

Practical skills and tacit knowledge of Sámi reindeer herders in the context of extreme weather events

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1. Introduction

Global climate change predictions for the forthcoming decades indicate increased warming, higher winter precipitation and deeper snowcover in arctic regions. These changes can have both positive and negative effects on reindeer pastures and reindeer herding, and were recently discussed (Weladji and Holland, 2006; Moen, 2008; Rattenbury et al. 2009; Turunen et.al 2009). The adaptive capacity, vulnerability and resilience of reindeer herding to global change in Northern Fennoscandia and North America have been studied in various interdisciplinary and intercultural projects. (Tyler et. al 2007; Rees et. al 2007; Rattenbury et.al 2009) These studies have indicated that reindeer herders' traditional responses to climate change are greatly dependent on flexibility in herding practices that are currently being eroded by several non-climatic factors, such as inter-linked environmental, (e.g. predators), economic (e.g. meat prize, equipment costs, employment), social and legal constraints (Beach and Stammler 2006, Tyler et. al 2007; Rattenbury et.al 2009, Forbes and Stammler 2009).

In this paper, we take more careful look at the localities. In Sápmi (the traditional homeland of the Sámi people, which is situated in northern parts of Norway, Sweden, Finland and northwestern Russia) there are many places, a number of peoples and a variety languages. Furthermore, it is a very heterogenic area in its topography, microclimates and vegetation. Due to different pasture areas there are also different ways of the practicing reindeer herding. We have learned that the skills of reindeer herding or skills used in moving around in ones'own environment and landscape are the basics of constructing the peoples' understanding of everyday life and, in a wider context, understanding climatic change.

In this paper we show that the underestimated practical skills of human beings are a part of human wisdom, though they are not fully seen in the studies of TEK (Traditional Ecological Knowledge)

or IK (Indigenous Knowledge). In contemporary discussion TEK or IK are realized mostly in stories, language and lexicon (Helander 2005; Eira 2008) There is a rather good reason for this; any knowledge and its transmission is easy to manifest once it can be done in its verbal or written form. However, besides descriptive language there are also expressions, nonverbal knowledge and communication based on practical skills, which again are generated in the practices of locality. This type of nonverbalism is constructed through one's own subjective individual experiences and learning processes. (Ingold and Kurttila 2000:184)

In exemplifying verbal and nonverbal approaches we share a story of a snowstorm and identify those parts that are implicit to nonverbal means of skills. The following story of an extreme weather event is a direct translation and it was told by an experienced reindeer herder, Uula.

At first Uula Pajuranta says: "It is like this, if a strong snowstorm comes, then there is no more talking about where to 'camp' (e.g. to stop). It is a question of staying alive".

Then he starts his recollection: "Once I was in the mountains with my fellow reindeer herder, and there was such a storm that the reindeer lay down and you could only see their antlers. And we were looking for our dogs. We both had a dog. This was in the time of going by skis.

"Where are the dogs?" "In which place could the dogs be?" This mountain area, Paistunturi Fell area in Finnish Lapland, is a stormy place. The peat cabin (a cabin made out of peat) was not very far away, but we did not have enough lasso line to get to the cabin. So we had no shelter, only a blanket over us. There was not enough line (reindeer lasso line) to get to the cabin, I was rather close to it, but I could not let go of my hold on the lasso line. We tied the other end of the line to a tree.

Terhi asks a question: "Did you tie yourself up to a tree?" Uula carries on: "Yes, it was like that. An open mountain and a storm. In the early morning the wind calmed down. I saw no dogs.

"Where are the dogs?" I took a stick and prodded the snow everywhere.

"Here is one dog!" "Where is the other dog?" "Hey, here is the other dog!" The dogs were deep underneath the snow. We were alright, no problem.

2. Tacit knowledge and skills of reindeer herders

This story might sound obscure; it does not represent a noble story of indigenous traditional knowledge which could be handed down from one generation to another. Rather it is a personal memory of one occasion in the fells. If we take it as a story getting transmitted from one generation to another, it might end up to be a transformation of a story about saving the dogs from the snow, because there is a repetition of the dogs. It is obvious that the dogs and their wellbeing in this story play the main role, and they seem to be the most important thing for the storyteller.

However, this story is full of tacit knowledge of various skills of reindeer herders. We can analyse this story by pointing out certain skills that can be found between the lines. Firstly, the men were experienced; they knew that this strong storm was dangerous. It was far too risky to ski to the peat cabin – so the men stayed in their uncomfortable position on the open ground. All actions had to be done very fast, because visibility vanished and the strength of wind could have caught them. Reindeer herders always have basic items and tools with them; there is a lasso over the shoulders, knives hang from their belt and matches are wrapped in plastic. In this case the men had to make innovative decisions and actions, too. In an open landscape, the needed help was found from a small birch tree. Reindeer herders are skilful with lines and knots. They tied knots in the line around the tree and themselves. The men were able to rely on the line and each other, and the only thing to do was to wait and keep warm

We can guess that there was a lot of snow after the storm. The dogs were buried under the snow, which must have been hard and compressed because the dogs did not come out without help. The men had to use a knife to get a thick stick from a trunk of a mountain birch. They must have had a good hold and technique in using the knife. In this story, Uula did not mention his or his friend's feelings, emotions or boldness. He just talked about the dogs. The question about the men's survival was irrelevant; we suppose it must have been self evident. They had experienced snowstorms since their childhood, so there was no reason to panic or fear, even though they knew that the situation was serious. Uula finished his story by saying: "We were all right, no problem." He meant everyone: men, reindeer and the dogs.

This story was from the olden days. The men were still using skis instead of snowmobile. However, there are similar kinds of stories from the modern days with snowmobiles, too. People have a lot of different experiences of danger; there are stories of extreme cold, different types of storms, and stories of fog changing a familiar landscape into a strange place. Reindeer herders have experienced deadly situations such as sinking into bog holes hidden by a thin snow cover or plummeting through thin ice into an ice-cold river or lake. They have survived because of a line of lasso, a knife and a box of matches in the earlier days as well as in the present. However, these tools are useless if you do not know how to use them. More specifically, the men in the snowstorm knew how to use these basic tools in the most critical situations. Put shortly, the skills of using the tools are closely connected to those extreme situations.

Indeed, there are no detailed instructions of tool use in the stories or there are no special textual demonstrations of how to keep one's nerves cool while acting in these extreme situations. This is nonverbal knowledge. Now, let us look at ourselves. If we take this kind of short story and apply it to our lifeworld to educate us, I guess the previous story would not help us in a similar situation (unless one has the, for example, special skills in mountain climbing). If there is a failure in a real situation in one of these techniques, such as knot making or using a knife – panic could hit the person and success will become less evident.

Ultimately we are talking about applied practice, which emphasizes the embodiment of praxis. It is based on individual learning, which is mostly training and managing to do practical tasks. In this type of learning process the individual gains personal experience and uses her or his senses in relation to the environment. In this context the cumulative body of this type of knowledge, either collective or individual, is based on each one's special skills and praxis; essentially, it is a construction of *enskilment*. Only through *enskilment* can information of a certain topic be produced to use, as in this paper, the knowing of behaviour in extreme events. (Ingold 2000, 2001, Ingold & Kurttila 2000, Pálsson 1991).

Even if one asks a Sámi how something is done or how the person worked things out, a reindeer herder cannot answer it in such a way that the explanation would be perfect. For example, if you ask something about working with a knife, the answer would be: "It goes just like this, you see." There is a word in Sámi which means learning, *calbme* (*calbmeeadni*), whereby a novice learns by seeing instead of having a large variety of verbal instruction (Fors 2004:87, Somby 2006, Kalstad 1996, Borgos 1993). It sounds simple; there are no more explanations. In reality, however, seeing and learning means that the novice has gained the basic skills already within one's own environment. For example, with a knife and the use of a knife we can see various techniques are used for different actions whether they are little everyday things like cutting bread in a forest or slicing dry meat or very demanding and difficult tasks such as cutting a reindeer's earmark. On the one hand, the apprentice, who is not used to using a knife, exhibits different types of clumsiness, it looks like she or he will cut himself or someone else. On the other hand, skilful users proceed in their tasks casually. Mark Polanyi writes about the subsidiaries which means that one *relies on his or her feelings* of holding the knife (Polanyi 1966).(Vuojala-Magga 2009)

In the story about the snowstorm, our reindeer herder does not directly explain how to use the tools or line of lasso, or how to react mentally in the situation of a hard snowfall. The story reveals its

tacit knowledge only once the listener can understand it by evaluating it through his or her own experiences - only then it starts making sense. In Tim Ingold's dwelling approach, skills are seen from such a perspective that right from the start situates the practitioners in the context of active engagement with the constituents of his or her surroundings (Ingold 2000, Ingold and Kurttila 2000). In this respect, we just talk about so-called situational knowledge – "Only because they already dwell therein can they think the thoughts they do." (Ingold 2000:186). To illustrate this claim we can get closer to the definition of skill, which means a perfect merging in which the body, skill and tool meet - enskilment.

Once the reindeer herders talk about climatic change, they are not afraid of it. In our research work, Sámi people were aware of climatic change – actually they have been aware of it already since the mid 1990s. This does not mean that they are not worried, that is a different thing – people are worried about global concerns but locally they are not afraid. Within the context of enskilment it is not very surprising that reindeer herders rely on their ways of solving problems (Vuojala-Magga 2009, Vuojala-Magga et al. 2010). Sámi people have detailed knowledge, especially about changes of snow, ice, seasons or vegetation and animal movements, from their everyday life in the woods and fells. Parallel to global changes, there are also changes in the Sámi lifeworld and in the techniques of reindeer herding. We could refer to this as a resonance to these small changes all the time (Vuojala-Magga et al. 2010). We are arguing that the basic skills of these people, the ones people gain through their individual learning within one's own environment, offer those options for changes in techniques of livelihood e.g. reindeer herding practices, too.

Sámi knowledge of climatic change and coping with it comes from the arts of doing. Doing and practicing are understood as processes (Ingold 2000, Ingold & Kurttila 2000, Forbes & Stammer 2009). This indicates that instead of using the concept of knowledge we should talk about a process of knowing about changes. In contemporary anthropology knowledge as such is something stable and transformable and it could be used in various contexts from one generation to the next – just like TEK or IK on their verbal level. Instead of making striking distinctions between the concepts of knowing or knowledge, we use Mark Polanyi's definition of knowledge. According to him: "*Knowledge is an activity* which would be better described as a process of knowing." (Polanyi 1969:132). In Polanyi's work, a theory of knowledge must be applicable to both kinds of knowing. He argues that knowing is rather an indwelling. When we learn to use something like a language or a tool, we make ourselves as aware of these things as we are of our body. We interiorise, for example, tools and we make ourselves dwell in them (Polanyi, 1969:134, 148). To understand this,

one does not look at something as an observer, instead she or he attends it from joint action – as a function of operation (see also Polanyi 1969:153). From this perspective, we understand other people once we gain the knowledge of their doing. Polanyi says: “...we know other minds by indwelling in their acts.” (Polanyi 1975: 48). In the case of the snowstorm story the men knew each others’ minds by indwelling in their joint action within the snowstorm.

Finally, we talk about processes of construction and reconstruction, a human being functions as a resource for his or her own future development. This type of system is open, implying that organisms are active agents which modify their environments as a consequence of their own life activities. The organisms do not adapt to their environments, but they construct them out of bits and pieces from the external world. In this approach, we do not use the lock and key metaphor in which the adaptation should be seen as a solution (i.e. key) to the problem posed by the environment (lock), but we talk about organisms and their ecological niches as constructions of their own lives. The Sámi lifeworld can be regarded as a system of mobile networks or organism-environmental relations which are reconstructed over and over again – or as Ingold talks about generative potentials and capacities within one’s life world and environment. (Ingold 2000a) A master of reindeer herding has good skills in proceeding in her or his work and thus uses the most convenient ways of doing her or his work with animals.

For us the story of the snowstorm is an example of people’s capacity to cope in extreme weather events. The idea of not being afraid of climatic change can be understood only by viewing it through Sámi reindeer herders’ practical world of action and skills. People have lived in extreme and harsh conditions and even now they are not expecting any easy life or climate in the future. The concept of resilience for these people means a life of uncertainty every day. As it was in the old days, it is the same today: people have to rely on themselves. The basic skills people have are becoming more acknowledged among the young generation of reindeer herders. Experience of environments and skills gives more power to make knowing become knowledge.

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