sufficient information and reflection on SA level 1 and 2. This debate could perhaps be linked to the development from being a novice to being a more expert. For a beginner, the first step might be to learn about danger signs and how to localize these in the terrain. Eventually, it could be more about the assessments of what the information
tells us, and what considerations you should take in avalanche terrain.

4.3 Leadership and Conway

Situational leadership is well established in the outdoor leadership context, and perhaps most famously the COLT model (Priest and Chase, 1989). The overall conditions in situations is the constituting factor in the choice of leadership. But also the skills in the group and the purpose of the activity, plays a role in the selection of leadership. Layered winter snow has a potential risk of avalanche. It is easy to think that leadership then becomes autocratic and is conducted by the responsible instructor for the group. What “Runar” says shows that the purpose of the activity, avalanche education, is essential in the selection of leadership:

*What I thought was really good was that we got to try what we had planned for in the group. If the trip plan was “way out there”, it was stopped, but we did try what we had planned [as long as it was within acceptable risk]. The clue was that you should experience yourself ... almost “burn yourself”, and the best situation where when you understood that you should stop, almost “make a fool of yourself”.*

The informant notes that the instructor gave them opportunity to make their own decisions and choices related to the situation. The leadership in this cases may be more participant driven, were individuals and groups have made sufficient preparations. The leader of the group leaves the responsibility to the group, and the individual participation are more accountable in the situation. This leads to specific and real learning (Jarvis, 2000). Stewart-Patterson (2013) emphasize that ski guides take decisions in avalanche terrain that are largely based good sense in the situation. This more intuitive provision can only be developed through the opportunity to experience sufficient real and authentic situations, so their ability to "pattern recognition" developed.

5. CLOSING COMMENTS

Based on a situated-learning perspective and the recognition that knowledge about snow and avalanches is something dynamic and uncertain, we wanted to find out more about how good learning occurs in relation to alpine skiing. Based on the presented theory and our empiricism, we can argue that the combination of theoretical knowledge in the face of real and authentic situations is crucial to how people make sensible choices in potentially dangerous avalanche terrain.

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