JOURNAL OF NORTHERN STUDIES Vol. 10 • No. 1 • 2016, pp. 7–38

TOR ARNE LILLEVOLL

Sheep Farmers in the Realm of Læstadius

Science and Religion as Motivating Forces in the Community of Practice in Northern Norway

ABSTRACT The article discusses some aspects of a successful development in a village in Northern Norway, where agriculture is an important industry. The author examines family-based farms with sheep, upbringing, socialization and learning in communities of practice, and integrated academic and sociocultural forces in development. Sheep farming in the studied village is integrated into a sophisticated field of knowledge rooted in the local culture. An important aspect is the bi-directional support and knowledge exchange between experience-based and science-based knowledge centres (i.e. there is a two-way transfer): the farmers supply external agricultural experts with data on breeding and fattening, and subsequently input their derived knowledge for further use in development. Another important part of this field of practice is financial support from the state. The author argues that the interaction between culture and the business environment is important and provides synergy. As a consequence, an extraordinary momentum resulting from sheep farming is created in the mapping between the organized business community on the one hand, and local culture and religious communities with strong historical roots on the other hand. The findings indicate that these conditions could be of general interest

for innovation and development also in other industries and other types of societies.

KEYWORDS childhood, communities of practice, Læstadianism, motivating forces, Northern Norway, practical "enskilment," sheep farming, situated learning, social capital, tacit knowledge

Introduction

Background

This study concerns a rural population in the county of Troms in Northern Norway, who live next to a fjord where they are surrounded by an alpine landscape. In particular, the article focuses on the changes in their way of life, which is based on natural resources. Earlier it was common for members of the community to combine fishing with self-sufficiency agriculture, but this practice changed with the advent of structural rationalization in the primary industries from the 1950s.[1] From then on there was a rapid decline in seasonal fisheries in many coastal communities. At the same time there was a growth in agriculture, largely combined with other sources of income (combined strategies). Nevertheless, farm numbers fell nationwide, and since 1960 three out of four farms have closed down (Rognstad & Steinset 2012). In addition, populations have declined in many rural areas, especially the percentages of young people. However, variations in the local natural and cultural conditions have resulted in geographical variations in the responses to the new developments.

In recent decades I have studied coastal Sami[2] and a Læstadian[3] fjord community in Lyngen Municipality. Compared to other rural areas in Norway,[4] the studied community represents a deviation, not only culturally in terms of its mix of traditional and urban values, but also in the sense that the population has remained more or less stable; the proportion of children has remained relatively high and the gender balance has remained even. The community is regarded as geographically marginal with regard to agriculture,[5] yet in terms of harvested hectares, meat quantity, and value creation the levels of production have long been characterized by positive development. In addition, the area has become renowned nationwide for its high quality lamb and brand development. This departure from the norm cannot be explained by general organizational frameworks applicable elsewhere in Norway and therefore my analysis focuses on the local conditions and is limited to the sheep farming and the related culture. The analysis builds on the results of on an earlier study conducted in the same area (Lillevoll

1982). On the basis of both that study and more recent research (Bleie & Lillevoll 2010), including one unpublished survey,[6] I pre-sent a follow-up socio-cultural and institutional analysis of reasons for the developments and innovations in the studied area. Important concepts in the present analysis are culture, social context, situated learning, communities of practice, and motivational forces in socialization and learning. In an earlier article, published in the *Journal of Northern Studies*, and with reference to Arbo (2009), Bleie and I argue that

> In recent years, the actual and potential innovations in Norwegian arctic agriculture have been studied through a focus on entrepreneurship [...] community entrepreneurship and the mobilization processes behind collective innovative projects headed by local enthusiasts. The rural community [...] has been analysed as framed in globalised and regional space with the main concepts being regional and national innovation systems, value chains and clusters [....]. However, these processes have mainly been analysed only in the short term and with inadequate attention paid to the role of religion, work ethics and social capital. (Bleie & Lillevoll 2010: 12)

Some of the factors that Arbo (2009) has highlighted as missing from research, such as social capital, religion, and work ethics, are discussed in the analysis in the present paper. However, although the developments in Lyngen have had significant links at a higher level than local knowledge networks and public bodies, my objective is to highlight the sheep farmers' interactions in horizontal networks of local cultural, social and economic spheres of activity, as well as the importance of knowledge production and incremental innovations (Spilling 2005: 21; Spilling [ed.] 2006: 34, 112).

The Research Question

In this article I address the question of why farming in the studied area has been characterized by positive development, while thousands of farms elsewhere in Norway have closed down. For those who have continued in the industry, increased access to land that can be leased, various governmental incentive measures, and well-organized professional support for meat production have opened up opportunities for agriculture in rural districts with favourable natural conditions. In the studied area, there is a plentiful supply of land for cultivation and rich pastures for rough grazing in order to take advantage of such opportunities (Bjørklund *et al.* 2012). However, this in itself does not account for the development. My argument is that particular historical factors as well as local cultural and social factors have been decisive for the expansion of agriculture in general, and sheep farming since the 1970s in particular. Through organized activities, the farmers in

the studied community have become members of social and professional networks. In addition, knowledge and social capital investments have been essential factors in their coping strategies.

In this article I aim to demonstrate that the successful development in sheep farming in Lyngen has been a synergy effect of activities and driving forces in two very different spheres of activity, namely the socio-cultural relationships between combinations of agriculture-based economic activities and the religious community in this coastal Sami area, which were established relatively early (Lillevoll 1982). The development originated especially from a historical relationship in which the family, organized sheep farming, and the Læstadian community in Lyngen[7] were closely linked institutions. While the family and the Læstadian community had long been integrated institutions, sheep farming became organized on a professional basis later, and the farmers' different statuses and roles became interlinked through their religious beliefs and economic activities. As a result of their interactions over time, particular patterns of behaviour and conventions became established (i.e. they became partially institutionalized).[8] In addition, extensive interaction in sheep farming, with socialization and collective learning processes across generations, has strengthened the sheep farmers' motivations for commercial development. In the following, I present evidence in support of this claim in the context of the studied community.

Methodological Considerations

In this article I present the environment that I have "commuted" to and from during the course of several decades, when I adopted different social positions for the purpose of observations and research. My methodology consisted of distanced observation, participant observation, conversations in meetings and during practical work, and in-depth interviews (some of which were audio recorded). The more recent data emanate from participant observations, and interviews were used in conjunction with data from my earlier research conducted in the same area. The method included comparison with developments in a neighbouring community, but that comparison is not discussed here.

The research covered all farms on which sheep farming constituted an important part of the community's economic activities. In 2014, there were 35 farms with sheep in Lyngen Municipality, of which 25 were in my studied area. The number of farms in operation has declined sharply since the 1970s, but their size has increased significantly. All previously cultivated land is still in use, and a considerable amount of additional land is under cultivation. Moreover, the rate of economic growth has increased significantly.[9]

The sheep farming industry is organized, and the professional networks extend far beyond the limits of the local community.

Aase and Fossåskaret claim that "[r]esearchers with a rich repertoire of local statuses have special premises for understanding their study subjects in more developed contextual frameworks" (Aase & Fossåskaret 2007: 87, 94–95). My repertoire of such local social statuses has provided a good basis for understanding the sheep farmers' way of life and the driving forces behind them. If it is at all possible to gain access to other people's horizons of understanding,[10] it has to be through studies conducted with sensitivity and very close knowledge of the local conditions over a long period, the language, and the development history; I have aimed for this in my case study. Moreover, my research has partly been conducted with a colleague who did not have prior knowledge of the studied community (Bleie & Lillevoll 2010), which ensured a greater degree of academic distance.

In order to understand the basis of the motivational forces and the interaction that has arisen within the sheep farming in the studied community, I have taken as my starting point the farmers' proximity to nature in their everyday practices. This includes ecological and social interaction into the context of local actions, whereby farmers are included in lifelong learning and cultivation processes. In this regard, the collective cultural capital is central. Moreover, religion is incorporated in the context of the local actions. In order to shed light on the foundation for the sheep farmers' values and attitudes, teamwork, and choice of actions, it is necessary to understand the nuances of certain linguistic expressions. One approach to understanding the ties with nature and the local socio-cultural context of the farmers' daily labour can be found in central indicators and symbolic markers of what is implicitly and explicitly experienced as meaningful within their intersubjectively shared field of experience and horizons of understandings (Fossåskaret *et al.* [eds.] 2006: 169; Aase & Fossåskaret 2007: 163–171). Both concrete everyday practices and linguistic expressions are important for understanding the basis of the farmers' motivational forces and interactions.

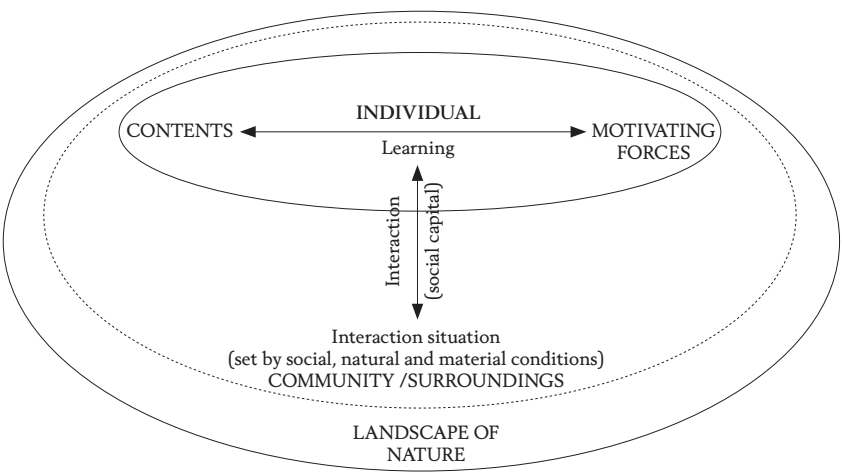
Knowledge Acquisition in Theory and in Sheep Farming

A Social and Evolutionary Learning Perspective

The Lyngen sheep farmers' interactions and productive working partnerships involve the development of knowledge. A social learning perspective (Illeris 2012: 39–47) that includes insights from recent brain research is relevant for discussing the development of knowledge that has occurred during the innovations in sheep farming practices in the studied community. In

such a perspective, learning consists of two fundamental processes (Fig. 1): *interaction* in activities that are fundamentally interpersonal and important for the acquisition of knowledge and skills, and the *mastery* of knowledge in which biologically evolved learning abilities are a factor. The two processes can be considered with regard to three learning dimensions: *content*, *motivational force*, and situations of *interaction*, which occur within the social, biological, and material environment and in the natural landscape. The *content* dimension concerns the cognitive, meaning, and mastery of knowledge and physical tools (i.e. cultural implements). Learning or the acquisition of skills concerns the dimension of "content," and learning ultimately occurs on individual and cognitive levels. However, their mastery is dependent on the existence of a motivational force, and is thus a relationship between that force and the content of their acquired knowledge and skills. The *motivational force* dimension can be characterized through the use of the concepts of motivation, emotion, and will (i.e. mental energy). Motivational force originates from individuals and their sense of identity, which in turn comes from human interaction. The *interaction* dimension concerns the relationship between individuals who interact over time and what they bring with them personally, and what they bring of a cultural, social, material, and financial nature from their environmental conditions. In sheep farming, interaction takes place primarily at a local level but is influenced by important guidelines established at a higher community level. The interaction can be characterized through the use of the concepts of action,

Fig. 1. A social perspective on learning—learning and interaction closely connected to nature. Source reference: The figure is a modified version of figure 1 in Illeris (2012: 41).



communication, and collaboration. Further, it relates to sociality and integration (Illeris 2012). In the following, my analysis focuses mainly on motivational forces and conditions for interaction and learning in sheep farming.

In Lyngen, the sheep farmers' identity and hence also their stable internal dispositions that affect their ways of thinking, their emotions, and their behaviour have been established and developed through processes of mastery and cooperation (Illeris 2012: 167–168). In this way they have each acquired individually rooted cultural capital that they bring with them to the interaction processes that take place in networks. There, the social capital is developed and recycled (Bø & Schiefloe 2009: 160–164), as I have observed in the studied development-oriented, sheep farming community. In such local networks solidarity and reciprocity are more important than power and domination (Putnam 1993: 173; Norges forskningsråd 2005). Accordingly, I understand learning and learning processes in sheep farming as both individual mental processes and interaction with collective learning within particular socio-cultural, institutional, and material conditions (Illeris 2012: 15, 259–281).

The Wealth of Experience and Learning Space, Identity, and Language

In the farmers' spaces of experience,[11] the farms, the community, and the large natural landscape include people, animals, and cultural tools (i.e. both knowledge and physical tools) (Säljö 2006: 33). The farmers' awareness and activities become rooted in these spaces in early childhood. On a practical level, their activities vary in nature and location according to the changing seasons of the year, and gradually the young members of the community have grown up accustomed to a system of interaction that is closely linked to nature. Metaphorically and analytically, the large space of experience in the Lyngen community can be understood as a learning space in which processes of interaction and learning have become integrated over generations and have influenced cultural reproduction and development.

Tim Ingold (2000: 5, 57) states that "it is through dwelling in a landscape, through the incorporation of its features into a pattern of everyday activities, that it becomes home to hunters and gatherers" and that "dwelling" concerns how "awareness and activity are rooted in the engagement between persons and environment." Through inhabiting and using their complex space of experience in this way, the sheep farmers in Lyngen have skilfully engaged in cultivation processes that include both ecological and social interactions. Moreover, in this learning and experience

space, in which they feel at home, they have developed relevant "practical enskilment" (Ingold 2000: 289–357). During their cultivation process their bodily-based experiences have transformed into culture in a cognitive and semiotic process, in which there have been conflicts between the older community members' knowledge and experience and younger members' reflections on those experiences in relation to their contemporary activities. Subsequently, their experience-based knowledge has gradually become enriched by science-based knowledge, and the young members of the community have formed new notions about ways of living (i.e. about their livelihoods) and about development opportunities. Individual cultural capital and identity have developed in the cultivation practices too. Moreover, the cultural capital has been collective because the process has happened within the community. However, individual cultural capital exists in slightly different forms and each person therefore participates in the interactions on their own terms. The capital regulates how the farmers perceive, assess, and interact in the physical and social world, and it provides a basis for the development of social capital, practical understanding, and ability to act. This includes context-related understandings, cultural (including religious) norms and values, classification schemes, and linguistic prototypes and concepts that each person masters, and that they can use as resources in social practice (Ingold 2000: 5, 57, 289; Aakvaag 2008: 76–94). This opens up possibilities for excitements, anticipation, exchanges of ideas, and creativity, and in the case of the studied community also for interaction and development.

Ingold's concepts form the basis for understanding the Lyngen sheep farmers' conscious and subconscious mentality, their religious philosophy, willingness to participate, and their practical dealings with nature, materials, animals, and other people. In general, it can be argued that such experiences of reality can be found in the relationship between the thinking individual and the objects in the outer world (Lakoff & Johnson 1999; Lakoff & Johnson 2003: 7–41). Thoughts and sense can be said to be conscious and bodily, yet at the same time thought processes are largely subconscious. Our system of concepts is predominantly metaphorically structured and defined, and metaphors are abstract concepts derived from concrete bodily experiences—both spatial and material-based experiences. In order to progress from my empiricism to my analysis and description of the Lyngen sheep farmers' livelihoods and dwelling (i.e. their life-world),[12] it is necessary also to understand the meaning of key concepts and symbols, metaphors, and metonymy, as well as denotations and connotations in language (Aase & Fossåskaret 2007: 53–57, 142–170; Aakvaag 2008: 160–162). Accordingly, in the following I use some linguistic expressions in my analysis and presentation of my understanding.

Interaction and Motivational Forces in Sheep Farming

Communities of Practice, Learning, and Professional Driving Forces

Thus far, I have referred to working communities as equivalent to communities of practice. Wenger (2004: 89–104) postulates three elements in a community of practice: the ability to establish relationships, mutually dependent relations in work-related activities, and shared repertoires of engagement. When combined, these factors can create positive social energy and meaningfulness, but also inherent failures (inbreeding) and oppression. When these elements interact, the development and spread of knowledge can be optimized in communities of practice. The local cooperative environment that I have studied comprises small and larger communities of workers that have been spontaneously and partially informally organized according to their needs. These groups constitute the basis of the local, formally organized sheep farming. From Wenger's definitions, small groups of workers can be understood as constituting a complex community of practice, one that can also function as "a management tool" for governance by higher organizational levels within the industry. Through the community of practice, different activities are given meaning, individuals develop their identity and knowledge, and the decentralized form of learning also involves collective learning processes.

Fig. 2. Childhood on a sheep farm in the 1980s. A little girl—posing with a premium ram born of her own sheep—at work with dad. Photo: Roar Berglund.

In the case of the sheep farmers, their community of practice will be maintained in different situations and through diverse everyday activities throughout the seasons of the year. Many of the activities are organized informally, such as sheep herding and monitoring the sheep when they are grazing. Other activities are organized strictly formally, such as the knowledge-intensive sheep breeding. However, in all these aspects, novices gradually become involved from relatively early on (Fig. 2), under the guidance of older farmers with a large repertoire of knowledge and skills. There is a natural acquisition and exchange of knowledge in informal learning relationships between the novices and the experienced farmers. This relationship can be illustrated through the concept of apprenticeship, in which "mastery resides not in the master but in the organization of the community of practice of which the master is part" (Lave & Wenger 1991: 94).

The concept of masters and apprentices (Lave & Wenger 1991) can have several meanings and, in order to understand the organized activities in sheep farming as learning and social practice, it can also be linked to the concept of communities of practice. In the case of the community in Lyngen, skills have been acquired early and naturally by the children and young people through both imitating and learning by observing their role models, namely their parents, experienced sheep farmers, and others in different local working groups, and in time they too have been able to participate in activities. Ingold's (2000: 261) concept of "skill" highlights such acquisition as "tacit, subjective, context-dependent, practical 'knowledge how,' typically acquired through observation and imitation rather than formal verbal instruction." According to Lave and Wenger (1991: 29), young people's gradually more central role in participation in the community of practice's activities can be conceptualized as "situated activity," in a learning process from "legitimate peripheral participation" to "full participation." According to Lave and Wenger (1991:34), young people gradually become full participants through social and situated activities that form the core of the learning process. Further, Lave and Wenger (1991: 57) state that "[l]earning, transformation, and change are always implicated in one another." Situation-specific activities thus figure prominently in the socialization process and contribute to learning, motivational forces, and development.

In the case of the community in Lyngen, the sheep farmers and the community's social practices have been inviting for young members of the community and open to their participation. However, their parents and masters have also been authoritative. One of the interviewees said: "It was not merely *optional* for us children to participate in adult work. Rather, we *had to* participate in accordance with our ability." Thus, the community

members were involved in the field of practice and acquired natural insights and skills from an early age.

Polanyi's concept "tacit knowledge" is relevant to my discussion (Polanyi 2000). Moreover, I understand Ingold's term *skill* as synonymous with Polanyi's concept (Ingold 2000). However, both concepts can be understood in different ways.[13] In the context of the present study I understand "tacit knowing" either as well-established empirical knowledge or as "practical knowledge" and "knowledgeable practice" created through a strong sense of commitment and sensitivity (i.e. what Polyani [2000] refers to as "indwelling"). The sheep farmers' knowledge has been acquired naturally through inhabiting and using the landscape around them (i.e. they have been dwelling in the landscape), and as a result they have developed embodied practical skills and knowledge (i.e. through "practical enskilment") (Ingold 2000: 291, 316). Their skills have been acquired through processes of social practice that mobilize the necessary mental energy. And the outcome has been collective learning.

In many situations Wenger's three postulates already referred to, are satisfied, and the Lyngen sheep farmers construct knowledge that is socially distributed and collective. In such development processes tacit knowledge can have a reciprocal interaction with specialist knowledge, and form the basis of competent farmers' skills when they practise everyday tasks (i.e. they are skilled practices) that include ecological and social interactions. Working with animals thus involves various cultural tools as an extension of the body. The complex interplay of sheepdogs, sheep, machines and other related equipment, mobile phones, and everyday language have enabled the farmers in Lyngen to inhabit and exploit effectively and with empathy a large landscape of resources. With different social positions, they have developed somewhat similar ways of living, interests, and knowledge, and, over time, also collective subjectivity. They are therefore also predisposed towards and competent in cooperation over the use of natural resources. With common history of experience in proximity with nature, the younger members of the community have accessed social resources in the form of cultural capital and professional identity. Herein lies the foundation for their development of social capital, which can be used in reflection and communication. Thus, their interaction has given direction to their choice of actions. In the 1970s and 1980s potential sheep farmers "reinvested" their knowledge and social capital in the local sheep farming industry, and shortly afterwards they operated their own farms.

In the following, I concretize the scholarly basis for the interaction in the sheep farmers' community of practice. The utilization of technology, particularly from the early 1980s, opened up for improved efficiency

in farming operations. Many technical aids and resources freed up a lot of man-hours. Especially, the technology for round balling has meant that the traditional, labour-intensive work has been consigned to history. The need for operational efficiency and cost-cutting mechanization has also resulted in hay making being run by small working partnerships between persons from two to three farms. Various electronic forms of communication technology have been in use since the 1970s. Today, web-based communications with the abattoirs and other higher-level professional communities are well established. Experiments with web-based monitoring of free-ranging sheep (with electronic ear tags) while they are grazing in the outfields are ongoing, and drone technology is gaining popularity. In the practical and experimental work of feeding and breeding, automated feeding machines and artificial insemination with frozen semen (i.e. for inseminating small livestock) are used. In addition, sheepdogs have long been valued in sheep farming, and their training is undertaken in the community of practice. Thus, there is a complex interplay between independent farmers, sheep, sheepdogs, and various technologies in the exploitation of the natural resources in the case community.

Import of knowledge, as through the textbook *Sauehald med framtid* ['Sheep farming in the future'] (Bergøy [ed.] 1976) and the magazine *Sau og Geit*,[14] was of early importance for the development of collective knowledge and helped to conceptualize experience-based knowledge. More recently, the textbook *Helse og velferd hos sau* ['Health and welfare of sheep'][15] (Vatn *et al.* 2009) and other publications such as manuals for sheep farming published by the Norwegian Association of Sheep and Goat Farmers (Norsk Sau og Geit [NSG]) have provided relevant new insights. In 1964, sheep farming in Lyngen was formally organized as a local branch of the NSG.[16] Later, ram breeders groups also came under the Norway's organization for livestock control and home of the sheep breeding programme, Sauekontrollen,[17] which is managed by the abattoirs and two national specialists in meat production: Nortura[18] and Animalia.[19] The ram breeders' groups are monitored in accordance with a national breeding programme for quality improvement in meat production.[20] The farmers are also important for the implementation of the sheep breeding programme, for example by collecting data relating to the production process. The data are supplied to specialists as raw material for analysis and the results of the analyses are sent to the farmers in the form of indexes and other quality targets for each animal. This is part of the community of practice's basis for assessment and its focus on the independent selection of rams, ewes, and lambs. Thus, it is apparent that the community of practice is specifically used as a management tool by the NSG and Sauekontrollen in their nationwide activities (Li *et al.* 2009).

At the same time, the farmers have duties in the sheep farming industry's higher level organizations, namely the NSG's committee for sheep breeding (*Avlsrådet for sau*), the NSG's county branches, and Nortura's nationwide cooperative organization). In this way they also export knowledge.

The farmers themselves have perceived this community of practice as a working community in which new experiences are continually acquired, not as a learning community. However, in analytical terms it can be argued that the environment has provided both young people and adults with the appropriate circumstances for assimilative learning, whereby impressions of the surrounding environment are adapted to established mental schema. In some cases learning is simultaneously accommodative; in other words, it is qualitative transgressive learning in communities that restructure mental schema and allow for adjustments in patterns of behaviour (Illeris 2012: 60–65). Especially when accommodative learning is combined with reflection, incremental innovations occur.

With regard to production and organization, the developments have taken place as a combination of imitation (e.g. the brand Lofotlam ['Lofoten lamb'] appeared before the brands Lyngenlam ['Lyngen lamb'] and Alpelam ['Lamb from the alps']) and incremental innovations (Spilling 2005; Spilling [ed.] 2006). One example of such combinations is the deliberate manipulation of the genetic material of sheep into a "maternal line" and a "meat line."[21] A second example is the practice of gaining insights from the interaction between genetic combinations and environmental factors.[22] A third example is the discovery and breeding of double-muscled sheep, which give higher meat yields and less fat as a result of genetic mutations.[23] However, the farmers experienced negative consequences, such as overgrown tongues and higher lamb mortality. Based on genetic research and decisions made by the NSG, the mutated gene has been systematically bred out. The end product, high quality arctic lamb, is marketed as a niche product directly to consumers, the food industry, and to tourism businesses.[24] A fourth example of the combination of imitation and incremental innovations concerns the fact that in the past farmers had part-time and full-time jobs off-farm, in offshore fish farming, the education system, industry, handicrafts, and defence. Today, there are experiments involving newer forms of farming combined with tourism services and social services for young people. Reflection, understanding, and dialogue in communities have provided the basis for the development of knowledge and new practices in which both individual and collective interests are well balanced.

In the farmers' communication community, specialist knowledge and social capital have been very important for reflecting on experiences and making use of new scientific insights acquired from external experts. They

have reached agreements on appropriate decisions in their experimentation with, for example, breeding, feeding, and disease prevention. Communication and interaction have taken place informally, formally, and symbolically in the tensions between individual and community interests. Informally, they have taken place either in the learning relationships of master and apprentice or in everyday practice, largely based on tacit knowledge. Formal communication and interaction has occurred in activities related to organized arenas for sheep farming, in which both verbal and written specialized and conceptualized knowledge has been central. The symbolic form of communication is found particularly in the Læstadian environment through preaching and spiritual conversations. The three different forms of communication and interaction seem to have been mutually enriching and have created positive mental energy that is of importance for both professional and social interaction. This has in turn had an impact on the professional driving force, the production of knowledge, and the coordination of the interests of individual farmers in relation to the interests of the wider community of practice.

Religious Communities and Emotional Driving Forces

The human behavioural and ecological dimension is relevant for understanding the interactions, coping strategies, and culture in sheep farming in Lyngen. With regard to individual and group strategies, Bongard and Røskaft (2010: 193) state: "The strategies are driven by emotions that were evolved in the past." Such evolved emotions apply also to religious emotions. Bongard and Røskaft (2010) further state that "[r]eligious strategies are also based on feelings of being on the winning team, cementing team spirit, and ensuring that the group is strengthened from within against 'the others'" (Bongard & Røskaft 2010: 223), and that "[m]an has evolved a strong sense of family, friendship and in-group alliances that govern cultures and behaviour" (Bongard & Røskaft 2010: 297). In the studied community, common religious experiences over generations have been important for the sense of in-group feelings.

General states of feeling (emotions) are important for thoughts, actions, and learning. Based on recent brain research, the psychologist Daniel Goleman (1997) has attempted to show what *emotional intelligence* means for the ability to cope and work things out (Illeris 2012: 111–112). According to Illeris, Goleman claims that human beings have two fundamental forms of consciousness that interact: the rational and the emotional (Illeris 2012: 111–112). This implies that emotional intelligence is more than intellectual ability and is important for the motivational forces in working and learning. In this regard, my point is that emotional intelligence in sheep farming is

influenced by a religious factor. Læstadianism has entered into the interaction between the rational and the emotional, and has provided emotional intelligence with religious-based motivations and additional driving force. This raises the question of how religious-based emotions are expressed in the interaction between farmers' rational and emotional awareness. In this regard, two main typifications are important: the secular and the spiritual. The secular, which is represented by the rational and practical, is about inhabiting farms and the surrounding landscape (i.e. dwelling in them), and persevering to maintain a means of survival (i.e. livelihood). The spiritual, which is represented by faith, ethics, religious feelings, and their practice, revolves around what is most important, which is to strive for "God's blessing" and "salvation." Together, the secular and spiritual constitute a meaningful whole, which implies a relationship involving tension because the spiritual is easily dominated by the secular. Other important typifications that express the same bonding in the farmers' life-world are "family," "congregation," "a calling" (Norwegian *kall*), and the "order of creation" (Norwegian *skaperordning*). In a semiotic perspective (Fossåskaret *et al.* [eds.] 2006: 169; Aase & Fossåskaret 2007: 163–170), these concepts can serve to understand the thinking and importance of religiosity in the context of the present study. I will therefore examine in more depth the sources of emotional forces in the family, the congregation, and the calling.

Of relevance for the family and congregations in Lyngen Læstadianism, Olsen (2008) states:

> Both are places where the world, the devil and sin will not stand a chance [...]. The congregations and the family are referred to in the same way and are equal in their opposition to the world. (Olsen 2008: 132)

A number of metaphoric and metonymic concepts emphasize the importance of family metaphors, such as "God's children," "the heavenly Father," "sisters in the faith," "spiritual fathers," "brothers" and "brothers at the table." The Læstadian congregation is regarded as a big patriarchal family, and the family metaphor shows how the congregation as a religious and social institution should be understood. This in turn strengthens the importance of the family as an institution. There is reason to assume that biologically evolved general preferences and feelings for those who are closest, such as family members and those in the in-group, are reinforced by the religiously conditioned preferences and feelings for the family and congregation as an in-group. I claim that this has had consequences for the subculture and the motivational forces for sheep farming in the studied community.

Læstadianism is a conservative and pietistic form of Christian lay preaching, a Lutheran and Protestant direction with some features of

Calvinism—such as Puritan conceptions. This influences the ethics and morals in daily strife, where the thinking behind the sense of a calling was an important motivational force. Today, the farmers in Lyngen identify with Læstadianism to varying degrees, and many are not likely to recognize claims about such a calling, since many traditional symbols (e.g. dress and hairstyles) of Læstadian identity have been toned down or lost from everyday life, and there is little trace of self-denial with respect to material consumption. However, my observations of religious practices and values indicate that Læstadian ethics are ingrained in their subconscious.

From a historical perspective, I consider that the connection between sheep farming and Læstadianism can be demonstrated with reference to Max Weber ([1920] 1972). He argued that the explanation of the historical relationship between Protestantism and capitalism must first and foremost be sought in Calvinist sects' attitudes toward life and social organization, such as in their expectations of hard work and a simple life. Further, Weber points out that "'called' (in the sense of a life position, a defined work area)" exists "among *all* predominantly Protestant peoples" (Weber [1920] 1972: 46; italics in original). The concept of calling applies to the notion of "the religious significance of mundane everyday work" or, expressed another way, "the assessment of duty fulfilment in worldly vocation as the highest content that an individual's moral activity could assume." According to Weber ([1920] 1972: 59, 67), this dogma dictates that religious faith and religious life practice imply the "tireless work of following a calling" in order to achieve certainty in the "selection for grace" (predestination).

In Calvinism, economic progress is interpreted as a sign of being chosen and hence for the believer in the calling there are strong "psychological driving forces" to achieve economic progress. Aadnanes (1986: 80) claimed that Lutheranism and a strong sense of calling are of central importance in Lyngen Læstadianism. This includes the core values of piety, hard work, patience, moderation, and self-denial. With regard to the sense of a calling, Olsen (2008: 11) states:

> The calling [...] is that which embraces the whole person in gatherings, congregations, and daily life. Closely connected to the notion of calling is the idea of God's order of creation.

Further, according to Olsen, in Lyngen Læstadianism's social arrangements such as the family are created by God in equality with nature (Olsen 2008). Ingold's (2000) concept of "dwelling" is insightful in this respect, as it highlights people's active roles in creating culture, in this case a religious-based and socially constructed notion that is both juxtaposed with and part of nature.

According to Lyngen Læstadian ethics it is particularly important for the calling to be followed through work, to manage and safeguarding the family. Hence, if the strivings are blessed, their family will be "saved." One of my interviewees referred to the text from Genesis that reads "in the sweat of thy face thou shalt eat bread," which can be understood as meaning that the work of following a calling is drudgery. In arduous situations, such as those in the coastal Sami's Læstadian environment, it is usual to ask the question "Do you manage?" (Norwegian *Berges du?*) (including the connotation 'to become saved'). In one Sami-Norwegian dictionary, the religious connotations of the word *manage* and *to be managed* (Sami *gádjut*, *gáddjot*) are explained as synonymous with *salvation*, *to be saved*, and *to become free* (Kåven *et al.* 2000). I interpret the expression "to manage" (Norwegian *å berges*) as a key integral metaphor or metonym in which both denotation and connotation are important. Denotation concerns people's mastery in tangible, practical and economic circumstances, in familial and social relationships, and in the utilization of land and natural resources in the countryside, that is rooted in *dwelling* and *skilled practice* (Ingold). By contrast, connotation is symbolic and concerns the struggle to create meaning and motivation on the basis of religious beliefs. The concept "to manage" is related to the secular and spiritual spaces of experience in a meaningful whole. Predestination means that it is important to tirelessly follow the calling, and success in the world is interpreted as a blessing. In cases where the farmers have invested heavily to ensure that sheep farming in Lyngen is successful and they manage, this may be interpreted as to be "saved," as a blessing and giving them hope of salvation, which in turn strengthens their motivation to increase their efforts.

Farmers, Organized Sheep Farming, and Religion in Interaction

The religious significance of the family in Lyngen Læstadianism represents an indirect link between farming operations and religion. In-group experiences and social networks in the Læstadian congregations evolved from the mid-1800s onwards, and farmers collectively reaped the benefits from this organizational and cultural element of Læstadianism from the 1950s onwards. Subsequently, the community of practice gradually developed with regard to sheep breeding. This raises the question of how I can concretely justify the claim that their religion might have been behind their motivational forces and interaction in sheep farming. Today, as in the past, the work carried out on the farms and in the Læstadian families can be interpreted within the context of a Protestant understanding of a calling. It has been customary among members of the studied community to refer to positive events in daily life as an expression of "God's blessing" and when

working to greet others with the shortened form "Blessed be the labour" (Norwegian *Signe strevet*). These are symbolic expressions of the community's secular struggles and the spiritual as a whole, in which there are hints of the calling as a mental motivation factor in their work. Although traces of this way of speaking can still be found, the expressions are founded in more than this. Hard-working people can also be found within the Protestant-inspired subculture in the community. Furthermore, the working environment is not without tensions, such as those over sheep breeding and the use of pasture resources. Despite such tensions, the sheep farming industry is a large collective project in which conditions for psychosocial motivation are embedded.

On the connection between everyday practice and religious symbols, Lakoff and Johnson (2003: 40) state: "Symbolic metonymies are critical links between everyday experience and the coherent metaphorical systems that characterize religions and cultures." In the local culture in Lyngen, the connection among religion, culture, and nature is evident in the language. With regard to the importance of the Læstadian environment for the vitality of the community's sheep farming industry, one of the older farmers with responsibility for apprentice farmers said:

> The importance of Læstadianism and the sense of community or the development of sheep farming can be likened to the purpose of ballast in a boat—to enable it to sail well and stay the course.

Using a metaphorical figure of speech, another farmer specified how job satisfaction, creativity, hard work, and self-denial are interwoven in a fundamentally religious context in proximity to nature:

> You can see that with words, you sow in order to bear fruit of various kinds, the way one *is* can bear fruit [...] But in agriculture one experiences in a much stronger way [...] the results of the work one does. Indeed, one can certainly say that when something is blessed it bears fruit: [...] you sow and you work on breeding the sheep, horses and dogs [...] and you cultivate the soil, fertilize it as well as you can, water it, and [...] then you see the result [...] many times over, depending to some extent on what you should have done [...] but I think the blessing has a little to do with faith.

The above quotation clearly represents the Læstadian show of faith as a framework of reference. It gives meaning and psychological motivation in the daily struggle to "be saved," and blessing is associated with good results from secular labour. The quotation also expresses a typical experience and learning process that contributes to the development of the local sheep

farming economy. It is also a clear expression of the sense of closeness to nature. Further, closeness to nature and religiosity are included in families' cultural practices that are passed on to future generations, as another farmer said:

> We grew up in a Christian home. Football was not in focus [...] We often spent time in the open [...] Went skiing, [and] up to the cabin. Congregation and church on Sundays. I want to teach my children the same.

In the Læstadian community, outdoor life during holy days was originally regarded as sinful, but eventually became acceptable, and today's farmers spend time in nature, which is symbolically expressed as "the work of creation" and "nature's cathedral." The use of nature for recreation is understood as a form of contemplation that also fits in with sheep farming when caring for sheep that are grazing in the outlying pastures. Thus, Læstadianism has stimulated proximity to nature in a way that is illuminated by Ingold's term "dwelling."

With regard to the concept "tacit knowledge" and Polanyi's concept "emergence," Mathisen (2007: 13) states: "The fact that two qualitatively different aspects or elements in the knowledge process come together in an overarching whole lays the foundation for something new to emerge,"[25] and that "the interaction of phenomena that are fundamentally different sets in motion the development on a new level." I thus maintain that the meeting between organized sheep farming and Læstadianism, which are fundamentally different phenomena, has contributed to development on a new level. Through meetings between people in differing social positions, various aspects of local culture have become intertwined and this in turn has provided an impetus for increased levels of interaction, communication, and reflection. The interaction has taken place in two different contexts in which individual thinking, collective subjectivity, and cultural and social capital have become interlinked.

In Læstadian meetings, institutionalized religious norms and values apply that are not subject to negotiation. In this regard, the rituals and the spoken words that are heard (i.e. the preaching) by members of the community inspire spiritual reflection, strengthen both the family as an institution and the sense of a calling, and instil mental and social energy. However, in the business arena, the subjects, debates, negotiations, and discussions based on individual differences are central. When the differences are bound together through social persons with a repertoire of different statuses and skills that are activated in different situations, this may create controversy but may also be mutually invigorating for members of the sheep farming pro-

fession and the application of their mental energy. The farmers' systematic observations, reflections, and experimentation in communities of practice (within biology, technology, economics, and new market strategies) have occurred in the field of tension between phenomena that are fundamentally different, namely sheep farming and Læstadianism. I consider that this has given rise and impetus to the development of the sheep farming.

Primary Socialization, Social Resources, Knowledge, and Driving Forces for Development

It is typical of the present generation of farmers that tradition-based knowledge is acquired with sensitivity and great insight at a very young age (cf. the concepts "livelihood," "skilled practice," and "dwelling" [Ingold 2000], and "indwelling" [Polanyi 2000]) through observation and imitation of role models and activities in daily life. One of the farmers said:

> Playing was not a matter of leaving the farm to go and buy a toy. One had to find things to do oneself. [...] We played with paper animals, as we called them [...]. Made models of the barn, stalls with paper sheep. We had names for the sheep, like our uncle who had names for his sheep [...]. Made small hay-drying racks [...]. When the silo came, we made a silo, using Gilde's large 2–3 kilogram sausage tins, which we buried in the ground. [...] It has always been like this for us as children.

As a child in a "peripheral position" and inspired by parents' ways of life, this farmer had through free play laid the foundation early on in his life to become an integral participant. Another farmer portrayed the learning conditions and sources of inspiration in early childhood as follows:

> My grandfather was my motivating force [...]. At grandfather's [farm] there was good topsoil for growing turnips [...] it was easy to weed. The basis for our motivation [...] has two separate sources. One is [...] the creative force. One experienced the thresholds [...]. One has the creative force from when one is young. The second thing is what ensures that one keeps going [...]. That is very interesting. The environment counts a lot when it comes to the sheep.

The above quotation clearly shows how the basis for motivation was released. Later, agricultural education was introduced and access to the sheep farming. Childhood experiences in farming in the community are clearly evident in other ways, as the quotation reveals that the older masters gave this particular novice the support that he needed. The same farmer continued:

> Neighbour [A] was a chap who got in touch with us. [...] he wanted to inspire us to engage in the ram breeding programmes [...]. And [B] and [C] had such a humorous and spirited way of leading meetings. They were the corner stone of the organization's business at the time. They had the ability to include others too. We joined the local ram breeders' group. [The capital letters represent names removed to preserve anonymity.]

Thus, this farmer's family gradually contributed to the community, and as a result of their interest in cultivating the soil, working with the animals, and their willingness to undertake hard work, they were rewarded:

> We had a ram that suddenly started to do very well. [...] He was fairly big [...]. Later, we had a ram that was ranked even higher. I can say we had the country's best ram, which was born in 1999. We were down in Bergen at some place, and received a large statuette. It was such a boost and it gave us a taste for more.

In the process, it was necessary for the farmer's family to have several different sources of income, but with creativity, good partnerships within the close family, and hard work, the farming operations eventually became profitable:

> We made use of a computer early on in order to gain an overview. [...] We were searching for more land to rent, and found it. We were able to build up the livestock more and more. We were able to buy a tractor with a harvester. We extended a barn. [...] It is only in recent years that the sheep farming side has contributed the most financially. [...] It was a tough time when we had to build up everything. [...] But we thought it would work out [...]. Now we are beginning to be sustainable.

The above-mentioned two farmers' learning pathways to successful adulthood are typical in the studied community. Another success story concerns a farmer in the same community, who for the second time was named by Nortura as Norway's best sheep farmer in 2014 (Nortura 2014). The inspirational environments in childhood, the farmers' self-interest, and their support in the local community have thus been of fundamental importance as a motivational force behind their development and success.

In an environment that encouraged early participation, all of the farmers had shifted from legitimate peripheral participation to full participation (Lave & Wenger 1991: 110–123). Context and meaning were created over time through their *situated learning activities* and the professional community. On the basis of the empirical data, I argue that the primary socialization whereby children and young people participate early on in experiential learning in a

variety of situations is an important foundation for identity development and for recruitment to and development of a local industry. In this way, cultural reproduction, knowledge production, and development can take place in a living community of practice. The knowledge is mainly implicit, but it is also explicit, conceptualized, and socially distributed, and these two forms of knowledge are mutually influenced in interaction and learning processes.

When practical enskilment or tacit knowledge is first acquired and later becomes conscious, this may reflect a shift from practice (observation and imitation) to the use of concepts (Ellström 1996; Ingold 2000: 316). In the studied community, awareness has occurred also when the younger members have encountered conceptualized specialist knowledge in their dialogues with the older practitioners and with experts. In such cases, the learning process has been characterized by a shift from specialist concepts to practice. Acquired specialist concepts can become so well established in the consciousness that they become implicit or tacit. As I have already mentioned, the farmers produce data that external experts have analysed and returned to the practice field as new knowledge, which the farmers have mastered with great sensitivity. This process concerns what Wahlgren (2009: 21–22) calls "transfer," and it has taken place readily because the specialist knowledge has been highly relevant for practical sheep farming (i.e. "job utility"); the professional and social "receiving climate" in this field of practice has been supportive and desired to learn, and the "rewards" have been in the form of higher quality rankings in sheep breeding indexes, high-quality meat, and prestige in environmental terms. Thus, young members of the community who have later become active farmers have acquired valuable insights that have been beneficial for sheep farming.

Earlier in this article I pointed out that free play in childhood is a key element of the foundation on which the young farmers' positioning as novices and later as fully valued participants is developed. Recent research, including brain research, has focused on the value of the "free play" in contributing to the development of mental, social and emotional health, creativity, problem-solving, and conflict resolution (Brown 2009; Harper 2010; Hewes 2010). Stimulation in childhood and gradual integration into the knowledge-oriented community of practice has thus contributed to farmers' later pioneering new practices, to their creativity, and to their motivation in business developments. Trend-setting older farmers have conveyed a vision in which close links to nature and a sense of calling are central, and consequently their form of management with a clear vision in the sheep farming community of practice regarding the environment and sheep has contributed to the development of collective commitment and advanced methods of sheep farming in the area.

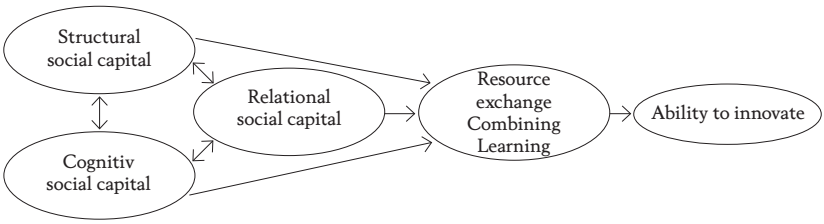
A lot of the dynamics in the sheep farming community and the community's driving force have largely arisen from the two conditions: the ability to combine individual qualities of the old masters and the youngest people within the subcultural sphere, and the ability to combine experience-based and science-based knowledge (to overcome the problem of *transfer* of knowledge). In open communities all knowledge is in change. The clear and general distinction between traditional or tacit knowledge and scientific knowledge is as a sterile dichotomy not suitable in my analysis. Therefore I have gone beyond the dichotomies to demonstrate a productive dialogue between these forms of knowledge, as Agrawal (1995: 433) encourages. I have shown that this may occur—and how—in a concrete practice. By words of Agrawal (1995: 422, 2004:9) I show that there evidently have been "contact, diversity, exchange, communication, learning and transformation among different systems of knowledge." All this has contributed dynamics of both cooperation and clash of interest that have been of value for the collective good.

Interaction, Motivational Forces, Social Capital, and Development

The dynamics I have described in the section above concerns the connection between circumstances in childhood, a culture dominated by religion, and economic activities. In this regard, interaction with social capital as a collective resource has been important in local social and professional networks. However, the sheep farming network does not only consist of local relationships between like-minded farmers, but also of the "bridges built" to various centres of expertise within, for example, sheep farming, commercial trade, tourism, and public administration.

In order to highlight the connection between social capital and development (with imitation and innovation), I refer to Bø and Schiefloe (2009: 227), who differentiate between three main dimensions in the concept of "social capital" in relations between social actors (Fig. 3): The first dimension concerns the pattern of relations, namely which actors are accessible to other actors through either direct or indirect ties (*structural dimension*). The second encompasses the qualities of the actors' relationships, such as recognition and friendship, sense of obligations, and trust (*relational dimension)*. And the third dimension concerns the cognitive capacities of the community, such as common interpretation models, shared perceptions of reality, common codes, and agreed norms of behaviour (*cognitive dimensio*n). According to Bø and Schiefloe (2009), this concerns how innovation in organizations should mainly be understood as collective processes in which

Fig. 3. Social capital and innovativeness of an organization. Source reference: Tsai & Ghoshal (1998: 466).



information and ideas are exchanged and combined, and in which new products and processes are generated in the interactions between actors. In the absence of a plentiful supply of social capital of these three main types, such processes function poorly. Innovative businesses are thus most often characterized by well-developed internal networks that connect various disciplines and functional areas.

The types of social capital in the model that Bø and Schiefloe (2009) refer to, can also serve to illustrate the importance of social capital for the social interaction dimension in the sheep farming development-oriented community of practice as well as for the industry's innovation and development capability. *Interaction processes* (see Fig. 1) between the farmers and their surrounding environment are founded in both structural and relational social capital. The *acquisition process* is primarily individual and a relationship between what should be taught (content) and the motivation behind it (driving force). This process is cognitive when knowledge is created individually as well as in social practices when the relational social capital and knowledge are applied and created in interaction and become socially distributed. The motivating force arises from all three dimensions (i.e. the structural, the cognitive, and the relational). This generates resource exchange and the combining of knowledge in the community of practice. In this context, learning based on both experience and research is central and creates favourable conditions for the development of imitation and innovation. My empiricism indicates that the development is not based merely on harmonious interaction. The processes of acquisition and interaction are also driven forward by professional disputes in fields of tension that arise in meetings between actors in various social positions in different cultural fields. Such tensions exist between material and economic interests involved in sheep farming and the ethics anchored in religion and local culture. However, the tensions vary at the individual level because the farmers are differently positioned with respect to Læstadianism and because

their emphasis on the religious ethics varies. Ethnic marginalization often impedes development (Hansen 2012), but can also constitute a source of opposition and the driving force, processes and acquisition when in-group alliances are strong, such as in the studied community, in which the ethnic dimension is expressed both directly and indirectly through Læstadianism.

I have argued the case for the importance of social capital for development in a particular cultural context. In my earlier studies (Lillevoll 1982) I have used the neighbouring industrial community of building contractors as a reference in my analysis of the studied rural community. Both were fisher-farmer communities in the 1950s. The industrial community had poor natural conditions for modern farming, but the culture of both communities was the same: coastal Sami and Læstadian. The natural conditions in the two communities provided different opportunities for development, and when modernization began in the 1960s, their industrial development took different directions. Nevertheless, it is possible to find parallels with regard to local culture, motivational forces, and the dynamics in their innovative development.[26] There are indications that the same culture-based dynamics has been operational in the two communities. If this proves to be the case, it would strengthen my argument that there is something universally interesting in the dynamics I have described for the analysed rural community.

Summary and Final Remarks

I have studied the development in a community in Lyngen Municipality in which, through combined strategies, the farmers have adapted to extensive global and national processes of change. There have been cultural changes and changes in the community's economy, yet at the same time there has also been continuity over the generations in these respects. My starting point has been that the particular combination of natural conditions and cultural conditions has placed constraints on the development of agriculture in the area, and I have attempted to address these constraints and have summarized three main points. The *first* point concerns the way the children have grown up in proximity to nature in a socio-cultural context with large spaces for free play and with early access to the development-oriented community's field of practice. And the interested beginners have received support from experienced adults during the gradual transition from their position on the periphery to full participation. The *second* point concerns the situated activities involving learning, the development of identity, and cultural and social capital. These activities have taken place in the context of the meeting between two cultural fields: practices rooted in both experience-based and science-based knowledge, and a spiritual way of life based on beliefs in which Læstadian ethics have guided life and work. The *third*

point concerns the early integration of sheep farming into a complex and sophisticated field of knowledge. Empirical knowledge was developed in local communities of practice with roots in local institutions and horizontal social networks. These local communities of practice also became formally connected vertically to external knowledge networks and public administrative authorities. Over time, the farmers have thus become successful in developing sheep farming.

However, the farmers' prospects are not unambiguously positive. A historical and contemporary innovative environment does not necessarily remain innovative. In the studied farming community, situations characterized by apprenticeships may become history. In addition, the driving force in the community might be reduced if the institutionalized community thinking weakens and gives way to individual initiatives with greater economic ambitions. In common with other industries, the farming industry is expected to reduce greenhouse gas emissions. There are also good opportunities for "green industries" specializing in food production and products for adventure holidays and tourism. If the farming industry is unable to adjust to criteria for sustainable development, this may lead to declining recruitment.

In line with Almås *et al.* (eds.) (2008: 441), it can be argued that the farmers need to act in accordance with the space for manoeuvre in agriculture, which includes making changes in the user structure and formulating a new policy for how and where farming will be practised in Norway. It may therefore be the case that in order to remain innovative the farmers will have to change their ideas about development, possibly reduce their ambitions for growth, and invest in more flexible combined adjustments, on a more moderate scale, and in niche products. Nevertheless, I believe that the strategies of mastery used over generations in the studied community are of wider interest. The socio-cultural context implies that at the actors' level the industrial activities are linked to important local institutions and organized activities in civil society, and at the same time the efforts that have been made have received extensive support from external experts and government agencies. In this respect, there may be elements that are transferable to other types of communities and industries.

Norwegian innovation research has largely focused on enthusiasts and entrepreneurs, clustering, and regional and national innovation systems. However, the motivation for development in the communities I have discussed can be explained primarily from the local socio-cultural context and incremental development over generations. I would argue that the likelihood of knowledge with innovative effects in a business environment would increase if (1) there exists a social structure and cultural context in which

actors generate re-investable social capital, and (2) there are driving forces with emotional motivation for interaction in communities of practice. If this claim has any substance, this study could contribute to innovation research and also to the solution of the well-known problem of "transfer" in the field of education or vocational education, namely the problem of transference and the practical application of new knowledge and experiences between theory and practice, in both directions.

ACKNOWLEDGEMENTS

I thank all those who primarily made this work possible, including all my informants; the farmers in Lyngen who graciously allowed me to enter their community. Professor Tone Bleie is thanked for contributing through important academic conversations and comments. Thanks also to management auditor and text expert Tone Steffensen for her tireless critical perusal and comments on my manuscript. Moreover, thanks to Catriona Turner for helping me with the English version of this text. Finally thanks to the journal editors, especially to Associate Professor Olle Sundström, for patiently waiting for my contribution and constructive suggestions for improving the text.

NOTES

[1] For an authoritative account of the effect of post-war national decentralization policies in Northern Norway, see Brox 2006. For a more recent study focusing on local transformations due to globalization and changed relations between the Norwegian state and rural communities of the High North (i.e. the circumpolar Arctic), see Bærenholdt & Aarsæther 2001.

[2] My use of the term *coastal Sami* applies to a population with predominantly Sami history, language and culture, who became influenced to larger or lesser degrees by the cultural practices of Kven immigrants. According to data from the 1801 census held in Norway's national digital archives (Arkivverket-Digitalarkivet), of the registered ethnic populations, 71 % were Lapps, 28 % were Kven, and 1 % were Danish or Swedish (http://arkivverket.no/Digitalarkivet; access date 10 November 2016).

[3] Lars Levi Læstadius (b. 1800) was the originator of the Læstadian movement that existed in the late 1840s, also in Lyngen. Læstadius, a naturalist, botanist and clergyman, was from a Sami family and worked in Lapland. Læstadianism had a great impact on Kven and Sami cultures throughout Lapland as well as in coastal Sami areas (Boreman 1953; Aadnanes 1986; Kristiansen 2001; Kristiansen 2005; Olsen 2013).

[4] In this article, I follow Haugen and Stræte's understanding of a rural area: "a territorial area characterized by scattered settlements, distant from major population concentrations and where natural resources are of considerable importance as a basis for business and leisure activities" (Haugen & Stræte [eds.] 2011: 13).

[5] Between 1969 and 2014, the total agriculture area in Troms County decreased from 34,450 ha to 33,600 ha, the number of agricultural holdings reduced from 8,858 to 975, and the size of the remaining holdings increased from 3.9 ha to 24.2 ha (Rognstad & Steinset 2012). Furthermore, the total number of adult sheep in Norway has decreased: in Troms County, the numbers fell by 16 % in the period 2003–2013, but in Lyngen they increased by 45 % in the same period (Stornes 2014).

[6] Tor Arne Lillevoll, "Læringsmiljø og sosio-romlige mestringsstrategier for 'å berges' på bygda" ['Learning environment and socio-spatial strategies for 'surviving' in rural communities'], an unpublished paper written in 2009.

[7] Lyngen Læstadianism mainly started as a Sami and Kven movement with a geographical and historical centre in the Lyngen area (Olsen 2013). Aadnanes (1986: 80) states that "the Lyngen fraction is actually more Lutheran than Læstadian."

[8] An institutional approach to communities means that there are fixed arrangements associated with living in a local community and that institutions define certain rights and duties that are levied with a certain degree of "local community strength" (Aarsæther 1997: 84).

[9] The added value of sheep farming industry increased by more than 40 % in the 10-year period 2003–2013. The numbers of sheep increased by 45 % in the same period, and farms in my study area accounted for the majority of that increase. On average, each farm has 400 sheep on a winter feeding system. In Lyngen Municipality as a whole, c. 10,000 animals are fed over winter, of which c. 8,000 are in my study area. The farms have an average of barely 20 ha of cultivated land (rented and owned) (Stornes 2014).

[10] On the term *horizon of understanding*, Henriette Højberg states, with reference to Gadamer: "The horizon of understanding represents the personal approach to the world, all that is made up of private experiences, but it is also a collective approach since each person is part of a linguistic community and a part of a historical and cultural community" (Højberg 2005: 323).

[11] My use of the term *spaces of experience* and the importance of the spatial for reproduction is inspired by the work of Ingrid Rudie (2008: 82).

[12] The concept "life world" overlaps Ingold's (2000) concepts of "livelihood" and "dwelling." On the life world, Jacob Dahl Rendtorff (2005: 284) states: "It is the basis for the immediate experience of the world. It is the immediate and bodily perception of the world that is central. Each actor is central in his or her life world with their physical and spatial presence. However, individual life worlds in the same culture overlap, and therefore the concept is also intersubjective—and the basis for the collective."

[13] Tacit knowledge cannot be explained in simplified terms. It can, for example, be understood as skills, as knowing how to do something (know-how), and as practical knowledge (Åsvoll 2009: 81).

[14] The members' magazine *Sau og Geit* ['Sheep and goats'] provides a permanent link between the organization of the same name and its members. The magazine is an important source of information of both livestock-related and industrial policy. It is published by Norsk Sau og Geit (NSG) at Ås.

[15] The textbook has been published jointly by Animalia and NSG and contains course-related instructions for users.

[16] Norsk Sau og Geit (NSG) was founded in 1947 and is a professional membership organization for sheep and goat keepers in Norway. A local branch was established in Lyngen in 1964. The NSG is responsible for the organization and implementation of sheep breeding programmes. The board of the NSG has appointed a professional advisory body—Avlsrådet for sau ['The sheep breeding committee']—which has responsibility for sheep breeding and ensuring that the breeding programme is conducted in accordance with the breeding plan.

[17] In addition to its nationwide responsibility for livestock control of sheep, Sauekontrollen can be accessed by all sheep farmers and has responsibility for the operation and development of the central database for sheep and for the development of a web-based

registration and reporting scheme for members and advisers. The scheme provides an overview and facilitates the management of sheep and sheep shearing. In addition, it is possible to analyse developments in husbandry and the results of breeding over time. Recent introductions have included "apps" for smart phones and registration services, such as message options.

[18] Nortura AS, an abattoir, is responsible for the operations. Nortura's core activities include slaughtering, cutting, processing, egg packing, sales, marketing, sales of hatching eggs/hatchlings, livestock sales, and wool sales, and they also provide an advisory service. Nortura is organized as a cooperative and is owned by egg and meat producers who supply their raw materials and are active owners with rights.

[19] Animalia is one of Norway's leading specialists and developers in meat and egg production. It covers the whole value chain from farm to table and aims to strengthen confidence in meat and egg producers. Animalia's activities focus on high-quality products, increased value creation, and efficient production.

[20] Avlsplan for sau ['Breeding programme for sheep'] is managed by the NSG with input from, for example, the Department of Animal and Aquacultural Sciences at the Norwegian University of Life Sciences.

[21] The "maternal line" (Norwegian *morlinjen*) is directed towards developing some of the livestock consisting of ewes that produce lambs normally and take good care of their lambs, whereas the "meat line" (Norwegian *kjøttlinjen*) is oriented towards developing some of the livestock into good meat producers.

[22] An article by Grimstad shows that representatives of experience-based knowledge have a high level of academic awareness, they practise critical reflection, and they oppose the use of specialist and academic-based knowledge within the sheep farming industry (Grimstad 2010).

[23] See Bleie & Lillevoll (2010: 21–22), who refer to the genetic mutation in more detail.

[24] Branded products from the studied area are Lyngenlam and Alpelam. Both are well established in the market. Gourmet Lyngen AS (the firm is now bankrupt) supplies Lyngenlam products, whereas Eide Handel AS (near Tromsø) provides Alpelam products (http://www.eidehandel.no/lammekjott/; access date 10 November 2016). The tourism industry in Lyngen has links to sheep products through Lyngsalpeprodukter AS (Magic Mountain Lodge (see https://eidehandel.no/matbloggen/aktuelt/lam-pa-hoydetrening/; access date 19 December 2016).

[25] A. Mathisen, "Den 'tause' misforståelsen. Michael Polanyis kunnskapsteori i nytt lys" ['The "silent" misunderstanding. Michael Polanyi's theory of knowledge in a new light'], an unpublished paper written in 2007 at Rudolf Steiner høgskolen.

[26] T.A. Lillevoll, "Tre innovative bygder i Lyngen. En sammenligning" ['Three innovative communities in Lyngen. A comparison'], unpublished work written in 2014 and used as the basis for this article.

REFERENCES

Aadnanes, P.M. (1986). *Læstadianismen i Nord-Noreg* ['Læstadianism in Northern Norway'], Kolbotn: Tano.

Aakvaag, G.C. (2008). *Moderne sosiologisk teori* ['Modern sociological theory'], Oslo: Abstrakt.

Aarsæther, N. (1997). "Globalisering og utvikling av lokalsamfunn" ['Globalization and community development'], in *Det locale. Decentral politik og forvaltning*, eds. P. Gundelach, H. Jørgensen & K.K. Klausen, Aalbrog: Aalborg Universitetsforlag, pp. 77–99.

Aase, T.H. & Fossåskaret, E. (2007). *Skapte virkeligheter. Om produksjon og tolkning av kvalitative data* ['Created realities. The generation and interpretation of qualitative data'], Oslo: Universitetsforlaget.

Agrawal, A. (1995). "Dismantling the divide between indigenous and scientific knowledge," *Development and Change*, 26, pp. 413–439.

Almås, R., Haugen, M.S., Rye, J.F. & Villa, M. (eds.) (2008). *Den nye bygda* ['The new rural'], Trondheim: Tapir Akademisk Forlag.

Arbo, P. (2009). "Innovasjon på norsk" ['Innovation in Norwegian'], *Tidsskrift for samfunnsforskning*, 49:3, pp. 387–402.

Åsvoll, H. (2009). *Teoretiske perspektiver på taus kunnskap* ['Theoretical perspectives on tacit knowledge'], Trondheim: Tapir Akademisk Forlag.

Bærenholdt, O. & Aarsæther, N. (2001). *Transforming the Local*, Copenhagen: NORD.

Bergøy, Ø. (ed.) (1976). *Sauehald med framtid* ['The future of sheep farming'], Oslo: Jordbruksforlaget.

Bjørklund, P.K., Rekdal, Y. & Strand, G.H. (2012). *Arealregnskap for utmark* ['Area accounts for outfields'] (Ressursoversikt fra Skog og landskap 5), Ås: Norsk institutt for skog og landskap.

Bleie, T. & Lillevoll, T.A. (2010). "Shepherds of the mountains. Sheep farming in a north Norwegian alpine landscape as a community of practice," *Journal of Northern Studies*, 4:2, pp. 11–32.

Bø, I. & Schiefloe, P.M. (2009). *Sosiale landskap og sosial kapital. Innføring i nettverkstenkining* ['Social landscape and social capital. Introduction to network thinking'], Oslo: Universitetsforlaget.

Bongard, T. & Røskaft, E. (2010). *Det biologiske mennesket. Individer og samfunn i lys av evolusjon* ['The biological human. Invividuals and communities in the light of evolution'], Trondheim: Tapir Akademisk Forlag.

Boreman, P. (1953). *Laestadianismen. Fennoskandiens märkligaste väckelse och dess förhållande till kyrkan* ['Læstadianism. Fennoscandia's most remarkable revival and its relationship to the church'], Stockholm: SKDB.

Brown, S. (2009). *Play. How It Shapes the Brain, Opens the Imagination, and Invigorates the Soul*, New York: Penguin.

Brox, O. (2006). *The Political Economy of Rural Development. Modernization without Centralization?*, Delft: Eburon.

Ellström, P.E. (1996). *Arbete och lärande. Förutsättningar och hinder för lärande i dagligt arbete* ['Work and learning. Preconditions for and barriers to learning in everyday work'], Solna: Arbetslivsinstitutet.

Fossåskaret, E., Fuglestad, O.L. & Aase, T.H. (eds.) (2006). *Metodisk feltarbeid. Produksjon og tolkning av kvalitative data* ['Methodical fieldwork. Production and interpretation of qualitative data'], Oslo: Universitetsforlaget.

Goleman, D. (1997). *Følelsernes intelligens* ['Emotional intelligence'], Copenhagen: Borgen.

Grimstad, A.-C. (2010). "Lyngen værring ønsker å bevare nordnorske gener" ['Lyngen ram breeders' want to preserve northern Norway's genes'], *Sau og Geit*, pp. 36–38; http://www.nsg.no/getfile.php/_NSG-PDF-filer/Medlemsbladet/2010/sau_geit_4_2010.pdf; access date 10 November 2016.

Hansen, K.L. (2012). *Likestillingsstatus blant samer. En kunnskapsstatus* ['Equality status among Sami. A knowledge status'], Tromsø: UiT.

Harper, S. (Producer. Director) (2010). *Lost Adventures of Childhood* [Documentary on CTV, Canada]; http://www.worldcat.org/title/lost-adventures-of-childhood/oclc/645495355; access date 15 December 2015.

Haugen, M.S. & Stræte, E.P. (eds.) (2011). *Rurale brytninger* ['Rural accents'], Trondheim: Tapir Akademisk Forlag.

Hewes, J. (2010). *Voices from the Field*, *Learning Through Play. A View from the Field*, Encyclopedia on Early Childhood Development, Montreal Centre of Excellence for Early Childhood Development; http://www.child-encyclopedia.com/sites/default/files/docs/perspectives/connorsangps_0.pdf; access date 15 October 2015.

Højberg, H. (2005). "Hermeneutik" ['Hermeneutics'], in *Videnskapsteori i samfundsvidenskaberne* ['Theory in the social sciences'], eds. L. Fuglesang & P. Bitsch Olsen Frederiksberg, Roskilde: Roskilde Universitetsforlag, pp. 289–324.

Illeris, K. (2012). *Læring* ['Learning'], Oslo: Gyldendal Norsk Forlag.

Ingold, T. (2000). *The Perception of the Environment. Essays on Livelihood, Dwelling and Skill*, Abingdon: Routledge.

Kristiansen, R.E. (2001). *Læstadianismen. Fremvekst og utbredelse* ['Læstadianism. Growth and spread']; http://www.love.is/roald/lestad01.htm; access date 15 October 2015.

— (2005). *Samisk religion og læstadianisme* ['Sami religion and Læstadianism'], Bergen: Fagbokforlaget.

Kåven, B., Jernsletten, J., Nordal, I., Eira, J.H. & Solbakk, A. (2000). *Sámi-dáru sátnegirji/Samisk-norsk ordbok* ['Sami-Norwegian dictionary'], Karasjok: Davvi Girji.

Lakoff, G. & Johnson, M. (1999). *Philosophy in the Flesh*, New York: Basic Books.

— (2003). *Hverdagslivets metaforer* ['Metaphors we live by'], Oslo: Pax Forlag.

Lave, J. & Wenger, E. (1991). *Situated Learning. Legitimate Peripheral Participation*, Cambridge: Cambridge University Press.

Li, L.C., Grimshaw, J.M., Nielsen, C., Judd, M., Coyte, P.C. & Graham, I.D. (2009). "Evolution of Wenger's concept of community of practice," *Implementation Science*, 4:11; DOI: doi:10.1186/1748-5908-4-11; access date 10 November 2016.

Lillevoll, T.A. (1982). "Yrkeskombinasjoner med basis i deltidsjordbruket" ['Combined occupations based on part-time farming'], thesis for the degree cand.polit., Tromsø: Department of Sociology, Political Science and Local Planning, University of Tromsø.

Mathisen, A. (2007). "Den 'tause' misforståelsen. Michael Polanyis kunnskapsteori i nytt lys" ['The "silent" misunderstanding. Michael Polanyi's theory of knowledge in a new light'], unpublished paper written at Rudolf Steiner University College, Oslo. Sociology, Political Science and Local Planning, University of Tromsø.

Norges forskningsråd (2005). *Sosial kapital* ['Social capital'], Oslo: Norges forskningsråd; http://www.forskningsradet.no/CSStorage/Flex_attachment/8212021661.pdf; access date 15 November 2015.

Nortura (2014). "Asgeir er Norges beste sauebonde" ['Asgeir is Norway's best sheep farmer']; https://medlem.nortura.no/arkiv-2014/asgeir-er-norges-beste-sauebonde-article36058-18231.html; access date 15 November 2015.

Olsen, T.A. (2008). *Kall, skaperordning og makt. En analyse av kjønn i lyngenlæstadianismen*

['Calling, creation and power. An analysis of gender in Lyngen Læstadianism'], Tromsø: University of Tromsø.
— (2013). "Lyngenlæstadianisme. Vekst, splittelse og utfordrende tider" ['Lyngen Læstadianism. Growth, division and challenging times'], *Menneske og miljø i Nord-Troms. Årbok* 2013, pp. 8–16.
Polanyi, M. (2000). *Den tause dimensjonen* ['The tacit dimension'], Oslo: Spartacus.
Putnam, R.D. (1993). *Making Democracy Work. Civic Traditions in Modern Italy*, Princeton, NJ: Princeton University Press.
Rendtorff, J.D. (2005). "Fænomenologien og dens betydning" ['Phenomenology and its importance'], in *Videnskapsteori i samfundsvidenskaberne*, eds. L. Fuglesang & P. Bitsch Olsen Frederiksberg, Roskilde: Roskilde Universitetsforlag, pp. 259–288.
Rognstad, O. & Steinset, T.A. (2012). *Jordbruket i Norge 2011. Jordbruk – Skogbruk – Jakt* ['Agriculture in Norway 2011. Agriculture – Forestry – Hunting'], Oslo & Kongsvinger: Statistisk sentralbyrå.
Rudie, I. (2008). "Tid, rom, praksis og erfaringer. Noen analytiske refleksjoner» ['Time, space, practices and experiences. Some analytical reflections'], *Norsk antropologisk tidsskrift*, 2–3, pp. 80–93.
Säljö, R. (2006). *Læring og kulturelle redskaper. Om læreprosesser og den kollektive hukommelsen* ['Learning and cultural tools. Learning processes and collective memory'], Oslo: Cappelen Akademisk forlag.
Spilling, O.R. (2005). *Entreprenørskap i et evolusjonært perspektiv* ['Entrepreneurship in an evolutionary perspective'], Arbeidsnotat 19/2005, Oslo: NIFU STEP.
— (ed.) (2006). *Entreprenørskap på norsk* ['Norwegian entrepreneurship'], Bergen: Fagbokforlaget.
Stornes, O.K. (2014). *Verdiskapingen og sysselsettingen av jordbruket i Troms* ['Value creation and agriculture in Troms County'], Norsk institutt for landbruksøkonomisk forskning, Notat 2014-4, Bergen: Norsk institutt for landbruksøkonomisk forskning [NILF].
Tsai, W. & Ghoshal, S. (1998). "Social capital and value creation. The role of interfirm networks," *The Academy of Management Journal*, 41:4, pp. 464–476.
Vatn, S., Hektoen, L. & Nafstad, O. (2009). *Helse og velferd hos sau* ['Health and welfare of sheep'], Oslo: Tun Forlag.
Wahlgren, B. (2009). *Transfer mellem uddannelse og arbejde* ['Transfer between education and work'], Copenhagen: Nationalt center for kompetenceudvikling, Danmarks Pædagogiske Universitetsskole, Aarhus University.
Weber, M. ([1920] 1972). *Den protestantiske etikk og kapitalismens ånd* ['The Protestant ethic and the spirit of capitalism'], Oslo: Gyldendal.
Wenger, E. (2004). *Praksisfællesskaber. Læring, mening og identitet* ['Communities of practice. Learning, meaning and identity'], Copenhagen: Hans Reitzels forlag.

AUTHOR

Tor Arne Lillevoll was until 2016 Associate Professor at the Department of Sociology, Political Science and Community Planning, UiT The Arctic University of Norway, Tromsø. Still he is connected to that institution, but he is now partly freelancer in planning. He has experience of development work and research in rural communities of Northern Norway, flexible education with pedagogical use of ICT, community planning, and the use of geographical information systems (GIS) in planning.

tor.arne.lillevoll@uit.no